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The Cost of Capital for KPN's Wholesale Activities

A Final Report for OPTA

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1. Introduction

This report sets out our estimates of the cost of capital for KPN's wholesale fixed line telecommunications services as an input to the calculations of price caps. The cost of capital estimates contained in this report represent updates of our estimates presented in two earlier NERA reports (the "January 2009 Reports"):

§ NERA (January 2009) "The Cost of Capital for KPN's Wholesale Activities: A 3-year Estimate for 2009-11"; and

§ NERA (January 2009) "The Cost of Capital for KPN's Wholesale Activities: A 1-year Estimate for 2007".

These reports above used data up to end October 2008. The updated cost of capital estimates presented in this report reflect market data up to 31 December 2008.

Furthermore, in this report we also respond to Oxera's December 2008 report entitled "Cost of Capital of KPN" which was commissioned by KPN. Finally, we also respond to comments made by members of the Industry Group on our January 2009 Reports.

The report proceeds as follows:

§ Section 2 presents the WACC estimates from our January 2009 Reports;

§ Section 3 presents our final updated WACC estimates;

§ Section 4 outlines our response to Oxera's December 2008 report on KPN's cost of capital; and

§ Section 5 responds to key comments made by the Industry Group on our January 2009 Reports.

2. NERA Estimates of KPN's Cost of Capital as at October 2008

Table 2.1 sets out our estimates of the cost of capital for KPN, as presented in our January 2009 Reports. The cut-off date for our January 2009 Reports was 31 October 2008. The table shows our estimates for both the WACC for 2007 and for 2009-11.

Table 2.1
NERA Preliminary Estimate of KPN Cost of Capital
(31 October 2008 "Cut-Off" Date)

	2007	2009-11
Inflation	2.2%	2.0%
Cost of Equity		
Real risk-free rate	1.5%	1.9%
ERP	6.0%	6.2%
Asset beta	0.53	0.57
Financial Gearing (D/(D+E))	33.8%	36.7%
Equity beta	0.80	0.90
Real post-tax return on equity	6.3%	7.5%
Cost of Debt		
Nominal cost of debt	4.8%	5.2%
Real cost of debt [1]	2.5%	3.1%
WACC		
Corporate tax rate	25.5%	25.5%
Real post-tax WACC [4]	4.8%	5.6%
Real pre-tax WACC [5]	6.5%	7.5%
Nominal post-tax WACC [2]	*7.1%*	*7.7%*
Nominal pre-tax WACC [3]	*8.8%*	*9.6%*

Source: NERA analysis.
Notes: (1),(2),(3) These nominal values are calculated from the relevant real values using the Fisher formula and the values for inflation. (3),(4),(5) These calculation results differ from those presented in the January 2009 reports. This reflects the correction of an error in the calculations which derived WACC values from the cost of equity and cost of debt values in the January 2009 reports.

The estimates are based on the following key principles:

§ Estimates of each component of the WACC should be internally consistent, based on objective and consistent data sources, and must be empirically verifiable.

§ Estimates of a "forward-looking" WACC to be applied over a three-year price control period to December 2011 are based on the use of a risk-free rate maturing in 2011. Our estimate of the WACC is therefore implicitly based on market expectations over the period to 2011 and therefore this single WACC estimate is appropriate for the price control period from 2009 to 2011. This approach is consistent with OPTA's methodology used in previous cost of capital decisions.

§ Estimates of the WACC should be based on the use of averages of time-series data in order to ensure that estimates of WACC parameters are not affected by temporary factors that cannot be reasonably expected to continue to prevail, such as shocks to capital

markets that cause excess volatility and factors driving the abnormally low interest rates currently observed. This approach is consistent with OPTA's methodology used in previous cost of capital decisions and in line with the approach previously accepted by the IG, (see NERA (2005)).[1]

Our January 2009 Reports discuss in detail the methodology and underlying data used to derive these estimates presented in Table 2.1. We briefly reiterate below how these estimates are derived.

Risk-free rate

§   We use Eurozone nominal government bonds to estimate the risk-free rate. We concentrate on Dutch and German nominal government bonds, noting that the German government bond market is the largest and most liquid government bond market in the Eurozone.

§   We have considered bonds which mature approximately at the end of the regulatory period, which is consistent with the methodology applied by OPTA in previous price reviews. It is important to apply a consistent methodology, to ensure that KPN recovers its costs over time.

§   We use trailing averages of yields to derive our estimate of the risk free rate. Our preferred estimate is based on 3-year averages, consistent with the length of the regulatory period. This approach has been applied by OPTA in previous price reviews. It is important to be consistent with the chosen methodology to ensure that over time KPN can be expected to recover costs. At each price review, selectively choosing either spot-rates or trailing averages depending on which method produces the higher rate would cause KPN to over-recover its opportunity cost of capital.

Equity risk premium

§   The arithmetic mean of long-term historic data is our preferred measure of the equity risk premium (ERP), consistent with the academic literature. Only the arithmetic mean adequately represents the mean of all returns that may possibly occur over the investment holding period.

