هيئة تنظيم Regulatory Authority State of Qatar

Determination of the Cost of Capital for Service Providers (SPs) declared as having a Dominant Position

Cost of Capital 2017

Second Response document, including:

- Responses to the SPs' comments from the second round of Consultation
- A revised economic analysis; and
- The final decision on the Cost of Capital

CRARAC 2017/12/06 A December 6, 2017

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1 Introduction

- 1. This Second Response Document (SRD) summarises and evaluates the comments received from Ooredoo and Vodafone on CRA's second Consultation Document (second CD) regarding the "Determination of the Cost of Capital applicable to Service Providers (SP) declared as having a Dominant Position "Cost of Capital 2017".
- 2. This SRD also contains a revised Economic Analysis (EA), which takes account of the responses the CRA deems as relevant in the determination of the CRA's Cost of Capital (CoC).
- 3. This SRD provides the final decision on the CoC of telecommunications services during the relevant regulatory period.
- 4. The following sections provide:
 - (a) the legal basis of these proceedings, Section 2;
 - (b) the CRA's responses to comments made by stakeholders, Section 3;
 - (c) the CRA's revised economic analysis, the calculation of the Weighted Average Cost of Capital (WACC) and the final ranges of WACC estimates, Section 4; and
 - (d) the CRA's conclusions on the final value of the CoC, Section 5.

2 Legal Basis

- 6. The State of Qatar has empowered and authorized the CRA to regulate the Communications sector under the Emiri Decree No. (42) of 2014 Establishing the Communications Regulatory Authority (Emiri Decision), the Decree Law 34 of 2006 (Telecommunications Law), and the Executive By-Law of 2009 for the Telecommunications Law (By-Law).
- 7. These laws establish the objectives and legal framework for the CRA to create the appropriate legal and regulatory conditions for the development of sustainable competition in the Communications sector so that, amongst other things, telecommunications may become a factor for promoting social and economic development.
- 8. The determination of the CoC is relevant for the CRA to fulfil its own responsibilities, which are amongst others:
- 8.1 To ensure that prices and charges of SPs are cost-based and appropriately applied to products and services offered at a wholesale or retail level;
- 8.2 To encourage competition and prohibit anti-competitive practices, preventing DSPs from abusing their position of market dominance;
- 8.3 To ensure interconnection and access for all users by setting conditions for effective interconnection and access.
- 9. The CoC is a key contributor to the cost base of the SPs and appreciably determines retail and wholesale charges. This requires a CoC value ensuring that a SP achieves a fair return on capital employed (at the CoC value) and the goals of efficient prices and increased competition are adhered to.
- 10. The legal basis for CRA to determine the CoC is described in more detailed below.
- 2.1 The Emiri Decision
- 11. Under Article 4, the CRA is responsible for regulating the communications information technology and the postal sector, as well as access to digital media, with the aim of providing advanced and reliable telecommunication services across the State. Amongst others, the CRA has to:
- 11.1 Encourage competition and prohibit or minimize anti-competitive practices, prevent misuse by any person or entity of its market dominance position, and take all necessary measures to achieve this (article 4(3));
- 11.2 Protect the rights and interests of the public and SPs in the market, promote transparency and provide advanced, innovative and quality services at affordable prices to meet the needs of the public (article 4(4));
- 11.3 Ensure interconnection and access for all users by setting conditions for effective interconnection and access (article 4(6)).
- 12. Under Article 15, amongst others, the CRA has to;
- 12.1 Develop appropriate tariff regulations, giving priority to the telecommunications market, or telecommunications services according to market requirements, and determine fees for retail and wholesale services (article 15(2));
- 12.2 Ensure appropriate measures are in place to prevent non- compliance acts or activities by dominant SPs, which may significantly impact or reduce competition in telecommunications markets (article 15(4));
- 12.3 Set regulations for interconnection and access (article 15(5));

- 12.4 Develop and identify policies and regulations for all services which will foster a competitive market and serve the interests of the consumers (article 15(7)).
- 2.2 The Telecommunication Law
- 13. CRA has mandated objectives and goals to achieve under the Telecommunications Law. Article 2 outlines the main objectives that apply for the purposes of this Order:
- 13.1 Enhancing the telecommunications sector's performance in the State of Qatar through encouraging competition and fostering use of telecommunications (article 2(2));
- 13.2 Encouraging sustainable investment in the telecommunications sector (article 2(5));
- 13.3 Establishing a fair regime that meets the requirements of the competitive market place through the implementation of interconnection between SPs and all procedures related thereto (article 2(9));
- 13.4 Ensuring that the regulation of the telecommunications sector remains in line with international rules (article 2(12));
- 13.5 Ensuring the orderly development and regulation of the telecommunications sector (article 2(13)).
- 14. Under Article 19(1), the CRA is responsible for undertaking functions and duties in respect of interconnection and access to promote appropriate, effective and low cost interconnection between telecommunications networks, promote access to facilities of other SPs to ensure interoperability and promote the growth of competitive telecommunications services markets.
- 15. Article 29 requires tariffs to be based on the cost of efficient service provision without any excessive charges which may result from dominance. Under this Article 29, CRA may issue decisions to amend tariffs where it finds they are not in line with the cost of service provision.
- 2.3 The By-Law
- 16. Under Article 50(1), the CRA may require that interconnection or access charges of any Dominant SP be subject to Article (29) of the Law and Articles (56), (57), (58) and (59) of this By-Law. The CRA may also direct Dominant SPs to implement specific interconnection or access charges, or changes to such charges, as determined by CRA.
- 17. Article 50(2) requires that Interconnection and facilities access charges of Dominant SPs designated in accordance with Article (48) of this By-Law shall be cost-based and in accordance with rules or standards determined by CRA.
- 18. In establishing charges for interconnection or facilities access, Dominant SPs designated in accordance with Article (48) of this By-Law shall comply with any rules or orders applicable to interconnection or access, including any pricing, costing and cost separation requirements as prescribed by the CRA (article 50(3)).

3 Responses received during the second consultation

- 19. The CRA has received responses to its second CD from Ooredoo and Vodafone. Qnbn chose not to submit a response on this occasion.
- 3.1 General comments received from respondents
- 20. In their responses to CRA's second CD, stakeholders made a number of general comments in relation to the determination of the CoC.
- 21. This section summarises these comments and provides the CRA's responses.
- 22. More specific comments made in response to the questions set out in the second CD are addressed after this section.
- 3.1.1 Reducing the cost of capital from the previous rate is inconsistent with the risks arising from the current political tensions.

Ooredoo comment

- 23. Ooredoo does not agree with the CRA implication that the cost of capital has fallen from the previously determined rate, at a time when Qatar is faced with consequences of political and economic blockade. Moreover, Ooredoo notes that the country's sovereign rating has fallen, with the longer-term outlook stated as being negative. Finally, in Ooredoo's view, reducing the cost of capital when significant investment is going to be required to rollout 5G and ahead of the FIFA World Cup does not bode well for investors or indeed the sector as a whole.
- 24. In particular, it notes that as the local equity market has fallen further, the cost of equity is rising, partly indicated by the higher dividend yield equity investors now expect. It also states that liquidity in the Qatar economy and financial market remains challenging.

CRA response

- 25. The CRA agrees with Ooredoo that events such as those referred to can affect the CoC.
- 26. However, since the CRA has taken relevant information into account to capture the impact of such events on the CoC, it is satisfied that the concerns Ooredoo raises are dealt with.
- 27. The CRA further notes that the determination of the WACC is both a quantitative exercise and one which requires CRA to exercise its judgement in light of its regulatory objectives. Indeed, it is up to CRA to determine the final CoC by balancing carefully the impact the CoC has on operators, consumers and the functioning of the market.
- 3.1.2 The need to calculate a sustainable, forward looking Cost of Capital

Ooredoo comment

- 28. Ooredoo maintains that the CRA's approach for calculating the WACC does not sufficiently reflect the need to estimate a forward looking CoC. Although it recognises the reasons why the CRA prefers a historical approach, it continues to prefer a forward-looking approach, whereby the calculation of the WACC relies on parameters based on forecasts and forward looking estimates. For instance, Ooredoo continues to estimate the equity risk premium (ERP) using the Gordon Growth Model (GGM).
- 29. In connection to this, Ooredoo notes the CRA's view that GDP growth may not link to growth in earnings and has reviewed the MSCI Barra note referred to in CRA's previous response. This research is, in Ooredoo's opinion, flawed by the constraints imposed

by the authors (i.e. holding valuation ratios constant as one of the key assumptions of the Barra study). In Ooredoo's view, the analysis presented by MSCI Barra is dealing chiefly with whether real GDP is a good forecaster of company earnings. Although over an explicit forecast period (typically short run) it may not be, on a long run basis it is.

- 30. Ooredoo also criticizes the CRA's calculation of the implied expected return of Ooredoo's equity investors. Ooredoo argues that the GGM estimated by the CRA using Ooredoo's share prices and expected dividends does not focus on Qatar only earnings to derive a Qatar only ERP.
- 31. Finally, Ooredoo underlines that the historic and forward-looking approaches should not be mixed. For example, Ooredoo argues that the CRA should not use a forward-looking inflation parameter when estimating the WACC with historical parameters.

CRA Response

- 32. The CRA acknowledges that Ooredoo's approach can in principle be used in addition or as an alternative to the approach proposed by the CRA. However, most regulators use historic data,¹ and that where the GGM is also used, regulators have not considered the approach exclusively without taking account of historic data and trends.²
- 33. The CRA asserts that the main reason for rejecting Ooredoo's approach is its dependence on strong assumptions of future growth. The CRA notes that the equity risk premium derived by Ooredoo is more or less the sum of its assumptions about GDP growth it makes. The CRA notes that those assumptions are higher than any official forecast (such as that from the IMF), and that on balance, the use of historic data, as suggested by CRA, provides a more reliable estimate of the WACC. The CRA further considers that Ooredoo's approach is one-sided, focussing on the equity risk premium, without considering if other parameters of the WACC would change as a result of GDP growth driven by a single industry. For example, the CRA would expect that parameters such as beta would fundamentally change if GDP growth in the stock market index was based only on a single industry.
- 34. The CRA further concludes that the range of possible estimates of the WACC when considering different assumptions in Ooredoo's approach, is not dissimilar from the one estimated by CRA. For example, applying Ooredoo's approach to Ooredoo's stock directly, suggests that investors require less return on their equity.
- 35. CRA disagrees with Ooredoo's criticism of its estimate of an implied equity premium using Ooredoo's approach and expected earnings and stock prices. Ooredoo's criticism suggests that the CRA's finding is flawed, since the estimation takes account of Ooredoo's total business rather than Ooredoo's business in Qatar. However, the CRA does not agree with Ooredoo that decomposing Ooredoo's implied group ERP could result in finding a higher implied ERP for its operations in Qatar when all, but Ooredoo's international operation in Kuwait,³ take place in countries that rating agencies consider riskier than Qatar.
- 36. With regards to Ooredoo's final criticism regarding the mix of historic and forecast information (inflation forecast) used in the determination of the CRA's WACC, the CRA notes that it does not categorically reject the use of forecasts but agrees with using them if they are reliable and justified. In relation to the inflation forecasts provided by

¹ Italy: Allegato D alla Delibera n. 623/15/CONS; Spain: Resolución sobre la propuesta de TELEFÓNICA DE ESPAÑA, S.A.U., de tasa anual de coste de capital a aplicar en la Contabilidad de Costes del ejercicio 2010 (Expediente AEM 2010/128); Bahrain: 2013 Cost of Capital, Ref: MCD 02/13/018-

² In particular by the Dutch and UK regulators: OFCOM (2005): Ofcom's approach to risk in the assessment of the cost of capital, 2005, final statement; ACM (2015): The WACC for KPN and FttH, The Brattle Group report, 2015.

³ Ooredoo's operations in Kuwait represented around 7% of Ooredoo's total revenues while other international revenues represented nearly 70% of total revenues.

the IMF, the CRA believes that such forecasts are well documented, with the IMF being a highly reliable source. As such, it is reasonable to use this as an input to estimating the WACC. The CRA further notes that Ooredoo itself seems content with using a mix of historic data and forecasts, since its own estimation mixes forward looking assumptions (e.g. for estimating ERP) and parameters based on historic data (e.g. beta).

3.1.3 The need to take into account the introduction of VAT in Qatar in 2018 when setting the Cost of Capital

Ooredoo comment

- 37. Ooredoo reiterates that the introduction of VAT should be considered in the estimation of the CoC since complete pass-through to consumers is not possible. Ooredoo states it has some experience in the introduction/increase of VAT. Specifically, it states that the recent small increase in VAT in Algeria resulted in a 60% failure to pass through the increase to consumers.
- 38. Ooredoo maintains that the introduction of VAT will reduce cash flows, revenues and margins. In this regard, Ooredoo submits that it disagrees with CRA's response that there is no link between declining business margins and business risk. To illustrate this, Ooredoo provides the following example: if VAT induces lower cash flow, this may imply breaking a debt covenant, which then could lead to a host of problems, including not being able to declare dividends. Therefore, in Ooredoo's view, as the debt holders worry about the financial position of the company and its ability to pay debt interest, which will then impact company's equity shareholders, VAT can impact business risk.

CRA Response

- 39. The CRA disagrees with Ooredoo's assessment. Ooredoo's view that the introduction of VAT will affect the CoC stems from its view that a decrease in profit margins increases risk and hence the beta considered in the calculation of the WACC. However, beta measures the systematic risk of a business against a benchmark or whole market. As set out in this regulatory proceeding, the introduction of VAT may impact the profitability of a company but its impact is specifically due to an exogenous event not as a consequence of the internal operations of the company.
- 40. Despite this, following a review, the CRA accepts that there is some linkage between a reduction in margins and an increased risk to the business. However, such a link is not 'linear' and unless profit margins fall sufficiently, there is negligible business risk in falling profits.
- 3.1.4 The need to take into account inputs of brokers for the final decision

Ooredoo comment

41. Ooredoo suggests considering the input of numerous brokers representing the professional investment community. As an example of broker research, Ooredoo provides a JPMorgan Cazenove note on Ooredoo dated 20th September 2017. This broker uses base case WACC on Qatar Operations of 10.4% and up to 14.6%. Ooredoo notes that its estimation of 13.46% (submitted in response to the first CD) is within the broker's range.

CRA Response

42. First of all, the CRA notes that Ooredoo's interpretation of JPMorgan's note is misleading. JPMorgan states that it uses a WACC of 10.4% for Qatar operations. The reference to the higher level of WACC is made with regards to the range of the WACC

JPMorgan considers when looking at Qatar, Indonesia and other MENA markets.⁴ ,The CRA understands this to mean that rates different from 10.4% are applied in other countries according to their respective risk profile.

- 43. The rate of 10.4% is not dissimilar to the upper bound, within the range of CRA's WACC estimates. The CRA appreciates that this rate is higher than some of the options the CRA considered for setting the final CoC but also that it is a single estimate out of many considered. However, 10.4% is well below the range Ooredoo submitted to the CRA.
- 44. The CRA also notes that the purpose of the WACC as used in the broker report is for discounting future cash flows and as such, used in a different context than that for which the CoC determined by CRA will be used for. This could affect the broker's selection out of a range of possible WACCs considered, e.g. a conservative approach for taking account of future cash flows, i.e. different from the aspects that the CRA needs to consider for setting the CoC.

As such, the CRA considers that the broker estimate does not invalidate the CRA's range of WACC estimates but calls into question the range submitted by Ooredoo.

3.1.5 The need to provide a balanced WACC

Vodafone comment

- 45. Vodafone states that a WACC that is set too low will provide insufficient return to investors given the risk profile of the business, distort pricing signals to customers and investors and in doing so, would deter investment. Conversely a WACC that is too high will lead to excessive profits, damaging competition and consumer interest without promoting additional investment.
- 46. Vodafone therefore reiterates that the WACC should be fair and reasonable. Given this, Vodafone does not agree with Ooredoo's high value, nor QNBN's low value and the lower option proposed by the CRA.

CRA Response

47. The CRA agrees with Vodafone. The CRA's final decision follows such a balanced approach. WHY, couple of words might be useful

3.2 Specific comments to the questions included in the second CD

3.2.1 Single Industry-wide CoC

Question 1: Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide CoC?

- 3.2.1.1 Comments
- 48. Ooredoo agrees with the CRA's conclusions that a single CoC should be determined.
- 49. Vodafone has no objection to the CRA's proposal.
- 3.2.1.2 CRA Response and decision
- 50. The CRA notes respondents' acceptance and decides to set a single, industry-wide CoC.

⁴ JPMorgan Cazenove note "Ooredoo QSC", 20 September 2017: "We use in our DCF valuations risk-adjusted WACCs that vary across different opcos underpinned by their geo-political and macro risk profile, e.g. we use WACC in the range of 10.2-14.6% for Qatar, Indonesia and other MENA markets and 23-25% for Iraq and Myanmar along with a terminal growth rate of 1.5-2%."

3.2.2 Inclusion of corporate or similar taxes on a SPs' profits

Question 2: Do stakeholders agree with the CRA's view that the CoC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?

3.2.2.1 Comments

- 51. All respondents agree with CRA's view that the calculation of the WACC should not take into account any corporate or similar taxes.
- 52. Ooredoo, however, reiterates that new taxes, such as VAT, should be considered.
- 3.2.2.2 CRA Response and decision
- 53. The CRA notes respondents' acceptance of its treatment of corporate or similar taxes. The CRA has responded to Ooredoo's request to consider VAT above, in the general comments section.
- 54. Hence, the CRA decides that the calculation of the WACC should not take into account any corporate or similar taxes or the VAT.

3.2.3 Nominal WACC rate

Question 3: Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?

- 3.2.3.1 Comments
- 55. All respondents agree with CRA's view that the CoC should be based on a nominal calculation of the WACC.
- 56. However, Ooredoo disagrees with the CRA assumption that inflation in Qatar will be stable. Notwithstanding the uncertainty over the introduction of VAT, Ooredoo believes this will happen in the coming four years. Additionally, Ooredoo states it is unlikely the VAT rate will remain settled at 5%: Ooredoo suggests the weight of evidence elsewhere indicates VAT rates are adjusted to higher levels post introduction from the introductory rate. Each adjustment adds to CPI inflation at that time and a series of adjustments can perpetuate inflation over the associated period.
- 3.2.3.2 CRA Response and decision
- 57. The CRA believes that Ooredoo's arguments over the introduction of VAT are inconsistent. On the one hand, in order to justify the argument that VAT increases business risk, Ooredoo claims that VAT cannot be passed-through to consumers and will effect profits. On the other hand, Ooredoo argues that the VAT will drive an increase in inflation, which implies that the VAT can be passed through to consumers. The CRA maintains that both arguments cannot hold at the same time.
- 58. Whether VAT is inflationary depends on a number of factors: for example, wage increases, just before the introduction of the VAT, can help to stop the acceleration of inflation by compensating labour for the anticipated price increases, while economic slowdowns can make firms weary to increase prices. There have been few studies of the effect of introducing VAT on retail prices because it appears difficult to disentangle the changes in prices attributable to VAT from other influences on prices. However, after examining the experience of some developing and industrialized countries using IMF data, Alain S Tait found that there is nothing inherently inflationary about the VAT:

in some of the countries included in the sample VAT accelerated inflation, while in others this did not happen.⁵

- 59. Indeed, the CRA considers that the IMF inflation forecast used in the calculation of the WACC is likely to consider the impact of VAT on inflation and is therefore reasonable. However, as already noted in the 2nd CD, the CRA considers it appropriate to intervene and revise the CoC if factors that are beyond the normal movement of capital markets would severely affect the calculation of the WACC.
- 3.2.4 Global vs. domestic scenario

Question 4: Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 3.2.4.1 Comments
- 60. Ooredoo reiterates that only a domestic scenario is relevant.
- 61. Vodafone Qatar agrees with the CRA's proposal to consider both an international investor and a domestic investor scenario.
- 3.2.4.2 CRA Response and decision
- 62. In response to Ooredoo's comment, the CRA clarifies that the aim of the global and domestic approaches for estimating the CoC are the same. Both seek to measure the cost of providing communication services in Qatar but use different methods to do this. However, for both measures, it is not the ownership structure of existing operators that is reflected but rather the ownership structure of an efficient operator.
- 63. The global scenario takes global stock markets as a basis for estimating risk free rates and other parameters. It then adds Qatar specific risk premiums to reflect the characteristics of providing communication services in Qatar.
- 64. In contrast, the domestic approach is based on local (Qatari and MENA) bond and stock market information. The domestic approach aims to reflect Qatar specific risks and their impact on the returns sought by investors directly in the choice of financial data considered, rather than through applying mark-ups to global parameters to reflect Qatar specific risks.
- 65. Given this, the CRA continues to consider both, the global and domestic approach for calculating the WACC in the final determination.
- 3.2.5 Setting the WACC for a period up to four years

Question 5: Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?

- 3.2.5.1 Comments
- 66. All respondents generally agree with the CRA's proposal.
- 67. Vodafone adds that the WACC should be revisited should market circumstances change materially.
- 3.2.5.2 CRA Response and decision
- 68. The CRA takes note of the general agreement with its proposal and therefore proposes to maintain its approach.
- 69. The purpose of the four year period is to provide regulatory certainty.

⁵ Tait, S. A. (1987): "The value-added tax : revenue inflation and the foreign trade balance", IMF

- 70. However, the possibility of regular movements in financial markets and the underlying parameters of a WACC calculation is always to be expected during such a period. Therefore, for the avoidance of doubt, the extent to which the current and expected state of the market could change and the importance of setting a CoC that safeguards consumer interest, promotes investment and competition, is already reflected in the CRA's proposed CoC on the basis of the WACC ranges determined.
- 71. Thus the CRA will only consider revising the CoC during the proposed regulatory period if there are events of major significance that could imply significant changes to the calculation of the WACC.
- 72. A request for an earlier review could also be submitted to the CRA by SPs, accompanied by evidence of major events that could significantly change the calculation of the WACC.
- 3.2.6 Determination of the risk-free rate

Question 6: What are stakeholders' views with regard to the determination of the risk-free rate?

- 3.2.6.1 Comments
- 73. Ooredoo submits that the risk free rate for the Qatar market is correctly specified as the Qatar Government 10 year international bond.
- 74. However, it also suggests that forward estimates of the yield should be relevant. In this regard, Ooredoo notes that the Qatar 10 year yield is again increasing and may be progressing on a path of higher yields. As the main central banks plan to reverse QE (quantitative easing) over the coming four year period, Ooredoo believes it would be surprising if 3.5% remains the average Qatar 10 year borrowing rate. In its view, an upward reversion seems more likely.
- 75. Moreover, since the first Consultation Document response, some analysts have downgraded Qatar's credit rating. Therefore, Ooredoo considers that the Qatar risk free rate will need to include the spread to the US risk free rate. It calculates the sustainable Qatar default spread (1.782%) as the average of the spread at issue on 5 and 10 year Qatar bonds and average spread of 10-year Qatar bonds in the secondary market.
- 76. Vodafone refers to a number of comments they made in response to the first CD and adds that the 2-year and 3-year averages considered in the determination of the risk free rate are too backward-looking and should be complemented with estimates based on spot, 3-month, and 1-year averages, in order to demonstrate the impact of the choice of averaging period.
- 3.2.6.2 CRA Response and decision
- 77. The CRA notes acceptance of its proposal to consider the yield of the Qatar Government 10 year international bond as the risk free rate in Qatar and thus proposes to maintain its approach.
- 78. The CRA notes that one of the reasons behind the decision to consider the 10 year Qatar bond was precisely to insulate the determination of the risk free rate from the effects of QE.
- 79. With regard to Ooredoo's comment regarding the upwards path of the Qatar 10 year bond yield, the CRA acknowledges that in November, the 10 year Qatar government bond yield did increase to 3.94%, In the second CD, in reviewing the relevant parameters of the WACC, the CRA was able to confirm a temporary rise in government bond yields but it also noted that since then yields have decreased to much lower levels. The CRA did not consider it appropriate for the determination of the risk-free rate to rely on such an increase alone. This is because with respect to the increase pointed out by Ooredoo in its response to the first CD, the CRA observed that following

the initial increase, yields had decreased to levels more similar to those considered in CRA's determination of the WACC. Ooredoo argues that the yield has again increased. However, it is not possible to know if this is likely to be a longer-term increase: movements in risk free rates are to be expected and the most recent increase is no different from movements previously observed. As shown in Figure 1 below, Qatar 10-year bond yields in October and November 2017 do not show a strikingly different pattern than previous movements in the yield.



Figure 1 Qatar 10yr government bond yield, 10/11/2014 to 09/11/2017 daily, Source: Bloomberg

- 80. Indeed, calculating an average over a period of three years and taking into account the most recent data, results in an estimate of 3.5%, equal to the rate considered in the first CD. However, the CRA acknowledges that since November 2016, the rate has moved in a somewhat higher band and therefore suggests that this is reflected in setting the upper bound of the risk free rate in the domestic scenario based on average of the last 12 months.
- 81. The CRA notes that Ooredoo is correct to point out that Qatar has experienced a number of recent credit downgrades. Indeed, the CRA acknowledges that Moody's, S&P and Fitch have downgraded the country to Aa3 (negative outlook), AA- (negative outlook), and AA- (negative outlook), respectively. However, the CRA notes that these credit downgrades do not invalidate the risk free rate set by the CRA in the second CD. Indeed, the new credit rating of Moody's, which is considered in Prof Damodaran's July update of country risk premiums, implies a spread for Qatar of 0.64% (based on Credit Default Swaps (CDS). Adding this CDS to the US risk free rate of 2.25% adopted in the consultation document (which is also consistent with more recent data) would yield a Qatar risk free rate of 2.89%.
- 82. The CRA does not agree with Ooredoo's approach of adding a sustainable Qatar default spread at 1.782% to the risk free rate. Adding this spread to the risk free rate was correct in the previous submission made by Ooredoo, since in that instance Ooredoo calculated the risk free rate on the basis of US bond data. However, if the risk free rate for the Qatar market is specified as the Qatar Government 10 year international bond yield, adding an additional Qatar spread is not necessary and actually incorrect as it would double count Qatar specific country risk.
- 83. Apart from the fact that the default spread of 1.782% should not be added when using Qatar bond data, the CRA does not agree with Ooredoo's approach to estimate this sustainable Qatar default spread at 1.782%. Ooredoo calculates this value as the

average of the spread at issue on 5 and 10 year Qatar bonds and the average spread of 10-year Qatar bonds in the secondary market. The CRA does not understand why Ooredoo uses the average of 5 and 10 year Qatar bonds, when it previously stated that *"the 10-year maturity is the relevant risk free rate because we match a long-term business with this funding horizon."* The CRA has set out why it prefers a bond maturity of 10 years and any spread calculated for the purpose of estimating the country risk premium should also be based on that maturity.

- 84. In relation to Vodafone's repeated comments, the CRA refers to its responses made in the previous response document. In relation to Vodafone's comment regarding the length of historic data used, the CRA notes that it considers periods of three months current spot rates too short and potentially biased by short term events and therefore unsuitable for the determination of the risk free rate. The CRA otherwise refers to its earlier response in relation to considering the historic data of the last 12 months.
- 3.2.7 Determination of the debt risk premium and the debt country risk premium

Question 7: What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

- 3.2.7.1 Comments
- 85. Ooredoo argues that the CRA should not rely on the spread of Ooredoo bonds to Qatar bonds because of the fact that Ooredoo has Qatar state backing. The spread of 0.31% does not represent a normal private company debt risk premium.
- 86. Therefore, Ooredoo believes it is more reasonable to use the Baseline Credit Assessment for Ooredoo's credit rating according to Moody's. Moody's give Ooredoo a rating of Baa2 (S&P standalone credit profile is slightly lower at BBB-). The default spread associated with Baa2 is 1.26%, while on BBB- it is 1.63% on company credit spreads (using US Industrials debt spread over US Treasury curve for Baa2 rating). Damodaran provides country default spreads which are similar and can serve the same purpose. Ooredoo thus proposes to set the debt risk premium at 1.26% or 1.63%, on the basis of the Ooredoo BCA (Baseline Credit Assessment) derived spread based on Baa2 credit rating or on the basis of Ooredoo S&P SACP (Standalone Credit Profile) derived spread based on BBB- credit rating, respectively.
- 87. Moreover, Ooredoo questions the comparability of the benchmarks, because they span 5 years and a wide range of credit ratings. For example, Ooredoo states that Jordan, which is rated relatively low (B1), has all the risk loaded onto the country debt risk premium whilst France is a very strong credit country. Even the UK, which is the strongest credit country considered in the benchmarks, has a debt risk premium of 1.2%. Given that the UK would have the minimum country DRP, Ooredoo argues that the lower and upper bounds proposed by the CRA are not credible.
- 88. Ooredoo also proposes to set the Country Risk Premium (debt) for Qatar at 1.5%, following actual Qatar best experience (1.5% represents the best spread on issue ever achieved at 10 years tenure).
- 89. Vodafone makes no comments in addition to those provided in response to the previous CD.
- 3.2.7.2 CRA Response and decision
- 90. The CRA notes that the upper bound proposed by Ooredoo is similar to the upper bound proposed by the CRA (1.43%). However, on the basis of international benchmarks Ooredoo calculates the lower bound at 1.26%, significantly higher than the lower bound proposed by CRA.
- 91. The reason that the Ooredoo debt premium is very low is the strong backing that Ooredoo receives from the Government of Qatar, as also recognised by Ooredoo. The

CRA agrees with Ooredoo on this point. The CRA notes that it is exactly for this reason that it also considered international evidence for determining the range of the relevant debt premium, which falls well within Ooredoo's estimated range.

- 92. With regards to the comparability of the benchmarks, the CRA reiterates that the country risk is considered separately in the benchmarks and excluded from the benchmark debt premium considered in the CRA's determination of the WACC.
- 93. Given the closeness of Ooredoo's approach and the evidence set out in the 2nd CD using international benchmarks, the CRA considers that applying an approach similar to that of Ooredoo is useful to narrow the range of the debt premium considered in the determination of the WACC. The CRA also notes that Ooredoo's actual credit rating received by Moody's is A2, which implies a rating based spread of 0.25% above Qatar's Aa3 based rate of 0.64% according to Damodaran's approach. This is reasonably similar to the rate estimated by comparing Ooredoo and Qatar government bonds (i.e. estimated at 0.32%) and suggests that the approach proposed by Ooredoo can provide a reasonable proxy for the debt risk premium on this occasion. The CRA therefore applies an approach similar to that proposed by Ooredoo using the evidence provided by Damodaran on country risk premiums as a basis for setting a range of debt premiums ranging from 1.37% to 1.68% based on default spread ratings of Baa2 and Baa3 (the Moody's equivalent of the S&P BBB- rating) and subtracting the risk premium for Qatar's rating based default spread of 0.64%.
- 94. With regards to the Country Risk Premium applied to debt (CRPd) the CRA considered in the global approach, the CRA does not agree with the proposal made by Ooredoo to set the CRPd at 1.5%. This is because the issuances of debt are isolated incidence reflecting the perceived country risk at that point in time and not the current country risk over a longer period of time or future country risk. The CRA therefore maintains a CRPd at 1.36% as upper bound.
- 95. With regards to the lower bound of the CRPd, the CRA considers that its reliance on the default based spread provided by Prof Damodaran is unnecessary and potentially suffers from the fact that the rating based spread calculated by Prof Damodaran is based on all countries with the same rating as Qatar rather than a Qatar specific estimate. The CRA therefore decided to not differentiate between upper and lower bound and use 1.36% as CRPd throughout.
- 96. For the reasons set out above, the CRA sets the DRP at 1.37% and 1.68% as lower and upper bounds respectively and the CRPd applied in the global approach at 1.36% throughout.
- 3.2.8 Determination of the equity risk premium and the equity country risk premium

Question 8: What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

3.2.8.1 Comments

- 97. As in the responses to the first CD, Ooredoo takes a different approach to the CRA and derives the Qatar ERP, by using a GGM approach. Ooredoo thus stands by what it proposed in the second CD, namely that the current Qatar ERP is 9.65% and a sustainable ERP is 9.05%.
- 98. Ooredoo agrees with the CRA using Damodaran's approach for estimating the Country Risk Premium applied to equity (CRPe), that is, applying relative volatility using rating based default spreads or CDS spreads. Ooredoo states that the July update shows these to be 0.73% to 1.48%.

- 99. However, Ooredoo also states that, when applying the CRA approach, it finds errors in the calculations of the upper bounds of the CRPe estimated by the CRA. Ooredoo states that when it applies the same relative volatility approach as the CRA to the CRPd, it does not reach the same results.
- 100. With regard to the upper bound under the global scenario, Ooredoo finds an upper bound of the CRPe of 3.876%. Using the same indices and a 3 years' time frame until the end of August 2017, and assuming CRPd of 1.36% as a basis (which in Ooredoo's view is too low), Ooredoo calculates a factor of 2.85, not the 1.25 calculated by CRA.
- 101. Ooredoo also criticizes the CRA derivation of the 0.4% upper bound for the CRPe under the domestic scenario. Ooredoo believes this is a result of a number of errors, starting with the low CRPd which, in Ooredoo's view, is not an arm's length assessment of Qatar corporate debt spread because of the strong government backing enjoyed by Ooredoo. Secondly, Ooredoo underlines that the error relative to the calculation of relative volatility ratios is repeated. Ooredoo instead finds an upper bound for the CRPe of 0.9%. Ooredoo also criticizes the 0.4% value found by the CRA because it is lower than those given under the global approach provided by Damodaran for Qatar or even the United Kingdom.
- 102. With regard to the domestic approach, Ooredoo does not agree with the CRA on the lower bound of the equity risk premium set at only 0.14%. Ooredoo looks at the 0.14% determined by CRA as uplift on the credit default spread. Ooredoo does not believe Damodaran intended this be interpreted in the way CRA has done. Ooredoo believes Damodaran meant the full estimate of CRPe should be used to determine the Equity Risk Premium in the country concerned.
- 103. Vodafone makes no comments in addition to referring again to those provided in response to the previous CD.
- 3.2.8.2 CRA Response and decision
- 104. With regard to Ooredoo's preference for the GGM model, the CRA points to its response in the 2nd CD and the comments made earlier in this document.
- 105. The CRA has reviewed Ooredoo's comments in relation to the calculation of the upper bounds of the CRPe and does not find any calculation errors in its estimations. However, in reviewing the spreadsheet Ooredoo provided with its own estimations, the CRA recognizes that Ooredoo's approach follows more closely Damodaran's estimations which use two different methods for calculating the equity and debt volatilities.
- 106. The CRA has assessed the approach when applying the methodology in the same way as Damodaran and considers that the results are no longer reliable when applied directly to equity and debt data for Qatar. The CRA notes that this is likely to be the reason why in Prof Damodaran's approach broader rather than country specific debt and equity instruments are used.
- 107. As Ooredoo is probably aware, applying a ratio of 2.85 as found by Ooredoo, would result in a CRPe of almost 3.9%, i.e. an additional uplift of 2.5% on top of the CRPd. Such an uplift is, according to Prof Damodaran's calculations, which Ooredoo otherwise agree with, is an uplift of similar magnitude only seen for Venezuela, This value does not appear to be consistent with the uplifts calculated on the basis of the difference between the country risk premiums and the CDS spreads estimated by Damodaran. Indeed, apart from the uplift of Venezuela of 4.85%; a country with more challenging economic conditions than Qatar. The CRA therefore considers it more reasonable to directly apply the factor (1.15)⁶ Prof Damodaran considers for all

⁶ http://www.stern.nyu.edu/~adamodar/pc/datasets/ctrypremJuly17.xls

countries based on measuring the volatility ratio of a more diversified debt and equity indices.

- 108. This implies a CRPe of 0.2% in the case of the domestic approach and 1.56% in the case of the global approach with the latter being determined by applying the factor of 1.15 to the CRPd of 1.36% discussed in the previous section.
- 109. With regard to the CRPe under the domestic scenario, the CRA again points out that the risk free rate considered in that scenario already includes the country specific risk. The CRA therefore disagrees with Ooredoo's view that by using only the uplift on the CRPd, the CRA is understating the CRPe in that scenario. The estimation of the equity risk premiums carried out by Prof Damodaran is intended to be used in conjunction with a true risk free rate, i.e. one that is based on a global risk free instrument such as the US government bonds considered by CRA in the global scenario. Applying the same Country Risk Premium in both, the global and domestic scenarios, would imply double counting the risk premium in the domestic scenarios.

3.2.9 Determination of the gearing

Question 9: What are stakeholders' views regarding the determination of the gearing?

- 3.2.9.1 Comments
- 110. In relation to the gearing, Ooredoo submitted in its response to the first CD that it aimed for a level of around 30%. However, the CRA noted that the target Ooredoo proposed is not one that Ooredoo had yet realised and that the CRA was therefore minded to maintain its range based on Ooredoo's current gearing. Ooredoo now submits that its gearing has not fallen but that debt is lower while the market capitalization (share price) has fallen at a faster rate and also provided a number of operational reasons why the gearing is still as high as it was (primarily in relation to investments abroad).
- 111. Vodafone Qatar does not have strong objections to the CRA's proposal although notes that Ooredoo stands as an outlier in the region, with its relatively high level of gearing (42%).
- 3.2.9.2 CRA Response and decision
- 112. The CRA notes that Ooredoo accepts the CRA's review of Ooredoo's current gearing.
- 113. As already noted in the 2nd CD, the CRA finds that evidence from other countries often suggests a lower ratio of debt financing than Ooredoo's.
- 114. The CRA therefore has decided to set the gearing at the level of (32%) in both, the upper and lower scenario based on its international benchmarks.
- **3.2.10** Determination of the equity beta

Question 10: What are stakeholders' views regarding the determination of the equity beta?

3.2.10.1 Comments

- 115. Ooredoo agrees with the CRA's ranges of Asset and Equity Betas.
- 116. Ooredoo, however, maintains that there is a relationship between the beta and the increase in business risk due to the introduction (and likely gradual increase) of VAT. Specifically, Ooredoo argues that the effect of introducing VAT is "akin" to an increased operating leverage, which the CRA has well recognised as having an impact on the beta.
- 117. Vodafone submits that the range provided by the CRA appears to be reasonable. In this regard, Vodafone welcomes the changes made by the CRA in response to its comments on the first CD, including the use of local indices for the estimation of

Ooredoo and Vodafone Qatar betas, the abandonment of the "Ooredoo adjustment" and the consideration of the so-called Blume adjustment.