§   The annual DMS Yearbook[2] contains the best historic data on market returns and the ERP. This source is widely used in regulatory settings for estimating the ERP, and is what we rely on for our estimates.

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[1]   NERA (2005) "The Cost of Capital for KPN's Wholesale Activities"

[2]   Dimson, Marsh and Staunton (2008) "Global Investment Returns Yearbook" published by London Business School.

Asset beta

§ Our primary evidence is derived from beta analysis using KPN's share price data, cross-checked with beta estimates of comparator companies. Our chosen point-estimate is within the 95% confidence interval of KPN's asset beta. We use 5 years of data to ensure the effects of business cycles and short-term market volatility do not distort the estimates.

§ We adjust raw betas using the Blume adjustment formula.[3] This adjustment formula is the preferred method amongst quality financial data service providers such as Bloomberg and Value Line. We de-lever KPN's equity beta to derive at an asset beta by applying the Miller formula, using the average actual gearing over the 5-year period.

§ We cross check our primary evidence based on KPN's beta, by looking at second tier evidence from industry comparators, using the same consistent methodology.

Gearing

§ We use the average actual gearing of KPN over the most recent year (2006 and 2008 for the two respective estimates) to derive the WACC.

Cost of debt

§ Our estimate of the cost of debt for KPN is calculated as the weighted average coupon cost of all bonds issued by KPN and outstanding as of the relevant cut-off date (i.e. 31 Dec 2006 and 31 Oct 2008).

§ Of KPN's eleven bonds outstanding at the end of 2008, only two will mature before the end of the regulatory period. Therefore, any additional issuance during the period will be small relative to the total debt outstanding prior to the start of the regulatory period. Hence, KPN's actual cost of debt will be predominantly determined by its embedded debt. This means, the actual cost of embedded debt largely determines KPN's cost of debt and the cost of debt observed in the secondary market should only be considered to the extent KPN have to refinance existing debt and to finance new capital expenditure. The method of using actual weighted coupon cost as a measure for KPN's cost of debt has been applied by OPTA in previous price reviews and has been consistently applied in our January 2009 Reports.

Inflation

§ The estimate is of annual inflation expectations, for the period over which the WACC is estimated (2007 and 2009-11), based on all information up to the cut-off date.

§ The estimates in the January 2009 reports use the latest inflation forecasts from Consensus Economics.

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[3] The formula is: $b_{adjusted} = (0.67) * b_{raw} + (0.33) * 1.0$

3. Updated (December 2008) WACC Estimates

Table 3.1 presents our final estimates of the cost of capital for KPN. These estimates are calculated using market data up to 31 December 2008 and represent updates of those estimates presented in our January 2009 Reports (re-stated in Table 2.1 above). Table 3.1 shows our final estimates for both the WACC for 2007 and for 2009-11.

Table 3.1
NERA Final Estimate of KPN Cost of Capital
(31 December 2008 "Cut-Off" Date)

	2007	2009-11
Inflation	2.1%	2.0%
Cost of Equity		
Real risk-free rate	1.4%	1.8%
ERP	6.0%	6.1%
Asset beta	0.53	0.54
Financial Gearing (D/(D+E))	33.8%	37.6%
Equity beta	0.80	0.87
Real post-tax return on equity	6.2%	7.1%
Cost of Debt		
Nominal cost of debt	4.8%	5.2%
Real cost of debt [1]	2.6%	3.2%
WACC		
Corporate tax rate	25.5%	25.5%
Real post-tax WACC	4.8%	5.3%
Real pre-tax WACC	6.4%	7.1%
Nominal post-tax WACC [2]	*7.0%*	*7.4%*
Nominal pre-tax WACC [3]	*8.6%*	*9.2%*

Source: NERA analysis
Notes: (1),(2),(3) These nominal values are calculated from the relevant real values using the Fisher formula and the values for inflation.

Our final WACC estimate for 2007 is slightly lower than what we stated in our January 2009 report. The real pre-tax WACC has decreased from 6.5% to 6.4% due to a reduction in the risk free rate from 1.5% from 1.4%.

The lower risk free rate reflects a slight change in the methodology for calculating the risk free rate: in our January 2009 report we used bonds maturing one year from the cut-off date, and used average yields over one year of historic data. Following comments received from the IG, we have revised our methodology to use bonds which mature three years from the cut-off date, and we use three years of historic evidence. The revised methodology is consistent with the approach we use for the 2009-11 estimate and is consistent with our belief that the maturity of bonds used should be equal to the length of the regulatory period.

Our final WACC estimate for 2009-11 is also slightly lower than what we stated in our January 2009 report. The real pre-tax WACC has decreased from 7.5% to 7.1%. This change is primarily due to a lower asset beta of 0.54 at December 2008 than 0.57 in October 2008, which leads to a reduction in the cost of equity from 7.5% to 7.1%. Details of the

updated beta data used as the basis for the December WACC calculation are provided in Appendix A, along with data on the cost of debt calculation.

4. Response to Oxera's Estimate of KPN's Cost of Capital

OPTA has asked NERA to review Oxera's Report entitled Cost of Capital of KPN and written on behalf of KPN.[4] This section sets out our review. First, we compare Oxera's estimate of KPN's cost of capital with our estimates. We then analyse the methodological differences between Oxera's and our approach.

4.1. Comparison between Oxera's and NERA's Cost of Capital Estimates of KPN

Table 4.1 and Table 4.2 compare Oxera's cost of capital of KPN with our final estimates. Table 4.1 shows the comparison for the WACC for 2007 and Table 4.2 presents the comparison for the WACC for 2009-11. We note that Oxera has calculated a nominal WACC and they do not present cost of capital figures on a real basis. For comparability with our estimates, we have presented Oxera's cost of capital numbers on a real basis.

Table 4.1
Comparison of NERA and Oxera Cost of Capital of KPN (2007)

	Oxera (stated in Nominal terms)	Oxera (restated in Real terms)	NERA (Real and Nominal)
Inflation		2.1%	2.1%
Risk-free rate	4.5 – 4.7%	2.4 - 2.5%	1.4%
Equity risk premium	6.0%	6.0%	6.0%
Asset beta	0.55 – 0.65	0.55 - 0.65	0.53
Gearing	25 – 30%	25 – 30%	33.8%
Equity beta	0.7 – 0.9	0.7 - 0.9	0.80
Cost of Equity			
Post-tax cost of equity	8.9 – 10.3%	6.8 - 8.1%	6.2%
Cost of Debt			
Pre-tax cost of debt	5.5 – 6.8%	3.3 - 4.6%	2.6%
Tax rate	25.5%	25.5%	25.5%
WACC			
Real post-tax WACC		5.7 - 6.7%	4.8%
Real pre-tax WACC		7.6 – 9.0%	6.4%
Nominal post-tax WACC	*7.7 – 8.7%[1]*		*7.0%*
Nominal pre-tax WACC	*10.3 – 11.7%*		*8.6%*

Source: Oxera (Dec-08) "Cost of Capital of KPN" and NERA analysis.
Notes: (1) This range is not specifically quoted in the Oxera report, but it can be calculated using other quoted values.

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[4]   Oxera (2008) "Cost of Capital of KPN"

Table 4.2
Comparison of NERA and Oxera Cost of Capital of KPN (2009-11)

	Oxera (stated in nominal terms)	Oxera (restated in Real terms)	NERA (Real Final Estimate)
Inflation		2.0%	2.0%
Risk-free rate	4.5 – 4.7%	2.5 - 2.7%	1.8%
Equity risk premium	6.25%	6.25%	6.1%
Asset beta	0.55 – 0.65	0.55 - 0.65	0.54
Gearing	30 – 35%	30 – 35%	37.6%
Equity beta	0.8 – 1.0	0.8 – 1.0	0.87
Cost of Equity			
Post-tax cost of equity	9.4 – 11.0%	7.4 - 8.9%	7.1%
Cost of Debt			
Pre-tax cost of debt	6.7 – 7.4%	4.6 - 5.3%	3.2%
Tax rate	25.5%	25.5%	25.5%
WACC			
Real post-tax WACC		6.2 - 7.2%	5.3%
Real pre-tax WACC		8.3 - 9.7%	7.1%
Nominal post-tax WACC	*8.1 – 9.0%*[1]		*7.4%*
Nominal pre-tax WACC	*10.9 – 12.1%*		*9.2%*

Notes: (1) This range is not specifically quoted in the Oxera report, but it can be calculated using other quoted values.

The comparison of Oxera's cost of capital of KPN with our estimate shows the following differences:

§   For the 2007 estimates, Oxera derive a nominal pre-tax WACC range of 10.3-11.7%. In real terms, Oxera's pre-tax WACC range is 7.6-9.0%, which compares to our central real pre-tax estimate of 6.4. Oxera's estimated ranges of both the costs of debt and the cost of equity are higher than our central estimates on an equivalent basis. These differences arise due to differences in the risk-free rate, asset beta and cost of debt assumptions.

§   For the 2009-11 estimates, Oxera present a nominal pre-tax WACC range of 10.9-12.1%. In real terms, Oxera's pre-tax WACC range is 8.3-9.7%, which compares to our central real pre-tax estimate of 7.1%. Similar to the 2007 WACC estimate, these differences arise due to differences in the risk-free rate, asset beta and cost of debt assumptions.

Below, we discuss the reason for differences in the risk-free rate, asset beta and cost of debt assumptions. We show that Oxera's higher numbers are largely the result of an inconsistent "choice" of methodology. However, in regulatory cost of capital decisions it is of central importance to apply a consistent methodology over time, as a change in methodology can lead to "windfall gains" or "losses" for the regulated company.

4.2. Risk-free Rate

We identify there three key differences between Oxera's and our methodology in estimating the risk-free rate:

§   Oxera use spot rates whereas NERA use 3-year trailing averages.