- 118. However, Vodafone argues that the CRA's methodology lacks clarity and that not all of the key changes made to the conceptual framework set out in the first CD are explained by the CRA. For example, Vodafone believes that it is not clear why the CRA no longer considers asset betas of regional comparators (estimated against local indices) under the domestic scenario. Vodafone would also like to understand the rational for the use of point averages in addition to rolling averages.
- 3.2.10.2 CRA Response and decision
- 119. The CRA notes respondents' acceptance of the beta ranges provided in the second CD.
- 120. With regard to Ooredoo's comment on the impact of VAT on the beta, the CRA refers Ooredoo to its earlier response in this document. The CRA further notes that its estimate of the range of asset betas of 0.71– 0.84 is higher than ranges used by regulators in other jurisdictions, as a comparison with the benchmarks provided in section 4.3.5.2 of the Revised Economic Analysis shows. Since most of the jurisdictions considered in the benchmarks have VAT far higher than planned in Qatar, any uplift beyond the current level seems unjustified for that reason alone.
- 121. The CRA acknowledges Vodafone's request to clarify the reasons why the CRA no longer considers asset betas of regional comparators and includes point average estimates in addition to rolling average. The CRA does not consider regional comparators because, as stated in the second CD, their raw betas measured against the regional DJMENA index exhibit very low R2 values. The CRA refers Vodafone to Table 9 of section 4.3.5.1 of the Revised Economic Analysis of the second CD.
- 122. Moreover, in responding to Vodafone's comments, the CRA has estimated the beta of the regional comparators against their respective local index. While their average is somewhat lower, the CRA considers that those rates generally support the estimates determined for Qatar and that for the calculation of the WACC for Qatar, the country specific evidence should be used.

123. BetaA (local index)					
SP	Asset betas				
Period	Index	2yr point avg	4yr point avg	5yr point avg	
Batelco	BHSEASI Index	0.34	0.46	0.49	
Omantel	MSM30 Index	0.72	0.69	0.66	
STC	SASEIDX Index	0.61	0.64	0.63	
Etisalat	ADSMI Index	0.59	0.40	0.43	

 Table 1: Raw beta estimates against local indices and R² for Ooredoo and regional comparator companies, Source: CRA calculation

124. Finally, with regard to Vodafone's request for clarification as to the addition of further estimations of the WACC, the CRA points to the corresponding explanations in the second CD and the fact that Vodafone asked the CRA to include additional estimates of beta using a broader set of historic data and estimation periods. Vodafone seems to suggest that it would have preferred another set of calculations based on rolling averages. However, the CRA is satisfied that its range of scenarios provides a wide enough base for a determination of the WACC and notes that Vodafone did not provide any estimation of its own to show that this is not the case.

3.2.11 Options for setting the CoC

Question 11: What are stakeholders' views regarding the options considered for setting the CoC?

3.2.11.1 Comments

- 125. Ooredoo submits that the cost of capital should be higher after taking into account the corrections applied to the CRA assumptions and adjustments to the method of calculation. Ooredoo proposes a "current" vanilla WACC of 13.17%-13.31% including updated IMF forecasts of Qatari and US inflation from October 2017 and an alternative method for the inflation forecast (putting greater weight on more recent forecasts), resulting in an adjustment factor of 1.51%.
- 126. Specifically, Ooredoo argues that the CRA should take into account that a higher CoC should be expected because of the following reasons: (i) the GCC political crisis and blockade, (ii) decreasing revenues for both Ooredoo and Vodafone, (iii) the risk factor due to the recent CRA proposals for a significant reduction in wholesale rates, and (iv) the investment necessary to deploy 5G and expand the network to meet the demand expected during the World Cup.
- 127. Vodafone submits that setting the cost of capital at 10% would be appropriate in light of the empirical evidence. Vodafone underlines that 10% is within the upper half of the ranges proposed by the CRA and would strike an appropriate balance between the different objectives of the CRA and the asymmetric risks in setting the cost of capital too low. Vodafone also states that it would be against standard regulatory practice to set the WACC too low, given the asymmetric risk to investment, and given that, by setting the WACC too low, the CRA would not satisfy its duties to promote the telecommunications sector (Article 2.1 of the Telecommunications Law) and to encourage sustainable investment in the sector (Article 2.5 of the Telecommunications Law). Vodafone thus agrees with the CRA that the empirical evidence does not support Ooredoo's proposal to set the WACC at 13.46%, QNBN's proposal of 6.18%-7.43% or CRA's lower bound option.
- 3.2.11.2 CRA Response and decision
- 128. The CRA notes that the values proposed by Ooredoo do not fall within the ranges estimated by the CRA. Much of that difference is due to the higher cost of equity estimated by Ooredoo and higher bounds of the CRPe calculated by Ooredoo, both of which the CRA does not agree with.
- 129. With regard to the reasons that would justify a higher CoC than that provided in the previous consultation, the CRA notes that most have been addressed in response to the same comments Ooredoo makes as part of its general comments. In relation to Ooredoo's comment on decreasing revenues of both Ooredoo and Vodafone and the risk factors due to the CRA's recent proposals to reduce wholesale rates, CRA notes that any determination of wholesale rates will necessarily take into account the CoC as part of the costs that operators face. As such, there is no risk to operators in that regard.
- 130. With regard to the inflation adjustment, the CRA considers that in principle all years of the forecasts should receive the same weight. Ooredoo's justification for weighing the 2018 forecast much more heavily is flawed since each year's forecast is specific for that year for reasons the IMF takes into account. As such, it is unlikely that the forecast specific to 2018 will also apply in the later years. Rather it is the case that forecasts further into the future are more uncertain. Ooredoo's approach is inappropriate for addressing this. Instead, the CRA considers a mix of historic and forecast inflation based on the simple averages over the periods 2012-2016 and 2018-2021.

- 131. The CRA notes Vodafone's acceptance of the proposed range of the WACC. Vodafone's proposed WACC falls within the ranges considered by the CRA (see following section). The CRA agrees with applying a balanced approach for setting the final WACC and the need to weight consumer interests and incentives to invest as proposed by Vodafone.
- 132. A revised range and final decision on the CoC is provided in section 5 Conclusion.

4 Revised Economic Analysis - Determination of the Weighted Average Cost of Capital

133. This section sets out the final economic analysis on which the calculation of the WACC and determination of the CoC is based. It is, in large parts, based on the first and second CDs, making, where appropriate, changes to take account of comments made by stakeholders and to reflect the CRA's responses set out in the previous section.

4.1 Scope of the Weighted Average Cost of Capital

- 134. In this section, the CRA discusses the scope of the CoC (hereafter referred to as WACC given the methodology used for calculating the CoC), i.e. whether it should be defined for the telecommunications market as a whole, for individual SPs or for individual types of telecommunication services. In doing so, CRA has benchmarked approaches taken in other jurisdictions.
- 135. The CRA is required to set regulated prices where competition is insufficient to cause prices to be set at fair and efficient levels. A fair price provides the regulated SP with sufficient funds to cover costs of production and to encourage investment.
- 136. With the objective of setting such prices, the CRA must decide whether to set a single WACC for the whole sector, or to set different values for individual SPs and/or individual services.
- 137. In making this decision, the CRA has evaluated the trade-off between the advantage of recognizing different risk characteristics for different business segments (in the current case, the legacy fixed-line copper access network in Qatar, mobile networks, and fibre-based NGA network), and the difficulty of deriving, in a robust manner, such disaggregated WACC estimates.
- 138. This topic was discussed at length in the previous consultations referred to in the preceding section and in Annex II. The first consultation highlighted that the main driver of a differentiated WACC is the asset Beta, i.e. the sensitivity of returns on an investment to systematic risks that cannot be 'diversified away' by investors.
- 139. This key parameter is affected by:
 - (a) business cyclicality (demand elasticity) affecting revenues; and
 - (b) operational leverage, i.e. the proportion of fixed versus variable costs.
- 4.1.1 The impact of business cyclicality
- 140. With regard to the first point, historically mobile businesses have been deemed to have a higher exposure to systematic risk than a fixed-line business. However, this difference has eroded over the last few years and will probably disappear in the short to medium term. This is because, from the consumer perspective, convergence implies greater substitutability between services provided over fixed-line and mobile networks.
- 141. This convergence between the systematic risk related to the mobile and fixed businesses can be observed in the convergence over time of mobile and fixed asset betas.
- 142. This is discussed by TRA Bahrain (2013)⁷, which showed that based on companies operating in Bahrain and relevant international comparators there is not a systematic difference between the asset betas for mobile and integrated SPs. TRA Bahrain also highlighted the fact that differences between fixed-line and mobile betas estimated by regulators appear to be narrowing over time. In accordance with this, TRA Bahrain

⁷ TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination

determined a single rate for the WACC to be applied to all regulatory matters in mobile and fixed telecommunication markets in Bahrain.

143. A similar case is illustrated below with the example of the UK, which shows the evolution of asset betas over time in the determination of mobile and fixed WACCs, as estimated by Ofcom.



Source: see Annex III, own calculations

Note: an implied BT Group rate was calculated for 2005 from Ofcom (2005) – Ofcom's approach to risk in the assessment of the cost of capital

Figure 2. Convergence of fixed and mobile asset betas over time, Source: Ofcom WACC determinations in fixed and mobile 2004 to 2016

- 144. The chart shows that while the first decisions available from Ofcom (in 2004-2007) estimated mobile asset betas of around 1.0 or above, these estimates subsequently declined significantly. The latest available Ofcom decision on the cost of capital in the mobile sector (from 2015) applied an asset beta of 0.6 for the mobile sector.
- 145. Fixed asset betas, meanwhile, have not changed notably over time. In 2009, Ofcom estimated an asset beta of 0.61 for BT Group, with the most recent determination in Ofcom's 2016 leased line market decision finding an asset beta for BT Group of 0.72. So while Ofcom continues to consider WACC estimates separately for different parts of the industry, primarily as a result of determining the WACC alongside each regulatory pricing decision, the comparison above illustrates that there is limited reason to do so.
- 4.1.2 The impact of operational leverage on asset beta
- 146. The greater the proportion of a businesses' costs which are fixed, the higher its asset beta is likely to be. This is because a greater proportion of fixed costs can increase business risk if revenues decline, for example in the event of an economic downturn.
- 147. A hypothesis considered in the previous ictQATAR determination was that an investment in NGA/NGN infrastructure could exhibit a higher systematic risk than other

telecommunications activities because such an investment is likely to be a largely fixed cost.

- 148. However, evidence does not support this hypothesis, particularly as broadband services become more essential: customers place an increasingly higher value on high speed broadband. Indeed, early research conducted by SPC Network found that the long-run price elasticity of demand for broadband services is -0.43, indicating that a 1 % increase in price would lead to a 0.43 % reduction in demand over the long run.⁸
- 149. The same also holds for mobile services: Grzybowski (2004) finds rather moderate elasticities for the EU countries in 1998-2002, ranging from -0.2 to -0.9; Hausman (1999) and (2000), finds a price elasticity of access to mobile services of -0.51, using aggregate data on 30 U.S. markets for the period 1988 to 1993; using data on 64 different countries, Ahn and Lee (1999) estimate an average elasticity of -0.36; finally, summarizing the results from different studies by DotEcon, Frontier Economics and Holden Pearmain, the UK Competition Commission (2003) reports own-price elasticities of mobile subscriptions between -0.08 and -0.54, while for mobile calls, own-price elasticities between -0.48 and -0.62.⁹
- 4.1.3 Conclusion on the Scope of the Weighted Average Cost of Capital
- 150. As considered in the previous consultation, the calculation of separate WACCs for different business segments appears to be problematic in practice.
- 151. For example, with the horizontal consolidation of fixed and mobile SPs, the set of pure fixed or mobile companies required to reliably benchmark the difference between the asset beta of fixed and mobile operations has diminished.
- 152. An alternative approach, of considering the relative weight of fixed and mobile assets within integrated SPs, is likely to be computationally challenging, so bringing into question the robustness of the resulting beta estimates.
- 153. Given these practical issues are still in place and reflecting the increased technical and market convergence between fixed and mobile services, the CRA maintains the position developed during the previous WACC determination, that is setting a single WACC for the entire telecommunications sector, which will then be applied in all regulatory and competition matters that consider the WACC as an input.
- 4.2 Framework for estimating the Weighted Average Cost of Capital
- 154. This section considers three matters of principle in relation to the determination of the WACC. The first concerns the way in which tax and inflation is considered in the estimation and benchmarking of the WACC. The second considers different ways for quantifying the WACC and how CRA can ensure that the final WACC value stemming from this Consultation reflects the market situation in Qatar. The third considers the validity period of the WACC determination and whether or not this has any implications for the way in which the WACC is estimated.
- 4.2.1 Reflecting tax and inflation in the determination of the Weighted Average Cost of Capital
- 4.2.1.1 The effect of taxation
- 155. How tax should be considered in the determination of the WACC depends on how the WACC is used in the regulatory process. Specifically, if a regulated SP's cost base

⁸ Cadman, R. and Dineen, C. (2009): "Price and Income Elasticity of Demand for Broadband Subscriptions: A Cross-Sectional Model of OECD Countries," SPC Network, available at http://spcnetwork.eu/uploads/Broadband_Price_Elasticity.pdf

⁹ Dewenter, R. and Haucap, J. (2008): "Demand Elasticities for Mobile Telecommunications in Austria", Jahrbücher für Nationalökonomie und Statistik / Journal of Economics and Statistics, Vol. 228, No. 1, pp. 49-63.

includes taxation on profit as a dedicated cost category, an allowance for this tax should not be included in the WACC.

- 156. If a tax is not specifically considered in a SP's cost base, it must be taken into account in the WACC to ensure that the return a SP is able to generate takes into account the deduction of tax. If it were not included here, a SP would be unable to compensate investors according to their expectations.
- 157. Taking these factors into account, regulators typically distinguish between three types of WACC:
 - (a) Pre-tax WACC = g.RD + (1-g)/(1-t).RE
 - (b) Vanilla WACC = g.RD + (1-g).RE
 - (c) Post-tax WACC = g.(1-t).RD + (1-g).RE
- 158. The **pre-tax WACC** includes an allowance to recognise the fact that the return calculated by the cost of capital will be considered as a profit for tax purposes. This is done by applying a "tax wedge" 1/(1-t) to the cost of equity, which has the effect of increasing the cost of equity and hence the WACC. A similar tax wedge is not applied to debt, because returns on debt finance are typically not taxable.
- 159. A **post-tax WACC** is used when the regulatory regime explicitly treats tax expenses as a recoverable allowance in the regulated business' costs e.g. in a cost plus regulatory regime. A post-tax WACC is also considered in the context of regulatory accounting where the actual tax payments are attributed to separated accounts on the basis of the relative profits generated by the separated services.
- 160. A **vanilla WACC** is typically referred to when any impact of tax on the WACC is disregarded, for example for comparative reasons.
- 161. The CRA considers that the most likely circumstance of it using the WACC is in connection with regulatory accounting information; for example for determining cost based regulated wholesale prices using Ooredoo's separate regulatory accounts. Any corporate tax or similar obligations, such as contributions to DAAM¹⁰ or other profit related Industry or Licensee Fees, would be considered as a separate cost item in that case.
- 162. The CRA has also considered whether the fact that a value added tax (VAT) may be introduced in Qatar during the period for which the CoC is now being determined should affect the calculation of the WACC.
- 163. The CRA considers that introducing VAT may affect retail prices or revenues (or both). The extent to which the introduction of VAT could impact on access seekers' and access providers' sustainability depends on the structure of demand and the nature of competition. That is, the impact on retail revenues will depend on the ability of SPs to pass through the tax to consumers through an increase in retail prices. This is subject to consumers' price elasticity (i.e., price elastic demand could result in lower revenues, as it means Service Providers are not able to pass on the tax through higher prices). However, a reduction in revenues not synonymous to an increased risk that a company may not be able to recover its costs, as this only depends on the extent to which revenues exceed costs.
- 164. Overall, the CRA considers that estimating the specific impact of the introduction of VAT would be highly speculative. Indeed, it believes that, for the determination of several WACC parameters, including benchmarks from countries with VAT levels far

¹⁰ Social and Sports Activities Support Fund

higher than the rate currently considered in Qatar sufficiently addresses any possibility that the introduction of VAT could have an impact on the CoC.

- 165. The CRA also notes that it is still unclear when and in what exact form the VAT in Qatar will be introduced. The CRA understands that the law, in its draft form, is still being discussed by the Ministry of Finance. In order for the VAT to take effect, the law as well as the relevant by-law need to be published and implemented and it is at this time uncertain if this can happen within the originally envisaged time-frame.
- 166. The CRA therefore considers that any additional recognition of any tax in the calculation of the WACC is unnecessary and sets a vanilla WACC. However, should the need arise to consider a tax as part of a WACC, for example when using the WACC in the context of determining costs using a bottom-up modelling approach, the CRA will then determine a corresponding adjustment to the WACC as part of these proceedings.
- 4.2.1.2 The effect of inflation
- 167. Inflation is taken into account when determining the WACC because what matters to investors are the real returns they receive which implies that nominal returns must also account for the loss in purchasing power as a result of inflation. In line with international regulatory precedents, the CRA considers that there are two possible ways of allowing for inflation: either the regulatory asset base (RAB) is adjusted for inflation and a real WACC is applied, or the necessary compensation for inflation is provided by the WACC itself, which is calculated on a nominal basis.
- 168. The previous determination set a nominal WACC. This is because the regulatory regime employed in Qatar is generally concerned with current prices and current costs and therefore nominal values apply, in line with similar regulatory practices in other jurisdictions.
- 169. The use of a real WACC could also be considered when the rate of inflation is erratic or prone to sudden changes which could potentially imply that regulated prices set using a nominal WACC may not be sufficient to recover the actual cost an operator incurs. In this case, it could be more appropriate to determine regulated prices using a real WACC, with those prices being regularly updated to account for expectations of short term inflation.
- 170. However, apart from a period between 2005 and 2010, Qatar has enjoyed a stable inflation rate, similar to that of the US. The unusual rise in consumer prices prior to 2010 was largely due to rising property prices, demand pressures for goods & services and depreciation of the US Dollar against major currencies. Inflation slowed down sharply to -4.9% in 2009 due to the global financial and economic crisis. Between 2010 and 2016, the inflation rate was again stable within the range of 1%-3%. This is also shown in Figure 3 below.



Figure 3. Qatar and US inflation, annual %, Source: IMF and Qatar MDPS, May 2017¹¹

- 171. The CRA expects inflation to remain at reasonably constant rates in the near future. Indeed, the CRA expects that the persistent drop in global oil and gas prices and intensified competition in the gas market will counterbalance the pressure population growth continues to exert on land prices. In conclusion, since the risk of significant fluctuations in the inflation rate is unlikely, revenues are not linked to macroeconomic fluctuations in the CPI and a nominal WACC is therefore appropriate.¹²
- 172. Therefore, the CRA does not see any need to consider the use of a real WACC.
- 4.2.2 Defining the business for which the Weighted Average Cost of Capital is estimated
- 173. When estimating the WACC it is important to consider how the method of estimation best reflects the required return for investing in the provision of telecommunication services in Qatar. That is, regardless of the structure of companies present in Qatar and their individual international exposure to risks, the purpose of determining the WACC for regulatory purposes in Qatar requires an assessment of the non-diversifiable risk of investing in Qatar alone.
- 174. In other words, the WACC determined in this process should not depend on whether those services are provided by an SP only present in Qatar, an internationally diversified group of companies operating out of Qatar or an internationally diversified company with a Qatari subsidiary.
- 175. The previous consultation recognised SPs are often part of larger international groups. The stocks of such SPs are unlikely to be suitable for estimating the Qatar specific

¹¹ The IMF provides data on the US inflation rate over the period 1990-2016 and on the Qatari inflation rate over the period 1990-2015, http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx. The 2016 Qatari inflation rate is taken from the National Statistics Office of the Qatar Ministry of Development Planning and Statistics, www.mdps.gov.qa/en/statistics1/. Since the IMF data for Qatar is also taken from the Qatar National Statistics Office, we believe that the 2016 data is consistent with the 1990-2015 estimates.

¹² The impact of inflation on the calculation of the WACC, given the choices for measuring the different parameters for calculating it, is considered separately in Section 6.

WACC directly even if they operate in Qatar. The estimation will therefore also need to consider the country specific risk of investing in Qatar separately.

- 176. Considering the two biggest telecommunications companies present in Qatar, the above discussion becomes very clear. For instance, Ooredoo has broadened its reach from its domestic market to now have operations in over 16 countries across the Middle East, North Africa and Asia Pacific regions. Ooredoo has 95 million mobile subscribers around the world, and Qatar accounts for only 3 million of these.
- 177. Similarly, Vodafone's Qatar operations represent only a small fraction of its total business: in Qatar the company has only 1.5 million mobile subscribers and 6,000 broadband subscribers, out of 430 million overall mobile subscribers and 14 million overall broadband subscribers.¹³
- 178. Having made the same observations during the previous procedure for determining the WACC, the final determination considered two methods for estimating the WACC:
 - (a) a domestic scenario; and
 - (b) a global scenario.
- 179. The **domestic scenario** calculated the RF and beta on the basis of Qatari and MENA bond and stock market information; whereas the **global scenario** estimated the parameters on the basis of global mature stock market indices considering Qatari information as a basis for calculating country specific risk premiums for debt and equity.
- 180. The questions of whether and how to adjust for local/non-local operations, and whether WACC parameters should be derived from local or international stock market indices has been dealt with differently by different regulators.
- 181. Below, the CRA looks at the precedent on both of these points.
- 182. In considering, first, whether to adjust the WACC for local/non-local operations, the CRA looked at two regional approaches Bahrain and Jordan.
- 183. In considering, second, how to make the adjustments, the CRA additionally looked at one European approach that used by Ofcom.
- 4.2.2.1 How have regulators made adjustments for local/non-local operations?
- 184. TRA Bahrain does not make an adjustment for local/non-local operations. In order to find the asset beta ranges for domestic and international investors respectively, it takes an average across Zain, Batelco, and STC in three estimation categories: 2-year weekly, 5-year weekly, and 5-year monthly. Rather than accounting for the companies' local/non-local operations, it simply regresses the returns on Zain, Batelco, and STC equity (respectively) on the returns on each of (i) the domestic equity market where the companies are listed, and (ii) the world equity market (the FTSE All World). The final WACC is based on an average of the estimates.
- 185. **TRC Jordan** makes an adjustment for local/non-local operations. While Jordan Telecom Group (JTG) is a Jordanian corporation, Zain Group and Batelco Group are internationally-diversified corporations with Jordanian subsidiaries. Zain Jordan is nearly wholly-owned by Zain Group and makes up only around 12% of Zain Group's revenues, while Umniah is part of the Batelco Group and makes up around 21% of total group revenues. As a consequence, the beta estimates of Zain Group and Batelco Group are not relied on, as they reflect the systematic riskiness of the entire group relative to their local reference index, rather than the risk specific to their Jordanian subsidiaries. Instead, the TRC assumes that Zain Jordan's and Umniah's betas are affected by the risk of the Jordanian revenue share in a similar way to JTG's mobile

¹³ Telegeography, April 2017

business. The TRC's view is that Umniah's and Zain Jordan's betas should therefore be based on that estimated for JTG's mobile division, Orange Jordan.

- 4.2.2.2 Have regulators compared local or international stock market indices?
- 186. **TRA Bahrain** estimates asset betas for domestic and international investors separately (as it does for all elements of the WACC), to account for the fact that some investors in the domestic market may not always hold investment portfolios that are internationally diversified. That is, they may be subject to some degree of 'home bias' in their investment choices. The corresponding estimates feed into the TRA's domestic and international estimates of the WACC which are considered in an average for the final determination of the WACC.
- 187. **TRC Jordan**, on the other hand, only calculates asset betas on the basis of the domestic stock market: the Jordanian stock market index (the Amman Stock Exchange General Index). The TRC justifies this decision by observing that this is in line with investors' probable market portfolio: 'home bias' leads investors to favour stocks in their home market.
- 188. **Ofcom** also makes its calculations of asset betas on the basis of a comparison against a domestic index – the FTSE All Share. Although Ofcom also calculates asset betas on the basis of a comparison against the FTSE All World index, it uses the asset betas from the FTSE All Share calculation in its final estimation of the WACC. Ofcom justifies this decision slightly differently to TRC Jordan, however, by not only pointing to the 'home bias' of investors, but also to the fact that the FTSE All Share is a well-diversified index with high levels of liquidity. Ofcom also makes reference to literature from NERA and Legg Mason which supports the idea that 'home bias' has a significant impact on investors' choices.
- 4.2.2.3 Conclusions
- 189. Consistent with the approach considered in the previous determination of the WACC and corresponding regional precedent, the CRA implements a global and domestic approach for the calculation of the WACC.
- 4.2.3 Period over which the Weighted Average Cost of Capital determined in this Consultation is valid
- 190. Finally, the CRA also considered the period of validity for the WACC determined in this proceeding.
- 191. A variety of validity periods have been used by other regulators when determining the WACC, often 5 years or less.
- 192. For example, the UK, the UAE, and Portugal have all previously set WACC for a period of 1, 2, and 3 years respectively. TRA Bahrain set the WACC for a period of three to five years in 2013.
- 193. Regulators have either revised the WACC whenever a decision on regulated prices was considered, (e.g. Ofcom in the UK follows this approach) or set the WACC for a given period, with that WACC then being used in all determinations over the period.
- 194. The CRA is of the view that a determination of the WACC over a period of time is a reasonable approach for implementing reliable regulation that provides affected SPs and their investors with regulatory certainty over a reasonable planning horizon. As such, the CRA considers that the WACC determined as a result of this proceeding should be valid for a certain period of time and not be updated for any specific regulatory determination.
- 4.2.3.1 Conclusion
- 195. In keeping with the previous determination, CRA is setting the WACC for a period of up to four years is reasonable and consistent with the benchmarks. This is because

the CRA does not expect a significant change in the structure of the market or the nature of the services provided during that period.

- 196. This does not mean that CRA does not expect there to be significant technological changes (on the contrary, CRA recognises that new technologies, such as 5G are likely to be launched in this period). However, the fundamental structure of services is unlikely to change. It is therefore also likely that there will not be any major changes to the risk profile of the sector.
- 197. Whilst the CRA does not currently expect any major changes to the market debt and equity returns underlying the calculation of the WACC, there could obviously be reason why the WACC could change over the next four years. Aspects such as major changes in inflation or credit default risks or major global economic events affecting the market as a whole could affect the WACC.
- 198. The CRA will monitor these aspects whenever the WACC is used for the purpose of regulatory decision making and will consider making adjustments to the WACC should it find that the original WACC, determined as a result of this proceeding, is no longer suitable to reflect efficient costs. However, the CRA notes that during the regulatory period, no changes will be made to the CoC determined as a result of this procedure as a result of normal fluctuations in the data considered for the calculation of the WACC.
- 199. For the avoidance of doubt, the CRA does not consider there to be any link between the period for which the WACC is estimated and the periods considered when selecting data for the purpose of estimating the parameters of the WACC.

4.3 Calculating the Weighted Average Cost of Capital

- 200. While the WACC and CAPM formulas are quite simple, the determination of each of the parameters can be a complex task. In this section, possible methods to calculate the parameters of the WACC are discussed. For each parameter, the methodology adopted in the last consultation is summarised, followed by a description of the approach used to determine that parameter in the current process.
- 201. For each parameter and where such a distinction is relevant, this section sets out the global and domestic approach for estimating the WACC and reports both estimates in parallel.
- 202. In the domestic approach only Qatari and regional SPs are considered when estimating parameters such as betas. On occasion, the estimate of a parameter may be limited to a single SP, e.g. Ooredoo. However, the fact that only a single SP is considered does not imply that the corresponding WACC is only relevant for that SP. Rather, it is a consequence of only one particular SP having the relevant information required for the parameter estimation. For example, only Ooredoo has debt issued in Qatar which can be used for the determination of a domestic debt premium. The CRA nevertheless considers that the corresponding result equally applies to all SPs, and all policy decisions considering the WACC, unless otherwise specified.
- 4.3.1 Risk-free rate
- 203. Based on the two methodologies considered for the estimation of the WACC, global and domestic, the CRA considers two approaches for determining the RF.
- 4.3.1.1 The global approach
- 204. When implementing the **global approach**, estimates should be based on government bonds from countries with the best global credit rating. This is typically considered to be countries with AAA or Aaa (Moody's) ratings. For comparison, Qatar's credit rating is AA (or Aa2 for Moody's).

- 205. This means that for an international investor, a Qatari government bond already includes some degree of risk which it can avoid by obtaining a government bond from the US or Germany (considered to be more "riskless" assets).
- 206. When considering the global approach, the CRA therefore uses the government bond yields of the two largest economies with a AAA credit rating, US and Germany using the Bloomberg 10 year bond indices (USGG10YR Index and GDBR10 Index). Figure 4 shows the bond yields for the last 5 years.



Figure 4. Yields of US and German government 10-year bonds, Source: Bloomberg

- 207. It is noticeable that German bonds (DE 10y yield in the graph) quote significantly lower yields than US bonds (US 10y yield in the graph). However, this may be driven by statutory obligations for some market participants to hold German bonds, which are likely to cause an artificially inflated demand and rates that are below a "market price" for German bonds.
- 208. Given that the US debt markets are the most relevant base for Qatar and Ooredoo debt costs (with bonds issued in USD and priced from the US Treasury curve), CRA sets the RF based on the US 10-year government bonds yields calculating an average for the last two years.
- 209. The CRA notes that 10 year US government bond yields prior to 2013 were particularly low in comparison to more recent rates. The CRA therefore estimates the risk free rate on the basis of the 3 year historic average. The corresponding rate used in the global approach using US 10y daily bond yields over the 3-year period (2014-2017) is thus equal to 2.25%.
- 210. The CRA also reviewed decisions based on a global approach for estimating the RF from regulators in other jurisdictions.

Country	Year of source document	Nominal RF
Bahamas	2015	2.5-3.9%
Bahrain (global approach)	2013	3.5-4.0%
Belgium	2014	2.63%
Sweden	2011	3.7%
Italy	2010	3.9%
UAE	2012	3.07%
Luxembourg	2013	3.3%
Norway	2013	4.5%
Average		3.5%
Median		3.6%

Table 2. Benchmarks of RFs using global securities, Source: see Annex III

- 211. Table 2 shows that international benchmarks of the risk free based on a global estimation approach range from 2.5% to 4.5%. CRA's estimated global rate (2.25%) falls below that range.
- 4.3.1.2 The domestic approach
- 212. The **domestic approach** considers Qatari government bonds as a basis for the "riskfree" rate. This recognises that any investor seeking to invest in Qatar's telecommunications sector would also bear the risk of investing in Qatar more generally. That is, prior to considering any corporate equity or debt specific risks, an investor must already be able to earn a corresponding return for the Qatar specific risk he will face.
- 213. The return on government bonds will depend on when a bond is due to mature. As with the previous determination, the CRA uses 10 year bonds when determining the RF. The 10 year bond is appropriate because it still exhibits sufficient liquidity to provide reliable estimates of the yield investors can expect from a "risk-free" investment (i.e., bonds with longer maturity are less frequently traded, which can imply that the observed yield is one that is no longer reflective of the yield investors would obtain if a trade was to take place).
- 214. Whilst shorter maturity bonds are also frequently traded, they may not be appropriate for determining the RF. This is because these bonds are often subject to secondary trading by central banks (e.g. with measures of "quantitative easing" central banks buy short term government loans in an attempt to increase the amount of money supplied in an economy). As a result of this, yields on such bonds can be distorted as a result of the artificial demand central banks are creating for the bonds. Central banks typically engage in this practice using shorter maturity bonds because the volume and liquidity of such bonds is much greater (than longer term bonds) and the impact of the measure therefore less pronounced.
- 215. For estimating the "risk-free" rate, the CRA has used the yields of Qatari government bonds. Again CRA considers bonds with maturity of 10 years. Figure 5 shows the weekly bond yields for the last 3 years (2014-2017), which is the maximum period available for the type of bond considered. Specifically, CRA uses the USD Qatar International Bond BVAL 10 year, as provided by Bloomberg, which is populated with USD denominated senior unsecured fixed rate bonds issued by the Qatar Government.





- 217. The RF under the domestic approach using the 3-year evidence outlined above is equal to 3.5%. The CRA nevertheless observes that the range of bond yields observed more recently is somewhat higher than in the past and considers that the average of the bond yield over the last 12 months (at 3.7%) should be considered as the upper bound under the domestic approach.
- 218. The CRA has also reviewed recent decisions on the RF considered in domestic scenarios in other jurisdictions. Table 3 below summarises the benchmarks.

Country	Year of source document	Nominal RF
Portugal	2013	3.96%
Netherlands	2015	1.49%
Bahrain (domestic approach)	2013	4.4-4.9%
Denmark	2013	1.45%
France	2013	3.7%
Sweden	2014	2.92%
UK	2016	4.3%
Average		3.4%
Median		3.8%

Table 3. Benchmarks of RFs using domestic securities, Source: see Annex III

- 219. Benchmark rates using a domestic approach show a wider range (1.45% 4.9%) than the one established by benchmarks using a global approach. This is likely to be the result of those benchmarks reflecting wider range of country specific risks being reflected in the estimate of the (domestic) RF. CRA's own estimate of the domestic RF at 3.5%-3.7% falls well within that range.
- 4.3.1.3 Conclusion
- 220. Given the evidence discussed above the CRA sets the following RFs:

- (a) Under the global scenario, a range with the lower bound based on a the RF as calculated in this section and the upper bound based on the average rate according to international benchmarks. This is more conservative than using the entire range suggested by international benchmark. The corresponding range is 2.25% to 3.5%.
- (b) Under the domestic scenario, a RF of 3.5% to 3.7% based on the CRA's own estimate, without reference to international benchmarks. This is because the relevance of the international benchmarks is likely to be limited in this case, given that the estimates reflect country specific risks that are unlikely to be relevant for the WACC in Qatar.
- 4.3.2 Cost of debt: Debt risk premium
- 221. Along with the RF, the DRP is one of the components of the cost of debt. It measures the additional required return, over and above the RF, required by a lender to invest in the corporate bond market in Qatar. This premium compensates lenders for the risk of credit default, and also for the opportunity cost of funds loaned. All else equal, the larger the debt premium, the greater the cost of debt, and as a result, the higher the estimate of WACC.
- 222. The previous determination of the WACC measured the DRP as the difference between a yield on a 11 year Qtel bond with maturity in 2025 (adjusted to reflect a 10 year bond) and the yield on 10 year US government bonds (also considered for the RF). This led to a yield spread of 1.1%, based on a 2 year average corporate bond yield of 4.65% and an average US government bond yield of 3.54% over the same period. This was then rounded to a DRP of 1%.
- 223. In keeping with the previous approach, at first the CRA looks into measuring the DRP by comparing the yield on Ooredoo's corporate bonds with appropriate government bond yields, to estimate the additional returns that debt holders seek in compensation for the additional risks faced when financing telecommunications operations in Qatar, over and above the RF.
- 224. For this purpose, the CRA has considered Ooredoo's corporate bond yields (UICTQTEL Index) against Qatar government bond yields, reflecting the fact that Ooredoo is a Qatari company. However, the CRA does not intend to include any country specific debt premium over that included implicitly in the RF calculated under the domestic scenario. The corresponding yields for Ooredoo and Qatari government debt are shown in Figure 6 below.



Figure 6. Yields of and Ooredoo and Qatar government 10-year bonds, Source: Bloomberg

- 225. When measured over the 3-year period 04/2014-03/2017, the average spread between weekly Qatari government and Ooredoo 10 year bond yields is equal to 0.31%. This value, however, does not represent a company debt risk premium on an arm's length basis. The CRA considers that the reason that the Ooredoo debt premium is very low is the strong backing that Ooredoo receives from the Government of Qatar. In order to estimate a DRP unaffected by this issue, the CRA applies an approach based on evidence provided by Prof Damodaran on country risk premiums.
- 226. Specifically, the CRA notes that Ooredoo's credit rating of A2 would suggest a risk premium of 0.25% according to Prof Damodaran's analysis on country risk premiums for the same rating, not dissimilar from the 0.32% that is estimated using information on government and Ooredoo bonds. This suggests that a similar approach could be applied for estimating the DRP for ratings excluding the effect of Ooredoo's government backings. Such ratings exist from Moody's and S&P which rate Ooredoo at Baa2 and BBB- (equivalent to a Moody's rating of Baa3) respectively. The corresponding rating based default spreads according to Prof Damodaran's analysis are 1.37% and 1.68% after subtracting the Qatar rating based default spread of 0.64%.
- 227. If the global approach is used for determining the RF, the estimation of the cost of debt also needs to consider a country specific risk premium. (The domestic approach already considers the country risk premium as part of the "risk-free" rate of return on Qatari government bonds.) This is because the risk associated with investing in Qatar compared to larger AAA rated jurisdictions is not taken into account when the RF is based on government bond yields from the US. This is considered in the following section.
- 4.3.2.1 The global approach for estimating the Debt Risk Premium
- 228. In addition to the DRP estimate set out above, the global approach for estimating the WACC also needs to take into account the specific risk of investing in Qatar. For this we estimate the additional risk by considering the yield spread over the 3-year period 2013-2017 of weekly Qatari and US government bonds¹⁴. This is shown in Figure 7 below and results in an average spread of 1.36% based on the 2014-2016 average.

¹⁴ USD denominated



Figure 7. Yields of US and Qatar 10-year bonds, Source: Bloomberg

- 229. Under the global approach, CRA therefore applies an additional mark-up for the country risk premium of 1.36%.
- 4.3.2.2 Benchmark evidence of the Debt Risk Premium
- 230. The CRA considers that the use of international benchmarks provides useful evidence on the cost of debt without Qatar specific distortions, such as the Government's strong backing of Ooredoo. Such benchmarks provide a range of debt premiums required for the provision of communication services, irrespective of the country (and hence country risks) in which those companies operate.
- 231. However, the CRA acknowledges that the operators in the range of countries considered may differ in many ways from operators in Qatar and may also differ in their creditworthiness in ways different to those by which their respective countries differ from Qatar. The final calculation of the WACC will therefore also consider a debt risk premium entirely based on the Ooredoo parameters.
- 232. The following table sets out a range of DRPs from other jurisdictions. This also sets out the country DRP as estimated by the relevant regulatory authority.