§   Oxera favour bonds with 5-7 years to maturity, whereas NERA prefer shorter maturities matching the regulatory period.

§   Oxera does not directly estimate a risk-free rate for 2009-11, instead using their 2007 estimate, justified on the basis that increased market volatility since 2007 makes it difficult to interpret more recent data. NERA uses up-to-date data for both risk-free rate estimates.

Oxera's reliance on spot rates as opposed to trailing averages is the most important reason for the difference in estimates.

The Use of Spot Rates

Oxera's risk-free rate for both the 2007 WACC and the 2009-11 WACC is based on the spot rates for Dutch government bonds on 30th June 2007. We note that bond yields increased from mid-2005 to mid-2007, and at June 2007 the spot rate was well above historical averages (see Figure 3.1 in Oxera, 2008). Oxera's methodology results in an estimate of the risk-free rate which is higher than trailing averages (over periods of up to at least 5 years).

Our approach of using trailing averages is consistent with OPTA's methodology for estimating KPN's cost of capital at previous price reviews. Using spot rates, as Oxera's approach recommends, would imply a break with the methodology followed at previous price reviews.

In the last price review in 2005, Oxera's methodology would have led to a lower risk-free rate using spot rates than trailing averages.[5] Against this background, KPN's support of Oxera's approach appears highly opportunistic, given the fact that in the past when trailing averages produced higher numbers than spot rates, OPTA allowed a higher risk free rate based on trailing averages. It is important to be consistent with the chosen methodology to ensure that over time KPN can be expected to recover costs (and is not granted "windfall gains" due to an inconsistent application of methodology). For consistency reasons, we therefore strongly disagree with Oxera's approach of using spot rates.

Besides the consistency argument, there are two additional reasons why it is preferable for regulators to base the risk free rate on trailing averages rather than spot-rates:

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[5]   In December 2005, yields on Dutch bonds were between 2.8% and 3.1%, depending on the maturity. This is lower than our estimate of the nominal risk free rate of 3.3% based on trailing averages. Hence, the use of spot rates at the time would have led to a WACC that would have been lower than the WACC recommended by NERA and allowed by OPTA. See NERA (2005) The Cost of Capital for KPN's Wholesale Activities. Nominal yields on index-linked bonds inferred from real yields (Tables 3.4 and 3.5) and average inflation expectations (Table 3.6).

1. Use of spot rates would make cost of capital estimates very dependent on the actual date of the regulatory decision (or their consultant's reports). This would lead to debate about the right "cut off" point and would increase regulatory risk. This risk can be mitigated by using trailing averages, where the final data "cut –off" point has less weight on the final decision.

2. There is evidence that financial markets exhibit "excess volatility" that cannot be explained by standard economic paradigms such as the Efficient Markets Hypothesis. The implication of this is that current spot prices do not provide complete information regarding future values. Spot prices are affected by temporary phenomena, making the use of historical averages a better guide to true fundamentals.

In summary, we believe that there is no good reason for OPTA to break with the methodology of using trailing averages in estimating the risk free rate.

Oxera's Preference for Bonds with 5-7 Years of Maturity

Oxera use yields on bonds with 5-7 years maturity which is longer than the regulatory period of 3 years. This is based on Oxera's preference for using maturities roughly equal to the average duration of the assets financed[6], rather than the length of the regulatory period. We note using a maturity which matches the regulatory cycle has been adopted by OPTA in past reviews. We discuss the rationale for our position in our January 2009 Reports on KPN's cost of capital.[7]

However, Oxera's choice of maturity does not affect their final estimate. The yield curve was approximately flat in June 2007 and hence yields are very similar across all maturities (although we note that this was only the case during late-2006 and early-2007). We discuss this issue further in Section 5.1.

Using the same Risk-free Rate for 2007 as for 2009-2011

Oxera apply their 2007 estimate of the risk free rate as their estimate for 2009-11. Oxera state that the increased volatility of yields makes data after mid-2007 difficult to interpret, as well as there being increased uncertainty about the future course of the risk-free rate. We use up-to-date market data for both periods.

Spot rates fell in 2008, and the yields on 5-7 year bonds in November 2008 were trading at levels over 100 basis points below their June 2007 levels. This means, if Oxera had applied the same methodology as they did for estimating the 2007 risk free rate, i.e. using spot rates as of November 2008 as an input for their 2009-11 WACC, Oxera's risk free rate estimate would have been significantly lower. Oxera's inconsistent methodology in estimating the risk free rate appears opportunistic.

A comparison of the relative difference between the 2007 and 2009-11 estimates for both NERA and Oxera illustrates the problems inherent in using spot rates. Our estimate of the

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[6] Note that this is different to the economic life. By "duration", Oxera mean that average time until the end of the life of an asset. They estimate that if KPN's assets last on average 15 years the average duration is currently six years.

[7] E.g NERA (2009) "The Cost of Capital for KPN's Wholesale Activities: A 3-year Estimate for 2009-11". Section 2.3.

risk-free rate increased from 2007 to 2009-11 (due to increased trailing averages) whereas the spot rates on Dutch 5-7 year bonds fell from June 2007 to Nov 2008.

Summary

Oxera's method of estimating the risk free rate is inconsistent with OPTA's methodology applied in previous price reviews in that it is based on the use of spot market data rather than time series data. In order to ensure that the regulated company is able to recover its costs over time, it is of central importance that regulators apply a consistent methodology.

Even if we accepted OXERA's approach of using spot market data, the estimates derived by OXERA are wrong. The 2009-11 WACC should be based on data up to end 2008 and the 2007 WACC should be based on data up to end 2006. Instead, of using these dates, OXERA have chosen to estimate both the 2009-11 WACC and the 2007 WACC on data in June 2007. It appears as though this date was chosen in order to derive higher WACC results.

Our overall summary is that Oxera's choice of risk free rate methodology is inconsistent with the WACC methodologies adopted by OPTA at previous price reviews and appears to be designed to lead to artificially high WACC results.

4.3. Cost of Debt

There are two main differences between the methodology used by Oxera and our approach of estimating the cost of debt:

§   Oxera takes no account of the cost of embedded debt – their estimates only reflect the current cost of debt.

§   Oxera uses spot rates to estimate the cost of debt, whereas NERA prefers the use of averages over time.

By only considering current debt costs and disregarding embedded debt costs, Oxera's approach fails to reflect the average cost of debt incurred by KPN during the regulatory period. We note, in previous price reviews OPTA have looked at KPN's embedded debt costs. Hence, Oxera's proposed methodology of using current market cost of debt is inconsistent with OPTA methodology applied at past reviews.

Embedded Debt

As at November 2008, current yields on KPN's bonds were significantly higher than the original coupon (which is what KPN actually pays on its embedded debt). KPN's actual debt costs over the regulatory period will reflect the actual costs of embedded debt and the costs of any debt raised during the period. Oxera does not consider embedded debt costs.

Oxera's argument for setting the cost of debt to the current costs of debt is to encourage KPN to finance itself efficiently. However, we do not think that it would be appropriate for OPTA to shift its cost of debt methodology to a "current" cost of debt methodology, at a time when current debt costs are high. Moreover, at the last review, KPN did not argue for a "current" cost of debt approach when the current cost of debt was lower than its embedded debt costs. This means, by shifting to a "current" cost of debt approach at this review would provide

"windfall gains" for KPN. Oxera's proposed methodology appears highly opportunistic in the current market environment.

Over the long term, our approach of using historic data on actual debt costs will take account of the impact of the current capital market conditions on KPN's debt costs. Updated WACC estimates at the next price review will take account of new debt that KPN has to finance in the next 2-3 years.

The Use of Current Yields

Oxera uses current yields to determine the cost of future debt, as opposed to historic averages. While we agree the credit crunch may be long-lasting, we disagree with the use of very short-term data to estimate a future average cost of debt.

There are good reasons for using historic averages – indeed, Oxera state them when using historic data to estimate the beta and ERP. Spot market data is very volatile and historic averages smooth over business cycles and allow a more stable estimate.

We note that had Oxera's methodology been used at the last price review, the cost of debt would have been lower than that in OPTA's decision. As at December 2005, the most recent bond issued by KPN was at a coupon of 4.0% and was trading at a nominal yield of 3.92% in December 2005.[8] With transaction costs, an appropriate range based on Oxera's methodology is 4.0 – 4.2%. This is considerably lower than a weighted average coupon of outstanding bonds at December 2005, which yielded a nominal cost of debt estimate in a 2005 NERA report of 5.15%.[9] Hence, the use of spot rates at the time would have led to a WACC that would have been lower than NERA's recommended WACC and OPTA's allowed WACC. This means that Oxera's proposed methodology appears opportunistic.

4.4. Beta

The low end of Oxera's estimated asset beta ranges are approximately equal to NERA's estimate.

There are minor differences between the two methodologies. Oxera use historic (2- and 5-year) data to estimate betas for KPN and industry comparators. This is in line with our methodology. We use market data for the 2007 and 2009-11 estimates, whereas Oxera use the same dataset (based on data up to June 2007) for both estimates. It is not clear why Oxera do not consider a consistent data set for each period.

The main reason for the higher Oxera estimates is that Oxera prefer 2-year betas whereas NERA prefer 5-year betas, with 2-year estimates currently being higher. Oxera's justification for the shorter time period is that the beta of telecommunications in the Netherlands is changing, and the 2-year data better reflects an appropriate future value than the 5-year data. Although we accept the fact that betas of integrated telecom companies may change over time, it seems unreasonable that beta of KPN's wholesale activities has changed significantly.

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[8]   See NERA (2005) The Cost of Capital for KPN's Wholesale Activities, Table 6.1.

[9]   NERA (2005) op cit. pages 27-28.