Country	Year of source document	Debt risk premium	Country debt risk premium	Total cost of debt (over RF)
Bahamas	2015	1.65%	1.9%	3.55%
Bahrain	2013		1	.7-2%
Jordan	2017	0.3%	3.9%	4.2%
UAE	2012	1.12%		1.12%
France	2013	0.7%		
Norway	2013	1.5%		
----------	------	-------	------	-------
Portugal	2013	2.79%		
UK	2016	1.2%		1.2%
Sweden	2014	2.2%		2.2%
Average		1.43%	2.9%	2.28%
Median		1.35%	2.9%	2.0%

Table 4: Benchmarks of Debt Risk Premiums, Source: see Annex III, CRA calculations

- 233. These benchmarks highlight that the estimate of the debt risk premium based on comparing Ooredoo's corporate bonds against Qatar government bond rates is comparatively low. The CRA considers that there could be two main reasons for this:
 - (a) Ooredoo's wider exposure in countries beyond Qatar can imply that the relevant government bond benchmark should be wider than just Qatari government bonds. For example, the performance of the S&P Mena government bond index suggests an average Yield to Maturity over the last 3 years of around 3.1% - significantly lower than Qatar's bond yield. Comparing this against Ooredoo's bond yields would result in a higher estimate of the debt risk premium. However, the S&P Mena government bond index consists of bond of all types of maturities and may therefore not be comparable to Ooredoo's bond yields.
 - (b) The previous determination considered the potential impact that Ooredoo's ownership structure (including the strong backing it receives from Qatari sovereign investment funds) might have on the risk of investing in Ooredoo. It noted that Ooredoo's credit rating exceeds that of other integrated telecommunications providers and may therefore not be representative of the actual risks of investing in telecommunications in Qatar. Although some minor downgrading of Ooredoo took place in 2015, the CRA considers that this is still the case today. As such, a relatively lower DRP for Ooredoo than that used by other regulators when determining WACC for telecommunications SPs may be appropriate. However, this may not be appropriate for the Qatari market as a whole.

4.3.2.3 Conclusion

- 234. Given the factors outlined above, the CRA sets a range for the debt premium of 1.37% to 1.68%. The lower value is based on a rating based default spread at a rating of Baa2 while the latter is based on a rating of Baa3.
- 235. The CRA concludes that a country risk premium needs to be taken into account when applying the global approach for estimating the WACC. The CRPd is 1.36%, based on the average yield spread of Qatari and US government bonds over the period of the last three years. This results in a total range for the debt premium under the global approach of 3.01% to 3.70%.

4.3.3 Cost of equity – Equity Risk Premium

- 236. The ERP is one of the components in the estimation of the cost of equity. It measures the additional expected return, over and above the RF, required by investors to compensate them for holding the market portfolio a hypothetical portfolio of assets comprising all assets in the economy (including all traded and non-traded assets). All else equal, an increase in the ERP would result in an increase in WACC.
- 237. Two methods have been considered by regulatory authorities for estimating the ERP:
 - (a) long term historic trends; and

- (b) dividend discount models (DDM).
- 238. The particular difference between the two is that the first is backward looking and the second is forward looking. The first aims to estimate the expected return of equity investors based on a very long time series of equity returns, which aims to smooth out the sometimes significant variations between returns and losses that are made on equity markets over periods of time. The second aims to estimate the expected rate of return based on current equity market valuations and expected future growth of the underlying assets' returns.
- 239. In line with most regulatory authorities in other jurisdictions, the CRA considers that an approach based on historic data is more reliable for estimating the ERP. Forward looking approaches are theoretically able to provide an estimate of the ERP, but the CRA considers that such approaches rest on strong assumptions which, in effect, drive most of the corresponding result. That is, when applying a DDM approach, much rests on the assumptions about the growth of equity returns. Such assumptions are either reliably estimated using sufficient historic data or by making strong assumptions about the particular drivers of growth in the future (if such growth is considered to be different from what is historically observed). The CRA therefore considers that an approach directly based on historical data is preferable for the determination of the ERP.
- 240. The ERP calculated according to that method is not specific to Qatar, but provides the basis for estimating a Qatar specific cost of equity. This is considered to be the base ERP which is considered first in this section (4.3.3.1-4.3.3.3). Later in this section (4.3.3.6) we also discuss the Qatar specific equity Country Risk Premium (CRPe) in the context of implementing the global and domestic approach to the WACC.
- 241. ictQATAR's previous determination of the WACC estimated the ERP based on three methods:
 - (a) Historic global ERP;
 - (b) An implied US ERP; and
 - (c) International benchmarks from other regulatory decisions.
- 242. The CRA considers that all three methods continue to provide valuable insight into the possible level of the ERP and so again has considered all three sources.
- 4.3.3.1 Historical global Equity Risk Premium
- 243. As in ictQATAR's previous determination of the WACC, the CRA takes into account the ERP historic estimate based on Dimson, Marsh and Staunton (DMS) as a basis for estimating the ERP. DMS provide estimates of both the arithmetic and geometric means of the ERP.



Figure 8. DMS historic ERPs (in%), specific countries and world (1900-2015), Source: Credit Suisse Global Investment Returns Yearbook 2016

- 244. As set out in Figure 8, the historic long term estimate of the ERP according to DSM is 4.4% across all countries (applying the arithmetic mean) and 6.4% for the US.
- 245. However, consistent with the previous determination of the WACC, the CRA considers that the arithmetic mean may not be considered on its own. In addition, the CRA considers a mark-up on the geometric mean to reflect a forward-looking assessment of volatility, which is considered by some practitioners¹⁵ to be lower than the volatility implied in the arithmetic mean of historic ERPs.
- 246. Therefore, in order to estimate a base ERP taking account of potential differences between historic and current volatility we also consider the geometric mean of historic ERPs including an uplift based on recent volatilities in the market. For this the CRA consider the volatility of world (MSCI Global Index) and US (S&P 500 Index) equity markets over the last three years which is estimated at 0.13 for both.¹⁶ The corresponding ERP is equal to 4.1% and 5.2%, after adding $\sigma^2/2 = 0.9\%$ to the geometric means of the US and world based historic ERPs.
- 4.3.3.2 An implied Equity Risk Premium on the basis of US stock and bond returns
- 247. As a second approach to estimating the ERP, the CRA has examined the implied ERP based on US government bond and equity market returns. This estimate is sourced from the regular publications of Prof Damodaran and is shown in Figure 9 below.

¹⁵ Dimson, E., P. Marsh, and M. Staunton (2001): "Millennium Book II: 101 Years of Investment Returns," Discussion paper, London Business School; Wright Mason Miles (2003), Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K., Commissioned by U.K. Economic Regulators and the Office of Fair Trading.

¹⁶ The prices to calculate the volatility of the returns of the MSCI Global Index over the 3-year period mid-April 2014 / mid-April 2017 were taken from https://www.investing.com/indices/msci-world-stock-historical-data, April 2017. The prices to calculate the volatility of the returns of the S&P 500 Index over the 3-year period mid-April 2014 / mid-April 2017 were taken from Bloomberg.



Figure 9. Implied US ERP since May 2013, Damodaran

- 248. Using this data gives an estimate for the ERP, using a four year average, of 5.7%; similar to the historic rate (based on the arithmetic mean) estimated for the US by DMS.
- 4.3.3.3 Equity Risk Premium based on benchmark decisions from other jurisdictions
- 249. Table 5 below sets out a range of recent decisions from telecommunications regulatory authorities in other jurisdictions on the ERP.

Country	Year of source document	ERP
Bahamas	2015	4-6%
Bahrain	2013	4.5-5.5%
Jordan	2017	5.8%
UAE	2012	5.75%
Denmark	2013	3.85%
France	2013	5.0%
Netherlands	2015	5.0%
Norway	2013	4.5%
Portugal	2013	8.94%
UK	2016	5.3%
Sweden	2014	5.5%
Belgium	2014	5.4%
Finland	2009	5.0-5.5%
Ireland	2014	5%
Average		5.3%
Median		5.3%

Table 5: ERP Benchmarks from other jurisdictions, Source: see Annex III

- 4.3.3.4 Conclusion on base Equity Risk Premium
- 250. The CRA considers that the three sources set out above provide a broadly consistent range of base ERP values, ranging from a lower bound of 4.1% based on the long term historic estimation of the ERP (section 4.3.3.1) to an upper bound based on the implied ERP of 5.7% (section 4.3.3.2). International benchmarks are broadly consistent with that range with their average falling well within that range.
- 4.3.3.5 The Equity Risk Premium the Country Risk Premium on equity
- 251. Similar to the debt premium, the cost of equity also needs to consider the additional return equity investors expect for accepting the non-diversifiable risks of equity investments in Qatar (as this is not taken into account when estimating the ERP based on long term historic rates). How this CRPe should be estimated depends on whether the global or domestic approach is used to estimate the WACC.
- 4.3.3.6 The global approach for estimating the Country Risk Premium on equity
- 252. The CRPe can be estimated using a similar approach to that adopted by Prof Damodaran's, who estimates the equity country risk premium for a number of countries, based on the relative volatility of equity to bond markets. Using this approach, Damodaran's most recent publication¹⁷ estimates an equity to debt uplift for the country risk premium if 1.15.
- 253. Appling this factor to the CRPd of 1.36% derived as a risk premium to be applied to the cost of debt under the global approach results in a CRPe of 1.56%.
- 4.3.3.7 The domestic approach for estimating the Country Risk Premium on equity
- 254. The domestic approach does not consider a CRPd, given that the premium for lending to the country is already included in the RF. The CRPe considered under the domestic approach is therefore the difference between the CRPe and CRPd in the global approach, i.e. 0.2%, to take into account the additional risk of investing in equity in Qatar rather than debt.
- 4.3.3.8 Conclusions
- 255. The CRA calculates a CRPe under the global approach of 1.56%. The figure is based on the multiplication of the relevant CRPd by the relative volatility ratio, as described above.
- 256. Under the domestic scenario, the CRA sets CRPe of 0.2% based on the difference between CRPe and CRPd in the global approach.
- 4.3.4 Debt and equity ratios (gearing)
- 257. In calculating the cost of capital, the gearing of a company is considered in two places.
 - (a) First it is used to estimate the asset beta when deleveraging benchmark equity betas to account for the financial structure of the company from which the benchmark beta is obtained. For this, gearing should be measured over the same period as that over which the beta is measured.
 - (b) Second, it is required for the purpose of estimating the final WACC and specifically, for determining the appropriate weighting to place on the cost of equity versus the cost of debt, as well as re-leveraging the appropriate asset beta to the equity beta considered in the final estimate. For this purpose, the CRA considers it should use expected forward looking gearing. While this is

¹⁷ http://www.stern.nyu.edu/~adamodar/pc/datasets/ctrypremJuly17.xls

also likely to be based on historic information, it does not necessarily need to be consistent with the period used to determine asset betas.

- 258. This section considers the gearing that should be used for the second purpose (i.e., when re-leveraging asset betas to equity betas and when determining the overall weighting to be given to the cost of debt and the cost of equity).
- 259. Table 6 sets out the CRA's quantitative analysis for assessing the gearing of Qatari and regional SPs. Column (a) in Table 6 shows the average gearing over the 4 year period 2012 2016. Column (c) shows the current gearing for each company as of end 2016. The table also shows, for comparison, the difference between the current estimates and those derived in the previous determination of the WACC.

			Gearing D/(D+E)*						
SP	Country/Scale	Profile	(a) Average gearing	(b) ∆ previous determina tion	(c) Current gearing	(d) ∆ previous determina tion			
Ooredoo	International	More mobile	42%	-8%	42%	0%			
Vodafone	Qatar	Mobile	4%	-5%	-4%	-16%			
Batelco	Mainly Bahrain	Integrated	1%	13%	4%	18%			
Omantel	Oman	Integrated	-8%	-3%	-9%	2%			
STC	KSA/International	Integrated	-7%	-28%	-10%	-28%			
Etisalat	UAE/International	Mainly mobile	-1%	7%	-1%	12%			
Zain	International	Mainly mobile	20%	11%	34%	23%			

*Averages (column a) computed with half-year gearings and EV/EBITDA between 2012 and end 2016. Current gearing (column c) as of end of 2016. Δ previous determination (columns b and d): percentage point difference between the final determination's 4 year average and the 4 year averages now, or between end 2012 and end 2016.

Table 6: Gearing for regional SPs, Source: Bloomberg, CRA calculations

- 260. The CRA finds that the trend of unusual gearings levels in the region has been maintained and (by comparing columns (a) and (b) and (c) and (d) respectively from Table 9), has even become more pronounced in some instances. This is driven by ownership structures of SPs in the region as well as preference for equity finance.
- 261. Therefore as with the previous WACC determination, the CRA considers it useful to use a wider range, including global benchmarks of gearing ratios, as shown in Table 7.
- 262. As for the debt risk premium, the gearing, as such, is independent of a country risk profile. However, the CRA acknowledges that country specific corporate tax rates are likely to give rise to some variation between countries. This is because debt financing in countries with higher corporate tax rates can be cheaper due to the tax shield provided by interest payments. This effect would normally suggest that the gearing in the jurisdictions considered in the benchmarking should be higher than in Qatar, due to those countries having some form of corporate taxation applied. Given that instead, the CRA finds that the average gearing based on those benchmarks is lower than in Qatar, it considers that the benchmarks provide a more reasonable evidence to form the basis of the gearing value considered in the CRA's calculation of the WACC. The CRA also notes that gearing of Zain, another example of an operator in the region using debt financing, is broadly consistent, at 35%, with the average gearing from benchmarks considered.

Country	Year of source document	Gearing ratio
Bahamas	2015	10-30% [midpoint 20%]
Jordan (mobile)	2017	33%
Jordan (fixed)	2017	33%
UAE	2012	31.34%
France	2013	23%
Portugal	2013	42.5%
UK (mobile)	2015	40%
UK (leased lines)	2016	30%
Netherlands (KPN and FTTH)	2015	42%
Norway	2013	20%
Sweden	2014	35%
Average		32%
Median		33%

Table 7: Gearing benchmarks from other regulatory decisions, Source: see Annex III

4.3.4.1 Conclusion

263. Taking into account the evidence from regional comparator companies and the range exhibited by regulatory benchmarks from other jurisdictions, the CRA estimates the WACC with reference to a gearing of 32%.

4.3.5 Cost of equity - beta

- 264. The equity beta measures the exposure of a common equity stock to 'systematic risk', the risk related to the entire market or an entire market segment. It also captures the impact of financial structure on the risk faced by the business; typically, the greater the level of debt in the business, the greater will be the equity beta. Removing the latter effect on the equity beta provides the asset beta, which measures the systematic risk purely associated with the activity of the business. All else equal, when calculating the cost of equity the larger the equity beta the greater the weight placed on the ERP and country equity risk premium. An increase in the beta would result in an increase in the estimated WACC.
- 4.3.5.1 CRA's approach
- 265. To estimate the beta, the CRA considers a similar set of approaches to those in the previous determination of the WACC, namely:
 - (a) a group of Qatari and regional comparator SPs against global and regional (DJMENA) equity markets;
 - (b) Benchmark estimates of beta from other jurisdictions.
- 266. For its own estimation of the beta (a), in addition to considering DJMENA and a global index, the CRA also considers the local stock market index DSM. This is because the previous determination already highlighted a potential issue with weak beta estimates against regional and global indices for regional and Qatari companies. As such, the CRA notes that the determination of the index against which the beta is measured is not a purely mechanistic approach but one which also takes into account the quality of the estimates derived.

- 267. For this estimation, the CRA considers estimates of the beta (in line with the previous consultation) on the basis of:
 - (a) two year rolling averages; and
 - (b) a four year point average
- 268. based on four years' worth of company stock and index data. In addition, the CRA considers:
 - (a) a two year point average; and
 - (b) a five year point average
- 269. The CRA considers that including the analysis of the two year average and the five year average can improve the beta estimation by adding more information. This allows CRA to consider a beta estimate that is based on a shorter period of time (two year point average) and also a period for the beta estimations that is typically used by regulatory authorities in other jurisdictions (five year point estimate).
- 270. The beta estimation is carried out on the basis of weekly stock and index data, to address potential issues with thin trading for some stocks or indices (which could affect the beta estimation if the daily data) but still providing a sufficiently large sample compared to some other forms of estimation (for example when using monthly data).
- 271. The asset betas are then calculated using the respective two year rolling, two, four and five year point average gearing using the formula BetaA = BetaE x E / (E + D).
- 272. The final set of beta estimates (one based on the two year rolling and four year point estimate and another based on the two and 5 year point estimates) is constructed consistent with the approach applied in the previous determination, which the CRA still considers valid. That is, a weight of 1/3rd is applied to the beta constructed from the four year average point estimate and the five year point estimate respectively while a weight of 2/3^{rds} is applied to the two year rolling and point averages respectively. The CRA believes this is appropriate because the CRA considers that more weight should be placed on beta estimates using more recent data.
- 273. Below, the CRA presents the results of the calculation of the raw betas according to the methodology outlined above. First, Table 8 shows the results of the raw betas measured against the MSCI global index.

BetaE (MSCI Global)											
SP		Raw beta									
Period	2yr rolling avg	R^2	2yr point avg	R^2	4yr point avg	R^2	5yr point avg	R^2			
Ooredoo	0.19	0.01	0.03	0.00	0.20	0.01	0.26	0.01			
Batelco	0.26	0.06	0.18	0.04	0.22	0.04	0.14	0.01			
Omantel	0.02	0.00	0.18	0.03	0.10	0.01	0.08	0.00			
Vodafone	0.39	0.02	0.33	0.02	0.34	0.01	0.17	0.00			
STC	0.15	0.01	0.21	0.01	0.11	0.00	0.14	0.01			
Etisalat	0.13	0.01	0.09	0.00	0.13	0.01	0.20	0.01			

Table 8: Raw beta estimates and R² for Ooredoo and regional comparator companies,Source: CRA calculation

274. The phenomenon of low and weak beta estimates for regional companies against global stock markets was already observed in the previous determination of the WACC. CRA's assessment in this proceeding finds similar shortcomings with the beta

estimation for regional companies against global indices. This is likely to imply that there are some specific factors related to telecommunication companies in the region that make them unsuitable for estimating the risk of equity investments in telecommunications. For this reason, the CRA sets the equity beta in the global approach based on international benchmarks. The benchmark evidence of the asset betas is discussed in the following section.

BetaE (DJMENA)											
SP		Raw beta									
Period	2yr rollin g avg	R^2	2yr point avg	R^2	4yr point avg	R^2	5yr point avg	R^2			
Ooredoo	0.38	0.05	0.26	0.02	0.40	0.05	0.42	0.05			
Batelco	0.16	0.05	0.16	0.05	0.15	0.03	0.11	0.01			
Omantel	0.13	0.04	0.25	0.10	0.17	0.03	0.15	0.02			
Vodafone	0.81	0.14	0.41	0.06	0.71	0.11	0.65	0.09			
STC	0.14	0.03	0.41	0.09	0.22	0.02	0.23	0.02			
Etisalat	0.09	0.01	0.07	0.00	0.08	0.00	0.19	0.01			

275. In the following, Table 9 shows the results of the raw betas measured against the regional DJMENA index.

Table 9: Raw beta estimates and R² for Ooredoo and regional comparator companies,Source: CRA calculation

- 276. Table 9 also shows that the R² of raw Betas, measured against the regional DJMENA index, is low for all the companies considered in the sample. In the previous consultation, this issue was addressed by applying an Ooredoo-adjustment and excluding from the analysis the betas of Batelco and Etisalat.
- 277. The CRA, however, is minded not to apply an Ooredoo-adjustment¹⁸ in this consultation, given that it only led to marginal improvements in the sample for the beta estimation. Instead, the CRA also considers Qatari companies against the local DSM index.

BetaE (DSM)									
SP				Ra	aw beta				
Period	2yr rollin g avg	2yrR^22yrR^24yrR^25yrR^2rollinpointpointpointpointpointg avgavgavgavgavgpoint							
Ooredoo	0.88	0.39	0.97	0.39	0.94	0.40	0.95	0.39	
Vodafone	1.34	0.56	1.10	0.49	1.24	0.51	1.21	0.46	

Table 10: Raw beta estimates and R^2 for Ooredoo and Vodafone, Source: CRA calculation

278. The CRA notes that the R² of the raw betas of both Ooredoo and Vodafone are much higher when measured against the DSM index. The CRA, therefore, focuses its analysis on operators in Qatar: Ooredoo and Vodafone, to estimate the beta range against the DSM index. It then applies this in the domestic scenario of the WACC calculation.

¹⁸ $\beta_i^{ooredoo-R} = \beta_i \frac{R(\text{Ooredoo})}{R(i)}$ for $i \neq Ooredoo$, $i \in \text{Market Index}$, where R(i) measures the correlation between the relevant security of company i and the market index.

- 279. The CRA also considers that in addition to the Vasicek adjustment considered in the previous determination, the Blume adjustment should also be applied as it is commonly used in similar regulatory decisions¹⁹ to address a potential over or underestimation of the beta.
- 280. The asset betas based on that process are summarised in Table 11, together with combined estimates using the weights previously discussed applied to individual beta estimates.

BetaA vs. DSM												
SP	Vasicek asset beta			Blume asset beta			Vasicek asset beta			Blume asset beta		
Period	2yr point avg	5yr point avg	Com bined	2yr point avg	5yr point avg	Com bined	2yr roll avg	4yr point avg	Com bined	2yr roll avg	4yr point avg	Com bined
Ooredoo	0.50	0.61	0.54	0.57	0.62	0.59	0.45	0.54	0.48	0.60	0.62	0.60
VFQ	0.76	1.13	0.88	1.02	1.07	1.03	0.83	1.17	0.94	1.17	1.10	1.15
Average	0.63	0.87	0.71	0.80	0.85	0.81	0.64	0.86	0.71	0.89	0.86	0.88

Note: The combined beta assigns the follwing weights: 2/3*2yr + 1/3*4yr (5yr)

 Table 11: Asset beta estimates and adjustments for Ooredoo and Vodafone,

 Source: CRA calculation

- 281. Using the DSM index for Ooredoo and Vodafone, the CRA observes that the lower value of beta is given by the more conservative Vasicek adjustment, with the upper end given by the Blume adjustment. In order to use all the information available, the CRA thus sets the lower end of the range of asset betas as the average of the Vasicek-adjusted asset betas of Vodafone and Ooredoo measured according to the two scenarios taken into account in the consultation (i. e. weighted average of 2 year and 5 year point estimates and weighted average of 2 year rolling and 4 year point estimate). The CRA then sets the upper end of the range as the average of the Blume-adjusted asset betas of Vodafone and Ooredoo according to the same scenarios. Under the domestic approach, the evidence thus points in the direction of an asset beta of 0.71-0.84.
- 4.3.5.2 Benchmark evidence of asset betas
- 282. Table 12 sets out benchmarks of beta estimates from other jurisdictions. These should be considered against the global approach as most benchmark betas are estimated against a global rather than a local market (or a local market more global than the local market in Qatar).

Country	Year of source document	Asset beta
Bahrain (international investor)	2013	0.5-0.6
Bahrain (domestic investor)	2013	0.75-0.85
Jordan	2017	0.5-0.56
Jordan (mobile)	2017	0.8-0.89
UAE (fixed: Etisalat)	2012	0.51-0.94
UAE (mobile: Etisalat)	2012	0.6-0.94

¹⁹ For example, see TRA Bahrain (2013), Cost of Capital, Ref: MCD 02/13/018; CNMC (2016), Resolución relativa a la tasa anual de coste de capital a aplicar en la contabilidad de costes de Telefónica de España S.A.U., Telefónica Móviles España, S.A.U, Vodafone España, S.A.U. y Orange Espagne, S.A.U. del ejercicio 2016; and Agcom (2015), Allegato D alla Delibera n. 623/15/CONS.

Denmark	2013	0.5
France	2011	0.8
France (fixed: France Telecom)	2011	0.48
France (mobile)	2011	0.62
UK (BT Group)	2016	0.72
Sweden (fixed-line)	2011	0.54
Sweden (mobile)	2011	0.65
Spain (fixed: Telefonica de España)	2011	0.43
Spain (mobile: Telefonica Mobiles España)	2011	0.51
Spain (mobile: Vodafone España)	2010	0.54
Belgium (fixed: Belgacom)	2014	0.5-0.6
Belgium (mobile: Belgacom, Mobistar, Telenet)	2014	0.6
Italy (fixed: Telecom Italia)	2010	0.43
Finland (fixed-line)	2009	0.55-0.7
Finland (mobile)	2009	1.1-1.2
Netherlands (KPN and FttH)	2015	0.45
Norway (mobile)	2013	0.9
Average	Total	0.67
Median	Total	0.6

 Table 12: Beta estimates considered in regulatory determinations in other jurisdictions,

 Source: see Annex III, CRA calculations

283. Table 13 and Table 14 also outline beta estimates calculated for comparator companies in regulatory procedures in Bahrain and Jordan.

Country	Year of s document	source	Asset beta – 5-year Estimated using weekly / monthly data
Zain (domestic) ²		2013	1.01 / 0.921
Batelco (domestic) ²		2013	0.9 / 0.751
STC (domestic) ²		2013	0.64 / 0.681
Zain (FTSE All-world) ³		2013	0.53 / 0.651
Batelco (FTSE All-world) ³		2013	0.43 / 0.41
STC (FTSE All-world) ³		2013	0.49 / 0.561
Average			0.666 / 0.663
Median			0.585 / 0.666

2 Total returns on equity are regressed on total returns on domestic equity markets

3 Total returns on equity are regressed on total returns on the FTSE All-world index

Table 13: Beta estimates of comparator companies considered in regulatory procedure for the determination of the WACC in Bahrain, Source: TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination

Country	Year of source document	Asset beta – 5-year	Asset beta – 2-year
BT	2017	0.7	0.74
TalkTalk	2017	0.54	0.61
Sky	2017	0.54	0.58
Colt	2017	0.4	0.29
Telefonica	2017	0.45	0.56
Deutsche Telekom	2017	0.34	0.5
Belgacom	2017	0.4	0.59
Telecom Italia	2017	0.29	0.42
Orange	2017	0.39	0.58
lliad	2017	0.42	0.73
Swisscom	2017	0.31	0.5
Average		0.43	0.55
Median		0.4	0.58

Table 14: Beta estimates of comparator companies considered in regulatory procedure for the determination of the WACC in Jordan, Source: TRC Jordan (2017) – Regulatory Decision on the Weighted Average Cost of Capital for Jordanian Telecom Operators

- 284. The international evidence points in the direction of an asset beta of 0.67. Indeed, this is the average beta given by the values presented in Table 12, which includes the largest pool of comparator countries (both GCC and non-GCC). This value is also confirmed by the weekly 5-year beta estimates of comparator companies considered in Bahrain, as shown in Table 13.
- 285. Although Table 14 provides a lower value of 0.43 for the 5-year estimate, the CRA finds that the decision made in Jordan was ultimately based on beta estimates using the 2-year estimation, i.e. similar to the estimate based on the combined benchmarks considered by CRA.

4.3.5.3 Conclusion

- 286. In light of the above calculations and the benchmark analysis, the CRA applies the following beta values:
 - (a) A range of asset betas of 0.71 0.84 for the 'Domestic' WACC. This range is based on the asset betas shown in Table 11. This implies a range of equity Betas of 1.04 1.24, given the gearing set out in the relevant section;
 - (b) An asset beta of 0.67 for the 'Global' WACC based on the average of beta values used in other jurisdictions as shown in Table 12. The corresponding equity beta is 0.99.

5 Conclusion

- 287. This section summarises the parameter estimates derived in the previous sections and, based on this, provides estimates of the WACC under the different scenarios considered.
- 288. **Error! Reference source not found.** below summarises the CRA's findings. It shows he estimated values for each parameter against, where different, the parameter estimates included in the second CD (shown in brackets).

Parameter	Global approach	Domestic approach
Risk free rate	2.25% - 3.50%	3.5% - 3.70%
Debt risk premium	1.37% - 1.68%	1.37% - 1.68%
	(0.30% - 1.43%)	(0.30% - 1.43%)
Country risk premium	1.36%	
(debt)	(0.57% – 1.36%)	
Cost of debt	4.98% - 6.55%	4.87% - 5.34%
	(3.10% - 6.30%)	(3.80%-4.90%)
Gearing	32%	32%
	(32%-42%)	(32%-42%)
Equity risk premium	4.10% – 5.70%	4.10% – 5.70%
Country risk premium	1.56%	0.20%
(equity)	(0.71% - 1.70%)	(0.14% - 0.40%)
Asset beta	0.67	0.71-0.84
Equity beta	0.99	1.04-1.24
	(0.99 - 1.16)	(1.04-1.45)
Cost of equity	7.81%-10.68%	7.98%-11.00%
	(6.99% - 12.00%)	(7.93%-12.33%)
Inflation adjustment	1.01	1.01
	(1.0119)	(1.0119)
WACC	7.97% - 10.45%	8.05% - 10.28%
	(7.01% - 10.94%)	(7.88% – 10.53%)

Table 15. Summary of the parameters and the WACC rates, Source: CRA calculations

- 289. In calculating the final estimates of the WACC, the CRA also takes into account an adjustment for differences between US and Qatari inflation. This is necessary because measurements of nominal returns, such as RF and DRP are denominated in USD and need to be adjusted to take into account any difference in expected inflation in Qatar and the US, to insure that the nominal return is sufficient for investors to invest in Qatar.
- 290. This adjustment is applied through the following formula:

(1 + WACC(USD))*(1+Inflation(Qatar))/(1+Inflation(US))²⁰ -1

²⁰ Inflation adjustment referred to in Table 1 is equal to term (1+Inflation(Qatar))/(1+Inflation(US)) in the above formula.

291. In deriving this adjustment factor, the CRA uses the IMF 2018-2021 forecast for US inflation and the IMF 2018-2021 Qatari inflation forecast, taken from the October 2017 World Economic Outlook update.



Figure 10. US and Qatar inflation forecasts, Source: IMF

- 292. However, the CRA recognises that forecasts carry with them a certain degree of uncertainty. For this reason, in making its adjustment for inflation, the CRA has also considered historic rates of inflation. Therefore, it has calculated the inflation adjustment using the respective US and Qatar averages of the 4-year (2018-2021) inflation forecasts and historic inflation over the preceding four years (2013-2016).
- 293. Including the inflation adjustment discussed above, the CRA's arrives at a final range for the WACC of 7.97% to 10.45%.
- 294. In choosing a particular value for the CoC, the CRA must balance sometimes competing objectives in the regulatory framework.
- 295. The CRA considers that a CoC based on the higher end of the range reduces the probability of underinvestment in the sector but at the same time could increase the cost of communications services to consumers, where the prices for such services are based on regulated costs (including a cost of capital).
- 296. In contrast, other forms of regulation that rely on the CoC primarily aim to promote cost reflective prices in the interest of protecting consumers and encourage access-based competition. As such, a lower CoC can lead to lower regulated access charges and hence greater scope for retail price competition to benefit consumers.
- 297. The CRA also considers the importance of regulatory certainty and therefore to take into account in its final decision the value of 10.75% previously applied.

In the interest of providing this regulatory continuity, the CRA will set the CoC for the next regulatory period at 10.45%, 0.3 percentage points lower than the previous rate, and equal to the upper bound of the WACC.

هيئة تنظيم Regulatory Authority State of Qatar دولية قيطير

Determination of the Cost of Capital for Service Providers (SPs) declared as having a Dominant Position

"Cost of Capital 2017"

Second Consultation Document, including:

- Responses to the SPs' comments from the first round of Consultation; and
- A revised economic analysis

Deadline for responding to this document: October 22, 2017

CRARAC 2017/09/24 September 24, 2017

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1 Introduction

- This second Consultation Document (second CD) summarises and evaluates the comments received from Ooredoo, Qnbn and Vodafone on the CRA's first Consultation Document (first CD) regarding the "Determination of the Cost of Capital applicable to Service Providers (SP) declared as having a Dominant Position "Cost of Capital 2017".
- 2. The second CD also contains a revised Economic Analysis (EA), which takes account of the responses the CRA deems as relevant in the determination of the CRA's proposed Cost of Capital (CoC).
- 3. In the interest of a transparent and open process, the CRA invites stakeholders to comment on the second CD and the revised methodology for the determination of the CoC contained within it. The CRA asks that all responses are clear and concise and where applicable set out a clear description of any alternative methodology, including corresponding calculations/assumptions, relevant justifications and references of all data sources.
- 4. The following sections provide:
 - (a) instructions for responding to this document, Section 2;
 - (b) the legal basis of these proceedings, Section 3;
 - (c) the CRA's responses to comments made by stakeholders, Section 4;
 - (d) the CRA's revised economic analysis, the calculation of the Weighted Average Cost of Capital (WACC) and proposed options for the Cost of Capital, Section 5; and
 - (e) the CRA's final conclusions, Section 6.

2 Instruction for responding

2.1 Consultation Procedures

- 6. In keeping with open and transparent regulatory processes, the CRA herewith consults on the Setting of Wholesale Charges in the telecommunications market in Qatar.
- 7. SPs are invited to provide their views and comments on the consultation questions.
- 8. The CRA asks that, to the extent possible, submissions must be supported by relevant evidence.
- 9. Response by a SP must include comments with regards to the CRA's methodology and approach.
- 10. If a service provider is in disagreement with the CRA's methodology, the service provider is requested to provide, in its response:
 - 10.1 The reasons for disagreement with the CRA's methodology;
 - 10.2 Its alternative methodology in a clear and concise manner;
 - 10.3 Wholesale Charges proposed according to its alternative methodology;
 - 10.4 The calculations, models or estimations which lead to such Charges, in an editable format which allows the CRA to review and validate the formulas (such as Microsoft Excel); and
 - 10.5 The assumptions, relevant justifications and references of all data sources behind its alternative calculations.
- 11. Any submissions received in response to this second CD will be carefully considered by the CRA. Nothing included in this CD is final or binding. However, the CRA is under no obligation to adopt or implement any comments or proposals submitted.
- 12. Comments should be submitted by email to <u>raconsultation@cra.gov.qa</u>, copying <u>fmassone@cra.gov.qa</u> before the date stated on the front cover. The subject reference in the email should be stated as "Second Consultation on the Determination of the CoC for telecommunications market in Qatar"."
- 13. It is not necessary to provide a hard copy in addition to the soft copy sent by email.
- 14. Deadline for SPs to submit their comment is indicated on the cover page.

2.2 Publication of comments

- 15. In the interests of transparency and accountability, the CRA intends to publish on its website at <u>www.cra.qa</u> submissions by stakeholders in this process.
- 16. All submissions will be processed and treated as non-confidential unless confidential treatment has been requested.
- 17. In order to claim confidentiality of information in submissions stakeholders must provide a non-confidential version of such documents in which the information considered confidential is blacked out. This "blackened out" portion/s should be contained in square brackets. It must be clear where information has been deleted. To understand where redactions have been made, stakeholders must add indications such as "confidential" or "confidential information".
- 18. A comprehensive justification must be provided for each submission required to be treated as confidential. Furthermore, confidentiality cannot be claimed for the entire or whole sections of the document as it is normally possible to protect confidential information with limited redactions.

- 19. While the CRA will endeavour to respect the wishes of respondents, in all instances the decision to publish responses will be at the discretion of the CRA.
- 20. By making a submission to the second Consultation, respondents will be deemed to have waived all copyright that may apply to intellectual property contained therein.
- 21. For more clarification concerning the consultation process, please contact Francesco Massone (<u>fmassone@cra.gov.qa</u>).

3 Legal Basis

- 22. The State of Qatar has empowered and authorized the CRA to regulate the Communications sector under the Emiri Decree No. (42) of 2014 Establishing the Communications Regulatory Authority (Emiri Decree), the Decree Law 34 of 2006 (Telecommunications Law), and the Executive By-Law of 2009 for the Telecommunications Law (By-Law).
- 23. These laws establish the objectives and legal framework for the CRA to create the appropriate legal and regulatory conditions for the development of sustainable competition in the Communications sector so that, amongst other things, telecommunications may become a factor for promoting social and economic development.
- 24. The determination of the CoC is relevant for the CRA to fulfil its own responsibilities, which are amongst others:
 - (a) To ensure that prices and charges of SPs are cost-based and appropriately applied to products and services offered at a wholesale or retail level;
 - (b) To encourage competition and prohibit anti-competitive practices, preventing DSPs from abusing their position of market dominance;
 - (c) To ensure interconnection and access for all users by setting conditions for effective interconnection and access.
- 25. The CoC is a key contributor to the cost base of the SPs and appreciably determines retail and wholesale charges. This requires a CoC value ensuring that a SP achieves a fair return on capital employed (at the CoC value) and the goals of efficient prices and increased competition are adhered to.
- 26. The legal basis for CRA to determine the CoC is described in more detailed below.

3.1 The Emiri Decree

- 27. Under Article 4, the CRA is responsible for regulating the communications information technology and the postal sector, as well as access to digital media, with the aim of providing advanced and reliable telecommunication services across the State. Amongst others, the CRA has to:
 - (a) Encourage competition and prohibit or minimize anti-competitive practices, prevent misuse by any person or entity of its market dominance position, and take all necessary measures to achieve this (article 4(3));

- (b) Protect the rights and interests of the public and SPs in the market, promote transparency and provide advanced, innovative and quality services at affordable prices to meet the needs of the public (article 4(4));
- (c) Ensure interconnection and access for all users by setting conditions for effective interconnection and access (article 4(6)).
- 28. Under Article 15, amongst others, the CRA has to;
 - (a) Develop appropriate tariff regulations, giving priority to the telecommunications market, or telecommunications services according to market requirements, and determine fees for retail and wholesale services (article 15(2));
 - (b) Ensure appropriate measures are in place to prevent non- compliance acts or activities by dominant SPs, which may significantly impact or reduce competition in telecommunications markets (article 15(4));
 - (c) Set regulations for interconnection and access (article 15(5));
 - (d) Develop and identify policies and regulations for all services which will foster a competitive market and serve the interests of the consumers (article 15(7)).

3.2 The Telecommunication Law

- 29. CRA has mandated objectives and goals to achieve under the Telecommunications Law. Article 2 outlines the main objectives that apply for the purposes of this Order:
 - (a) Enhancing the telecommunications sector's performance in the State of Qatar through encouraging competition and fostering use of telecommunications (article 2(2));
 - (b) Encouraging sustainable investment in the telecommunications sector (article 2(5));
 - (c) Establishing a fair regime that meets the requirements of the competitive market place through the implementation of interconnection between SPs and all procedures related thereto (article 2(9));
 - (d) Ensuring that the regulation of the telecommunications sector remains in line with international rules (article 2(12));
 - (e) Ensuring the orderly development and regulation of the telecommunications sector (article 2(13)).
- 30. Under Article 19(1), the CRA is responsible for undertaking functions and duties in respect of interconnection and access to promote appropriate, effective and low cost interconnection between telecommunications networks, promote access to facilities of other SPs to ensure interoperability and promote the growth of competitive telecommunications services markets.
- 31. Article 29 requires tariffs to be based on the cost of efficient service provision without any excessive charges which may result from dominance. Under this Article 29, CRA may issue decisions to amend tariffs where it finds they are not in line with the cost of service provision.

3.3 The By-Law

32. Under Article 50(1), the CRA may require that interconnection or access charges of any Dominant SP be subject to Article (29) of the Law and Articles (56), (57), (58) and

(59) of this By-Law. The CRA may also direct Dominant SPs to implement specific interconnection or access charges, or changes to such charges, as determined by CRA.

- 33. Article 50(2) requires that Interconnection and facilities access charges of Dominant SPs designated in accordance with Article (48) of this By-Law shall be cost-based and in accordance with rules or standards determined by CRA.
- 34. In establishing charges for interconnection or facilities access, Dominant SPs designated in accordance with Article (48) of this By-Law shall comply with any rules or orders applicable to interconnection or access, including any pricing, costing and cost separation requirements as prescribed by the CRA (article 50(3)).

4 **Responses received during the first consultation**

4.1 General comments received from respondents

35. From the first CD process stakeholders made a number of general comments in relation to the determination of the CoC. This section summarises these comments and provides the CRA's responses. More specific comments made in the first CD process are addressed later in this document.

Ooredoo: The need to update estimates derived during the first consultation in light of recent political tensions.

36. Ooredoo is of the view that the recent dispute between Qatar and some of its GCC neighbours suggests that an update of the estimates used in the determination of the WACC is required. As an example, Ooredoo notes that the Qatar 10-year government bond yield approached 3.8% at the time of submitting their response, i.e., above the rate of 3.5% which the CRA used in the consultation document (and which was based on the average yield between April 2014 and March 2017).

CRA response:

37. The CRA agrees with Ooredoo that events such as those referred to could in principle give rise to a review of the CoC, now as well as during the period for which the CoC is set. In reviewing the relevant parameters of the WACC that are likely to be affected by these recent events, the CRA was able to confirm a rise in government bond yields but also that such an increase was merely temporary. The 10-year Qatar government bond yield did indeed increase to 3.95%, 0.45% higher than the CRA's estimate of the risk free rate proposed under the domestic approach. However, the rate has since decreased to rates more similar to that average as shown in Figure 1 below.



Figure 1. Qatar 10yr government bond yield, 08/09/2014 to 05/09/2015 weekly, Source: Bloomberg

38. Calculating an average over a period of three years and taking into account the most recent data, results in an estimate of 3.5%, equal to the rate considered in the first CD. This suggests that an update of the risk free rate is not necessary. It also demonstrates that the use of a longer averaging period is beneficial as it avoids the parameters being based on temporary events in the market that are unrepresentative for the whole of the four year period for which the CRA determines the CoC.

Ooredoo: The need to calculate a sustainable, forward looking Cost of Capital

39. Ooredoo submits that the CRA's approach for calculating the WACC does not sufficiently reflect the need to estimate a forward looking CoC. It submits that the calculation of the WACC should rely on parameters based on forecasts and forward looking estimates. For example, it considers a Gordon growth model (GGM) for the determination of equity risk premiums and economic forecasts for other parameters such as the risk free rate.

CRA Response

40. The CRA acknowledges that Ooredoo's approach can in principle be used in addition or as an alternative to the approach proposed by CRA. CRA further acknowledges that most regulators use historic data,¹ and that where the GGM is also used, regulators have not considered the approach exclusively and without taking account of historic data and trends.² Furthermore, the CRA considers that the alternative methodologies considered by Ooredoo often suffer from being highly dependent on a number of assumptions and that on balance the use of historic data, as suggested by CRA, provides a more reliable estimate of the WACC. The CRA further concludes that the range of possible estimates for the WACC when considering different assumptions in

¹ Italy: Allegato D alla Delibera n. 623/15/CONS; Spain: Resolución sobre la propuesta de TELEFÓNICA DE ESPAÑA, S.A.U., de tasa anual de coste de capital a aplicar en la Contabilidad de Costes del ejercicio 2010 (Expediente AEM 2010/128); Bahrain: 2013 Cost of Capital, Ref: MCD 02/13/018-

² In particular by the Dutch and UK regulators: OFCOM (2005): Ofcom's approach to risk in the assessment of the cost of capital, 2005, final statement; ACM (2015): The WACC for KPN and FttH, The Brattle Group report, 2015.

Ooredoo's approach is not dissimilar from the one estimated by CRA. Ooredoo's approaches to the estimation of individual parameters are reviewed later in this document.

Ooredoo: the need to take into account the introduction of VAT in Qatar in 2018 when setting the Cost of Capital

- 41. Ooredoo submits that the fact that the Government of Qatar will introduce a Valueadded tax (VAT) of 5% on purchases in 2018 is not taken into account in the determination of the CoC. In order to support its argument that such an inclusion is required, Ooredoo refers to an IMF study regarding the pass-through of changes in VAT to retail prices, quoting that:
 - (a) standard pass through rates for services are significantly lower than seen for goods, at around 68%;
 - (b) the introduction of VAT for reasons of fiscal consolidation tends to halve the pass through rate, which means that the pass through rate could effectively be 34%;
 - (c) Changing or introducing VAT which affect larger shares of consumption tend to see lower pass through rates; and
 - (d) Pass through can also be reduced where a good can be easily substituted (i.e., where it has more elastic demand) and where a higher share of a consumer's budget is assigned to the good.
- 42. On the basis of these assumptions, Ooredoo estimates that the introduction of VAT could reduce its EBITDA by -3.3%, which would result in a total margin impact of -5% and an expected decline in Ooredoo's margin from currently 50% to 45%. It argues that this would affect the beta parameter, by increasing business risk. It therefore proposes that the beta assumed by CRA in the first CD should be increased by a factor of 1.13.

- 43. The CRA fundamentally disagrees with Ooredoo's assessment. It first notes that Ooredoo's reference to the IMF study discusses pass-through rates (i.e., the extent to which the price of a good or service changes as a result of a change in VAT, not the impact of that pass-through on the CoC). Ooredoo's purported impact on the CoC, results from its deduction that a decrease in margins increases risk and hence the beta considered in the calculation of the WACC. However, the CRA does not see any links between the two. Beta measures the systematic risk of a business against a benchmark or whole market. The introduction of the VAT (assuming there is indeed no pass-through to consumers³) may impact profitability of a company but not the likelihood with which that profitability is generated.
- 44. In setting the CoC the CRA recognises that companies need to compensate their investors for the risks taken when setting prices of regulated services and assessing other matters involving communications operators' costs. However, Ooredoo did not say how the introduction of VAT will prevent it from honouring their investor's

³ We note that the IMF paper Ooredoo is referring to is based on an assessment of European countries in relation to services and goods in general and that the findings in that study may not be directly transferable to the communications market in Qatar, which is likely to be different from services referred in the study.

requirements. It is not in the interest of consumers and therefore not one of CRA's objectives to maintain any excess margins that Ooredoo may currently have.

- 45. For the purpose of setting regulated prices, the cost of capital would even be recoverable if demand, for the reasons set out by Ooredoo, was affected by the introduction of the VAT. For example, the total costs of a service would always take into account the cost of capital with a lower expected level of demand resulting in a higher unit cost. As such there is no risk of such costs not being recovered.
- 46. Finally, it is unclear when, and in what exact form, the VAT in Qatar will be introduced. The CRA understands that the law, in its draft form, is still being discussed by the MoF. In order for the VAT to take effect, the law as well as the relevant by-law need to be published and implemented. It is at this time uncertain if this will happen within the originally envisaged time-frame.

Ooredoo: other comments

- 47. Ooredoo submits a number of other general comments without suggesting how these should impact the determination of the CoC. The CRA briefly summarises and responds to those comments.
- 48. Specifically, Ooredoo makes some general comments in relation to the level of the proposed CoC. In particular, that:
 - (a) the level of the return on invested capital (ROIC) needs to be greater than WACC to induce investments;
 - (b) shorter technology cycles and increased competitive pressures in the telecoms sector impact on cost recovery; and
 - (c) possible credit downgrades and the exchange rate peg induce additional economic risks. With regard to the former, Ooredoo argues that Qatar is currently on negative watch for credit downgrades with all rating agencies and further downgrades would be expected to affect borrowing costs. With regard to the latter, Ooredoo argues that if Qatar's fixed exchange rate to the USD is changed, the WACC calculation would be altered significantly because of a sudden change to the inflation rate, which could potentially imply that regulated prices set using a nominal WACC may not be sufficient to recover the actual cost an operator incurs.

- 49. With regards to (a), the CRA notes that the CoC is the estimate of what investors require for making investments in the sector. That is, given the opportunity to invest, investors will be happy to invest given the risk profile and expected returns in that market. In a competitive environment, operators will provide those investment opportunities because not doing so would mean falling behind competitors. From a regulatory perspective, for setting regulated wholesale and retail prices in order to safeguard against an abuse of market power, it is that benchmark against which the CRA seeks to set regulated prices.
- 50. With regards to (b) the CRA notes that Ooredoo provides examples of industry characteristics that are well known (to operators and investors) and not unique to the sector in Qatar. As such, any impact such industry changes may have would equally be reflected in the data used for calculating the WACC. The CRA therefore does not see any reason for taking account of such factors separately.

51. The comments made in relation to (c) again refer to factors that are explicitly measured in the calculation of the WACC. Where relevant the CRA addresses such issues with regards to the specific parameters considered (e.g., see earlier comments in relation to current political tensions and their impact on the risk free rate).

Vodafone: comparability of benchmarks

52. Vodafone notes that the choice of benchmarks considered in the first CD lack transparency. It considers that some of those benchmarks are not comparable to Qatar due to differences between the relevant jurisdictions and should not be used in the determination of the CoC.

CRA Response

53. The CRA notes that international benchmarks were considered in the determination of the CoC in a way that best provides a sufficiently large sample, taking into account the impact of country specific factors for the relevant parameters considered. The table below provides a summary of how benchmarks have been used by the CRA in the determination of the parameters of the WACC.

WACC parameter	Global approach	Domestic approach	
Risk free rate	Average of rates based on global approaches in other jurisdictions considered as part of the range of the risk free rate	No benchmark considered	
Debt risk premium	Average of rates based on company specific debt premiums in other jurisdictions considered as part of the range of the debt risk premium		
Equity risk premium	Benchmarks considered in the determination of the equity risk premium but not relevant for the range considered in the determination of the WACC		
ERP country risk premium	No benchmark considered		
Gearing	Average of gearings from other jurisdictions considered as part of the range of the gearing considered in the determination of the WACC		
Beta	Average of international benchmarks considered	No benchmarks used	

Table 1. Summary of the use of benchmarks in the determination of the WACC

- 54. The CRA notes that in almost all cases, the country specific aspects of a parameter estimate were excluded from the benchmarks considered. In particular:
 - (a) The risk free rate under the global approach only considers estimates from other jurisdictions where the global approach was also used. That is, where a specific country risk premium is not considered as part of the risk free rate. As such, these benchmarks help take into account the range of corresponding regulatory decisions in other jurisdictions, without suffering from any country specific distortions.

- (b) The benchmarks for the debt risk premium only consider the company specific debt premium, i.e. without considering the country specific risk. As such, the benchmark provides a range of debt premiums required for the provision of communication services, irrespective of the country risks in which those companies operate. However, the CRA acknowledges that the range of corporate credit ratings associated with companies considered in the benchmarks is potentially wider than that of the sovereign credit ratings of the corresponding countries but still considers that the consideration of a wider group of countries and companies in addition to the Qatar specific estimates is a reasonable approach for estimating the cost of debt.
- (c) A similar rationale applies to the gearing where, the gearing as such is independent of a country risk profile. However, the CRA acknowledges that country specific corporate tax rates are likely to give rise to some variation in the benchmark data that does not, as such, apply in Qatar. However, such differences seem to have limited impact on the sample considered. This is further discussed in the relevant section later in this document.
- (d) The beta estimate in the domestic scenario was based on measuring regional companies against a regional stock market index as a proxy for the market portfolio i.e. no benchmarks were used.⁴ For the beta estimation under the global approach, the CRA considered benchmarks from a range of countries. This provides a reasonable basis for the estimation given beta measures the systemic risk of communication services against the risk of the market as a whole, not the risk of investing in any particular country (which is taken into account through a different parameter). The CRA therefore considers that as wide as possible sample of beta estimates provides the most reasonable basis for setting beta under the global approach. This minimises the impact that measurement errors of any particular beta estimation might have.
- 55. For the reasons set out above, the CRA considers that the choice of parameter ranges, where based on benchmarks, were reasonable.

4.2 Specific comments received in the first CD process

- 4.2.1 Question 1: Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide CoC?
- 56. Ooredoo agrees with the CRA's conclusions that a single CoC should be determined.
- 57. Qnbn submits that the focus of regulation has shifted from retail to wholesale regulation and that a separate WACC should be used for wholesale regulation and competition matters. Qnbn proposes that separate fixed and mobile WACCs could be derived by varying the parameters using the ranges considered in CRA's first CD (in particular, using the lower end of the estimated asset betas for estimating the WACC applicable to fixed infrastructure access services and the higher range of the estimated asset betas for mobile services). It references a number of methodologies used in the UK, the Bahamas, Bahrain, Norway and Sweden to differentiate between fixed and mobile

⁴ We further discuss this aspect later in this document when responding specifically to comments received with regards to the estimation of beta.

WACCs. TRA Bahrain, for example, estimated four WACCs in its 2003 determination (last mile access, core fixed network interconnection, mobile services and unregulated internet and value-added services), calculated by using relative difference in betas. Qnbn thus submits that CRA should apply a CoC lower than that for the overall company fixed infrastructure services, to reflect the significant lower risk associated with the provision of such services.

58. Vodafone has no objection to the CRA's proposal, but notes that the CoC may be higher for mobile than for fixed services and also higher for an operator who entered the market more recently than an incumbent. Without making more detailed proposals, Vodafone notes that the CRA may therefore need to apply a different CoC "in some instances".

- 59. With regards to Qnbn's approach for differentiating the CoC, the CRA notes that the ranges considered by Qnbn for deriving its differentiated figures are in no way related to infrastructure access and other telecommunication services respectively and Qnbn provides no justification which support that the respective upper and lower bounds of the relevant parameters are in any way more representative of such services.
- 60. The CRA refers to its assessment in the CD which already sets out a number of reasons referring to historic beta estimates and demand elasticities to show that there is limited evidence to suggest that a differentiated CoC is justified. More specifically in response to Qnbn's proposal, the CRA further notes that the main driver of a differentiated WACC is the asset Beta, i.e. the sensitivity of returns on an investment to systematic risks that cannot be 'diversified away' by investors. Even if alternative approaches as suggested by Qnbn were used, the closeness of similar estimations in other jurisdictions imply that it is difficult to determine if differentiated betas represent a true difference between services or are simply the result of statistical noise.
- 61. Moreover, the CRA notes that Qnbn does not refer to the last determination of the regulator in Bahrain. In its 2013 decision, TRA states that "the Authority proposes to estimate a single cost of capital for all regulated telecommunications services in Bahrain."⁵
- 62. With regard to Vodafone's submission, the CRA notes that no specific arguments as to when such differentiations should apply were given, whilst neither was any method by which different CoCs should be estimated.
- 4.2.2 Question 2: Do stakeholders agree with the CRA's view that the CoC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?
- 63. All respondents agree with CRA's view that the calculation of the WACC should not take into account any corporate or similar taxes.
- 64. While somewhat unrelated to the question, Ooredoo notes that the CoC determined as a result of this procedure should only apply to existing services. It argues that a CoC for new services should include a mark-up because such services would inherently carry greater business risks.

⁵ Bahrain: 2013 Cost of Capital, Ref: MCD 02/13/018.

CRA Response

- 65. The CRA notes respondents' acceptance of its treatment of corporate or similar taxes.
- 66. CRA considers that there is no inherent reason for a new service to carry a higher risk as such. It entirely depends on the nature of the service. For example, a new service may provide a more reliable, better, service, so putting an operator at a competitive advantage and hence exhibiting lower risk. In any case, with reference to the response provided in relation to the previous question, the CRA considers it reasonable to determine a WACC for the industry as a whole rather than for individual services.
- 67. The CRA finally notes that the need to apply a CoC to new services may be limited given that the likelihood for finding significant market power for such services may be limited, except in cases where such services replace older ones.
- 4.2.3 Question 3 Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?
- 68. All respondents agree with CRA's view that the CoC should be based on a nominal calculation of the WACC.
- 69. However, Ooredoo disagrees with the CRA assumption that inflation in Qatar will be stable. Ooredoo notes that Qatar has a history of substantial changes in price levels and that the recent relative price stability should not be the guide for setting a nominal CoC. Quoting a corresponding IMF forecast, Ooredoo proposes an inflation rate of 3.77% based on average of the IMF projection for 2018 and 19, largely driven by the introduction of VAT in 2018. It further notes that inflation could further increase as a result of migration, expansion of credit or inflation in other countries and as a result of potential further increases in the VAT, beyond the 5% scheduled for 2018.

- 70. Ooredoo's reference to IMF forecasts of higher inflation specifically takes into account a significant increase in prices in 2018 as a result of the introduction of the 5% VAT. Indeed, the CRA notes that the IMF forecasts 5.67% inflation for that year. However the IMF expects significantly lower rates between 2% and 3% for subsequent years. The corresponding arithmetic and geometric averages for the period 2018 to 21, the period for which the CRA proposes to set the CoC, are 3.25% and 2.99%, respectively. These values are lower than those considered in the first CD, where the average inflation forecast for the period 2016-2018 was set at 3.6%.
- 71. In relation to Ooredoo's comment that, historically, Qatar has seen substantial changes in price levels, the CRA notes that Qatar has had more periods of stable inflation rates than not over the last two decades. As shown in Figure 3 of the first CD, in the period 1997-2003, inflation has been fairly stable with values between 0.2% and 2.8%. Significantly higher rates during 2004-2008, which can partly be attributed to the property market, have normalised after a sharp decline since 2009. The CRA therefore considers it reasonable to assume that future inflation rates are more likely to be stable than not.
- 72. However, the CRA considers that the assumptions used in the calculation of the WACC should be revised to take into account the difference between expected inflation rates in Qatar and the US for the period 2018 to 2021, instead of the factor based on a much shorter forecast considered in the first CD. The CRA notes that the revised adjustment

to the USD based WACC in the domestic and global approaches is 1.19% (given by the 2018-2021 arithmetic averages of 2.03% and 3.25% of the forecasts of US and Qatar inflation rates, respectively), instead of 1.83%, the value considered in the first CD (given by forecasts of 1.74% and 3.60% for US and Qatar inflation rates up to 2018, respectively).



Figure 2. US and Qatar inflation forecasts, Source: IMF

- 4.2.4 Question 4: Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?
- 73. Ooredoo argues that only a domestic scenario is relevant and necessary based on the Ooredoo cost of capital being related to its investor base, with nearly all equity investment being from Qatar or the region. It further submits that a domestic approach is also more reasonable given that improved stock market conditions have led to more liquidity in the market.
- 74. Qnbn also submits that in its view a domestic scenario is the most appropriate way of calculating the WACC, saying that it should solely be based on an operator providing services in Qatar. In its view, Ooredoo's international activities are not necessarily similar to its activities in Qatar and CRA should focus on the WACC of providing services under imperfect competition in Qatar.

- 75. In response to Ooredoo's and Qnbn's comments, the CRA clarifies that the aim of the global and domestic approaches for estimating the CoC are the same. Both seek to measure the cost of providing communication services in Qatar but use different methods to do this. As set out in the first CD, the aim is not to reflect in any way the ownership structure of existing operators but the ownership structure an efficient operator would have.
- 76. The global scenario takes global stock markets as a basis for estimating risk free rates and other parameters and then adds Qatar specific risk premiums to reflect the

characteristics of providing communication services in Qatar. The domestic approach is based on local (Qatari and MENA) bond and stock market information.

- 77. In contrast, the domestic approach aims to reflect Qatar specific risks and their impact on the returns sought by investors directly in the choice of financial data considered. The domestic approach therefore considers Qatari government bonds and stock market information.
- 78. Given this, the CRA continues to consider both, the global and domestic approach for calculating the WACC.
- 4.2.5 Question 5: Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?
- 79. All respondents generally agree with the CRA's proposal.
- 80. In addition to generally agreeing with the CRA's proposal, Ooredoo further submits that whilst the four year period does support regulatory certainty and is a reasonable planning period, there could, over that period, be a requirement for higher equity returns and a shift towards higher costs of debt. As such, the appropriate WACC is likely higher than current CRA estimates and a further review should be done in 2018.

- 81. The CRA takes notice of the general agreement with its proposal and therefore proposes to maintain its approach. The CRA also notes that Ooredoo does not substantiate its concern regarding higher return requirements and higher costs of debt.
- 82. The purpose of the four year period is to provide regulatory certainty and the possibility of regular movements in the financial markets and underlying parameters of a WACC calculation is always to be expected during such a period.
- 83. For the avoidance of doubt, the CRA will not monitor how the parameters used in the calculation of the WACC move as a result of normal financial market behaviour. The extent to which the current and expected state of the market could change and the importance of setting a CoC that safeguards consumer interest, promotes investment and competition, is already reflected in the CRA's proposed CoC on the basis of the WACC ranges determined.
- 84. The CRA will only consider revising the CoC during the proposed regulatory period as a result of events of major significance that could imply significant changes to the calculation of the WACC.
- 85. A request for an earlier review could also be submitted to the CRA by SPs, accompanied by evidences of events of major significance that could imply significant changes to the calculation of the WACC.
- 4.2.6 Question 6: What are stakeholders' views with regard to the determination of the risk-free rate?
- 86. Ooredoo submits that the risk free rate for the Qatar market under the domestic approach is correctly specified as the Qatar Government 10 year bond. However, it further notes that the Qatar 10 year yield recently approached 3.8% due to the political situation and credit downgrade. It disagrees with the global approach, arguing that only the domestic approach should be considered, but states that if a global approach is

used, the Federal Reserve's target rate of 3% for 2019 should be considered for the purpose of setting the risk free rate.

- 87. Ooredoo also proposes an alternative estimate of the risk free rate based on "forward looking evidence". For this it calculates a risk free rate of 5.93% based upon a US sustainable risk free rate of 4.15% plus sustainable Qatar default spread of 1.78%.
- 88. Ooredoo's proposal is based on the following assumptions. It calculates a "sustainable" US risk free rate of 4.15% on the basis of the expected US real economic growth of 1.9% and the Federal Reserve's acceptable target inflation rate of 2.25%. Using a second method, Ooredoo arrives at a similar level through an estimate of the Federal Reserve's target interest rate of 3% and the spread between Treasury bills and 10 year bonds of 1.19% (average since 1971).
- 89. The sustainable Qatar default spread (1.782%) is calculated as the average of the spread at issue on 5 and 10 year Qatar bonds and average spread of 10-year Qatar bonds in the secondary market.

CRA Response to Ooredoo's comment

- 90. Ooredoo's comment covers two issues:
 - (a) A concern that the approach for estimating the risk free rate considered by CRA under the domestic approach does not take into account the most recently available information.
 - (b) Two alternative approaches for calculating a "sustainable forward-looking" rate.
- 91. With regard to the first point, Ooredoo correctly points out that the Qatar 10 year yield recently approached 3.95% owing to the current tensions between Qatar and some of its GCC neighbours, a significantly higher level than the 3.32% (as of 31/3/2017) used in the first CD.
- 92. However, as set out in response to the general comments received from stakeholders, the CRA finds that rates have since returned to levels similar to that proposed by the CRA for the risk free rate under the domestic approach. The CRA therefore considers that no update is required to that rate.
- 93. With regards to Ooredoo's approach for setting a "sustainable forward looking" risk free rate, the CRA finds that Ooredoo's reliance on target rates and expected growth is questionable. While there may be a fundamental equivalence between long term growth rates and long term returns, there is no reason to believe that expected growth rates and inflation targets will actually become a reality and therefore no reason to assume that investors expect such a return as a result of such forecasts.
- 94. For example, from April to July 2017, the IMF forecast for US economic growth was revised by 0.4 percentage points (a reduction of more than 15%). Equally, target or expected inflation or interest rates are being set by central banks to induce certain behaviour in the market and are frequently revised.
- 95. Indeed, when looking at Fed fund futures⁶, financial contracts that represent market opinion of where the official Fed fund rate will be at the time of a contract's expiry, it is possible to calculate the probabilities (according to the opinion of the market) of

⁶ Fed funds futures (traded on the Chicago Board of Trade)

possible future Fed fund target rates. One can see from the following chart that market opinion on where the fed fund target rate will be in the near future is not certain at all.



Figure 3. Target rates probabilities on the meeting of 2103/2018, Source: CME Group



Figure 4. Target rates probabilities on the meeting of 1/08/2018, Source: CME Group

96. The above charts show that market opinion on where the Fed fund target rate will be set at the future meetings of, for example, 21 March 2018 and 1 August 2018 are evenly split between the two ranges of 1%-1,25% (approximately 60% probability for the more recent meeting and 50% for the later one) and 1.25%-1.5% (slightly less than 40% for the meeting of 21 March 2018 and slightly more than 40% for the meeting of 1 August 2018).

97. Similarly, the graph below, which compares the target rate projections from the last two meetings of the Fed and the implied target rate given by the Fed funds futures, shows that market opinion on where the fed fund target rates will be in the long term diverges from target rate projections. Although it is true that target rate projections from Fed meetings point in the direction of target rates of around 3% in the long term, Fed fund futures value the long term target rate at approximately 1.5%.



Figure 5. Fund rate projections from the last two meetings of the Fed and Fed funds futures

- 98. This suggests two things; firstly, that projections change on a regular basis and are for that reason alone unsuitable as a proxy of the risk free rates or risk premiums. It also shows that market expectations can vary quite significantly from the rates that central banks choose to set as their targets. This means it would be unreasonable to assume that a required rate of return should be based on a risk free rate that is twice as high as what the market (i.e., investors also investing in communication companies) would expect it to be when forming their views about their required rates of return.
- 99. Finally, the CRA also considers that adding the term structure (i.e. the spread between short term Treasury bills and 10 year government bond yields) to the Federal Reserve short term fund rate does not add any additional precision in the estimates. This methodology is, indeed, a good predictor of the 10 year bond yield in the short term, since it incorporates information on both inflation and maturity spreads. However, as the graph below shows, this year's yield of the 10 year US government bonds is always within the range given by the upper and lower end of this year's Fed fund rates (1% and 1.25%, respectively) and the term structure. Therefore the CRA considers that changing its approach is unnecessary.



Figure 6. Comparison of the Fed fund target rates and the US 10 year bond yield, Source: Bloomberg

- 100. For the reasons set out above, the CRA considers that its approach for setting the risk free rate is more reliable and accurate than Ooredoo's approach, in line with regulatory precedent in other jurisdictions.
- 101. However in reviewing the CRA's own estimation of the risk free rate, it proposes to make a small adjustment to that set out in the CD, to take into account that 10 year US government bond yields prior to 2013 were particularly low in comparison to more recent rates. The CRA therefore proposes to consider estimating the risk free rate on the basis of the 3 year historic average, consistent with the period over which the 10 year Qatar government bond yield under the domestic approach is considered. The corresponding lower bound of the range of the rate considered in the global approach is therefore updated at 2.25% (while the upper bound remains at 3.5% based on the average of international benchmarks), while the rate under the domestic approach remains at 3.5%.
- 102. Finally, CRA does not agree with Ooredoo's estimation of the sustainable Qatar default spread at 1.782%. This value is calculated as the average of the spread at issue on 5 and 10 year Qatar bonds and the average spread of 10-year Qatar bonds in the secondary market. The CRA does not understand why Ooredoo uses the average of 5 and 10 year Qatar bonds, when it previously stated that *"the 10-year maturity is the relevant risk free rate because we match a long-term business with this funding horizon."* The CRA agrees with Ooredoo that 10 year maturity is more consistent with the financing of new assets and their replacement of existing ones.

Vodafone's comments

103. Vodafone submits that the choice of bond maturity (10Y) is made on the grounds of "reliability" alone and that otherwise there is no rationale for the CRA choosing that bond maturity. It notes that the maturity should reflect both the remaining useful economic life of Ooredoo's assets (it assumes approximately seven years) and the length of the regulatory period, citing Ofcom and TRA Bahrain as proponents of this approach. Based on an alternative "global" approach taking account of its comments, Vodafone estimates a risk free rate of 1.8% (average of 4 year and 7 year yield) based on the yield curve for US bonds. For the domestic approach Vodafone submits that the lack of shorter maturity bonds should be compensated through assuming that the 10 year bond includes an uplift of 0.2 to 0.4 percentage points (the delta between the yields of US 10 year bond and 7 year and 5 year bond respectively) and that the risk free rate considered in the domestic approach should be adjusted downwards accordingly.

104. However, Vodafone also notes that interest rates remain at historically low levels and that some regulators have included explicit uplifts in their estimate of the risk free rate to compensate for that.

CRA Response to Vodafone's comment

- 105. Vodafone's comment can be split into two parts:
 - (a) It finds that other regulators considered shorter maturities when determining the risk free rate; and
 - (b) when a similar approach is applied in Qatar the risk free rates should be reduced to 1.8% and 3.1%-3.3% in the global and domestic approaches respectively.
- 106. The precedent Vodafone refers to is an Ofcom consultation from 2005⁷ in which Ofcom considered that the decision on the appropriate bond maturity should be based on two aspects:
 - (a) maturities should be relevant to the duration of the charge control; and
 - (b) maturities should reflect the need for operators to make new investments.
- 107. In weighing these aspects, Ofcom decided to rely on 5-year UK gilts when estimating the risk free rate, to strike a balance between the above two arguments. However, it also pointed that "the yield curve is not currently upward-sloping, meaning that using the yield on longer term gilts would not, as has often been the case historically, lead to higher estimates." This implies that the choice for the 5-year gilt was somewhat arbitrary given that longer maturities would have resulted in the same risk free rate. In fact, in a subsequent consultation in 2011⁸ Ofcom also included 10-year gilts in its estimation of the risk free rate, since shorter dated yields were strongly influenced by Central Banks' QE measures.
- 108. Vodafone also refers to TRA Bahrain which considers 7-year maturity bonds on the basis of its estimate of the remaining economic life of relevant assets in Bahrain.⁹

⁷ Ofcom, 2005: Ofcom's approach to risk in the assessment of the cost of capital. Accessed in August 2017 at <u>http://stakeholders.ofcom.org.uk/binaries/consultations/cost_capital2/statement/final.pdf</u>

⁸ Ofcom, 2001: Proposals for WBA charge control. Consultation document and draft notification of decisions on charge control in WBA Market 1. Accessed in August 2017 at https://www.ofcom.org.uk/ data/assets/pdf file/0021/34239/condoc.pdf

 ⁹ TRA Bahrain, 2013: Cost of Capital, Final Determination. Accessed in August 2017 at http://www.tra.org.bh/media/document/MCD02130182013CostofCapitalDeterminationfinal.pdf
The CRA considers that its rationale for choosing 10-year maturity bonds for determining the risk free rate remains valid. Consistent with other regulators¹⁰, CRA proposes to use 10-year bonds due to them being less influenced by recent QE measures, sufficient secondary market liquidity, their consistency with financing new and replacement long lived communication assets.

Other comments

- 109. Qnbn and Vodafone submit that the rationale for the choice of benchmarks is unclear from the first CD and further that it is unclear whether benchmarks represent empirical evidence or regulatory judgment.
- 110. Vodafone also submits that there are comparability issues for some of the benchmarks used. Specifically, Vodafone argues that the basis for choosing benchmark countries (e.g. in the case of the UK estimates are not based on an international scenario) and the extent to which the benchmarked values are actually based on empirical data (for example, in the case of TRA Bahrain the estimates reflect the regulator's judgment) is unclear from the Draft Determination.
- 111. Qnbn submits that the benchmarking should focus more on regional evidence.

CRA Response

- 112. A general response to comments received with regards to the benchmarking considered by CRA is provided in Section 4 earlier in this document. The CRA notes that Vodafone seems to identify comparability issues in the data considered. With regards to the risk free rate, the CRA is unable to verify that and notes that Vodafone has not provided sufficient detail for CRA to comment in more detail in that regard. With regards to Vodafone's comment regarding whether the benchmarks are used to provide empirical evidence or regulatory judgment, the CRA does not see the relevance of that distinction. For the purpose of its own calculation of the WACC, the CRA uses its own empirical analysis of the relevant parameters of the WACC. In addition to that analysis, the CRA also considers benchmarks of CoC determinations in other jurisdictions. Whether such determinations represent empirical decisions or decisions on judgement does not matter as such since the aim of taking into account these benchmarks is to improve the evidence considered in the current determination, beyond what is directly measureable by CRA during this proceeding.
- 113. The CRA also disagrees with Qnbn's comment to focus on GCC benchmarks alone because such countries are more similar to Qatar. As set out in section 4, the CRA has specifically taken into account where parameters for the calculation of the WACC could be influenced by the characteristics of the country from which the benchmarks have been taken and only considered those where parameter benchmarks are equally representative of Qatar (or have proposed an update where this was previously not the case). The CRA further notes that benchmarks on the basis of GCC countries alone would provide a much smaller sample which in the CRA's view would not be reliable to serve as a benchmark in the first place.

¹⁰ ACM (Netherlands Authority for Consumers and Markets), AGCOM (Italian communications authority), ANACOM (Portuguese communications authority) and CNMT (Spanish communications authority) estimate the risk-free rate using 10-year maturity bonds.

- 4.2.7 Question 7: What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?
- 114. Consistent with its general comments discussed earlier, Ooredoo suggests a more forward-looking approach for the determination of debt and country risk premiums. Ooredoo also states that a mark-up should be included for the costs of issuing debt, which it says is not included in yield and spread estimates available from secondary markets information.
- 115. Based on its proposals, Ooredoo estimates a debt risk premium of 0.95%, derived from differences between credit ratings of US industry debt yield curves. Ooredoo then adds an issuance cost of 0.15% and arrives at an estimate of the debt risk premium of 1.1%.
- 116. Vodafone submits that the upper range used by CRA suffers from distortions and may not be relevant for communication services in Qatar. First of all, Vodafone questions the comparability of the benchmarks. It further submits that the period over which CRA measures the country risk premium is too long and asks that the recent Qatar downgrade should be taken into account in CRA's analysis. That is, Vodafone submits that the CRA should assess the impact of the recent Qatar downgrade in its assessment of the country risk premium and that the CRA's assessment should also consider the narrowing spread between Qatari and US yields. In Vodafone's view, this suggests that a country risk premium of 1% would be more appropriate.

CRA Response

- 117. The CRA considers that Ooredoo's approach to estimating the debt risk premium provides an alternative estimate but not necessarily a more forward looking one. Without providing actual data on the industry debt yield curves, which Ooredoo states it has used for the determination of its estimate of the debt premium, it calculates a minimum premium of 0.95%. The CRA notes that this rate is significantly higher than the spread considered by CRA, which used the three year average yields of Qatar government and Ooredoo bonds, as well as the more recent spread between the two. As already mentioned in the CD, the likely reason that the Ooredoo debt premium is very low is the strong backing of that Ooredoo receives from the Government of Qatar. However, it is exactly for this reason that the CRA also considers international evidence for its range of the relevant debt premium, which it notes exceeds the estimate proposed by Ooredoo.
- 118. Vodafone suggests that the upper range considered by CRA is not reliable because debt risk premiums come from a variety of countries and with different risk profiles for the countries and companies that may not apply to Qatar. In response to the general comments made by respondents, the CRA already set out that country risk does not play a role in the determination of the debt risk premium. Equally, the CRA considers that the use of international benchmarks provides useful evidence of the cost of debt without Qatar specific distortions such as the one described above for Ooredoo. In other words, the CRA considers that the benchmarks provide a reasonable range that helps address the issue of the strong public sector backing in Qatar.
- 119. With regard to Vodafone's comment regarding the country risk premium, the CRA notes that no clear trend of convergence is visible, as shown in the following chart. Although it is true that the yields of the US and Qatar government bonds are highly correlated and follow the same path, the data shows that they do not converge. It is true that since

2016 the spread has reduced, but this is only because at the beginning of 2016 the spread reached very high levels. Since then, the spread has reduced, though it has not yet reached the lower level of 2014. Indeed, if the yield spread of the first year of data is equal to 1.2%, the yield spread of the last two years of data is equal to 1.47%. Moreover, even when updated with the most recent data up to September 2017, the average spread between the Qatari and US government bond yields is still 1.36%, as in the first CD.



19/03/2014 19/07/2014 19/11/2014 19/03/2015 19/07/2015 19/11/2015 19/03/2016 19/07/2016 19/11/2016 19/03/2017 19/07/2017

Figure 7. 10yr daily Qatar and US bond yield spreads, Source: Bloomberg

- 120. Finally, reviewing more recent evidence of country risk premiums suggests to the CRA that there have only been minor changes. In particular, Damodaran's estimate of the country risk premium slightly increased from 0.57 to 0.64, while the average spread between Qatar and US government bonds as shown above has remained stable.
- 121. The CRA considers that Ooredoo's submission regarding the cost of issuing debt is valid and could be considered if the cost of debt was only based on debt yield spreads in the secondary market. However, given that the calculation of the WACC also considers benchmarks of the cost of debt which are significantly higher than that measured for Ooredoo directly, the CRA considers that a separate recognition of such costs is unnecessary.
- 122. For the reasons set out above, the CRA maintains its range for the debt risk premium from 0.3% to 1.43%.
- 4.2.8 Question 8: What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?
- 123. Ooredoo submits an alternative calculation of the ERP, estimating a "current" ERP of 9.65% and an ERP of 9.05% in its "sustainable" scenario. It argues that a forward looking estimate of the equity risk premium should be based on the Gordon growth model instead of historic estimates of the premium. Ooredoo also argues against looking at ERP estimates from developed markets to derive the ERP of a market like Qatar.