The choice of time period over which to take an average involves a trade-off between using up-to-date evidence and ensuring that temporary deviations from fundamentals and the effects of uncertainty are minimised. Taking a shorter period would give more weight to more recent data, but this would be at the expense of precision (i.e. fewer observations). We do not feel that averages over 2 years sufficiently avoid the effects of uncertainty and market volatility when estimating betas.

In our view, 5 years is an appropriate time period which is often used in the financial literature and hence we see no reason to use a shorter or longer time window.

4.5. Further Issues

4.5.1. Gearing Level

There is a small difference between the gearing estimates of Oxera and our approach. For example, for the 2007-11 WACC we use a gearing of 37.6% whereas Oxera use a range of 30-35%. This difference results from the use of slightly different time periods over which to calculate an average of KPN's actual gearing. However the differences in gearing do not have a large impact on the final WACC estimate.

4.5.2. Equity Risk Premium

Oxera recommend an ERP of 6% for 2007 and 6.25% for 2009-11. This is closely in line with our estimates of 6% and 6.1%. We note that Oxera's 2007 estimate appears to be based on the same methodology as our estimate; however Oxera's approach for the 2009-11 WACC is different from our approach.

While the numerical estimates are similar, we have some concerns with the methodology Oxera used to derive the ERP for the 2009-11WACC.

Consistent 2007 Estimates

For the 2007 ERP estimate, we use the arithmetic mean of long-term data. Our estimate is sourced from the 2006 (the most recent as at Dec 2006) version of the DMS Yearbook.

Oxera base their 2007 ERP estimate on OPTA's regulatory precedent. Oxera state that *"there is no robust evidence to suggest that the ERP has changed significantly from January to June 2007"*.[10] The regulatory decision cited by Oxera refers to an ERP estimate based on a NERA report which used the 2006 DMS Yearbook to estimate the ERP.

Hence, Oxera's estimate of the ERP for 2007 is implicitly based on the same data as NERA use.

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[10]   Oxera (2008) Cost of Capital for KPN, page 32.

Different 2009-11 Estimates

We use the same approach for estimating the ERP for the 2009-11 WACC as for the 2007 WACC. Our estimate is based on the arithmetic mean of historic data – sourced from the 2008 DMS Yearbook.

Oxera employ a different approach. They estimate the 2009-11 ERP relative to that for 2007, by making an arbitrary upward adjustment to reflect the impact of increased financial market volatility.

We agree with Oxera's assertion (for which they provide much supporting evidence) that the increased volatility in financial markets has increased the ERP since mid-2007. However, Oxera do not provide evidence that a 25 bps adjustment is an appropriate representation of this. Oxera cites a recent document by Ofcom[11] as providing regulatory precedent for 25 bps being an appropriate uplift to reflect the impact of the current financial crisis. However a closer reading of this document does not support Oxera's assertion.

In the cited document (a regulatory consultation document), Ofcom stated that it based its ERP estimate on several factors: a previous decision in 2005, changes in various sources of evidence since 2005, consideration of the adverse implications of setting an ERP which is either too low or too high, and the impact of the financial crisis. Oxera is implying that Ofcom raised the ERP by 25 bps from 2005 to 2008 solely because of the financial crisis.

In 2005 Ofcom adopted an ERP of 4.5%, the mid-point of their preferred range of 4.0-5.0%. In the 2008 document, Ofcom recommended a range of 4.5-4.75%. Hence the 2008 revision does not really reflect a 25 bps uplift, nor does Ofcom state that it does. In fact, Ofcom states that their preferred range is unchanged but then gives a narrower central range. Ofcom cites the financial crisis as one reason for adopting a value in the upper half of the 4-5% range, but also cite another – that they wish to err on the upper end of any range because the downside of a low ERP is greater than the downside of a high one. Ofcom may have increased its central ERP value by 0-25 bps, but this hardly gives a clear precedent that 25 bps is an appropriate upward adjustment to make to the ERP to account for the financial crisis.

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[11]   Ofcom (2008) A New Pricing Formula for Openreach, May.

5.   Response to Issues Raised by the Industry Group

OPTA established an Industry Group (IG) to assist them with analysing KPN's EDC cost reports. The IG includes KPN, Vodafone and the Association of Competitive Telecomoperators (ACT). Each of these three group members have made some comments on our cost of capital reports.

This section presents our responses to the comments made by the IG members.

5.1. KPN

KPN made several comments (some of which were informed by Oxera) about the methodologies used in our reports. We respond to each point individually below.

The use of a 1-year maturity period to estimate the 2007 risk-free rate

KPN made the comment that this is inconsistent given that we state that our preference is to use a maturity equal to the length of regulatory period of 3 years (and that we use 3 years to estimate the risk-free rate for 2009-11). We have accepted KPN's comment and have revised our methodology accordingly. Our final 2007 WACC estimate is based on a maturity of three years matching the length of the regulatory period. [12] This methodology is consistent with our estimate of the 2009-11 WACC. Furthermore, using a maturity which matches the regulatory cycle has been adopted by OPTA in past reviews.