124. Other respondents have not commented in response to this question or agreed with the CRA's proposal.

CRA Response

- 125. In its response, Ooredoo refers to a paper by Damodaran where the Gordon growth model is considered as an approach for estimating the equity risk premium based on the S&P500. It applies that approach to expected growth of the Economy in Qatar, which in its view consists of the forecast from the IMF of 2.85% and, on top of that, an oil price and production increase driven uplift, to estimate an expected GDP growth of up to 9.77%. The CRA has several concerns with Ooredoo's approach.
- 126. The general model Ooredoo applies is one where the value of a stock is derived from a future series of dividends at a given assumed discount rate. Using the current price of a stock and expected dividends in turn, Ooredoo calculates an implied expected rate of return. For this, Ooredoo assumes that growth in GDP will directly translate into increased earnings in the form of dividends. However, the CRA notes that some research¹¹ suggests that this may not be the case, with the growth in earnings being lower than the growth in GDP.
- 127. Furthermore, even if the trend in earnings is correctly calculated, it is still unclear whether the dividend discount model is the right method for estimating the allowed return in a regulatory procedure. This is because using this model may introduce a lot of variability and unnecessary business risk in a sector that in itself is stable, because the current dividend yield on the market, which is a basic input of the model, is highly variable. This is shown in the chart below.



18/08/2016 29/09/2016 03/11/2016 08/12/2016 12/01/2017 16/02/2017 23/03/2017 27/04/2017 01/06/2017 13/07/2017 17/08/2017

Figure 8. Historic DSM Index Dividend Yield, Source: Bloomberg

128. The following table provides a number of scenarios for the ERP calculated by the CRA based on the above dividend yields. The table illustrates the dependence of the approach on its assumptions:

¹¹ For example, <u>https://www.msci.com/documents/10199/a134c5d5-dca0-420d-875d-06adb948f578</u>

- (a) The first scenario estimates a comparatively low ERP. This uses the average value of the Qatar (DMS Index) dividend yield between August 2016 and August 2017, a TEGR based on Ooredoo's scenario 1 (see footnote 13).
- (b) The second scenario estimates a comparatively higher rate. This uses a risk free rate based on current Qatar 10 year yield, observed Qatar Dividend Yield (DSM Index), and a TEGR based on Ooredoo's higher rate.

	Risk free rate	Dividend Yield	TEGR	EMR	ERP
Scenario 1	3.50%	3.51%	4.65%	8.3%	4.8%
Scenario 2	3.32%	4.11%	10.21%	14.7%	11.4%

 Table 2. ERP based on GGM for Qatar, Source: Ooredoo's response document, Bloomberg and CRA's own calculations¹²

- 129. This illustrates that the ERP estimates provided by Ooredoo almost entirely depend on assumptions about the future growth of the market, which itself is driven by Ooredoo's assumptions about an expansion of the oil sector far beyond any official estimate, such as that from the IMF. The CRA rather prefers to base its estimate of the ERP on long term historic data. Indeed, it notes that the expansion of on area of the Qatar economy may be good for investors and improve their return but cannot be considered the minimum required by investors to invest in the telecoms sector.
- 130. In fact, applying Ooredoo's approach to Ooredoo's stock directly, suggests that investors require far less return on their equity, as shown in the following table, where the Gordon Growth model proposed by Ooredoo is applied directly to Ooredoo's stock data.¹³

	Risk free rate	Dividend Yield	TEGR	EMR	ERP
Scenario 1	3.50%	2.59%	4.53%	7.24%	3.74%
Scenario 2	3.50%	3.32%	4.53%	8.00%	4.50%
Scenario 3	3.50%	4.02%	4.53%	8.74%	5.24%

Table 3. ERP based on GGM for Ooredoo, Source: Bloomberg and CRA's own calculations

- 131. The corresponding ERP ranges from 3.74% to 5.24% not dissimilar from the range of 4.1% to 5.7% considered in CRA's proposal.
- 132. Given the CRA review of Ooredoo's approach, the CRA considers its approach based on long term historic evidence more reliable. In fact, when applying more realistic, market-led assumptions, the CRA finds that even under the approach Ooredoo applied

¹² The scenarios for the TEGR are the following: Ooredoo scenario 1 implies a TEGR based on average (2018-2021) nominal GDP forecast and average (2019-2021) inflation forecast; Ooredoo scenario 2 includes oil price growth and gas output boost.

¹³ The data shown in the table is estimated in the following way. The dividend yield is, in the order shown, based on the minimum, average and maximum in the last year (ORDS QD Equity). The TEGR value represents the Bloomberg estimated CAGR of the operating Earnings per Share over the company's next full business cycle, typically, 3-5 year, using ORDS QD Equity.

similar estimates of the ERP are derived. Therefore, no updates of the equity risk premium and the equity country risk premium are necessary.

- 4.2.9 Question 9: What are stakeholders' views regarding the determination of the gearing?
- 133. In relation to the gearing, Ooredoo submits that it aims for a level of around 30%, almost consistent with the lower end of the range CRA considered in the CD.
- 134. Vodafone Qatar does not have strong objections to the CRA's proposal although notes that Ooredoo stands as an outlier in the region, with its relatively high level of gearing (42%).

CRA Response

- 135. The CRA notes that the target Ooredoo proposes is not one that Ooredoo has yet realised and the CRA is therefore minded to maintain its range based on Ooredoo's current gearing and the average observed in other jurisdictions. As noted before, the gearings from other jurisdictions are likely to be affected by country specific tax regimes, especially in cases where debt provides a shield against corporate tax payments. However, the CRA notes that evidence from other countries often suggests a lower ratio of debt financing than Ooredoo's. Therefore, it considers that the average from those benchmarks still provides a reasonable lower end of the range considered in the calculation of the WACC. Indeed, the CRA notes that gearing of Zain, another example of an operator in the region using debt financing, is broadly consistent, at 35%, with the CRA's range.
- 4.2.10 Question 10: What are stakeholders' views regarding the determination of the equity beta?
- 136. Ooredoo submits an alternative estimate for the equity beta. This is based on Ooredoo's stock against the DSM index, including an adjustment for the introduction of VAT in 2018. The corresponding estimate by Ooredoo is 1.08 and 1.14 under its "current" and "sustainable" scenarios respectively.
- 137. Vodafone disagrees with the estimation of domestic betas against regional indices and submits that they should be estimated against a local index.
- 138. Vodafone also submits that no explanation was provided to support the CRA's construction of its final beta proposal also noting that the estimation should further take into account the Blume adjustment as well as 2 year weekly, 5 year weekly and 5 year monthly data against both local indices and a world index.
- 139. Vodafone also notes that there is "no objective justification" for the "Ooredoo adjustment" implemented by the CRA.

CRA Response

140. As set out earlier, the CRA disagrees with making any adjustment to the beta as a result of introducing VAT in Qatar in 2018. It equally disagrees with the use of any parameters that take into account Ooredoo's "sustainable" return on equity, as discussed in the previous section. However, the CRA notes that Ooredoo's estimates, even when taking into account the factors CRA disagrees with, fall within the range.

- 141. With regard to Vodafone's suggestions as to the measurement of the betas, as set out in the first CD, the CRA does not consider estimating the beta against a global benchmark given the phenomenon of low and weak beta estimates for regional companies against global stock market indices. As shown in the Revised Economic Analysis, betas measured against the MSCI global index continue to suffer from very low R2.
- 142. The CRA also considers that Vodafone's suggestion of using monthly 5 year data for the determination of the beta unnecessarily ignores a large amount of data and therefore does not consider that estimates on the basis of such an approach either.
- 143. In considering Vodafone's comment regarding the Ooredoo adjustment applied during the previous determination and the CD, the CRA decided to apply an alternative approach. This is because, the merits of applying the Ooredoo adjustment to a number of comparator companies was already weak during the previous CoC determination so that a number of companies had to be excluded from the determination of the beta. We therefore focus our analysis on operators in Qatar, Ooredoo and Vodafone, to estimate the beta range to be applied in the domestic scenario of the WACC calculation.
- 144. In relation to Vodafone's comments regarding the choice of the index considered, the CRA notes that the determination of the beta is not a purely mechanistic approach subject to whether an approach is called domestic or global. As set out earlier, the approaches aim to measure the same in slightly different ways. Thus, when considering the "domestic approach", the CRA still needs to consider what proxy of the market portfolio is most appropriate for the determination of the beta. Given Ooredoo's exposure to risk beyond Qatar, CRA is satisfied that it makes sense to consider an index that also reflects the risk of that wider region. Measuring the beta against a regional stock market index does not mean a departure from the domestic approach, as Vodafone seems to suggest, but only the fact that a regional index more reasonably reflects a proxy of a market portfolio against which the volatilities of regionally diversified communications operators are measured.
- 145. However, as further considered in the Revised Economic Analysis, see section 5, the R² of the raw Beta estimation against the regional DJMENA index, is low for all the companies considered in the sample. In the previous consultation, this issue was addressed by applying an Ooredoo-adjustment and excluding from the analysis the betas of Batelco and Etisalat.
- 146. Given the very limited improvement of the Ooredoo adjustment for the sample considered for the determination of the Betas a number of companies had to be removed from the sample after the adjustment was applied the CRA is minded to measure the Betas of Ooredoo and Vodafone against the DSM index alone given the significantly higher R² observed in those estimations..
- 147. The CRA also considers that in addition to the Vasicek adjustment, the Blume adjustment should also be applied as it is commonly used in similar regulatory decisions¹⁴ to address a potential over or underestimation of the beta.

¹⁴ For example, see TRA Bahrain (2013), Cost of Capital, Ref: MCD 02/13/018; CNMC (2016), Resolución relativa a la tasa anual de coste de capital a aplicar en la contabilidad de costes de Telefónica de España S.A.U.,

- 148. The CRA further accepts that including more periods can improve the beta estimation by adding more information. For this reason, the CRA takes into account a weighted combination of 2yr weekly (rolling average) and 4 year weekly (point average) estimates, as previously considered in the CD, and a weighted combination of 2 year weekly (point average) and 5 year weekly (point average) estimates. Especially the 2 year weekly (point average) does put more focus on more recent evidence beta.
- 149. In line with the first CD, the CRA assigns a higher weight (2/3) to the more recent average estimate of 2yr weekly data to apply more weight to the beta based on the more recent information available. Table 4 shows the revised beta estimates.

BetaA (DSM)												
SP	Vasic	asicek asset beta Blume asset beta			Vasicek asset beta Blume asset b				beta			
Period	2yr point avg	5yr point avg	Com bine d	2yr point avg	5yr point avg	Com bine d	2yr rollin g avg	4yr point avg	Com bine d	2yr rollin g avg	4yr point avg	Com bine d
Ooredoo	0.50	0.61	0.54	0.57	0.62	0.59	0.45	0.54	0.48	0.60	0.62	0.60
Vodafon e	0.76	1.13	0.88	1.02	1.07	1.03	0.83	1.17	0.94	1.17	1.10	1.15
Average	0.63	0.87	0.71	0.80	0.85	0.81	0.64	0.86	0.71	0.89	0.86	0.88

Note: The combined beta assigns the following weights: 2/3*2year + 1/3*4year (5year)

 Table 4. Asset beta estimates and adjustments for Ooredoo and Vodafone, Source:
 Bloomberg and CRA's own calculations

- 150. Given the evidence presented above, the CRA is minded to update the range of the asset beta to 0.71-0.84. The lower end of the range of asset betas is set as the average of the Vasicek-adjusted asset betas of Vodafone and Ooredoo measured according to the two scenarios taken into account in the consultation (i. e. weighted average of 2 year and 5 year point estimates and weighted average of 2 year rolling and 4 year point estimate). The upper end of the range is set as the average of the Blume-adjusted asset betas of Vodafone and Ooredoo according to the same scenarios.
- 151. For the reasons set out above, the CRA updates the range it considered for the asset beta under the domestic scenario to 0.71 to 0.84, from the range of 0.59 0.79 proposed by the CRA in the first CD.
- 4.2.11 Question 11: What are stakeholders' views regarding maintaining a WACC of 10.75%?
- 152. Ooredoo submits that the cost of capital is higher. Ooredoo calculates a "current" vanilla WACC, with no tax, including its VAT effect at 5% at 10.92%. Under its "sustainable" approach, Ooredoo calculates the sustainable medium term (3 7 years) vanilla WACC of 13.46%.
- 153. Qnbn submits that the CRA's proposed CoC is inflated. It proposes that two CoCs should be set, one for fixed infrastructure services and one for other services. Qnbn states that "the CRA use the low end of the estimated asset betas for fixed

Telefónica Móviles España, S.A.U, Vodafone España, S.A.U. y Orange Espagne, S.A.U. del ejercicio 2016; and Agcom (2015), Allegato D alla Delibera n. 623/15/CONS.

infrastructure service WACC and the high end for Ooredoo's other services. This implies that the range for the nominal WACC for fixed infrastructure services should be 6.18%-6.19% and the range for the nominal WACC for other services 7.31%-7.43%."

- 154. Vodafone disagrees with the CRA's estimates and proposes a 10% maximum. It notes that this is "significantly above the ranges estimated by the CRA before the inflation adjustment" and "also well above the mid-point of the ranges estimated by the CRA after the inflation adjustment". Vodafone notes that a CoC at 10.75% would lead to the continuation of excess returns by Ooredoo to the detriment of competition, consumers and efficient investment.
- 155. Vodafone disagrees with the addition of an inflation adjustment to reflect higher inflation forecasts for Qatar vs the US, adding that this is inconsistent with the previous determination and without precedent. It notes that the TRA Bahrain, which otherwise applies a similar approach, does not include an adjustment to the overall WACC for inflation.

CRA Response

- 156. The CRA notes that Ooredoo's calculation of a "current" WACC falls within the ranges considered by the CRA (see following section) albeit above the CoC of 10.75% previously set by the CRA. For the reasons set out in a number of previous sections, the CRA disagrees with Ooredoo's rationale and approach for calculating a "sustainable" WACC and considers that the estimate proposed by Ooredoo on that basis is highly inflated.
- 157. With regards to Vodafone's comment regarding the inflation adjustment, the CRA notes that if financial instruments such as government bonds were issued in QAR, the yields of such bonds would reflect the reasonable inflation expectations of investors, including the fact that such inflation is higher in Qatar than in US. In fact, the CRA considers that Vodafone's comment is inconsistent with it otherwise favouring a domestic approach for calculating the WACC.
- 158. In relation to Vodafone's reference to the TRA Bahrain, the CRA notes that the TRA has considered the matter of inflation in a more nuanced way than Vodafone seems to suggest. The TRA states that "*[w]hereas the nominal exchange rate has been fixed at* 0.376 dinars to the dollar, the dinar appreciated steadily in real terms against the US dollar between 1982 and 2006. This suggests that differences in inflation rates between the USA and Bahrain persisted for several years, suggesting a difference in the nominal interest rates as well. That is, a higher nominal interest rate in the USA would have been expected to compensate investors for higher inflation in the USA compared with the return on Bahraini assets. Nevertheless, the evidence suggests that, since 2001, the inflation differential has been relatively small. The latest forecasts from the International Monetary Fund ("IMF") suggest that the inflation in both countries will equalise at 2% by 2017. This suggests that yields on US government debt are a good proxy for the nominal risk-free rate in Bahrain and the appropriate reference benchmark for the international investor investing in Bahrain. The Authority therefore considers that the yield on nominal US government debt can be used as a proxy measure for the risk-

free rate used to estimate the cost of capital in the international investor scenario".¹⁵ In other words, the TRA Bahrain did not consider any adjustments because inflation rates were expected to be similar. This therefore supports the case that CRA does make the adjustment, given its finding of different inflation expectations in the US and Qatar.

- 159. With regards to Qnbn's comments about the determination of different CoCs for different business segments the CRA refers to the earlier discussion where it finds that a split of the WACC is unjustified. The CRA notes that it was unable to replicate or reconcile the figures of the WACC proposed by Qnbn, but that anyway, the specification of separate WACC values for different business segments is not relevant for the purpose of the current determination.
- 160. A revised range of possible options for the determination of the CoC is provided in section 6.

¹⁵ TRA Bahrain, 2013: Cost of Capital, Final Determination. Accessed in August 2017 at <u>http://www.tra.org.bh/media/document/MCD02130182013CostofCapitalDeterminationfinal.pdf</u>

5 Revised Economic Analysis - Determination of the Weighted Average Cost of Capital

161. This section sets out the economic analysis on which the calculation of the WACC and determination of the CoC is proposed to be based. It is, in large parts, based on the first CD, making, where appropriate, changes to take account of comments made by stakeholders and to reflect the CRA's responses set out in the previous section.

5.1 Scope of the Weighted Average Cost of Capital

- 162. In this section, the CRA discusses the scope of the CoC (hereafter referred to as WACC given the methodology used for calculating the CoC), i.e. whether it should be defined for the telecommunications market as a whole, for individual SPs or for individual types of telecommunication services. In doing so, CRA has benchmarked approaches taken in other jurisdictions.
- 163. The CRA is required to set regulated prices where competition is insufficient to cause prices to be set at fair and efficient levels. A fair price provides the regulated SP with sufficient funds to cover costs of production and to encourage investment.
- 164. With the objective of setting such prices, the CRA must decide whether to set a single WACC for the whole sector, or to set different values for individual SPs and/or individual services.
- 165. In making this decision, the CRA has evaluated the trade-off between the advantage of recognizing different risk characteristics for different business segments (in the current case, the legacy fixed-line copper access network in Qatar, mobile networks, and fibre-based NGA network), and the difficulty of deriving, in a robust manner, such disaggregated WACC estimates.
- 166. This topic was discussed at length in the previous consultations referred to in the preceding section and in Annex II. The first consultation highlighted that the main driver of a differentiated WACC is the asset Beta, i.e. the sensitivity of returns on an investment to systematic risks that cannot be 'diversified away' by investors.
- 167. This key parameter is affected by:
 - (a) business cyclicality (demand elasticity) affecting revenues; and
 - (b) operational leverage, i.e. the proportion of fixed versus variable costs.
- 5.1.1 The impact of business cyclicality
- 168. With regard to the first point, historically mobile businesses have been deemed to have a higher exposure to systematic risk than a fixed-line business. However, this difference has eroded over the last few years and will probably disappear in the short to medium term. This is because, from the consumer perspective, convergence implies greater substitutability between services provided over fixed-line and mobile networks.
- 169. This convergence between the systematic risk related to the mobile and fixed businesses can be observed in the convergence over time of mobile and fixed asset betas.

- 170. This is discussed by TRA Bahrain (2013)¹⁶, which showed that based on companies operating in Bahrain and relevant international comparators there is not a systematic difference between the asset betas for mobile and integrated SPs. TRA Bahrain also highlighted the fact that differences between fixed-line and mobile betas estimated by regulators appear to be narrowing over time. In accordance with this, TRA Bahrain determined a single rate for the WACC to be applied to all regulatory matters in mobile and fixed telecommunication markets in Bahrain.
- 171. A similar case is illustrated below with the example of the UK, which shows the evolution of asset betas over time in the determination of mobile and fixed WACCs, as estimated by Ofcom.



Source: see Annex III, own calculations

Note: an implied BT Group rate was calculated for 2005 from Ofcom (2005) – Ofcom's approach to risk in the assessment of the cost of capital

Figure 9. Convergence of fixed and mobile asset betas over time, Source: Ofcom WACC determinations in fixed and mobile 2004 to 2016

- 172. The chart shows that while the first decisions available from Ofcom (in 2004-2007) estimated mobile asset betas of around 1.0 or above, these estimates subsequently declined significantly. The latest available Ofcom decision on the cost of capital in the mobile sector (from 2015) applied an asset beta of 0.6 for the mobile sector.
- 173. Fixed asset betas, meanwhile, have not changed notably over time. In 2009, Ofcom estimated an asset beta of 0.61 for BT Group, with the most recent determination in Ofcom's 2016 leased line market decision finding an asset beta for BT Group of 0.72. So while Ofcom continues to consider WACC estimates separately for different parts

¹⁶ TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination

of the industry, primarily as a result of determining the WACC alongside each regulatory pricing decision, the comparison above illustrates that there is limited reason to do so.

- 5.1.2 The impact of operational leverage on asset beta
- 174. The greater the proportion of a businesses' costs which are fixed, the higher its asset beta is likely to be. This is because a greater proportion of fixed costs can increase business risk if revenues decline, for example in the event of an economic downturn.
- 175. A hypothesis considered in the previous ictQATAR determination was that an investment in NGA/NGN infrastructure could exhibit a higher systematic risk than other telecommunications activities because such an investment is likely to be a largely fixed cost.
- 176. However, evidence does not support this hypothesis, particularly as broadband services become more essential: customers place an increasingly higher value on high speed broadband. Indeed, early research conducted by SPC Network found that the long-run price elasticity of demand for broadband services is -0.43, indicating that a 1 % increase in price would lead to a 0.43 % reduction in demand over the long run.¹⁷
- 177. The same also holds for mobile services: Grzybowski (2004) finds rather moderate elasticities for the EU countries in 1998-2002, ranging from -0.2 to -0.9; Hausman (1999) and (2000), finds a price elasticity of access to mobile services of -0.51, using aggregate data on 30 U.S. markets for the period 1988 to 1993; using data on 64 different countries, Ahn and Lee (1999) estimate an average elasticity of -0.36; finally, summarizing the results from different studies by DotEcon, Frontier Economics and Holden Pearmain, the UK Competition Commission (2003) reports own-price elasticities of mobile subscriptions between -0.08 and -0.54, while for mobile calls, own-price elasticities between -0.48 and -0.62.¹⁸
- 5.1.3 Conclusion on the Scope of the Weighted Average Cost of Capital
- 178. As considered in the previous consultation, the calculation of separate WACCs for different business segments appears to be problematic in practice.
- 179. For example, with the horizontal consolidation of fixed and mobile SPs, the set of pure fixed or mobile companies required to reliably benchmark the difference between the asset beta of fixed and mobile operations has diminished.
- 180. An alternative approach, of considering the relative weight of fixed and mobile assets within integrated SPs, is likely to be computationally challenging, so bringing into question the robustness of the resulting beta estimates.
- 181. Given these practical issues are still in place and reflecting the increased technical and market convergence between fixed and mobile services, the CRA is minded to maintain the position developed during the previous WACC determination, that is setting a single

¹⁷ Cadman, R. and Dineen, C. (2009): "Price and Income Elasticity of Demand for Broadband Subscriptions: A Cross-Sectional Model of OECD Countries," SPC Network, available at http://spcnetwork.eu/uploads/Broadband Price Elasticity.pdf

¹⁸ Dewenter, R. and Haucap, J. (2008): "Demand Elasticities for Mobile Telecommunications in Austria", Jahrbücher für Nationalökonomie und Statistik / Journal of Economics and Statistics, Vol. 228, No. 1, pp. 49-63.

WACC for the entire telecommunications sector, which will then be applied in all regulatory and competition matters that consider the WACC as an input.

Question 1 Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?

5.2 Framework for estimating the Weighted Average Cost of Capital

- 182. This section considers three matters of principle in relation to the determination of the WACC. The first concerns the way in which tax and inflation is considered in the estimation and benchmarking of the WACC. The second considers different ways for quantifying the WACC and how CRA can ensure that the final WACC value stemming from this Consultation reflects the market situation in Qatar. The third considers the validity period of the WACC determination and whether or not this has any implications for the way in which the WACC is estimated.
- 5.2.1 Reflecting tax and inflation in the determination of the Weighted Average Cost of Capital
- 5.2.1.1 The effect of taxation
- 183. How tax should be considered in the determination of the WACC depends on how the WACC is used in the regulatory process. Specifically, if a regulated SP's cost base includes taxation on profit as a dedicated cost category, an allowance for this tax should not be included in the WACC.
- 184. If a tax is not specifically considered in a SP's cost base, it must be taken into account in the WACC to ensure that the return a SP is able to generate takes into account the deduction of tax. If it were not included here, a SP would be unable to compensate investors according to their expectations.
- 185. Taking these factors into account, regulators typically distinguish between three types of WACC:
 - (a) Pre-tax WACC = g.RD + (1-g)/(1-t).RE
 - (b) Vanilla WACC = g.RD + (1-g).RE
 - (c) Post-tax WACC = g.(1-t).RD + (1-g).RE
- 186. The **pre-tax WACC** includes an allowance to recognise the fact that the return calculated by the cost of capital will be considered as a profit for tax purposes. This is done by applying a "tax wedge" 1/(1-t) to the cost of equity, which has the effect of increasing the cost of equity and hence the WACC. A similar tax wedge is not applied to debt, because returns on debt finance are typically not taxable.
- 187. A post-tax WACC is used when the regulatory regime explicitly treats tax expenses as a recoverable allowance in the regulated business' costs e.g. in a cost plus regulatory regime. A post-tax WACC is also considered in the context of regulatory accounting where the actual tax payments are attributed to separated accounts on the basis of the relative profits generated by the separated services.
- 188. A **vanilla WACC** is typically referred to when any impact of tax on the WACC is disregarded, for example for comparative reasons.
- 189. The CRA considers that the most likely circumstance of it using the WACC is in connection with regulatory accounting information; for example for determining cost

based regulated wholesale prices using Ooredoo's separate regulatory accounts. Any corporate tax or similar obligations, such as contributions to DAAM¹⁹ or other profit related Industry or Licensee Fees, would be considered as a separate cost item in that case.

- 190. The CRA has also considered whether the fact that a value added tax (VAT) may be introduced in Qatar during the period for which the CoC is now being determined should affect the calculation of the WACC.
- 191. The CRA considers that introducing VAT may affect retail prices or revenues (or both). The extent to which the introduction of VAT could impact on access seekers' and access providers' sustainability depends on the structure of demand and the nature of competition. That is, the impact on retail revenues will depend on the ability of SPs to pass through the tax to consumers through an increase in retail prices. This is subject to consumers' price elasticity (i.e., price elastic demand could result in lower revenues, as it means Service Providers are not able to pass on the tax through higher prices). However, a reduction in revenues not synonymous to an increased risk that a company may not be able to recover its costs, as this only depends on the extent to which revenues exceed costs.
- 192. Overall, the CRA considers that estimating the specific impact of the introduction of VAT would be highly speculative. Indeed, it believes that, for the determination of several WACC parameters, including benchmarks from countries with VAT levels far higher than the rate currently considered in Qatar sufficiently addresses any possibility that the introduction of VAT could have an impact on the CoC.
- 193. The CRA also notes that it is still unclear when and in what exact form the VAT in Qatar will be introduced. The CRA understands that the law, in its draft form, is still being discussed by the Ministry of Finance. In order for the VAT to take effect, the law as well as the relevant by-law need to be published and implemented and it is at this time uncertain if this can happen within the originally envisaged time-frame.
- 194. The CRA therefore considers that any additional recognition of any tax in the calculation of the WACC is unnecessary and proposes a vanilla WACC. However, should the need arise to consider a tax as part of a WACC, for example when using the WACC in the context of determining costs using a bottom-up modelling approach, the CRA will then determine a corresponding adjustment to the WACC as part of these proceedings.
- Question 2 Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?

5.2.1.2 The effect of inflation

195. Inflation is taken into account when determining the WACC because what matters to investors are the real returns they receive which implies that nominal returns must also account for the loss in purchasing power as a result of inflation. In line with international regulatory precedents, the CRA considers that there are two possible ways of allowing for inflation: either the regulatory asset base (RAB) is adjusted for inflation and a real

¹⁹ Social and Sports Activities Support Fund

WACC is applied, or the necessary compensation for inflation is provided by the WACC itself, which is calculated on a nominal basis.

- 196. The previous determination set a nominal WACC. This is because the regulatory regime employed in Qatar is generally concerned with current prices and current costs and therefore nominal values apply, in line with similar regulatory practices in other jurisdictions.
- 197. The use of a real WACC could also be considered when the rate of inflation is erratic or prone to sudden changes which could potentially imply that regulated prices set using a nominal WACC may not be sufficient to recover the actual cost an operator incurs. In this case, it could be more appropriate to determine regulated prices using a real WACC, with those prices being regularly updated to account for expectations of short term inflation.
- 198. However, apart from a period between 2005 and 2010, Qatar has enjoyed a stable inflation rate, similar to that of the US. The unusual rise in consumer prices prior to 2010 was largely due to rising property prices, demand pressures for goods & services and depreciation of the US Dollar against major currencies. Inflation slowed down sharply to -4.9% in 2009 due to the global financial and economic crisis. Between 2010 and 2016, the inflation rate was again stable within the range of 1%-3%. This is also shown in Figure 3 below.



Figure 10. Qatar and US inflation, annual %, Source: IMF and Qatar MDPS, May 2017²⁰

199. The CRA expects inflation to remain at reasonably constant rates in the near future. Indeed, the CRA expects that the persistent drop in global oil and gas prices and

²⁰ The IMF provides data on the US inflation rate over the period 1990-2016 and on the Qatari inflation rate over the period 1990-2015, http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx. The 2016 Qatari inflation rate is taken from the National Statistics Office of the Qatar Ministry of Development Planning and Statistics, www.mdps.gov.qa/en/statistics1/. Since the IMF data for Qatar is also taken from the Qatar National Statistics Office, we believe that the 2016 data is consistent with the 1990-2015 estimates.

intensified competition in the gas market will counterbalance the pressure population growth continues to exert on land prices. In conclusion, since the risk of significant fluctuations in the inflation rate is unlikely, revenues are not linked to macroeconomic fluctuations in the CPI and a nominal WACC is therefore appropriate.²¹

200. Therefore, the CRA does not see any need to consider the use of a real WACC.

Question 3 Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?

- 5.2.2 Defining the business for which the Weighted Average Cost of Capital is estimated
- 201. When estimating the WACC it is important to consider how the method of estimation best reflects the required return for investing in the provision of telecommunication services in Qatar. That is, regardless of the structure of companies present in Qatar and their individual international exposure to risks, the purpose of determining the WACC for regulatory purposes in Qatar requires an assessment of the non-diversifiable risk of investing in Qatar alone.
- 202. In other words, the WACC determined in this process should not depend on whether those services are provided by an SP only present in Qatar, an internationally diversified group of companies operating out of Qatar or an internationally diversified company with a Qatari subsidiary.
- 203. The previous consultation recognised SPs are often part of larger international groups. The stocks of such SPs are unlikely to be suitable for estimating the Qatar specific WACC directly even if they operate in Qatar. The estimation will therefore also need to consider the country specific risk of investing in Qatar separately.
- 204. Considering the two biggest telecommunications companies present in Qatar, the above discussion becomes very clear. For instance, Ooredoo has broadened its reach from its domestic market to now have operations in over 16 countries across the Middle East, North Africa and Asia Pacific regions. Ooredoo has 95 million mobile subscribers around the world, and Qatar accounts for only 3 million of these.
- 205. Similarly, Vodafone's Qatar operations represent only a small fraction of its total business: in Qatar the company has only 1.5 million mobile subscribers and 6,000 broadband subscribers, out of 430 million overall mobile subscribers and 14 million overall broadband subscribers.²²
- 206. Having made the same observations during the previous procedure for determining the WACC, the final determination considered two methods for estimating the WACC:
 - (a) a domestic scenario; and
 - (b) a global scenario.
- 207. The **domestic scenario** calculated the RF and beta on the basis of Qatari and MENA bond and stock market information; whereas the **global scenario** estimated the

²¹ The impact of inflation on the calculation of the WACC, given the choices for measuring the different parameters for calculating it, is considered separately in Section 6.

²² Telegeography, April 2017

parameters on the basis of global mature stock market indices considering Qatari information as a basis for calculating country specific risk premiums for debt and equity.

- 208. The questions of whether and how to adjust for local/non-local operations, and whether WACC parameters should be derived from local or international stock market indices has been dealt with differently by different regulators.
- 209. Below, the CRA looks at the precedent on both of these points.
- 210. In considering, first, whether to adjust the WACC for local/non-local operations, the CRA looked at two regional approaches Bahrain and Jordan.
- 211. In considering, second, how to make the adjustments, the CRA additionally looked at one European approach that used by Ofcom.
- 5.2.2.1 How have regulators made adjustments for local/non-local operations?
- 212. **TRA Bahrain** does not make an adjustment for local/non-local operations. In order to find the asset beta ranges for domestic and international investors respectively, it takes an average across Zain, Batelco, and STC in three estimation categories: 2-year weekly, 5-year weekly, and 5-year monthly. Rather than accounting for the companies' local/non-local operations, it simply regresses the returns on Zain, Batelco, and STC equity (respectively) on the returns on each of (i) the domestic equity market where the companies are listed, and (ii) the world equity market (the FTSE All World). The final WACC is based on an average of the estimates.
- 213. **TRC Jordan** makes an adjustment for local/non-local operations. While Jordan Telecom Group (JTG) is a Jordanian corporation, Zain Group and Batelco Group are internationally-diversified corporations with Jordanian subsidiaries. Zain Jordan is nearly wholly-owned by Zain Group and makes up only around 12% of Zain Group's revenues, while Umniah is part of the Batelco Group and makes up around 21% of total group revenues. As a consequence, the beta estimates of Zain Group and Batelco Group are not relied on, as they reflect the systematic riskiness of the entire group relative to their local reference index, rather than the risk specific to their Jordanian subsidiaries. Instead, the TRC assumes that Zain Jordan's and Umniah's betas are affected by the risk of the Jordanian revenue share in a similar way to JTG's mobile business. The TRC's view is that Umniah's and Zain Jordan's betas should therefore be based on that estimated for JTG's mobile division, Orange Jordan.

5.2.2.2 Have regulators compared local or international stock market indices?

- 214. **TRA Bahrain** estimates asset betas for domestic and international investors separately (as it does for all elements of the WACC), to account for the fact that some investors in the domestic market may not always hold investment portfolios that are internationally diversified. That is, they may be subject to some degree of 'home bias' in their investment choices. The corresponding estimates feed into the TRA's domestic and international estimates of the WACC which are considered in an average for the final determination of the WACC.
- 215. **TRC Jordan**, on the other hand, only calculates asset betas on the basis of the domestic stock market: the Jordanian stock market index (the Amman Stock Exchange General Index). The TRC justifies this decision by observing that this is in line with investors' probable market portfolio: 'home bias' leads investors to favour stocks in their home market.

216. **Ofcom** also makes its calculations of asset betas on the basis of a comparison against a domestic index – the FTSE All Share. Although Ofcom also calculates asset betas on the basis of a comparison against the FTSE All World index, it uses the asset betas from the FTSE All Share calculation in its final estimation of the WACC. Ofcom justifies this decision slightly differently to TRC Jordan, however, by not only pointing to the 'home bias' of investors, but also to the fact that the FTSE All Share is a well-diversified index with high levels of liquidity. Ofcom also makes reference to literature from NERA and Legg Mason which supports the idea that 'home bias' has a significant impact on investors' choices.

5.2.2.3 Conclusions

217. Consistent with the approach considered in the previous determination of the WACC and corresponding regional precedent, the CRA considers implementing a global and domestic approach for the calculation of the WACC. In other words, the final determination of the WACC should take estimates of the WACC based on both concepts into account.

Question 4 Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 5.2.3 Period over which the Weighted Average Cost of Capital determined in this Consultation is valid
- 218. Finally, the CRA also considered the period of validity for the WACC determined in this proceeding.
- 219. A variety of validity periods have been used by other regulators when determining the WACC, often 5 years or less.
- 220. For example, the UK, the UAE, and Portugal have all previously set WACC for a period of 1, 2, and 3 years respectively. TRA Bahrain set the WACC for a period of three to five years in 2013.
- 221. Regulators have either revised the WACC whenever a decision on regulated prices was considered, (e.g. Ofcom in the UK follows this approach) or set the WACC for a given period, with that WACC then being used in all determinations over the period.
- 222. The CRA is of the view that a determination of the WACC over a period of time is a reasonable approach for implementing reliable regulation that provides affected SPs and their investors with regulatory certainty over a reasonable planning horizon. As such, the CRA considers that the WACC determined as a result of this proceeding should be valid for a certain period of time and not be updated for any specific regulatory determination.
- 5.2.3.1 Conclusion
- 223. In keeping with the previous determination, CRA believes that setting the WACC for a period of up to four years is reasonable and consistent with the benchmarks. This is because the CRA does not expect a significant change in the structure of the market or the nature of the services provided during that period.
- 224. This does not mean that CRA does not expect there to be significant technological changes (on the contrary, CRA recognises that new technologies, such as 5G are likely

to be launched in this period). However, the fundamental structure of services is unlikely to change. It is therefore also likely that there will not be any major changes to the risk profile of the sector.

- 225. Whilst the CRA does not currently expect any major changes to the market debt and equity returns underlying the calculation of the WACC, there could obviously be reason why the WACC could change over the next four years. Aspects such as major changes in inflation or credit default risks or major global economic events affecting the market as a whole could affect the WACC.
- 226. The CRA will monitor these aspects whenever the WACC is used for the purpose of regulatory decision making and will consider making adjustments to the WACC should it find that the original WACC, determined as a result of this proceeding, is no longer suitable to reflect efficient costs. However, the CRA notes that during the regulatory period, no changes will be made to the CoC determined as a result of this procedure as a result of normal fluctuations in the data considered for the calculation of the WACC.
- 227. For the avoidance of doubt, the CRA does not consider there to be any link between the period for which the WACC is estimated and the periods considered when selecting data for the purpose of estimating the parameters of the WACC.

Question 5 Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?

5.3 Calculating the Weighted Average Cost of Capital

- 228. While the WACC and CAPM formulas are quite simple, the determination of each of the parameters can be a complex task. In this section, possible methods to calculate the parameters of the WACC are discussed. For each parameter, the methodology adopted in the last consultation is summarised, followed by a description of the approach proposed to determine that parameter in the current process.
- 229. For each parameter and where such a distinction is relevant, this section sets out the global and domestic approach for estimating the WACC and reports both estimates in parallel.
- 230. In the domestic approach only Qatari and regional SPs are considered when estimating parameters such as betas. On occasion, the estimate of a parameter may be limited to a single SP, e.g. Ooredoo. However, the fact that only a single SP is considered does not imply that the corresponding WACC is only relevant for that SP. Rather, it is a consequence of only one particular SP having the relevant information required for the parameter estimation. For example, only Ooredoo has debt issued in Qatar which can be used for the determination of a domestic debt premium. The CRA nevertheless considers that the corresponding result equally applies to all SPs, and all policy decisions considering the WACC, unless otherwise specified.

5.3.1 Risk-free rate

231. Based on the two methodologies considered for the estimation of the WACC, global and domestic, the CRA considers two approaches for determining the RF.

- 5.3.1.1 The global approach
- 232. When implementing the **global approach**, estimates should be based on government bonds from countries with the best global credit rating. This is typically considered to be countries with AAA or Aaa (Moody's) ratings. For comparison, Qatar's credit rating is AA (or Aa2 for Moody's).
- 233. This means that for an international investor, a Qatari government bond already includes some degree of risk which it can avoid by obtaining a government bond from the US or Germany (considered to be more "riskless" assets).
- 234. When considering the global approach, the CRA therefore uses the government bond yields of the two largest economies with a AAA credit rating, US and Germany using the Bloomberg 10 year bond indices (USGG10YR Index and GDBR10 Index). Figure 11 shows the bond yields for the last 5 years.



Figure 11. Yields of US and German government 10-year bonds, Source: Bloomberg

- 235. It is noticeable that German bonds (DE 10y yield in the graph) quote significantly lower yields than US bonds (US 10y yield in the graph). However, this may be driven by statutory obligations for some market participants to hold German bonds, which are likely to cause an artificially inflated demand and rates that are below a "market price" for German bonds.
- 236. Given that the US debt markets are the most relevant base for Qatar and Ooredoo debt costs (with bonds issued in USD and priced from the US Treasury curve), CRA proposes to base the RF on the US 10-year government bonds yields calculating an average for the last two years.

237. The CRA notes that 10 year US government bond yields prior to 2013 were particularly low in comparison to more recent rates. The CRA therefore proposes to consider estimating the risk free rate on the basis of the 3 year historic average. The corresponding rate considered in the global approach using US 10y daily bond yields over the 3-year period (2014-2017) is thus equal to 2.25%.

Country	Year of source document	Nominal RF
Bahamas	2015	2.5-3.9%
Bahrain (global approach)	2013	3.5-4.0%
Belgium	2014	2.63%
Sweden	2011	3.7%
Italy	2010	3.9%
UAE	2012	3.07%
Luxembourg	2013	3.3%
Norway	2013	4.5%
Average		3.5%
Median		3.6%

238. The CRA also reviewed decisions based on a global approach for estimating the RF from regulators in other jurisdictions.

Table 5. Benchmarks of RFs using global securities, Source: see Annex III

- 239. Table 5 shows that international benchmarks of the risk free based on a global estimation approach range from 2.5% to 4.5%. CRA's estimated global rate (2.25%) falls below that range.
- 5.3.1.2 The domestic approach
- 240. The **domestic approach** considers Qatari government bonds as a basis for the "risk-free" rate. This recognises that any investor seeking to invest in Qatar's telecommunications sector would also bear the risk of investing in Qatar more generally. That is, prior to considering any corporate equity or debt specific risks, an investor must already be able to earn a corresponding return for the Qatar specific risk he will face.
- 241. The return on government bonds will depend on when a bond is due to mature. As with the previous determination, the CRA proposes to consider 10 year bonds when determining the RF. The 10 year bond is appropriate because it still exhibits sufficient liquidity to provide reliable estimates of the yield investors can expect from a "risk-free" investment (i.e., bonds with longer maturity are less frequently traded, which can imply that the observed yield is one that is no longer reflective of the yield investors would obtain if a trade was to take place).
- 242. Whilst shorter maturity bonds are also frequently traded, they may not be appropriate for determining the RF. This is because these bonds are often subject to secondary trading by central banks (e.g. with measures of "quantitative easing" central banks buy short term government loans in an attempt to increase the amount of money supplied in an economy). As a result of this, yields on such bonds can be distorted as a result

of the artificial demand central banks are creating for the bonds. Central banks typically engage in this practice using shorter maturity bonds because the volume and liquidity of such bonds is much greater (than longer term bonds) and the impact of the measure therefore less pronounced.

243. For estimating the "risk-free" rate, the CRA has used the yields of Qatari government bonds. Again CRA considers bonds with maturity of 10 years. Figure 12 shows the weekly bond yields for the last 3 years (2014-2017), which is the maximum period available for the type of bond considered. Specifically, we use the USD Qatar International Bond BVAL 10 year, as provided by Bloomberg, which is populated with USD denominated senior unsecured fixed rate bonds issued by the Qatar Government.



Figure 12. Yields of Qatar 10-year bond indices, Source: Bloomberg

- 244. The RF under the domestic approach using the 3-year evidence outlined above is equal to 3.5%.
- 245. The CRA has also reviewed recent decisions on the RF considered in domestic scenarios in other jurisdictions. Table 6 below summarises the benchmarks.

Country	Year of source document	Nominal RF
Portugal	2013	3.96%
Netherlands	2015	1.49%
Bahrain (domestic approach)	2013	4.4-4.9%
Denmark	2013	1.45%
France	2013	3.7%
Sweden	2014	2.92%
UK	2016	4.3%
Average		3.4%
Median		3.8%

Table 6. Benchmarks of RFs using domestic securities, Source: see Annex III

- 246. Benchmark rates using a domestic approach show a wider range (1.45% 4.9%) than the one established by benchmarks using a global approach. This is likely to be the result of those benchmarks reflecting wider range of country specific risks being reflected in the estimate of the (domestic) RF. CRA's own estimate of the domestic RF at 3.5% falls well within that range.
- 5.3.1.3 Conclusion
- 247. Given the evidence discussed above the CRA proposes the following RFs:
 - (a) Under the global scenario, a range with the lower bound based on a the RF as calculated in this section and the upper bound based on the average rate according to international benchmarks. This is more conservative than using the entire range suggested by international benchmark. The corresponding range is 2.25% to 3.5%.
 - (b) Under the domestic scenario, a RF of 3.5% based on the CRA's own estimate, without reference to international benchmarks. This is because the relevance of the international benchmarks is likely to be limited in this case, given that the estimates reflect country specific risks that are unlikely to be relevant for the WACC in Qatar.

Question 6 What are stakeholders' views with regard to the determination of the risk-free rate?

5.3.2 Cost of debt: Debt risk premium

- 248. Along with the RF, the DRP is one of the components of the cost of debt. It measures the additional required return, over and above the RF, required by a lender to invest in the corporate bond market in Qatar. This premium compensates lenders for the risk of credit default, and also for the opportunity cost of funds loaned. All else equal, the larger the debt premium, the greater the cost of debt, and as a result, the higher the estimate of WACC.
- 249. The previous determination of the WACC measured the DRP as the difference between a yield on a 11 year Qtel bond with maturity in 2025 (adjusted to reflect a 10 year bond) and the yield on 10 year US government bonds (also considered for the RF). This led to a yield spread of 1.1%, based on a 2 year average corporate bond yield of 4.65% and an average US government bond yield of 3.54% over the same period. This was then rounded to a DRP of 1%.
- 250. In keeping with the previous approach, the CRA again proposes to measure the DRP by comparing the yield on Ooredoo's corporate bonds with appropriate government bond yields, to estimate the additional returns that debt holders seek in compensation for the additional risks faced when financing telecommunications operations in Qatar, over and above the RF.
- 251. For this purpose, the CRA has considered Ooredoo's corporate bond yields (UICTQTEL Index) against Qatar government bond yields, reflecting the fact that Ooredoo is a Qatari company. However, the CRA does not intend to include any country specific debt premium over that included implicitly in the RF calculated under



the domestic scenario. The corresponding yields for Ooredoo and Qatari government debt are shown in Figure 13 below.

Figure 13. Yields of and Ooredoo and Qatar government 10-year bonds, Source: Bloomberg

- 252. When measured over the 3-year period 04/2014-03/2017, the average spread between weekly Qatari government and Ooredoo 10 year bond yields is equal to 0.31%.
- 253. If the global approach is used for determining the RF, the estimation of the cost of debt also needs to consider a country specific risk premium. (The domestic approach already considers the country risk premium as part of the "risk-free" rate of return on Qatari government bonds.) This is because the risk associated with investing in Qatar compared to larger AAA rated jurisdictions is not taken into account when the RF is based on government bond yields from the US. This is considered in the following section.
- 5.3.2.1 The global approach for estimating the Debt Risk Premium
- 254. In addition to the DRP estimate set out above, the global approach for estimating the WACC also needs to take into account the specific risk of investing in Qatar. For this we consider two primary approaches, consistent with the approaches considered in the previous determination. The first estimates the additional risk by considering the yield spread over the 3-year period 2013-2017 of weekly Qatari and US government bonds²³. This is shown in Figure 7 below and results in an average spread of 1.36% based on the 2014-2016 average.

²³ USD denominated



Figure 14. Yields of US and Qatar 10-year bonds, Source: Bloomberg

- 255. The second approach considers directly country specific debt premium calculated by Prof Aswath Damodaran. Based on Prof Damodaran's most recent publication²⁴ of country risk premiums, the premium for Qatar is equal to 0.57% or 0.79%. The first figure is obtained using credit ratings (from Moody's) and estimating the default spread for that rating over a default free government bond rate. The second value is calculated using Credit Default Swaps (CDS) spread for Qatar and comparing it to US CDS spread.
- 256. Under the global approach, CRA therefore considers an additional mark-up for the country risk premiums of 0.57% 1.36%.
- 5.3.2.2 Benchmark evidence of the Debt Risk Premium
- 257. The CRA considers that the use of international benchmarks provides useful evidence on the cost of debt without Qatar specific distortions, such as the Government's strong backing of Ooredoo. Such benchmarks provide a range of debt premiums required for the provision of communication services, irrespective of the country (and hence country risks) in which those companies operate.
- 258. However, the CRA acknowledges that the operators in the range of countries considered may differ in many ways from operators in Qatar and may also differ in their creditworthiness in ways different to those by which their respective countries differ from Qatar. The final calculation of the WACC will therefore also consider a debt risk premium entirely based on the Ooredoo parameters.

²⁴ <u>http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html</u>, accessed on 12/04/17.

259. The following table sets out a range of DRPs from other jurisdictions. This also sets out the country DRP as estimated by the relevant regulatory authority.

Country	Year of source document	Debt risk premium	Country debt risk premium	Total cost of debt (over RF)
Bahamas	2015	1.65%	1.9%	3.55%
Bahrain	2013		1	.7-2%
Jordan	2017	0.3%	3.9%	4.2%
UAE	2012	1.12%		1.12%
France	2013	0.7%		
Norway	2013	1.5%		
Portugal	2013	2.79%		
UK	2016	1.2%		1.2%
Sweden	2014	2.2%		2.2%
Average		1.43%	2.9%	2.28%
Median		1.35%	2.9%	2.0%

Table 7: Benchmarks of Debt Risk Premiums, Source: see Annex III, CRA calculations

- 260. These benchmarks highlight that the estimate of the debt risk premium based on comparing Ooredoo's corporate bonds against Qatar government bond rates is comparatively low. The CRA considers that there could be two main reasons for this:
 - (a) Ooredoo's wider exposure in countries beyond Qatar can imply that the relevant government bond benchmark should be wider than just Qatari government bonds. For example, the performance of the S&P Mena government bond index suggests an average Yield to Maturity over the last 3 years of around 3.1% - significantly lower than Qatar's bond yield. Comparing this against Ooredoo's bond yields would result in a higher estimate of the debt risk premium. However, the S&P Mena government bond index consists of bond of all types of maturities and may therefore not be comparable to Ooredoo's bond yields.
 - (b) The previous determination considered the potential impact that Ooredoo's ownership structure (including the strong backing it receives from Qatari sovereign investment funds) might have on the risk of investing in Ooredoo. It noted that Ooredoo's credit rating exceeds that of other integrated telecommunications providers and may therefore not be representative of the actual risks of investing in telecommunications in Qatar. Although some minor downgrading of Ooredoo took place in 2015, the CRA considers that this is still the case today. As such, a relatively lower DRP for Ooredoo than that used by other regulators when determining WACC for telecommunications SPs may be appropriate. However, this may not be appropriate for the Qatari market as a whole.

5.3.2.3 Conclusion

261. Given the factors outlined above, the CRA believes it is also appropriate to take account of recent benchmarks from other jurisdictions when considering the appropriate debt

premium for the calculation of the WACC. This suggests a range for the debt premium of 0.31% to 1.43%. The lower value is based on the average spread between weekly Qatari government and Ooredoo 10 year bond yields, while for the latter the CRA has taken the average value found according to international benchmarks. Again, the CRA considers this as a conservative approach which does not take into account the entire range of international evidence provided in relation to this parameter.

262. The CRA concludes that a country risk premium needs to be taken into account when applying the global approach for estimating the WACC. The corresponding range for the CRPd is from 0.57% to 1.36%. The former is based on Damodaran's most recent publication, with the latter on the yield spread of weekly Qatari and US government bonds. This results in a total range for the debt premium under the global approach of 0.87% to 2.79%.

Question 7 What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

5.3.3 Cost of equity – Equity Risk Premium

- 263. The ERP is one of the components in the estimation of the cost of equity. It measures the additional expected return, over and above the RF, required by investors to compensate them for holding the market portfolio a hypothetical portfolio of assets comprising all assets in the economy (including all traded and non-traded assets). All else equal, an increase in the ERP would result in an increase in WACC.
- 264. Two methods have been considered by regulatory authorities for estimating the ERP:
 - (a) long term historic trends; and
 - (b) dividend discount models (DDM).
- 265. The particular difference between the two is that the first is backward looking and the second is forward looking. The first aims to estimate the expected return of equity investors based on a very long time series of equity returns, which aims to smooth out the sometimes significant variations between returns and losses that are made on equity markets over periods of time. The second aims to estimate the expected rate of return based on current equity market valuations and expected future growth of the underlying assets' returns.
- 266. In line with most regulatory authorities in other jurisdictions, the CRA considers that an approach based on historic data is more reliable for estimating the ERP. Forward looking approaches are theoretically able to provide an estimate of the ERP, but the CRA considers that such approaches rest on strong assumptions which, in effect, drive most of the corresponding result. That is, when applying a DDM approach, much rests on the assumptions about the growth of equity returns. Such assumptions are either reliably estimated using sufficient historic data or by making strong assumptions about the particular drivers of growth in the future (if such growth is considered to be different from what is historically observed). The CRA therefore considers that an approach directly based on historical data is preferable for the determination of the ERP.
- 267. The ERP calculated according to that method is not specific to Qatar, but provides the basis for estimating a Qatar specific cost of equity. This is considered to be the base ERP which is considered first in this section (5.3.3.1-5.3.3.3). Later in this section

(5.3.3.6) we also discuss the Qatar specific equity Country Risk Premium (CRPe) in the context of implementing the global and domestic approach to the WACC.

- 268. ictQATAR's previous determination of the WACC estimated the ERP based on three methods:
 - (a) Historic global ERP;
 - (b) An implied US ERP; and
 - (c) International benchmarks from other regulatory decisions.
- 269. The CRA considers that all three methods continue to provide valuable insight into the possible level of the ERP and so again proposes to consider all three sources.
- 5.3.3.1 Historical global Equity Risk Premium
- 270. As in ictQATAR's previous determination of the WACC, the CRA proposes to take into account the ERP historic estimate based on Dimson, Marsh and Staunton (DMS) as a basis for estimating the ERP. DMS provide estimates of both the arithmetic and geometric means of the ERP.



Figure 15. DMS historic ERPs (in%), specific countries and world (1900-2015), Source: Credit Suisse Global Investment Returns Yearbook 2016

- 271. As set out in Figure 15, the historic long term estimate of the ERP according to DSM is 4.4% across all countries (applying the arithmetic mean) and 6.4% for the US.
- 272. However, consistent with the previous determination of the WACC, the CRA considers that the arithmetic mean may not be considered on its own. In addition, the CRA considers a mark-up on the geometric mean to reflect a forward-looking assessment

of volatility, which is considered by some practitioners²⁵ to be lower than the volatility implied in the arithmetic mean of historic ERPs.

- 273. Therefore, in order to estimate a base ERP taking account of potential differences between historic and current volatility we also consider the geometric mean of historic ERPs including an uplift based on recent volatilities in the market. For this the CRA consider the volatility of world (MSCI Global Index) and US (S&P 500 Index) equity markets over the last three years which is estimated at 0.13 for both.²⁶ The corresponding ERP is equal to 4.1% and 5.2%, after adding $\sigma^2/2 = 0.9\%$ to the geometric means of the US and world based historic ERPs.
- 5.3.3.2 An implied Equity Risk Premium on the basis of US stock and bond returns
- 274. As a second approach to estimating the ERP, the CRA has examined the implied ERP based on US government bond and equity market returns. This estimate is sourced from the regular publications of Prof Damodaran and is shown in Figure 16 below.



Figure 16. Implied US ERP since May 2013, Damodaran

275. Using this data gives an estimate for the ERP, using a four year average, of 5.7%; similar to the historic rate (based on the arithmetic mean) estimated for the US by DMS.

²⁵ Dimson, E., P. Marsh, and M. Staunton (2001): "Millennium Book II: 101 Years of Investment Returns," Discussion paper, London Business School; Wright Mason Miles (2003), Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K., Commissioned by U.K. Economic Regulators and the Office of Fair Trading.

²⁶ The prices to calculate the volatility of the returns of the MSCI Global Index over the 3-year period mid-April 2014 / mid-April 2017 were taken from https://www.investing.com/indices/msci-world-stock-historical-data, April 2017. The prices to calculate the volatility of the returns of the S&P 500 Index over the 3-year period mid-April 2014 / mid-April 2017 were taken from Bloomberg.

- 5.3.3.3 Equity Risk Premium based on benchmark decisions from other jurisdictions
- 276. Table 8 below sets out a range of recent decisions from telecommunications regulatory authorities in other jurisdictions on the ERP.

Country	Year of source document	ERP
Bahamas	2015	4-6%
Bahrain	2013	4.5-5.5%
Jordan	2017	5.8%
UAE	2012	5.75%
Denmark	2013	3.85%
France	2013	5.0%
Netherlands	2015	5.0%
Norway	2013	4.5%
Portugal	2013	8.94%
UK	2016	5.3%
Sweden	2014	5.5%
Belgium	2014	5.4%
Finland	2009	5.0-5.5%
Ireland	2014	5%
Average		5.3%
Median		5.3%

Table 8: ERP Benchmarks from other jurisdictions, Source: see Annex III

- 5.3.3.4 Conclusion on base Equity Risk Premium
- 277. The CRA considers that the three sources set out above provide a broadly consistent range of base ERP values, ranging from a lower bound of 4.1% based on the long term historic estimation of the ERP (section 5.3.3.1) to an upper bound based on the implied ERP of 5.7% (section 5.3.3.2). International benchmarks are broadly consistent with that range with their average falling well within that range.
- 5.3.3.5 The Equity Risk Premium the Country Risk Premium on equity
- 278. Similar to the debt premium, the cost of equity also needs to consider the additional return equity investors expect for accepting the non-diversifiable risks of equity investments in Qatar (as this is not taken into account when estimating the ERP based on long term historic rates). How this CRPe should be estimated depends on whether the global or domestic approach is used to estimate the WACC.
- 5.3.3.6 The global approach for estimating the Country Risk Premium on equity
- 279. The CRPe can be estimated using similar approaches to those set out in relation to the CRPd (the debt country risk premium) earlier in this Consultation. The first approach estimated the country-risk premium by adopting Prof Damodaran's approach using sovereign credit ratings and CDS spreads. The second approach considered US and Qatari government bonds to estimate the additional risk associated with debt investments in Qatar, over and above the RF.

- 280. Prof Damodaran estimates the equity country risk premium for a number of countries, based on the relative volatility of equity to bond markets. Using this approach, Damodaran's most recent publication²⁷ estimates a CRPe for Qatar of 0.71% to 0.97%. This represents an uplift of 0.14% to 0.18% compared to the CRPd alone.
- 281. The CRA's second approach is similar to that of Damodaran's. Specifically, CRA multiplies the CRPd by a relative volatility ratio, using the 3 year average of annualized weekly standard deviations of the Qatari equity market index and the 3 year average of annualized standard deviation of the 10 year Qatari government bond index. By calculating CRPe = CRPd x sigma^2(e) / sigma^2(d), we estimate a CRPe of 1.7%, where CRPd (i. e. the spread between the US 10 year bond yields and the Qatari government 10 year bond yields) is equal to 1.36%, sigma^2(e) (i. e. the volatility of the equity market DSM index in Qatar) is equal to 20.8% and sigma^2(d) (i. e. the volatility of the Qatari government bond used to estimate the spread) is equal to 16.7%.
- 282. The total range of the CRPe based on the methods considered above is 0.71% to 1.7%.
- 5.3.3.7 The domestic approach for estimating the Country Risk Premium on equity
- 283. Under the domestic approach, the "risk free" rate already takes into account some of the risk associated with investing in Qatar. However, this is related to debt investments and should be further adjusted to take account of country specific equity risks. This is especially the case if the ERP is based on international evidence rather than Qatar specific information.
- 284. Similar to the approach set out in the previous determination, the CRA proposes to calculate the CRPe by estimating the difference between the debt risk premium and equity risk premium following the approach by Damodaran. The second approach uses the volatility of Qatari equity and government bond markets and calculates CRPe as CRPd x ($\sigma^2(e)/\sigma^2(d)$), where CRPd (i.e. the average spread between Qatari government and Ooredoo 10 year bond yields over the period 2014-16) is equal to 0.32%, $\sigma^2(e)$ (i. e. the volatility of the equity market DSM index in Qatar) is equal to 20.8%), and $\sigma^2(d)$ (i. e. the volatility of the Qatari government bond used to estimate the spread) is equal to 16.7%. According to the above formula, the CRPe under the domestic approach is equal to 0.4%.
- 285. The CRA proposes a range for the CRPe under the domestic approach based on both methodologies of 0.14% to 0.4%.
- 5.3.3.8 Conclusions
- 286. The range for the CRPe under the domestic approach is 0.14% to 0.4%.
- 287. Under the global scenario, the total range of the CRPe is 0.71% to 1.7%. The first figure is based on Damodaran's most recent publication, while the second is based on the multiplication of the relevant CRPd by the relative volatility ratio, as described above.
- Question 8 What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

²⁷ <u>http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.htm</u>, accessed on 12/04/17.

- 5.3.4 Debt and equity ratios (gearing)
- 288. In calculating the cost of capital, the gearing of a company is considered in two places.
 - (a) First it is used to estimate the asset beta when deleveraging benchmark equity betas to account for the financial structure of the company from which the benchmark beta is obtained. For this, gearing should be measured over the same period as that over which the beta is measured.
 - (b) Second, it is required for the purpose of estimating the final WACC and specifically, for determining the appropriate weighting to place on the cost of equity versus the cost of debt, as well as re-leveraging the appropriate asset beta to the equity beta considered in the final estimate. For this purpose, the CRA considers it should use expected forward looking gearing. While this is also likely to be based on historic information, it does not necessarily need to be consistent with the period used to determine asset betas.
- 289. This section considers the gearing that should be used for the second purpose (i.e., when re-leveraging asset betas to equity betas and when determining the overall weighting to be given to the cost of debt and the cost of equity).
- 290. Table 9 sets out the CRA's quantitative analysis for assessing the gearing of Qatari and regional SPs. Column (a) in Table 9 shows the average gearing over the 4 year period 2012 2016. Column (c) shows the current gearing for each company as of end 2016. The table also shows, for comparison, the difference between the current estimates and those derived in the previous determination of the WACC.

			Gearing D/(D+E)*					
SP	Country/Scale	Profile	(a) Average gearing	(b) ∆ previous determina tion	(c) Current gearing	(d) ∆ previous determina tion		
Ooredoo	International	More mobile	42%	-8%	42%	0%		
Vodafone	Qatar	Mobile	4%	-5%	-4%	-16%		
Batelco	Mainly Bahrain	Integrated	1%	13%	4%	18%		
Omantel	Oman	Integrated	-8%	-3%	-9%	2%		
STC	KSA/International	Integrated	-7%	-28%	-10%	-28%		
Etisalat	UAE/International	Mainly mobile	-1%	7%	-1%	12%		
Zain	International	Mainly mobile	20%	11%	34%	23%		

*Averages (column a) computed with half-year gearings and EV/EBITDA between 2012 and end 2016. Current gearing (column c) as of end of 2016. Δ previous determination (columns b and d): percentage point difference between the final determination's 4 year average and the 4 year averages now, or between end 2012 and end 2016.

Table 9: Gearing for regional SPs, Source: Bloomberg, CRA calculations

291. The CRA finds that the trend of unusual gearings levels in the region has been maintained and (by comparing columns (a) and (b) and (c) and (d) respectively from Table 9), has even become more pronounced in some instances. This is driven by ownership structures of SPs in the region as well as preference for equity finance.

- 292. Therefore as with the previous WACC determination, the CRA considers it useful to use a wider range, including global benchmarks of gearing ratios, as shown in Table 10.
- 293. As for the debt risk premium, the gearing, as such, is independent of a country risk profile. However, the CRA acknowledges that country specific corporate tax rates are likely to give rise to some variation between countries. This is because debt financing in countries with higher corporate tax rates can be cheaper due to the tax shield provided by interest payments. This effect would normally suggest that the gearing in the jurisdictions considered in the benchmarking should be higher than in Qatar, due to those countries having some form of corporate taxation applied. Given that instead, the CRA finds that the average gearing based on those benchmarks is lower than in Qatar, it considers that the benchmarks still provide reasonable evidence to form the basis of the range considered in the CRA's calculation of the WACC. The corresponding range is therefore 32% to 42%. The CRA also notes that gearing of Zain, another example of an operator in the region using debt financing, is broadly consistent, at 35%, with the range that CRA considered in the first CD.

Country	Year of source	Gearing ratio
Bahamas	2015	10-30% [midpoint 20%]
Jordan (mobile)	2017	33%
Jordan (fixed)	2017	33%
UAE	2012	31.34%
France	2013	23%
Portugal	2013	42.5%
UK (mobile)	2015	40%
UK (leased lines)	2016	30%
Netherlands (KPN and FTTH)	2015	42%
Norway	2013	20%
Sweden	2014	35%
Average		32%
Median		33%

Table 10: Gearing benchmarks from other regulatory decisions, Source: see Annex III

5.3.4.1 Conclusion

294. Taking into account the evidence from regional comparator companies and the range exhibited by regulatory benchmarks from other jurisdictions, the CRA proposes to estimate the WACC with reference to a gearing in the range of 32% to 42%. The lower value of the range is equal to the average of international benchmarks). For the upper bound of the range we consider Ooredoo's gearing as one example of gearing levels in Qatar (which is broadly consistent with international benchmarks)

Question 9 What are stakeholders' views regarding the determination of the gearing?

5.3.5 Cost of equity - beta

- 295. The equity beta measures the exposure of a common equity stock to 'systematic risk', the risk related to the entire market or an entire market segment. It also captures the impact of financial structure on the risk faced by the business; typically, the greater the level of debt in the business, the greater will be the equity beta. Removing the latter effect on the equity beta provides the asset beta, which measures the systematic risk purely associated with the activity of the business. All else equal, when calculating the cost of equity the larger the equity beta the greater the weight placed on the ERP and country equity risk premium. An increase in the beta would result in an increase in the estimated WACC.
- 5.3.5.1 CRA's approach
- 296. To estimate the beta, the CRA proposes to consider a similar set of approaches to those in the previous determination of the WACC, namely:
 - (a) a group of Qatari and regional comparator SPs against global and regional (DJMENA) equity markets;
 - (b) Benchmark estimates of beta from other jurisdictions.
- 297. For its own estimation of the beta (a), in addition to considering DJMENA and a global index, the CRA also considers the local stock market index DSM. This is because the previous determination already highlighted a potential issue with weak beta estimates against regional and global indices for regional and Qatari companies. As such, the CRA notes that the determination of the index against which the beta is measured is not a purely mechanistic approach but one which also takes into account the quality of the estimates derived.
- 298. For this estimation, the CRA considers estimates of the beta (in line with the previous consultation) on the basis of:
 - (a) two year rolling averages; and
 - (b) a four year point average

based on four years' worth of company stock and index data. In addition, the CRA considers:

- (c) a two year point average; and
- (d) a five year point average
- 299. The CRA considers that including the analysis of the two year average and the five year average can improve the beta estimation by adding more information. This allows CRA to consider a beta estimate that is based on a shorter period of time (two year point average) and also a period for the beta estimations that is typically used by regulatory authorities in other jurisdictions (five year point estimate).
- 300. The beta estimation is carried out on the basis of weekly stock and index data, to address potential issues with thin trading for some stocks or indices (which could affect the beta estimation if the daily data) but still providing a sufficiently large sample compared to some other forms of estimation (for example when using monthly data).
- 301. The asset betas are then calculated using the respective two year rolling, two, four and five year point average gearing using the formula $BetaA = BetaE \times E / (E + D)$.

- 302. The final set of beta estimates (one based on the two year rolling and four year point estimate and another based on the two and 5 year point estimates) is constructed consistent with the approach applied in the previous determination, which the CRA still considers valid. That is, a weight of 1/3rd is applied to the beta constructed from the four year average point estimate and the five year point estimate respectively while a weight of 2/3^{rds} is applied to the two year rolling and point averages respectively. The CRA believes this is appropriate because the CRA considers that more weight should be placed on beta estimates using more recent data.
- 303. Below, the CRA presents the results of the calculation of the raw betas according to the methodology outlined above. First, Table 11 shows the results of the raw betas measured against the MSCI global index.

BetaE (MSCI Global)									
SP		Raw beta							
Period	2yr rolling avg	R^2	2yr point avg	R^2	4yr point avg	R^2	5yr point avg	R^2	
Ooredoo	0.19	0.01	0.03	0.00	0.20	0.01	0.26	0.01	
Batelco	0.26	0.06	0.18	0.04	0.22	0.04	0.14	0.01	
Omantel	0.02	0.00	0.18	0.03	0.10	0.01	0.08	0.00	
Vodafone	0.39	0.02	0.33	0.02	0.34	0.01	0.17	0.00	
STC	0.15	0.01	0.21	0.01	0.11	0.00	0.14	0.01	
Etisalat	0.13	0.01	0.09	0.00	0.13	0.01	0.20	0.01	

Table 11: Raw beta estimates and R² for Ooredoo and regional comparator companies,Source: CRA calculation

- 304. The phenomenon of low and weak beta estimates for regional companies against global stock markets was already observed in the previous determination of the WACC. CRA's assessment in this proceeding finds similar shortcomings with the beta estimation for regional companies against global indices. This is likely to imply that there are some specific factors related to telecommunication companies in the region that make them unsuitable for estimating the risk of equity investments in telecommunications. For this reason, the CRA proposes to set the equity beta in the global approach based on international benchmarks. The benchmark evidence of the asset betas is discussed in the following section.
- 305. In the following, Table 12 shows the results of the raw betas measured against the regional DJMENA index.

BetaE (DJMENA)									
SP		Raw beta							
Period	2yr rollin g avg	R^2	2yr point avg	R^2	4yr point avg	R^2	5yr point avg	R^2	
Ooredoo	0.38	0.05	0.26	0.02	0.40	0.05	0.42	0.05	
Batelco	0.16	0.05	0.16	0.05	0.15	0.03	0.11	0.01	
Omantel	0.13	0.04	0.25	0.10	0.17	0.03	0.15	0.02	
Vodafone	0.81	0.14	0.41	0.06	0.71	0.11	0.65	0.09	
STC	0.14	0.03	0.41	0.09	0.22	0.02	0.23	0.02	
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Etisalat	0.09	0.01	0.07	0.00	0.08	0.00	0.19	0.01	

 Table 12: Raw beta estimates and R² for Ooredoo and regional comparator companies,

 Source: CRA calculation

- 306. Table 12 also shows that the R² of raw Betas, measured against the regional DJMENA index, is low for all the companies considered in the sample. In the previous consultation, this issue was addressed by applying an Ooredoo-adjustment and excluding from the analysis the betas of Batelco and Etisalat.
- 307. The CRA, however, is minded not to apply an Ooredoo-adjustment²⁸ in this consultation, given that it only led to marginal improvements in the sample for the beta estimation. Instead, the CRA also considers Qatari companies against the local DSM index.

BetaE (DSM)								
SP		Raw beta						
Period	2yr rollin g avg	2yrR^22yrR^24yrR^25yrR^2rollinpointpointpointpointpointg avgavgavgavgavgpoint						
Ooredoo	0.88	0.39	0.97	0.39	0.94	0.40	0.95	0.39
Vodafone	1.34	0.56	1.10	0.49	1.24	0.51	1.21	0.46

Table 13: Raw beta estimates and R² for Ooredoo and Vodafone, Source: CRA calculation

- 308. The CRA notes that the R² of the raw betas of both Ooredoo and Vodafone are much higher when measured against the DSM index. The CRA, therefore, focuses its analysis on operators in Qatar: Ooredoo and Vodafone, to estimate the beta range against the DSM index. It then applies this in the domestic scenario of the WACC calculation.
- 309. The CRA also considers that in addition to the Vasicek adjustment considered in the previous determination, the Blume adjustment should also be applied as it is commonly used in similar regulatory decisions²⁹ to address a potential over or underestimation of the beta.
- 310. The asset betas based on that process are summarised in Table 14, together with combined estimates using the weights previously discussed applied to individual beta estimates.

²⁸ $\beta_i^{Ooredoo-R} = \beta_i \frac{R(\text{Ooredoo})}{R(i)}$ for $i \neq Ooredoo$, $i \in \text{Market Index}$, where R(i) measures the correlation between the relevant security of company i and the market index.

²⁹ For example, see TRA Bahrain (2013), Cost of Capital, Ref: MCD 02/13/018; CNMC (2016), Resolución relativa a la tasa anual de coste de capital a aplicar en la contabilidad de costes de Telefónica de España S.A.U., Telefónica Móviles España, S.A.U, Vodafone España, S.A.U. y Orange Espagne, S.A.U. del ejercicio 2016; and Agcom (2015), Allegato D alla Delibera n. 623/15/CONS.

BetaA vs. DSM												
SP	Vasicek asset beta Blume asset beta			Vasicek asset beta			Blume asset beta					
Period	2yr point avg	5yr point avg	Com bined	2yr point avg	5yr point avg	Com bined	2yr roll avg	4yr point avg	Com bined	2yr roll avg	4yr point avg	Com bined
Ooredoo	0.50	0.61	0.54	0.57	0.62	0.59	0.45	0.54	0.48	0.60	0.62	0.60
VFQ	0.76	1.13	0.88	1.02	1.07	1.03	0.83	1.17	0.94	1.17	1.10	1.15
Average	0.63	0.87	0.71	0.80	0.85	0.81	0.64	0.86	0.71	0.89	0.86	0.88

Note: The combined beta assigns the follwing weights: 2/3*2yr + 1/3*4yr (5yr)

Table 14: Asset beta estimates and adjustments for Ooredoo and Vodafone,

Source: CRA calculation

- 311. Using the DSM index for Ooredoo and Vodafone, the CRA observes that the lower value of beta is given by the more conservative Vasicek adjustment, with the upper end given by the Blume adjustment. In order to use all the information available, the CRA thus proposes to set the lower end of the range of asset betas as the average of the Vasicek-adjusted asset betas of Vodafone and Ooredoo measured according to the two scenarios taken into account in the consultation (i. e. weighted average of 2 year and 5 year point estimates and weighted average of 2 year rolling and 4 year point estimate). The CRA then proposes to set the upper end of the range as the average of the Blume-adjusted asset betas of Vodafone and Ooredoo according to the same scenarios. Under the domestic approach, the evidence thus points in the direction of an asset beta of 0.71-0.84.
- 5.3.5.2 Benchmark evidence of asset betas
- 312. Table 15 sets out benchmarks of beta estimates from other jurisdictions. These should be considered against the global approach as most benchmark betas are estimated against a global rather than a local market (or a local market more global than the local market in Qatar).

Country	Year of source document	Asset beta
Bahrain (international investor)	2013	0.5-0.6
Bahrain (domestic investor)	2013	0.75-0.85
Jordan	2017	0.5-0.56
Jordan (mobile)	2017	0.8-0.89
UAE (fixed: Etisalat)	2012	0.51-0.94
UAE (mobile: Etisalat)	2012	0.6-0.94
Denmark	2013	0.5
France	2011	0.8
France (fixed: France Telecom)	2011	0.48
France (mobile)	2011	0.62
UK (BT Group)	2016	0.72
Sweden (fixed-line)	2011	0.54
Sweden (mobile)	2011	0.65
Spain (fixed: Telefonica de España)	2011	0.43

Spain (mobile: Telefonica Mobiles España)	2011	0.51
Spain (mobile: Vodafone España)	2010	0.54
Belgium (fixed: Belgacom)	2014	0.5-0.6
Belgium (mobile: Belgacom, Mobistar, Telenet)	2014	0.6
Italy (fixed: Telecom Italia)	2010	0.43
Finland (fixed-line)	2009	0.55-0.7
Finland (mobile)	2009	1.1-1.2
Netherlands (KPN and FttH)	2015	0.45
Norway (mobile)	2013	0.9
Average	Total	0.67
Median	Total	0.6

 Table 15: Beta estimates considered in regulatory determinations in other jurisdictions,

 Source: see Annex III, CRA calculations

313. Table 16 and Table 17 also outline beta estimates calculated for comparator companies in regulatory procedures in Bahrain and Jordan.