The preference of a risk-free rate based on bonds with a maturity equal to the length of the regulatory period

We prefer the use of a maturity equal to the length of the regulatory period (3 years). KPN, and Oxera, prefer to use bonds with a maturity equal to the life of the asset, which is longer than 3 years. KPN stated they believe the appropriate maturity should be determined independently from the regulatory period.

There are various arguments both for the use of maturities equal to the regulatory period and for a longer period. We have outlined these arguments in our January 2009 Reports.

While we note that there are arguments for using a longer period, on balance we prefer the use of a maturity equal to the length of the regulatory period as this is consistent with OPTA's approach used in previous price reviews.

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[12]   We discuss the rationale for using a maturity which matches the length of the regulatory period in NERA (2009) The Cost of Capital for KPN's Wholesale Activities: A 3-year Estimate for 2009-11, Section 2.3.

Transaction Costs in the Cost of Debt

KPN commented that we did not take into account transaction costs caused by attracting funds.

This is incorrect. Our estimates of the cost of debt do include transaction costs of 10-15 bps per year. In our view, these sufficiently reflect all relevant transaction costs associated with debt financing.

Forward-looking cost of debt

Oxera argues that the cost of debt should be forward-looking. This point was made in their report on the cost of capital, where they exclude embedded debt costs from the calculations of the cost of debt.

We agree that the cost of debt should be forward looking, in that it should be an estimate of the cost of debt over the future regulatory period. But we disagree with KPN's view that the best method for doing so is to ignore embedded debt and focus on current yields. The cost of embedded debt is an important part of the cost of debt estimate because KPN will actually pay these costs during the regulatory period. Furthermore, a change in methodology would be inconsistent with the methodology used by OPTA in past reviews.

We set out our comments on Oxera's proposal of using current market data in Section 4.3. Our approach of estimating KPN's cost of debt ensures that KPN earns its cost of debt over time. A change towards a current approach would be opportunistic in the current environment of high current debt costs.

Finance strategy

A suggestion was raised at the IG that KPN's debt could remain low into the future because KPN could use its reported free cash flows to invest "for free" during the regulatory period. KPN commented that such "free" investing was impossible and contradicted general theories on corporate finance.

KPN also make the comment that it is inappropriate to judge one parameter of the WACC without considering others.

We broadly agree with KPN's assertion that they are continually searching for the most efficient method of financing themselves (having no evidence to suggest anything to the contrary), and that the existence of free cash flows does not allow for "free" financing.

5.2. Vodafone

Vodafone made the comment that in their view, the beta estimate was based on data which was insufficiently current. While they did not expand on this, we assume that they would prefer the use of shorter-term historical averages rather than the 5-year averages that we prefer.

We considered the appropriate time period over which to take an average for estimating the beta in Section 4.5. As discussed in the earlier section, in our view 5 years is an appropriate

time period over which to estimate a beta. We estimate the ERP using long-term data and it is consistent for us to do the same for beta.

Vodafone also made the following two comments about the regulatory process:

§   They would like the cost of capital to be determined in a consistent way.

§   They wished to highlight the risk involved with KPN having some influence over the cost of capital that it is allowed in a future regulatory period.

We agree with the first comment. Inconsistency increases regulatory risk, as stakeholders are unsure how the regulator will interpret the information available. Our approach ensures consistency with OPTA's methodology applied at previous price reviews.

KPN should be encouraged to bring forward its views on the right approach of estimating the cost of capital. It is OPTA's duty to ensure that the cost of capital of KPN is based on a transparent and consistent manner founded in sound economic principles.

5.3. Association of Competitive Telecomoperators

The ACT's submission discussed three main issues: the methodology for estimating the risk-free rate and cost of debt, the relevant beta, and compensation for inflation. We discuss each issue in turn.

The Risk-free Rate and Cost of Debt

The ACT state that the use of historic data is preferable to using only current data for estimating the risk-free rate and the cost of debt. They state several reasons for this position:

§   This approach is consistent with previous estimation methods used by OPTA.

§   The use of current data for this review would lead to a windfall gain to KPN. This occurs because current data was not used in past reviews when spot rates were below historic averages.

§   There is currently heightened uncertainty about the future course of financial series. Using current data could lead to a greater likelihood that the regulated WACC differs markedly from KPN's actual cost of finance over the regulatory period.

§   Because official interest rates are currently very low in many developed countries, it is likely that interest rates will be lower in the future than currently, meaning that current spot rates do not reflect the likely path of future rates.

The ACT also points out that Oxera selectively use forward-looking data, only using current data when it leads to a higher cost of capital. They note that spot bond yields decreased after June 2007 but this was not reflected in their estimate as at December 2008.

We broadly agree with all these statements. We use historic averages to estimate the risk-free rate and the cost of debt, in order to be consistent with OPTA's methodology applied at past reviews.

Beta

The ACT comment that the beta estimated by both NERA and Oxera is too high. Their rationale for this claim is that the market data used to estimate the beta reflects the risk of KPN as a whole, whereas wholesale activities (which the estimated beta is meant to reflect) are less risky than other operations which KPN undertakes. They state that neither NERA nor OPTA have investigated the extent to which the risk of KPN as a whole differs from that of its wholesale activities.

We have not seen any conclusive empirical evidence to support ACT's claim that KPN's wholesale activities are less risky than KPN's business risk as a whole. There is no statistical method for determining the extent to which the estimated beta for KPN as a whole differs from the beta for its wholesale activities. For instance, as part of our advice to OPTA on KPN's cost of capital, we investigated whether mobile activities would differ in beta risk compared to fixed line beta risk. Our empirical analysis on this issue was inconclusive and did not provide a sound basis to adjust KPN's overall beta. Making adjustments which are not based on sound economic principles would introduce an unnecessary degree of regulatory uncertainty and risk, which is detrimental to the company to attract capital at the lowest cost.

Appendix A.   Updated Values of the Asset Beta and Cost of Debt for 2009-11

A.1. Asset Beta

The evidence on asset beta estimates is summarised in Table A.1.

Table A.1
Asset Beta Estimates for KPN and Eurozone Telecom Companies

	6 month daily asset beta	1 year daily asset beta	2 year weekly asset beta	5 year weekly asset beta
KPN	0.46	0.46	0.50	0.49
KPN 95% conf. interval	0.41 - 0.51	0.42 - 0.50	0.42 - 0.58	0.43 - 0.54
Industry Average	0.50	0.52	0.50	0.51

*Source: NERA analysis of Bloomberg data to end December 2008. Industry comparator group includes:
Teliasonera, BT, France Telecom, Deutsche Telekom, Telefonica SA, and Portugal Telecom.*

Our analysis of returns data for KPN reveals that in December 2008 the range of <u>central</u> asset beta estimates lies between 0.46 and 0.50 depending on the considered time window. Our asset beta estimates for the European comparator telecommunications companies are slightly higher than KPN's estimated asset betas. The average asset beta of our proxy comparators ranges from 0.50 to 0.52. However we note that the beta estimate is based on a regression analysis and will therefore contain a statistical error. In Table A.1 we present the 95%-confidence interval for KPN's asset betas – that is, KPN's "true" asset beta is very unlikely to be larger or lower than these values.

Our preferred beta estimate is the 95%-confidence upper bound of KPN's 5 year beta estimate of 0.54. This is in line with the methodology used in previous NERA reports on the WACC for KPN, including NERA (2005)[13], as well as our estimation of the beta for 2007. The 95%-confidence upper bound gives us confidence that KPN's true asset beta is very unlikely to be larger than 0.54.

A.2. The Cost of Debt

NERA's approach to estimating the cost of debt is based on actual market evidence of historic debt issues by KPN. This most closely reflects both KPN's likely cost of debt finance prevailing over the near future (such as the regulatory price cap period 2009 to 2011) and historic actual debt costs.

Table A.2 presents information on the average coupons of bonds issued by KPN.

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[13]   NERA (2005) *"The Cost of Capital for KPN's Wholesale Activities"*

Table A.2
KPN's Euro Debt Issues

Issue date	Maturity	Coupon	S&P Rating	Amount outstanding (£m)
21/07/2004	21/07/2009	5.45%	BBB+	700
21/07/2004	21/07/2011	4.50%	BBB+	1425
13/11/2007	13/11/2012	5.00%	BBB+	1250
16/03/2006	18/03/2013	4.50%	BBB+	850
16/09/2008	16/09/2013	6.25%	BBB+	850
29/05/2007	29/05/2014	4.75%	BBB+	650
22/06/2005	22/06/2015	4.00%	BBB+	1000
02/04/2008	15/01/2016	6.50%	BBB+	925
16/03/2006	18/03/2016	5.75%	BBB+	275
13/11/2006	17/01/2017	4.75%	BBB+	1000
29/05/2007	29/05/2019	6.00%	BBB+	250
Weighted average [1]		**5.07%**		

Source: NERA analysis of Bloomberg data. Bonds chosen exclude callable/convertible bonds. (1) Average is weighted by amount outstanding.

According to the data presented above, the average weighted coupon of all KPN's non callable/convertible bonds outstanding at the end of December 2008 (and denominated in Euros) is 5.07%.

Only two of these eleven bonds will mature before the end of 2011. We believe that the weighted average coupon of KPN's actual debt cost of 5.07% is a reasonable estimate of KPN's cost of debt over the regulatory period.

It is important to emphasise that the costs of debt finance associated with the coupon in the table exclude the costs of issue, Bank, Legal, Trustee and Paying Agent fees. In addition, corporate issues are usually made at a discount to par to meet investors preferred tax positions (discount element of returns is treated as a capital gain). We understand that typically, an extra 10-15 basis points must be added to bond coupons for fees and discounting arrangements to adequately reflect KPN's cost of debt finance.

Therefore, our preferred estimate of the nominal cost of debt for KPN is 5.2%. This reflects both future coupon payments as well as any additional costs associated with the issuance of bonds by KPN.

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