Country	Year of source document	Asset beta – 5-year Estimated using weekly / monthly data
Zain (domestic) ²	2013	1.01 / 0.921
Batelco (domestic) ²	2013	0.9 / 0.751
STC (domestic) ²	2013	0.64 / 0.681
Zain (FTSE All-world) ³	2013	0.53 / 0.651
Batelco (FTSE All-world) ³	2013	0.43 / 0.41
STC (FTSE All-world) ³	2013	0.49 / 0.561
Average		0.666 / 0.663
Median		0.585 / 0.666

2 Total returns on equity are regressed on total returns on domestic equity markets

3 Total returns on equity are regressed on total returns on the FTSE All-world index

Table 16: Beta estimates of comparator companies considered in regulatory procedure for the determination of the WACC in Bahrain, Source: TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination

Country	Year of source document	Asset beta – 5-year	Asset beta – 2-year
BT	2017	0.7	0.74
TalkTalk	2017	0.54	0.61
Sky	2017	0.54	0.58
Colt	2017	0.4	0.29
Telefonica	2017	0.45	0.56

Deutsche Telekom	2017	0.34	0.5
Belgacom	2017	0.4	0.59
Telecom Italia	2017	0.29	0.42
Orange	2017	0.39	0.58
lliad	2017	0.42	0.73
Swisscom	2017	0.31	0.5
Average		0.43	0.55
Median		0.4	0.58

Table 17: Beta estimates of comparator companies considered in regulatory procedure for the determination of the WACC in Jordan, Source: TRC Jordan (2017) – Regulatory Decision on the Weighted Average Cost of Capital for Jordanian Telecom Operators

- 314. The CRA points out that the international evidence points in the direction of an asset beta of 0.67. Indeed, this is the average beta given by the values presented in Table 12, which includes the largest pool of comparator countries (both GCC and non-GCC). This value is also confirmed by the weekly 5-year beta estimates of comparator companies considered in Bahrain, as shown in Table 16.
- 315. Although Table 17 provides a lower value of 0.43 for the 5-year estimate, the CRA finds that the decision made in Jordan was ultimately based on beta estimates using the 2-year estimation, i.e. similar to the estimate based on the combined benchmarks considered by CRA.
- 5.3.5.3 Conclusion
- 316. In light of the above calculations and the benchmark analysis, the CRA proposes to apply the following beta values:
 - (a) A range of asset betas of 0.71 0.84 for the 'Domestic' WACC. This range is based on the asset betas shown in Table 11. This implies a range of equity Betas of 1.04 1.45, given the gearing proposed in the relevant section;
 - (b) An asset beta of 0.67 for the 'Global' WACC based on the average of beta values used in other jurisdictions as shown in Table 15. The corresponding equity beta range is 0.99 to 1.16.

Question 10 What are stakeholders' views regarding the determination of the equity beta?

6 Conclusion and Options

317. This section summarises the parameter estimates derived in the previous sections and then provides the estimates of the vanilla and pre-tax WACC. Table 18 below summarises the CRA's findings. It shows updated parameter estimates against, where different, the first CD's parameter estimates (in brackets).

Parameter	Global approach	Domestic approach
Risk free rate	2.25% – 3.5%	3.5%
	(2.20% - 3.5%)	
Debt risk premium	0.3% – 1.43%	0.3%-1.43%
Country risk premium (debt)	0.57% – 1.36%	
Cost of debt	3.1% – 6.3%	3.8%-4.9%
Gearing	32%-42%	32%-42%
	(29%-42%)	(29%-42%)
Equity risk premium	4.1% - 5.7%	4.1% - 5.7%
Country risk premium (equity)	0.71% – 1.7%	0.14% - 0.4%
Asset beta	0.67	0.71-0.84
		(0.59 - 0.79)
Equity beta	0.99 – 1.16	1.04-1.45
	(0.94 - 0.99)	(0.83-1.37)
Cost of equity	6.99% - 12%	7.93%-12.33%
	(6.70% - 12%)	(7.0%-11.8%)
Inflation adjustment	1.19%	1.19%
	(1.83%)	(1.83%)
WACC	7.01% – 10.94%	7.88% – 10.53%
	(7.61% – 11.63%)	(8.03% - 10.91%)

Table 18. Summary of the parameters and the WACC rates, Source: CRA calculations

- 318. The parameter values set out in Table 18 reflect the discussions on each individual parameter, as set out in the preceding sub-sections of this Consultation. However, in presenting its proposed ranges for the WACC, the CRA has also made an adjustment for Qatari inflation which is considered at a rate of 1.19%. This is because estimates of required nominal returns that are based on USD denominated financial information only take into account expected inflation in the US.
- 319. The formula for this adjustment is:

(1 + WACC(USD))*(1+Inflation(Qatar))/(1+Inflation(US)) -1.

320. In deriving this adjustment factor, the CRA uses the average 2018-2021 forecast for US inflation of 2.03%, taken from the IMF. Average 2018-2021 forecast Qatari inflation is set at 3.25% for the same period, also taken from the IMF.



Figure 17. US and Qatar inflation forecasts, Source: IMF

- 321. Taking all of these factors together, the final ranges of WACC estimates using the global and domestic approach are 7.01% 10.94% and 7.88% 10.53% respectively.
- 322. The choice of a particular value for the CoC requires balancing between competing objectives of the regulatory framework. Specifically, the CRA considers that there are benefits as well as downsides to setting the WACC at a lower or a higher end of the estimated range.
- 323. For example, a higher value, for example, reduces the probability of underinvestment in the sector but at the same time potentially increases the cost to consumers. Other regulation relying on the CoC primarily aims to promote cost reflective prices. For this reason, given the submissions of the industry respondents and the findings produced in this document, the CRA proposes to consider a range of options for setting the CoC. In particular:
 - (a) The lowest CoC supported by the analysis set out above is 7.45%. This is based on an average of the domestic and global ranges' lower bounds and could be appropriate for ensuring that access seekers and consumers face the lowest possible costs of services. The lowest value is explicitly supported by the call for "effective and low cost interconnection" as per Article 19(1) of the law.
 - (b) A CoC of 9.09% would adequately reflect the overall ranges estimated under the global and domestic scenarios and thereby strike a balance between the impact of the cost of capital on consumer prices and the incentives provided for investing in the sector.
 - (c) The WACC ranges calculated above also support a rate of 10.75%, the rate set as a result of the previous determination, which would support the CRA's objective to ensure regulatory continuity. This is almost equal to the average of the upper bounds of the domestic and global scenarios at 10.73% and could therefore also be considered for ensuring sufficient incentives for future investments.
- Question 11 What are stakeholders' views regarding the options considered for setting the CoC?

Annex I Table of questions

Question 1	Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?
Question 2	Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?
Question 3	Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?
Question 4	Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?
Question 5	Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?
Question 6	What are stakeholders' views with regard to the determination of the risk-free rate?
Question 7	What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?
Question 8	What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?
Question 9	<i>What are stakeholders' views regarding the determination of the gearing?</i>
Question 10	What are stakeholders' views regarding the determination of the equity beta?
Question 11	What are stakeholders' views regarding the options considered for setting the CoC?



Vodafone Qatar P.Q.S.C. Submission to the Communications Regulatory Authority Consultation Document

"Determination of the Cost of Capital applicable to Service Providers declared as having a Dominant Position" issued 24 September 2017

29 October 2017



Introduction and executive summary

- Vodafone Qatar P.Q.S.C. ("Vodafone Qatar") welcomes the opportunity to respond to the Communications Regulatory Authority ("CRA") consultation document entitled "Determination of the Cost of Capital applicable to Service Providers declared as having a Dominant Position" ("CD2") issued on 24 September 2017. This is the second round of consultation on the Weighted Average Cost of Capital ("WACC").
- 2. In the first consultation document ("Determination of the Cost of Capital applicable to Service Providers declared as having a Dominant Position" ("CD1") issued on 8 May 2017), the CRA proposed to maintain the WACC at 10.75% for the next four years stating: "[w]hilst recognising that this value is in the upper half of the range established in this Consultation, the CRA considers that maintaining this WACC [10.75%] is appropriate, given the risk to investment setting WACC below its actual level" (CD1, para. 212 page 48. The current WACC was set on 5 August 2013 by the then ictQatar in its "Decision and Order Definition of the Weighted Average Cost of Capital for Qtel".
- 3. The regulated cost of capital is a key value driver as it sets the allowed return on invested capital. Investors need to recover investment costs, referred to as the return "of" capital along with the return "on" capital, being the expected return on investment. In a regulatory setting, the return of capital is recovered via the allowed depreciation and the return on capital via the allowed return, WACC, applied to capital employed.
- 4. The table below show the new ranges estimated by the CRA under the global and domestic approaches with the estimates of CD1 in brackets. The new ranges are slightly lower than in CD1. There are three main changes to individual parameters made by the CRA in CD2: a slightly higher level of gearing, a higher estimate of asset beta and a lower inflation adjustment factor.

Parameter	Global approach	Domestic approach
Risk free rate	2.25% - 3.5%	3.5%
	(2.20% - 3.5%)	
Debt risk premium	0.3% – 1.43%	0.3%-1.43%
Country risk premium (debt)	0.57% – 1.36%	
Cost of debt	3.1% – 6.3%	3.8%-4.9%
Gearing	32%-42%	32%-42%
	(29%-42%)	(29%-42%)
Equity risk premium	4 1% - 5 7%	4 1% - 5 7%
Country risk premium (equity)	0.71% - 1.7%	0.14% - 0.4%
Asset beta	0.67	0.71- 0.84
		(0.59 - 0.79)
Equity beta	0.99 – 1.16	1.04-1.45
	(0.94 - 0.99)	(0.83-1.37)
Cost of equity	6.99% - 12%	7.93%-12.33%
	(6.70% - 12%)	(7.0%-11.8%)
Inflation adjustment	1.19%	1.19%
	(1.83%)	(1.83%)
WACC	7.01% – 10.94% (7.61% – 11.63%)	7.88% – 10.53% (8.03% – 10.91%)

Source: CRA CD2, Table 18, page 63



- 5. The CRA now proposes three options for the WACC:
 - 7.45% corresponding to the lower bound of the ranges which in the CRA's view could be justified by Article 9.1 of the Telecommunications Law No 34 of 2006 (the **"Telecommunications Law"**).
 - 9.09% corresponding to the average of the mid-point of both ranges which in the CRA's view could strike an appropriate balance between investment incentives and consumer prices.
 - 10.75% corresponding to the current WACC and roughly the average of the upper bound of the ranges estimated by the CRA, which in the CRA's view could be justified on the basis of regulatory continuity and investment incentives.
- 6. Our view remains that setting the cost of capital at 10% would be appropriate in light of the empirical evidence. 10% is within the upper half of the ranges proposed by the CRA and would strike an appropriate balance between the different objectives of the CRA and the asymmetric risks in setting the cost of capital too low.
- 7. There is an inherent element of judgement involved in setting the WACC and regulators have to balance different considerations in selecting a point estimate. A WACC that is too low will provide insufficient return to investors given the risk profile of the business, distort pricing signals to customers and investors and in doing so would deter investment. Conversely a WACC that is too high will lead to excessive profits damaging competition and consumer interest without promoting additional investment. The WACC should be fair and reasonable between the interests of shareholders and customers; provide a return comparable to that on alternative investments of similar risk; be sufficient to attract new capital investment and allow business to be financially viable. Hence the challenge of the regulator is to estimate a WACC commensurate with a firm's underlying business risk so that it can finance its operations and investments without making excessive profits, which would be detrimental to consumers and competition.
- 8. For the reasons we set out in our submission to CD1, Vodafone Qatar does not support maintaining the current WACC at 10.75%. We agree with the CRA that the empirical evidence does not support Ooredoo's proposal to set the WACC at 13.46%.
- 9. We also do not support the CRA's option to take the lower bound of the ranges. It would be against standard regulatory practice to adopt this approach given the asymmetric risk to investment of setting the WACC too low. Further, by setting the WACC too low, the CRA would not satisfy its duties to promote the telecommunications sector (Article 2.1 of the Telecommunications Law) and to encourage sustainable investment in the sector (Article 2.5 of the Telecommunications Law). Hence we do not support the proposals of QNBN. By virtue of its statute, QNBN does not represent a private investor and as such is insulated from capital markets and the need to earn a reasonable return in order to invest and attract capital.



Question 1: Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?

- 10. Vodafone Qatar does not object to the CRA's proposal.
- 11. Please refer to our response and comments in our submission dated 31 July 2017.

Question 2: Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?

- 12. Vodafone Qatar agrees with the proposal of the CRA in so far as it relates to corporate tax. Corporate tax or similar fees paid on profits after interest payments can be built in the cost base.
- 13. Please refer to our response and comments in our submission dated 31 July 2017.

Question 3: Do stakeholders agree with the CRA's view that the current proceedings should result in the determination of a nominal WACC rate?

- 14. Vodafone Qatar supports the use of a nominal WACC.
- 15. Please refer to our response and comments in our submission dated 31 July 2017.

Question 4: Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 16. Vodafone Qatar agrees with the proposal of the CRA to consider both an international investor and a domestic investor scenario.
- 17. Please refer to our response and comments in our submission dated 31 July 2017.

Question 5: Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?

18. Vodafone Qatar agrees with the CRA to set the cost of capital for a period of up to four years with the caveat that the WACC could be revisited should market circumstances change materially.

Question 6: What are stakeholders' views with regard to the determination of the risk-free rate?

- 19. Compared to the CD1, the CRA propose a slightly higher bound for the risk-free rate range (2.25% vs 2.2%) which is now calculated based on the 10 year US government bond yields over a 3 year period as opposed to a 4 year period. No other changes are proposed by the CRA.
- 20. Vodafone Qatar refers the CRA back to the response and comments made in our submission dated 31 July 2017 and in particular to paragraphs 22, 23, and 25.

Question 7: What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?



- 21. No changes are proposed by the CRA relative to the CD1.
- 22. We welcome the check conducted by the CRA using more recent evidence of country risk premiums to ascertain that the country risk premium adopted for Qatar capture the effect on the on-going geopolitical context.
- 23. Vodafone Qatar refers the CRA back to the response and comments made in our submission dated 31 July 2017 and in particular to paragraph 27.¹

Question 8: What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

- 24. No changes are proposed by the CRA relative to the CD1.
- 25. We consider that the overall combined ranges arrived at by the CRA are reasonable. We also agree with the CRA's reservations with the alternative approach proposed by Ooredoo.

Question 9: What are stakeholders' views regarding the determination of the gearing?

- 26. The CRA proposes a slightly different range of gearing ([32%-42%] vs [29%-42%]). The higher lower bound reflects a change of some benchmarks.
- 27. While the CRA has not provided any rational for the change of benchmarks, Vodafone Qatar does not have strong objections to the proposal of the CRA. This being said, we note that Ooredoo stands as an as an outlier in the region with its relatively high level of gearing (42%).

Question 10: What are stakeholders' views regarding the determination of the equity beta?

- 28. Compared to the CD1, the CRA proposes only a change of asset betas for the domestic scenario with a higher new range ([0.71-0.84] vs [0.59-0.79]) in CD1.
- 29. The ranges provided by the CRA appears to be reasonable and we welcome certain of the changes made by the CRA in response to our submission dated 31 July 2017, including the use of local indices for the estimation of Ooredoo and Vodafone Qatar betas, the abandonment of the "Ooredoo adjustment" and consideration of the so-called Blume adjustment.
- 30. However, the methodology of the CRA lacks clarity and not all key changes made to the conceptual framework set out in CD1 by the CRA are explained. For example, it is not clear why the CRA no longer consider asset betas of regional comparators (estimated against local indices) under the domestic scenario. We would also like to understand the rational for the use of point averages in addition to rolling averages.
- 31. Finally, we refer the CRA back to some of our comments as set out in paragraphs 40 and 41 of our submission dated 31 July 2017.

¹ Contrary to what the CRA seems to suggest a company with an AAA rating will face a lower cost of debt than a company with a BBB rating.



Question 11: What are stakeholders' views regarding the options considered for setting the cost of capital?

- 32. The value estimated by the CRA for each individual parameter produce a WACC range 5.75% to 9.63% for the global approach and of 6.61% to 9.22% for the domestic approach.
- 33. From those ranges the CRA then proceeds to add an adjustment for inflation of 1.19% as opposed to 1.83% in CD1. While Vodafone Qatar continues to have reservations with this adjustment, the position of the CRA is noted.

Parameter	Global approach	Domestic approach
Risk free rate	2.25% - 3.5%	3.5%
	(2.20% - 3.5%)	
Debt risk premium	0.3% – 1.43%	0.3%-1.43%
Country risk premium (debt)	0.57% - 1.36%	
Cost of debt	3.1% – 6.3%	3.8%-4.9%
Gearing	32%-42%	32%-42%
	(29%-42%)	(29%-42%)
Equity risk premium	4.1% - 5.7%	4.1% – 5.7%
Country risk premium (equity)	0.71% – 1.7%	0.14% - 0.4%
Asset beta	0.67	0.71-0.84
		(0.59 - 0.79)
Equity beta	0.99 – 1.16	1.04-1.45
	(0.94 - 0.99)	(0.83-1.37)
Cost of equity	6.99% - 12%	7.93%-12.33%
	(6.70% - 12%)	(7.0%-11.8%)
Inflation adjustment	1.19%	1.19%
	(1.83%)	(1.83%)
WACC	7.01% – 10.94%	7.88% – 10.53%
	(7.61% – 11.63%)	(8.03% - 10.91%)

Source: CRA CD2, Table 18, page 63

Proposed options

- 34. The ranges calculated by the CRA for CD2 are slightly different from CD1: 7.01% to 10.94% (midpoint of 8.98% vs mid-point of 9.62% for CD1) for the international investor scenario and 7.88% to 10.53% (mid-point of 9.21% vs 9.47% for CD1).
- 35. The CRA now proposes three options for the WACC:
 - 7.45% corresponding to the lower bound of the ranges which in the CRA's view could be justified by Article 9.1 of the Telecommunications Law.
 - 9.09% corresponding to the average of the mid-point of both ranges which in the CRA's view could strike an appropriate balance between investment incentives and consumer prices.
 - 10.75% corresponding to the current WACC and roughly the average of the upper bound of the ranges estimated by the CRA, which in the CRA's view could be justified on the basis of regulatory continuity and investment incentives.
- **36.** Our view remains that setting the cost of capital at 10% would be appropriate in light of the empirical evidence. 10% is within the upper half of the ranges proposed by the CRA and would



strike an appropriate balance between the different objectives of the CRA and the asymmetric risks in setting the cost of capital too low.

- 37. There is an inherent element of judgement involved in setting the WACC and regulators have to balance different considerations in selecting a point estimate. A WACC that is too low will provide insufficient return to investors given the risk profile of the business, distort pricing signals to customers and investors and in doing so would deter investment. Conversely a WACC that is too high will lead to excessive profits damaging competition and consumer interest without promoting additional investment. The WACC should be fair and reasonable between the interests of shareholders and customers; provide a return comparable to that on alternative investments of similar risk; be sufficient to attract new capital investment and allow business to be financially viable. Hence the challenge of the regulator is to estimate a WACC commensurate with a firm's underlying business risk so that it can finance its operations and investments without making excessive profits, which would be detrimental to consumers and competition.
- 38. For the reasons we set out in our submission to CD1, Vodafone Qatar does not support maintaining the current WACC at 10.75%. We agree with the CRA that the empirical evidence does not support Ooredoo's proposal to set the WACC at 13.46%.
- 39. We also do not support the CRA's option to take the lower bound of the ranges. It would be against standard regulatory practice to adopt this approach given the asymmetric risk to investment of setting the WACC too low. Further, by setting the WACC too low, the CRA would not satisfy its duties to promote the telecommunications sector (Article 2.1 of the Telecommunications Law) and to encourage sustainable investment in the sector (Article 2.5 of the Telecommunications Law). Hence we do not support the proposals of QNBN. By virtue of its statute, QNBN does not represent a private investor and as such is insulated from capital markets and the need to earn a reasonable return in order to invest and attract capital.

- END -



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Consultation on Cost of Capital

CRA REFERENCE: CRARAC 2017/09/24

Ooredoo reference: [OQ/Reg-5069/2017-10]

29 October 2017

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1. Executive Summary

- 1.1 Ooredoo is pleased to provide its response to the CRA's second consultation with regards to the Cost of Capital ('CoC') determination for the forward regulatory period, issued on 24 September 2017 (Ref: CRARAC 2017/09/24) ('Consultation Document').
- 1.2 This document focuses on addressing the issues raised by the CRA within the Consultation Document and identifies deficiencies observed in the derivation of the Weighted Average Cost of Capital (WACC) values as presented in the CRA.
- 1.3 We remain puzzled by the CRA assertion or implication that the cost of capital has actually fallen from the previously determined rate, at a time when Qatar is faced with consequences of political and economic blockade. Consequences include: the Qatar Government having to spend significant sums of money to prop up the economy and keep inflation under control and many organizations facing deteriorated business conditions (including Ooredoo who has suffered from lower international revenues). Ooredoo believes the CRA is simply wrong in making such assertions. The country's sovereign rating has fallen during this period with the longer-term outlook stated as being negative. If these circumstances were not sufficient cause for caution, there remains significant uncertainty surrounding the economic impact of the proposed VAT introduction, at both firm level as well as at the macro level. The compounding effect of these headwinds should require CRA to pay serious consideration to the timing of such a consultation and the CRA's deliberation of reducing the cost of capital. Ooredoo also feels that the CRA has not given consideration to the significant investments that service providers will be required to make during the regulatory period, in implementing 5G and preparing for the World Cup. Reducing the cost of capital when significant investment is going to be required does not bode well for investors or indeed the sector as a whole.
- 1.4 We demonstrate in this response, that when the deficiencies or incorrect calculations performed by the CRA in the second consultation document are properly addressed, the resulting cost of capital is actually higher than the currently set rate.
- 1.5 Ooredoo recommends the CRA to revert to the original premise that Ooredoo advocated, which is to keep the cost of capital at the same level, until the present uncertainties become clearer. We therefore recommend that the CRA adhere to option C, as proposed by the CRA.



2. General observations

- 2.1 Ooredoo maintains, notwithstanding CRA's comments, that in light of ongoing political tensions, there is a risk of material increase to the cost of capital for the country, as well as of increasing business risk for service providers. Ooredoo notes that the Qatar 10yr yield is again heading upwards and may be progressing on a path of higher highs and lows as expected. Certainly, as the local equity market has fallen further, the cost of equity is rising, partly indicated by the higher dividend yield equity investors now expect. Liquidity in the Qatar economy and financial market remains challenging.
- 2.2 Ooredoo would like the CRA to consider that as world's leading central banks are now considering the withdrawal of Quantitative Easing ('QE')¹, the likely path for interest rates and bond yields is upward. The Bank of England staff did prepare a study of the effects of QE entitled **Staff Working Paper No. 624 QE: The story so far** which identified that QE has had the effect of depressing government and corporate bonds yields by 50 to 100 basis points (there are also other studies supporting this conclusion via empirical investigations²). The effects have also been observed to spill over to emerging markets. As the main central banks plan to reverse QE over the coming four year period, Ooredoo believes it would be surprising if 3.5% remains the average Qatar 10 year borrowing rate. An upwards reversion seems more likely.
- 2.3 Ooredoo respects the CRA preference for a historical reference approach to the determination of CoC but will continue to prefer a forward looking methodology. Ooredoo believes that the CRA should be consistent however because blending the forward look on e.g. inflation as the CRA has now done with other historically derived

¹ Central banks of USA, EU and UK communicated withdrawal of QE in recent past as reflected in media on the following links: <u>https://www.trustnet.com/news/759321/the-fed-prepares-to-unwind-qe-what-this-once-in-a-generation-move-means-for-investors</u>, <u>https://www.nytimes.com/2017/09/07/business/european-central-bank-draghi-dollar.html</u>, and <u>https://www.theguardian.com/business/2017/aug/31/bank-of-englands-talk-of-rate-rise-while-winding-down-qe-beggars-belief</u>. In a unanimous decision on 20 September 2017, the US Federal Reserve said it would start normalizing its balance sheet the following month. The yield on the 10-year Treasury climbed

from about 2.24 per cent immediately preceding the announcement to 2.27 per cent soon afterwards, while the policy-sensitive two-year yield jumped from 1.38 per cent to 1.43 per cent.

² See e.g. by Brookings Paper "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy available at <u>https://www.brookings.edu/wp-</u> content/uploads/2016/07/2011b bpea krishnamurthy.pdf



parameters can upset the balance of combinations or relationships leading to the final model outcome.

- 2.4 Regarding the VAT impact assessment. The CRA did ask Ooredoo to estimate the impact. Ooredoo was surprised by the CRA response that it sees no link between declining business margins and business risk. Ooredoo has some experience of VAT where, for example, the recent small increase in VAT in Algeria resulted in a 60% failure to pass through the increase for our operations and both revenues and cash flows were impacted. As an example of impact: If VAT induces lower cash flow, that may break a debt covenant, which then presents a host of problems, including not being able to declare dividends - as the debt holders worry about the financial position of the company and its ability to pay debt interest, which will then impact company's equity shareholders. A VAT introduction in a time of austere circumstances is likely to be more serious. Ooredoo indicated that the effect of VAT is "akin" to increased operating leverage and the CRA has well recognised the impact of operational leverage on Beta, so this proxy effect should not be a surprise to the CRA. Reducing the coverage of operating cost does indeed reduce the likelihood of profitability by increasing volatility of profit. If one thinks of the lower bound to revenues as the level on which VAT is paid then this VAT cost is in a sense fixed at that level and fluctuations upward from there are variable. Note, Ooredoo does not expect to get concessions on VAT from suppliers, so costs on VATed inputs are +5%. As alluded to in the last submission, elasticities play a large part but the CRA references old studies of elasticities and Ooredoo reiterates belief that these are much higher in absolute terms today, especially for the price increases. Note: Loss of margin can also affect credit rating and hence cost of debt financing. Obviously, we wait to see if and when VAT is introduced in Qatar and what the effects will be.
- 2.5 Ooredoo notes the CRA's view that GDP growth may not link to growth in earnings and have reviewed the MSCI Barra note. Such research can be found but in Ooredoo's opinion is flawed by the imposed constraints. The reality is, to pick just one point, that GDP growth benefits from the same credit expansion that drives valuation multiples higher as the cost of credit lessens. So, by holding valuation ratios constant (one of the key assumptions of the Barra study) one compares apples to oranges. It is returns that matter to investors. A quick test shows as follows: end 1994 to end 2016, world nominal GDP trended at 5.41% growth but over the same period MSCI ACWI Index returned 7% annualized, dividends reinvested³. (Time period is limited by availability of dividend data on Bloomberg.) If investors thought that Equities

³ Refer to the excel file attached to this submission for derivation of the above results.



would yield returns below nominal GDP growth, they would only invest in government bonds! The analysis presented by MSCI Barra is chiefly dealing with whether real GDP is a good forecaster of company earnings as a tool. Over an explicit forecast period (typically short run) it may not be but on a trend basis it is much better and better still looking at nominal GDP and allowing for lead and lags (markets pre-empt activity) which the article finally concedes would need "deeper analysis".

- 2.6 Ooredoo maintains its interpretation of the CAPM for the determination of the Cost of Capital is appropriate. The CRA's examination of TEGR using Ooredoo equity earnings does not focus on Qatar only earnings to derive a Qatar only ERP as was Ooredoo's objective; to derive a Qatar CoC. This was our reasoning for relying on links to economic growth forecasts and allowing for base effects etc.
- 2.7 Regarding gearing assumptions, Ooredoo will address this specifically in the response to the direct question herein. Ooredoo will demonstrate it would have achieved gearing of 30% but for the establishment of new green field operations in Myanmar which have been entirely funded from internally generated resources. No new equity or debt was required but as a result Ooredoo Group debt reduction has been deferred. As such, all of Ooredoo Group debt cannot be relevant when assessing the cost of capital for Ooredoo Qatar.
- 2.8 Ooredoo stands by its first consultation document submission and reference can be made to the previous submission for any points not covered in this document.

3. Specific responses to CRA questions

Question 1: Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?

3.1 Yes, Ooredoo agrees.

Question 2: Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?

3.2 Yes, Ooredoo agrees. Ooredoo does still believe, however, that new taxes such as VAT introduction would need to be considered.



Question 3: Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?

- 3.3 Yes, Ooredoo agrees with the use of a nominal WACC.
- 3.4 However, Ooredoo still disagrees with the CRA assertion that inflation in Qatar will be stable. Notwithstanding the uncertainty of timing of VAT introduction, Ooredoo believes this will happen in the coming four years. Additionally, it is unlikely the VAT rate will remain settled at 5% as this rate may yield insufficient tax revenues net of cost of collection and administration. Ooredoo suggests the weight of evidence elsewhere indicates VAT rates are adjusted to higher levels post introduction from the introductory rate. Each adjustment adds to CPI inflation at that time and a series of adjustments can perpetuate inflation over the associated period.
- 3.5 The CRA has made an error in its calculations regarding the inflation differential with the USA and Ooredoo does not agree with the simple average technique the CRA uses in incorporating longer range forecast of inflation which is by its nature uncertain. A more conventional approach should be taken but this is dealt with in response to question 11 where the second Consultation Document covers inflation adjustment.

Question 4: Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 3.6 No, Ooredoo does not agree but has no further objections to raise to the first consultation document response, except that perhaps the input of numerous brokers representing the professional investment community might also be considered.
- 3.7 As an example of broker research we attach J.P.Morgan Cazenove note on Ooredoo dated 20th September 2017. This broker uses base case WACC on Qatar Operations of 10.4% and up to 14.6%. Ooredoo does not in any way affirm or refute the conclusions of this sample of broker research or any other broker research. Ooredoo's response to the first consultation document submission of 13.46% is within the broker range.

Question 5: Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?

3.8 Yes, Ooredoo agrees.



Question 6: What are stakeholders' views with regard to the determination of the risk-free rate?

- 3.9 Ooredoo believes the risk free rate (rf) for the Qatar market is correctly specified as the Qatar Government 10 year international bond but forward estimates of the yield are relevant.
- 3.10 An end to QE is likely to mean the risk on yields is to the upside with reversion to more fundamental considerations by bond investors. Since the first Consultation Document response, there have been other analysts that have downgraded Qatar's credit rating.⁴
- 3.11 Qatar rf will need to include spread to the US rf and Ooredoo offered evidence of new issue spread for Qatar of 1.78% (including on 5 year issuance to be conservative). The most recent 10 year Qatar issuance had a spread of 1.5%; it was the cheapest spread ever achieved and would not include costs of issue. This should be the Country Risk Premium (debt) for Qatar and not the average secondary market spread.

Question 7: What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

- 3.12 Ooredoo does not believe the CRA can in any way rely on the spread of Ooredoo bonds to Qatar bonds because Ooredoo has Qatar state backing and is therefore quasi state itself. The spread of 0.31% does not represent a company debt risk premium on an arm's length basis and this should not form a lower bound.
- 3.13 Ooredoo believes it is more credible to use the Baseline Credit Assessment for Ooredoo's credit rating assessed by Moody's to provide guidance on what an arms length company debt risk premium would be. Ooredoo's BCA is a rating of Baa2 (S&P⁵ stand alone credit profile (SACP) rates a notch lower at BBB-). The default spread associated with Baa2 is 1.26% and BBB- is 1.63% on company credit spreads (using US Industrials debt spread over US Treasury curve for Baa2 rating). Damodaran provides country default spreads which are similar and can serve the same purpose.

⁴ On 29 August 2017, Fitch Ratings downgraded LT Int. Scale (foreign curr.) credit rating of Qatar to "AA-"; outlook negative.

⁵S&P Credit Rating front page is attached.



Damodaran now shows Baa2 rating as enjoying a default spread of 2.01%, a fair bit higher. One of these should be the lower bound for Debt Risk Premium.

- 3.14 The benchmarks presented by the CRA in table 7 are simply not appropriate for the purpose they have been used. They span 5 years and a wide range of credit ratings. For example Jordan, which is a poor credit rated country (B1), clearly has all the risk loaded onto country debt risk premium whilst France is a very strong credit country. Even the UK, which is the strongest credit country in the table has a debt risk premium of 1.2%. The UK as a country would have the minimum country DRP so the lower bounds proposed by the CRA are not credible and neither therefore are the upper bounds.
- 3.15 As mentioned previously in question 6, the Country Risk Premium (debt) for Qatar should be guided by actual Qatar best experience and the best spread on issue ever achieved at 10 years tenure is 1.5%. This is public knowledge and should not be ignored. See Bloomberg screenshot below showing the yield on the most recent 10 year Qatar debt issuance: Iss Sprd +150.00bp in May 2016.

QATAR 3 ¼ 06/0)2/26 \$	↑ 97.971 As of 20 Oct	154	97.742/98. >	200 3.5 (So	557/3.494 purce CBBT
QATAR 3 4 06/02/	26 Corp	Settings -		Pag	e 1/11 Securi	ty Description: Bond
			9	4)Notes 🔡	95) Bu	iy 96) Sell
25) Bond Description	on 26) I	ssuer Description				
Pages	Issuer Ir	nformation			Identifiers	
11)Bond Info	Name	STATE OF QATAR			ID Number	LW2393129
12)Addtl Info	Industry	Sovereigns			ISIN	XS1405782159
BJCovenants	Security	Information			FIGI	BBG00CZT6YY3
14)Guarantors 15)Bond Ratings	Mkt Iss	Euro-Dollar			Bond Ratings	
16)Identifiers	Country	OA	Currency	USD	Moody's	Aa3
1)Exchanges	Rank	Sr Unsecured	Series	REGS	S&P	AA-
18)Inv Parties	Coupon	3 250000	Type	Fixed	Fitch	ΔΔ-
19)Fees, Restrict	Con Fred	S/A	13pc	TIXEd	Composite	ΔΔ-
20)Schedules	Day Cot	ISMV-30/360	Tee Drice	08 06300	Issuance & T	rading
ZJCoupons Ouick Links	Maturity	06/02/2026	133 FILCE	20.20300	Aggregated A	mount Issued/Out
2014110 Pricing	DITIT	00/02/2020				2 500 000 00 (M) /
33)ORD Quote Recap	Lee Cord	150.00bp.vg	T 1 5 05/15	/26		2,500,000.00 (M)
34)TDH Trade Hist	Colo Tura	+130.0000 VS		720	Min Diego (In	3,300,000.00 (PI)
3)CACS Corp Action	cate Type	e (1)SIREELCUI	VENTION		Min Piece/In	
36)CF Prospectus	Pricing Da	ite		05/25/2016	200,000.	.00 / 1,000.00
30)CN SecNews	Interest A	ccrual Date		06/02/2016	Par Amount	1,000.00
36)HDS Holders	1st Settle	Date		06/02/2016	Book Runner	JOINT LEADS
39)VPRD Underly Info	1st Coupo	n Date		12/02/2016	Exchange	Multiple
66 Send Bond						

Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2017 Bloomberg Finance L.P. SN 508230 AST GMT+300 H813-41750 21+00t+2017 12:11:54



3.16 Ooredoo stands by its first consultation document submission but the guidance for the sector is probably best linked to Ooredoo BCA derived spread based on Baa2 credit rating at 1.26% or Ooredoo SACP based on BBB- credit rating at 1.63%.

Question 8: What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

- 3.17 Ooredoo takes a different approach to the CRA and directly derives the Qatar ERP, however, when running with the CRA approach Ooredoo finds that there appear to be errors in the calculations.
- 3.18 Ooredoo also agrees with the use of Damodaran's approach for estimating the country equity risk premium by applying relative volatility using rating based default spreads or CDS spreads. The July update shows these to be 0.73% to 1.48%.
- 3.19 Ooredoo applies the same relative volatility approach as the CRA to the CRPd. Using the same indices and a 3 years time frame to end August and assuming CRPd of 1.36% as basis (too low in our view) we arrive at a multiplier of 2.85x and not 1.25x. We agree on the DSM Index volatility (similar figure) but the Qatari government bond index volatility is much lower in our calculation which has followed Damodaran precisely. This would give an upper bound of 3.876% for the Country risk premium (equity). This is more in keeping with our expectations for the overall Qatar ERP of over 9%. Please see table below. The Excel file provided as an attachment to this submission includes full workings for this calculation.

Qatar Relative Volatility (Equity I	Qatar Relative Volatility (Equity Index to Debt Ind									
	Volatility									
BV10QATA (Qatar Gov't Bond Index)	6.72%									
DSM Index (Qatar Equity Index)	19.16%									
Relative Volatility	2.85									
	BV10QATA					DSM Index				
								Daily Std		
Date	Mid Price	Average =	3.511527		Date	Last Price	Return	Deviation =	1.19%	
			·					Annualized Std		
10/13/2017	3.769	Std Dev =	0.236111		10/15/2017	8341.11	-0.01%	Deviation=	19.16%	
10/12/2017	3.779		6.72%		10/12/2017	8342.09	0.10%			
10/11/2017	3.784				10/11/2017	8333.84	0.98%			
10/10/2017	3.801				10/10/2017	8253.34	0.49%			

3.20 For the domestic approach Ooredoo finds it incredulous that the CRA finds an equity risk premium of only 0.14% to 0.4%! One must surely question such an output from any model. How is it possible that the CRA calculates a figure which at its highest is



lower that those given under the global approach provided by Damodaran for Qatar or even the United Kingdom.

- 3.21 Ooredoo looks at the 0.14% determined by CRA as an uplift on the credit default spread. Ooredoo does not believe Damodaran intended the interpretation the CRA has given. Ooredoo believes Damodaran meant the full estimate of CRPe should be used to determine the Equity Risk Premium in the country concerned. Hence Damodaran would assign Qatar a Total Equity Risk Premium of 5.86% to 6.61%.
- 3.22 Ooredoo sees several flaws in the CRA derivation of the 0.4% upper bound for Equity Risk Premium. Firstly it suffers from a compounding of errors starting with the low CRPd which, in using Ooredoo debt, is not an arms length assessment of Qatar corporate debt spread but rather closer to being a spread against oneself! Secondly, the calculation of relative volatility looks erroneous as mentioned earlier and it is repeated here. The CRA would need to create a benchmark of Qatar company debt as a starting point.
- 3.23 Ooredoo believes the Country Risk Premium (equity) presented by the CRA are flawed and especially so for the domestic approach. The relative risk in Qatar at 2.85x, for the equity market, does appear also to be much higher than Damodaran's more generic July calculation for all emerging markets at 1.15x, however the Qatar specific calculation is the correct approach as Qatar is not generic.
- 3.24 Ooredoo stands by its belief that the current Qatar ERP (Expected Market Return rf) is 9.65% and a sustainable ERP is 9.05%.

Question 9: What are stakeholders' views regarding the determination of the gearing?

- 3.25 Ooredoo accepts that its gearing has not fallen since the last review period. However, the CRA should note that absolute debt is lower while the market capitalization (share price) has fallen at a faster rate and gearing for WACC is based on market values.
- 3.26 Ooredoo Group (Ooredoo Qatar Public Shareholding Company), of which Ooredoo Qatar is but one operating company, has also funded a new greenfield operation in Myanmar entirely from internal resources. A start up operation of this scale is a huge cost upfront with little return in early years as the CRA would know. Ooredoo has spent over US \$1bn on the license alone and more than this amount on building the operation. This is public knowledge.



- 3.27 Ooredoo has calculated what the gearing would be if the Myanmar project had not happened. Table with calculation redacted.
- 3.28 Ooredoo believes this is highly relevant because it is the Qatar WACC that is being calculated by the CRA. Therefore only debt relevant to Qatar operations should be considered. Clearly debt taken (or not paid down) for the purpose of funding a new venture in Myanmar should not be considered. Ooredoo Group gearing would indeed be 30% at the end of 2016 were it not for the Myanmar project. Account of all consolidated funding and the consolidated losses against Equity are shown, to strip out the Myanmar effect on Ooredoo QPSC gearing.

Ooredoo does not think the CRA can attribute all group debt to Qatar CoC determination and believes 30% is optimal and what Ooredoo would achieve and indeed has achieved absent Myanmar license acquisition and operations. The evidence of this submission updates Table 9 column a) in the CRA analysis and corroborates Table 10 that around 30% gearing should be used for Qatar telecom sector gearing assumption.

Question 10: What are stakeholders' views regarding the determination of the equity Beta

3.29 Ooredoo agrees with the CRA's estimate range for Asset and Equity Betas. Ooredoo maintains that there is a relationship between beta and business risk increase due to the introduction (and likely gradual increase) of the VAT.

Question 11: What are stakeholders' views regarding the options considered for setting the CoC?

- 3.30 Ooredoo believes the actual cost of capital will be higher due to corrections that will be necessary to CRA assumptions and adjustments to the method of calculation.
- 3.31 Ooredoo notes the CRA has not cross calculated the range of WACC correctly to give the full range of WACC. The lowest of the range would be given by using higher gearing and vice versa in the calculation. The corrected approach would yield both higher ranges but also a higher average WACC as shown in the table below. This is just highlighted to show that it makes a difference.



Second consultation results:							
WACC	CRA Numbers	Min	Max	Averages			
	Global Approach	7.01%	10.94%				
	Local Approach	7.88%	10.53%				
	Total average	7.45%	10.74%	9.09%			
WACC	Correct numbers	Min	Max				
	Global Approach	6.62%	11.49%				
	Local Approach	7.47%	11.27%				
	Total average	7.04%	11.38%	9.21%			

- 3.32 Ooredoo notes a reference error made by the CRA in calculating the inflation differential between Qatar and US inflation forecasts. The CRA has referenced US GDP growth instead of US Inflation. The correct reference to US inflation would yield a lower figure of 0.85%. The IMF has a new data release in October and Ooredoo suggests a weighted average method of calculation, which reflects the uncertainty of long range forecasts, should be used in any event.
- 3.33 Using the IMF October economic data Ooredoo constructs a weighted average of the inflation forecast as shown in the table below.

IMF Data Octo	ber 2017							
					Shaded of	cells indica	te IMF staff	estimates
Country	Subject Descriptor	Units		2018	2019	2020	2021	2022
Qatar	Gross domestic product, constant prices	Percent change	8	3.1	2.68	2.789	3.058	3.209
Qatar	Inflation, average consumer prices	Percent change	8	4.847	1.978	2.102	2.278	2.309
United States	Gross domestic product, constant prices	Percent change	8	2.341	1.907	1.769	1.706	1.68
United States	Inflation, average consumer prices	Percent change	а,	2.126	2.614	2.404	2.213	2.296

3.34 Forward looking data has greater uncertainty around the forecast the further into the future projected. It is customary to have a fan projection which widens into the future and according to probabilistic confidence levels. When using point estimates it is also customary to give greater weight to the first forward year and declining weight thereafter, again following probabilistic logic. The CRA wishes to cover four years of forecasts. Ooredoo suggests a fair declining weighted average scheme for four years using fractions of 16 as follows (alternatively fractions of 9 could be used in case of 3 years forecast period):



	·	10/16	3/16	2/16	1/16	
Fraction of 16	Fraction of 16	62.5%	18.8%	12.5%	6.3%	Weighted Average
method						
stretches	Qatar Inflation product	3.03	0.37	0.26	0.14	3.81%
probability						
over four years	US Inflation product	1.33	0.49	0.30	0.14	2.26%
						1.55%
	Fraction of 9	66.7%	22.2%	11.1%		
Blume type						
method:	Qatar Inflation product	3.23	0.44	0.23		3.90%
(2/3:2/3*1/3:						
1/3*1/3)	US Inflation product	1.42	0.58	0.27		2.27%
						1.64%
Probability	Probabilistic approach	68.3%	27.2%	4.6%		
based						
weighting:	Qatar Inflation product	3.31	0.54	0.10		3.94%
(1st σ : 2nd σ :						
3rd σ)	US Inflation product	1.45	0.71	0.11		2.27%
		1.67%				

- 3.35 Substantially greater weight should be given to the first forward year as shown. The lower result is an inflation adjustment of 1.55%. Ooredoo notes the new IMF forecasts project almost the same nominal GDP growth as previously but gives a greater component to growth and reduces the inflation component. This is somewhat unusual as greater growth can cause demand pull inflation. In Qatar's case as 2022 approaches there can also be cost push inflation as projects run into completion deadlines. i.e. both could occur simultaneously. The IMF had also suggested that VAT inflationary effects persist into a follow on year so overall confidence in the forward years forecasts must be lower especially since a further increase in VAT rate has some probability as well given the GCC fiscal situation.
- 3.36 The economic impact of the current dispute with GCC neighbors is becoming apparent as quarterly financial results from both operators are published (Q3 2017).
- 3.37 Both service providers' revenues declined in Q3 2017 significantly as a consequence of the economic blockade.
- 3.38 In case of Ooredoo, international calls and roaming revenue were impacted. Despite the 3% increase in subscriber base, total Ooredoo revenues dropped by 2% and EBITDA dropped by 3% for the period Q1 to Q3 in 2017 compared to the same period in 2016.



- 3.39 With the revenue of Vodafone Qatar also declining, this will be the second consecutive year where the total market size in terms of revenue has shrunk.
- 3.40 Whilst Vodafone Qatar revenue and profitability figures over that last couple of years have been impacted due to operational challenges, Ooredoo believes the economic blockade has simply exacerbated the downward trend for the whole telecom market in Qatar.
- 3.41 Another important risk factor that may well feed into higher expectations for the CoC, is the recent CRA proposals for significant reduction of wholesale rates. The scale of such risk has become apparent only after Ooredoo's submission of the response to the first round of the CoC consultation. Ooredoo estimates that the implementation of the proposed wholesale rates in the consultation document issued on 27 September 2017 (Ref: CRARAC 2017/09/27-B) will on its own wipe out QAR 700 million of revenues from telecommunication market over the course of next three years⁵. The situation is actually compounded by the proposed regulation of termination charges for incoming international calls, which would directly impact profit margins and also industry and license fees collected by government from service providers.
- 3.42 The timing of such intrusive and market damaging regulation is also unfortunate. During the regulatory period for which the wholesale charges will be reduced and CoC will be set, both service providers are expected to make significant investment in the upgrade in their networks, moving to 5G and preparations for network expansion to meet the demand of the 2022 World Cup.
- 3.43 The CRA's regulation will have the effect of sending a very worry signal to investors that the sector and the market participants are in for a very difficult economic period due to the blockade and difficult operational period as CRA regulations adversely affect revenues, profit margins and the ability to fund capital investments.
- 3.44 Given the size of the impact of the proposed wholesale charges regulation, we can assert with a good degree of certainty that the credit rating, which is already set to negative outlook, will be further reduced for service providers in Qatar by the CRA's own action.

OQ/Reg-5069/2017-10

⁵ For detailed calculation of the revenue impact refer to the Ooredoo response to the CRA consultation on Setting Wholesale Charges for the years 2018-2020.



- 3.45 In the WACC calculations below, Ooredoo did not attempt to quantify the impact of the economic blockade or wholesale charges consultation. As such, the below presented WACC figures represent conservative estimates and the actual WACC figures for the 2018 2020 period is likely to be higher.
- 3.46 Ooredoo finds vanilla WACC spot estimates using the proposed CRA structures and data, after corrections and adjustments as necessary and mentioned previously, for Telecoms in Qatar are as below:

Weighted Average Cost of Capital	Global	Domestic
Cost of Debt		
Risk Free Rate	3.5%	3.5%
Debt Premium (could have taken value of 1.63%)	1.26%	1.26%
Country risk premium (debt)	1.5%	
Cost of Debt	5.76%	4.76%
Gearing (Debt/ (Debt+Equity)	30%	30%
Cost of Equity		
Equity Risk Premium (ERP = EMR- rf)	5.2%	5.2%
Country risk premium (equity) (*Using Average)	0.73% - 4.275%	0.73% - 4.275%
Asset Beta (βa) (* <i>As given or average</i>)	0.67	0.78
Equity Beta (βe) (*As given or average)	1.08	1.24
Cost of Equity = rf + βe (EMR -rf)	14.07%	14.31%
Inflation Adjustment	1.55%	1.55%
WACC	13.31%	13.17%



- 3.47 Ooredoo believes the above spot/central estimates suggest the direction of the CoC should be upward if any movement is required at this stage. Ooredoo reiterates its position that the CRA should have been minded to postpone the cost of capital consultation given the unprecedented events that are impacting Qatar, together with the expected VAT introduction during 2018. The CRA must recognize that such political and economic uncertainty will no doubt have an upward effect on the cost of capital. Notwithstanding the fact that Ooredoo believes the forward looking cost of capital should be higher, we maintain that it would be prudent to proceed with Option C (maintain WACC of 10.75%) at this juncture.
- 3.48 Further, Ooredoo believes that the CRA is correct to suggest that a lower rate may curtail investment. Overly tight regulation in Europe has been indicated as a primary cause of underinvestment in Europe and UK where network operators, having led the world previously, had fallen behind on technology introductions, network coverage and broadband integration. Ooredoo has on plan substantial investment for 5G roll-out in Qatar among other projects. This will prove expensive and needs supporting rather than countervailing considerations at this stage.
- 3.49 In conclusion, Ooredoo believes that there are a plethora of factors which are indicating that CoC is at an inflexion point and most likely to be turning upward, globally but especially here in Qatar. It would therefore be ironic if the outcome of this consultative process were to be a lowering of the sector CoC in the face of all the uncertainties. The CRA will undoubtedly check the calculations presented by Ooredoo herein and these should show clearly that the prudent option is C, a steady state, until the direction of known uncertainties becomes clear.



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هيئة تنظيم الاتصالات دولية قطر State of Qatar

> Determination of the Cost of Capital applicable to Service Providers declared as having a Dominant Position "Cost of Capital 2017"

Consultation document

Deadline for responding to this consultation: June 30, 2017

CRARAC 2017/05/08 May 8, 2017

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1 Introduction

- 1. This Consultation Document (CD) sets out the standard, methodology and process that the Communications Regulatory Authority (CRA or Authority) proposes to adopt for defining the Cost of Capital (CoC).
- 2. The CoC is defined for the purpose of setting cost based regulated prices based on a Dominant Service Provider's (DSP's) efficient level of costs. However, given the methodology applied, the CRA is of the view that the CoC estimated in this CD can be applied to each Service Provider's (SP's) capital base, regardless of whether or not it has been designated as dominant.
- 3. Therefore, the intended outcome of this CD is to establish the appropriate CoC that can be applied by the CRA in all regulatory matters related to SPs in the State of Qatar.
- 4. Stakeholders affected by the determination of the CoC, along with any other interested parties are invited to respond to this Consultation.
- 5. To invigorate responses, the CRA raises a number of specific questions throughout the document.
- 6. This Consultation Document focuses primarily on updating the previous approach for the determination of the CoC for telecommunications markets in Qatar as outlined in the CRA's Decision and Order on the Definition of the Weighted Average Cost of Capital (WACC) for Qatar Telecom (QTel) Q.S.C.¹ and its associated Final Response Document². This is because the CRA considers that the broader approach determined during that process is still valid.
- 7. The following sections provide:
 - (a) instructions for responding to this Consultation, Section 2;
 - (b) the legal basis of these proceedings, Section 3;
 - (c) the background covering an introduction to the CoC as well as a summary of the previous determination by ictQATAR, Section 4;
 - (d) the framework for estimating the CoC and determination of the WACC parameters, Section 5; and
 - (e) the range of the WACC determined by CRA and the CoC the CRA proposes to set on the basis of that range, Section 6;
- 8. A summary of questions contained in the body of the CD, references to benchmarks considered in this Consultation and an overview of the previous proceeding are set out in Annexes to this document.
- 9. To enable the CRA to take into account all arguments, response by a service provider to the questions contained in this CD should include comments with regards to the CRA's methodology for the calculations of the Cost of Capital. If a service provider is in disagreement with the CRA's methodology the service provider is requested to provide, in its response:
- 10. The reasons for disagreement with the CRA's methodology;
 - (a) Its alternative methodology in a clear and concise manner;
 - (b) All calculations relating to its alternative methodology; and

¹ Ref. ICTRA 2013/08/05-A, dated August 5 2013

² Ref. ICTRA 2013/04/10-B
(c) The assumptions, relevant justifications and references of all data sources behind its alternative methodology.

2 Instruction for responding to this Consultation

2.1 Consultation Procedures

- 11. In keeping with an open and transparent regulatory process, the CRA is consulting on the Determination of the CoC in the telecommunications market in Qatar.
- 12. SPs and other interested parties are invited to provide their views and comments in response to all of the consultation questions and any other content in the consultation.
- 13. The CRA asks that, where possible, submissions be supported by relevant evidence.
- 14. Any submissions received in response to this CD will be carefully considered by the CRA. Nothing included in this CD is final or binding. However, the CRA is under no obligation to adopt or implement any comments or proposals submitted.
- 15. Comments should be submitted by email to <u>raconsultation@cra.gov.qa</u> The subject reference in the email should be stated as Consultation on "Determination of the Cost of Capital in the telecommunications market in Qatar".
- 16. It is not necessary to provide a hard copy in addition to the soft copy sent by email.
- 17. The deadline for SPs to submit their comments is **June 30, 2017.**
- 18. This deadline updates the indicative timeline of the proceeding communicated by CRA to SPs on March 7, 2017 (ref. letter CRA/RAC-E/023/2017). However, the CRA may agree with the SPs to have only a single round of consultation. This is because this Consultation already takes into account the extensive exchange with stakeholders that took place during the previous proceeding for determining the CoC, with this proceeding being more narrowly focused on updating that approach. The CRA intends to issue the final decision on the CoC by October 31, 2017.
- 19. The CRA suggests that apart from an industry respondent providing comments with regards to the methodology should it have concerns with the CRA's methodology it submits (at the same time) its own calculations of the CoC corroborated by relevant justifications and references. This will enable the CRA to take account of all arguments when deciding on a final value for the CoC.

2.2 Publication of comments

- 20. In the interests of transparency and accountability, the CRA intends to publish the submissions to this consultation on its website at <u>www.cra.qa</u>.
- 21. All submissions will be processed and treated as non-confidential unless confidential treatment has been requested.
- 22. In order to claim confidentiality of information in submissions stakeholders must provide a non-confidential version of such documents in which the information considered confidential is blacked out. This "blackened out" portion/s should be contained in square brackets. It must be clear where information has been deleted. To understand where redactions have been made, stakeholders must add indications such as "confidential" or "confidential information".
- 23. A comprehensive justification must be provided for each submission required to be treated as confidential. Furthermore, confidentiality cannot be claimed for the entire or whole sections of the document as it is normally possible to protect confidential information with limited redactions.
- 24. While the CRA will endeavour to respect the wishes of respondents, in all instances the decision to publish responses will be at the discretion of the CRA.

- 25. By making submissions to the Authority in this Consultation, respondents will be deemed to have waived all copyright that may apply to intellectual property contained therein.
- 26. For more clarification concerning the consultation process, please contact Francesco Massone (<u>fmassone@cra.gov.qa</u>).

3 Legal Basis

- 27. The State of Qatar has empowered and authorized the CRA to regulate the Communications sector under the Emiri Decree No. (42) of 2014 Establishing the Communications Regulatory Authority (Emiri Decree), the Decree Law 34 of 2006 (Telecommunications Law), and the Executive By-Law of 2009 for the Telecommunications Law (By-Law).
- 28. These laws establish the objectives and legal framework for the CRA to create the appropriate legal and regulatory conditions for the development of sustainable competition in the Communications sector so that, amongst other things, telecommunications may become a factor for promoting social and economic development.
- 29. The determination of the CoC is relevant for the CRA to fulfil its own responsibilities, which are amongst others:
 - (a) To ensure that prices and charges of SPs are cost-based and appropriately applied to products and services offered at a wholesale or retail level;
 - (b) To encourage competition and prohibit anti-competitive practices, preventing DSPs from abusing their position of market dominance;
 - (c) To ensure interconnection and access for all users by setting conditions for effective interconnection and access.
- 30. The CoC is a key contributor to the cost base of the SPs and appreciably determines retail and wholesale charges. This requires a CoC value ensuring that a SP achieves a fair return on capital employed (at the CoC value) and the goals of efficient prices and increased competition are adhered to.
- 31. The legal basis for CRA to determine the CoC is described in more detailed below.
- 3.1 The Emiri Decree
- 32. Under Article 4, the CRA is responsible for regulating the communications information technology and the postal sector, as well as access to digital media, with the aim of providing advanced and reliable telecommunication services across the State. Amongst others, the CRA has to:
 - (a) Encourage competition and prohibit or minimize anti-competitive practices, prevent misuse by any person or entity of its market dominance position, and take all necessary measures to achieve this (article 4(3));
 - (b) Protect the rights and interests of the public and service providers in the market, promote transparency and provide advanced, innovative and quality services at affordable prices to meet the needs of the public (article 4(4));
 - (c) Ensure interconnection and access for all users by setting conditions for effective interconnection and access (article 4(6)).
- 33. Under Article 15, amongst others, the CRA has to;
 - (a) Develop appropriate tariff regulations, giving priority to the telecommunications market, or telecommunications services according to market requirements, and determine fees for retail and wholesale services (article 15(2));

- (b) Ensure appropriate measures are in place to prevent non- compliance acts or activities by dominant service providers, which may significantly impact or reduce competition in telecommunications markets (article 15(4));
- (c) Set regulations for interconnection and access (article 15(5));
- (d) Develop and identify policies and regulations for all services which will foster a competitive market and serve the interests of the consumers (article 15(7)).

3.2 The Telecommunication Law

- 34. CRA has mandated objectives and goals to achieve under the Telecommunications Law. Article 2 outlines the main objectives that apply for the purposes of this Order:
 - (a) Enhancing the telecommunications sector's performance in the State of Qatar through encouraging competition and fostering use of telecommunications (article 2(2));
 - (b) Encouraging sustainable investment in the telecommunications sector (article 2(5));
 - (c) Establishing a fair regime that meets the requirements of the competitive market place through the implementation of interconnection between service providers and all procedures related thereto (article 2(9));
 - (d) Ensuring that the regulation of the telecommunications sector remains in line with international rules (article 2(12));
 - (e) Ensuring the orderly development and regulation of the telecommunications sector (article 2(13)).
- 35. Under Article 19(1), the CRA is responsible for undertaking functions and duties in respect of interconnection and access to promote appropriate, effective and low cost interconnection between telecommunications networks, promote access to facilities of other service providers to ensure interoperability and promote the growth of competitive telecommunications services markets.
- 36. Article 29 requires tariffs to be based on the cost of efficient service provision without any excessive charges which may result from dominance. Under this Article 29, CRA may issue decisions to amend tariffs where it finds they are not in line with the cost of service provision.

3.3 The By-Law

- 37. Under Article 50(1), the CRA may require that interconnection or access charges of any Dominant Service Provider be subject to Article (29) of the Law and Articles (56), (57), (58) and (59) of this By-Law. The CRA may also direct Dominant Service Providers to implement specific interconnection or access charges, or changes to such charges, as determined by CRA.
- 38. Article 50(2) requires that Interconnection and facilities access charges of Dominant Service Providers designated in accordance with Article (48) of this By-Law shall be cost-based and in accordance with rules or standards determined by CRA.
- 39. In establishing charges for interconnection or facilities access, Dominant Service Providers designated in accordance with Article (48) of this By-Law shall comply with any rules or orders applicable to interconnection or access, including any pricing, costing and cost separation requirements as prescribed by the CRA (article 50(3)).

4 Background

- 40. This section provides an introduction to the concept of the CoC and how it is calculated. It then outlines the regulatory decision relating to the previous CoC.
- 41. The CRA has the statutory obligation to regulate in markets where a SP has market power. This follows from the requirement to promote competition in the supply of telecommunication services in Qatar. Among other measures, the CRA meets this obligation by setting cost oriented prices for regulated wholesale (access and interconnection) services.
- 42. A cost oriented price is one where a regulated SP has sufficient (but not excessive) funds to recover its on-going expenses as well as to finance its investments in equipment and infrastructure. The scale of this allowance is determined by the CoC As such, the CoC is a factor in setting charges for regulated wholesale services and other regulations that require the determination of efficient costs in the sector.
- 43. Given this, the CoC is a crucial input to economic regulation of the sector, it is required to be defined fairly and in a manner consistent with the regulatory framework and international best practices. If set appropriately (i.e., without biasing prices in favour of the access seeker or access provider), the CoC encourages investment and supports the development of efficient and effective competition.
- 44. The following section provides a generic description of how the CoC is determined in this proceeding. This is followed by a summary of how the CoC was determined in the previous Decision and Order (by ictQATAR), on which this proceeding is based.

4.1 Calculation of the Cost of Capital

- 45. The CoC of a business is typically measured using the Weighted Average Cost of Capital (WACC). The WACC is the most widely used method for calculating the CoC.³ It takes into account the main sources of possible funding for a company debt and equity and the relative proportions of these (gearing), in order to determine a (weighted) average cost of capital for the business.
- 46. As such, the WACC is a construct of three main components:
 - (a) **Cost of equity:** This is the expected rate of return required by equity investors. It compensates them for the risk they bear, and the opportunities they forgo by committing funds to the business / activity in question.
 - (b) **Cost of debt:** This measures the expected cost of borrowing (debt finance) to finance the business / activity in question.
 - (c) **Gearing:** This is the share of the total financing of a business which is accounted for by debt (i.e. debt / (equity + debt).
- 47. Within the formula, the cost of equity is measured using the Capital Asset Pricing Model (CAPM). Country-specific risks, which are often borne in smaller economies such as

³ This is used both across the world and in other GCC countries; for example see TRC Jordan (2017) – Regulatory decision on the weighted average cost of capital for Jordanian telecom operators, TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination; and Berec (2013) – Cost of Capital in Europe – Cost of Capital Parameters in 27 European Countries

Qatar, are also captured, and feature in both the calculation of the cost of equity and the cost of debt.



Figure 1. Calculation of the WACC, Source: CRA

48. As shown by Figure 1 above, the key parameters underlying the three main components of the WACC are set out in the following sections.

4.1.1 Risk-Free rate

- 49. The risk-free rate (**RF**) is the interest rate (return) that an investor would expect to earn by holding a riskless asset. This rate is one of the most important components of the WACC, because it is the basis for estimating both the cost of debt and the cost of equity. All else equal, an increase in the RF would result in an increase in the WACC.
- 50. The RF cannot be observed directly, since in practice no asset is completely free of risk. As a result, it is often approximated using the return on a reasonably riskless and liquid (frequently traded) asset, such as the yield on a government bond.

4.1.2 Equity Risk Premium

- 51. The Equity Market Risk Premium (**ERP**) is one of the main components in the estimation of the cost of equity. The ERP measures the additional expected return, over and above the RF, required by investors to compensate them for holding the market portfolio a hypothetical portfolio of assets comprising all assets in the economy (including all traded and non-traded assets). All else equal, an increase in the ERP would result in an increase in the WACC.
- 52. The ERP is often estimated using a combination of (i) historical data on the actual ERP across a range of economies; (ii) expectations of the future market risk premium, based on the views of investors and financial market experts; and (iii) estimates of the ERP applied by other regulators from around the world in recent decisions on the WACC.

4.1.3 Country Risk Premium on Equity

- 53. The Country Risk Premium on Equity (**CRPe**) represents the additional return, over and above the ERP, that an investor may require to invest in a given country. This is required because the ERP measures the return, above the RF, that equity investors can expect to earn in a 'representative economy', so does not explicitly capture country-specific factors. Such a risk premium is more important in smaller economies such as Qatar where the impact of economic events can be more pronounced e.g. as a result the economy being less diversified. All else equal, an increase in the country risk premium on equity would result in an increase in the WACC.
- 54. The CRPe is often estimated based on the country credit ratings of the country in question or by comparing the spread between bond yields of comparatively risk-free countries and the country for which the WACC is estimated. Further adjustments are considered when the premium is based on debt measures (such as bonds) such as taking into account the relative volatilities between country debt and equity markets.

4.1.4 Equity beta

- 55. The equity beta measures the exposure of a common equity stock to 'systematic risk', hence the risk related to the entire market or an entire market segment. It also captures the impact of financial structure on the risk faced by the business. Typically, the greater the level of debt in the business, the greater will be the equity beta. This is because of the preferential treatment of debt in the event of insolvency. That is, debt is repaid before equity and the more debt there is in a business, the less likely it is that equity owners will receive their capital in the event of insolvency. Removing this effect on the equity beta provides the asset beta, which measures the systematic risk purely associated with the activity of the business.
- 56. All else equal, the larger the equity beta, the greater the weight placed on the ERP and equity country risk premium when calculating the cost of equity. As such, an increase in the beta would result in an increase in the estimated the WACC.
- 57. The appropriate value of the equity beta for a company is often determined using a combination of (i) empirical estimation (where the equity beta is the estimated coefficient of the regression of the company's equity returns against the returns for the market as a whole); (ii) equity betas estimated for other comparable companies; and (iii) recent precedent from other regulators' determinations of the WACC.
- 58. Separate equity betas can be estimated for different telecommunications services, to capture the fact that the provision of some services may be more exposed to systematic risk than others.

4.1.5 Debt Risk Premium

- 59. Along with the RF, the Debt Risk Premium (**DRP**) is one of the main components of the cost of debt. The DRP measures the additional expected return, over and above the RF, required by a lender to invest in the corporate bond market. This premium compensates lenders for the risk of credit default, and also for the opportunity cost of funds loaned. All else equal, the larger the DRP, the greater the cost of debt, and as a result, the higher the estimate of the WACC.
- 60. In the telecommunications sector, the debt premium is often determined using a combination of (i) historical data on the average debt spreads paid by 'stable' telecommunications SPs around the world; and (ii) recent regulatory decisions on the

debt premium made by other telecommunications regulators when determining the WACC.

4.1.6 Country Risk Premium on Debt

- 61. The Country risk premium on debt (**CRPd**) represents the additional returns, over and above the debt premium, that a lender may require to supply capital to an issuer of corporate debt in a given country. Similar to the CRPe, such a risk premium is more important in smaller economies such as Qatar. All else equal, an increase in the CRPd would result in a larger estimate of the cost of debt and therefore a higher estimate of the WACC.
- 62. As for the CRPe, the CRPd is often estimated based on the country credit ratings of the country in question or by comparing the spread between bond yields of comparatively risk-free countries and the country for which the WACC is estimated.

4.1.7 Gearing

- 63. Gearing is the component of the WACC formula that weights the cost of equity and cost of debt. It represents the share of the total financing of a business which is accounted for by debt capital ($D / (E + D)^4$). The gearing is used in the estimation of WACC in two places:
 - (a) first, when transforming equity betas to asset betas (and vice versa); and
 - (b) second, when calculating the weights to place on the cost of debt and cost of equity in the WACC formula.
- 64. All else equal, higher gearing will mean that more weight is placed on the cost of debt relative to equity. As a result, the impact on the WACC will depend on the cost of debt relative to the cost of equity.
- 65. In the context of determining an appropriate WACC, gearing can be measured based on a company's actual gearing or alternatively on its notional or "optimal" gearing. For estimating the WACC of a telecommunications company, the latter is often determined using a combination of (i) historical data on the gearing ratios of "stable" telecommunications SPs around the world, and (ii) recent regulatory decisions on appropriate levels of gearing made by other telecommunications regulators in the course of determining WACC.

4.2 Previous determination of the Cost of Capital

- 66. The previous process for the determination of the CoC was launched on 6 June 2011 with the publication of the consultation document "*Definition of the relevant cost of capital for Ooredoo Qatar (Ooredoo) Q.S.C. for the purposes of regulatory accounting*" (ICTRA 2011/06/06).
- 67. The first consultation document set out the principles of the WACC calculation (as the relevant method for estimating the CoC) as well as some issues that affect how the parameters are defined. This first consultation did not calculate the WACC but sought comments and estimates from industry respondents. Respondents to the consultation submitted their views on those principles and also their own estimates of the WACC.

⁴ I.e. debt relative to total capital consisting of equity and debt

- 68. The second round of consultation examined in more detail the key parameters of the WACC calculation, taking into consideration the submissions that stakeholders had made during the previous consultation round.
- 69. In proposing an appropriate WACC, ictQATAR also took into account international best practice based on neighbouring GCC countries and European Union Member States. However, in the final decision, benchmarks from other jurisdictions were not used directly, as ictQATAR remained cautious over the use of international benchmarks given that an appropriate WACC for Qatar must reflect economic and market conditions in Qatar.
- 70. The second round of the consultation estimated a WACC in the range of **8.4%-9.6%** for both fixed and mobile telecommunications services.
- 71. In the final determination of the WACC, ictQATAR estimated ranges for the WACC under two different scenarios:

Reference Market	ictQatar 'Domestic'	ictQatar 'Global'	Ooredoo (CD2)	Q.NBN (CD2)	Vodafone (CD1)
Risk-free rate	4.15%	3%	2.29%-6.54%	4.7%	4.3%
ERP	5.7%-6.2%	5.0%-5.5%	8.76%-12.38%	5.5%-6.0%	8%-10%
Corporate tax t	0.0%	0.0%	2.5%	0%-2.5%	0%
Gearing	30%	30%	25%-35%	20%-45%	30%-47%
Debt	1.0%	1.0%	1.10%	0.5%-0.7%	0.7%-1.5%
Cost of debt	5.15%	5.15%	4.02%-7.64%		5%-5.8%
Asset Beta	0.55-0.70	0.40-0.55	0.52-0.68	0.2-0.4	0.41-0.55
Equity Beta	0.79-1.00	0.57-0.79	0.77-0.96	0.25-0.73	0.78
Cost of equity	8.80%-10.57%	7.04%-8.95%	12.82%-14.42%	6.2%-8.7%	10.26%-12.1%
Pre-tax WACC	7.71%-8.94%	6.47%-7.81%	9.97%-13.02%	6.2%-7.43%	7.97%-10.23%

- (a) 7.71% to 8.94% under a domestic 5 approach; and
- (b) **6.47% and 7.81%** under the global⁶ scenario.

Table 1 Parameters and WACC considerer in the final determination of the previousconsultation process

- 72. The final determination of the WACC then considered ictQATAR's own estimation of the WACC, the submissions of industry respondents and the specific methodological and computational issues raised during the consultation. Based on an overall range of WACC estimates of 6.2% to 13.02%, ictQATAR determined a final WACC of 10.75%. In determining this estimate ictQATAR considered it was appropriate to err on the side of caution and establish a rate within the upper bounds of the range, to ensure that the basis for realising important investments in the sectors is maintained.
- 73. The final determination highlighted that the differences in values proposed by the individual stakeholders was an indication of how difficult it is to estimate the WACC, with the final value heavily influenced by several parameters. In this context, the final determination noted that due care should be taken when determining the WACC rate,

⁵ Focusing on regional and Qatari evidence for estimating the parameters of the WACC

⁶ Focusing on wider international (global) evidence for estimating the parameters of the WACC

given the risks that exist from both under and over-estimating the appropriate parameters.

74. ictQATAR's decision thus reflected an objective to mitigate the risk of setting WACC incorrectly, either by setting it too low and adversely affecting investment or setting it above the appropriate level and so allowing regulated SPs to earn excessive returns.

5 Determination of the Weighted Average Cost of Capital

5.1 Scope of the Weighted Average Cost of Capital

- 75. In this section, the CRA discusses the scope of the CoC (hereafter referred to as WACC given the methodology used for calculating the CoC), i.e. whether it should be defined for the telecommunications market as a whole, for individual SPs or for individual types of telecommunication services. In doing so, CRA has benchmarked approaches taken in other jurisdictions.
- 76. The CRA is required to set regulated prices where competition is insufficient to cause prices to be set at fair and efficient levels. A fair price provides the regulated SP with sufficient funds to cover costs of production and to encourage investment.
- 77. With the objective of setting such prices, the CRA must decide whether to set a single WACC for the whole sector, or to set different values for individual SPs and/or individual services.
- 78. In making this decision, the CRA has evaluated the trade-off between the advantage of recognizing different risk characteristics for different business segments (in the current case, the legacy fixed-line copper access network in Qatar, mobile networks, and fibre-based NGA network), and the difficulty of deriving, in a robust manner, such disaggregated WACC estimates.
- 79. This topic was discussed at length in the previous consultations referred to in the preceding section and in Annex II. The first consultation highlighted that the main driver of a differentiated WACC is the asset Beta, i.e. the sensitivity of returns on an investment to systematic risks that cannot be 'diversified away' by investors.
- 80. This key parameter is affected by:
 - (a) business cyclicality (demand elasticity) affecting revenues; and
 - (b) operational leverage, i.e. the proportion of fixed versus variable costs.

5.1.1 The impact of business cyclicality

- 81. With regard to the first point, historically mobile businesses have been deemed to have a higher exposure to systematic risk than a fixed-line business. However, this difference has eroded over the last few years and will probably disappear in the short to medium term. This is because, from the consumer perspective, convergence implies greater substitutability between services provided over fixed-line and mobile networks.
- 82. This convergence between the systematic risk related to the mobile and fixed businesses can be observed in the convergence over time of mobile and fixed asset betas.
- 83. This is discussed by TRA Bahrain (2013)⁷, which showed that based on companies operating in Bahrain and relevant international comparators there is not a systematic difference between the asset betas for mobile and integrated SPs. TRA Bahrain also highlighted the fact that differences between fixed-line and mobile betas estimated by regulators appear to be narrowing over time. In accordance with this, TRA Bahrain

⁷ TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination

determined a single rate for the WACC to be applied to all regulatory matters in mobile and fixed telecommunication markets in Bahrain.

84. A similar case is illustrated below with the example of the UK, which shows the evolution of asset betas over time in the determination of mobile and fixed WACCs, as estimated by Ofcom.



Source: see Annex III, own calculations

Note: an implied BT Group rate was calculated for 2005 from Ofcom (2005) – Ofcom's approach to risk in the assessment of the cost of capital

Figure 2. Convergence of fixed and mobile asset betas over time, Source: Ofcom WACC determinations in fixed and mobile 2004 to 2016

- 85. The chart shows that while the first decisions available from Ofcom (in 2004-2007) estimated mobile asset betas of around 1.0 or above, these estimates subsequently declined significantly. The latest available Ofcom decision on the cost of capital in the mobile sector (from 2015) applied an asset beta of 0.6 for the mobile sector.
- 86. Fixed asset betas, meanwhile, have not changed notably over time. In 2009, Ofcom estimated an asset beta of 0.61 for BT Group, with the most recent determination in Ofcom's 2016 leased line market decision finding an asset beta for BT Group of 0.72. So while Ofcom continues to consider WACC estimates separately for different parts of the industry, primarily as a result of determining the WACC alongside each regulatory pricing decision, the comparison above illustrates that there is limited reason to do so.
- 5.1.2 The impact of operational leverage on asset beta
- 87. The greater the proportion of a businesses' costs which are fixed, the higher its asset beta is likely to be. This is because a greater proportion of fixed costs can increase business risk if revenues decline, for example in the event of an economic downturn.

- 88. A hypothesis considered in the previous ictQATAR determination was that an investment in NGA/NGN infrastructure could exhibit a higher systematic risk than other telecommunications activities because such an investment is likely to be a largely fixed cost.
- 89. However, evidence does not support this hypothesis, particularly as broadband services become more essential: customers place an increasingly higher value on high speed broadband. Indeed, early research conducted by SPC Network found that the long-run price elasticity of demand for broadband services is -0.43, indicating that a 1 % increase in price would lead to a 0.43 % reduction in demand over the long run.⁸
- 90. The same also holds for mobile services: Grzybowski (2004) finds rather moderate elasticities for the EU countries in 1998-2002, ranging from -0.2 to -0.9; Hausman (1999) and (2000), finds a price elasticity of access to mobile services of -0.51, using aggregate data on 30 U.S. markets for the period 1988 to 1993; using data on 64 different countries, Ahn and Lee (1999) estimate an average elasticity of -0.36; finally, summarizing the results from different studies by DotEcon, Frontier Economics and Holden Pearmain, the UK Competition Commission (2003) reports own-price elasticities of mobile subscriptions between -0.08 and -0.54, while for mobile calls, own-price elasticities between -0.48 and -0.62.⁹
- 5.1.3 Conclusion on the Scope of the Weighted Average Cost of Capital
- 91. As considered in the previous consultation, the calculation of separate WACCs for different business segments appears to be problematic in practice.
- 92. For example, with the horizontal consolidation of fixed and mobile SPs, the set of pure fixed or mobile companies required to reliably benchmark the difference between the asset beta of fixed and mobile operations has diminished.
- 93. An alternative approach, of considering the relative weight of fixed and mobile assets within integrated SPs, is likely to be computationally challenging, so bringing into question the robustness of the resulting beta estimates.
- 94. Given these practical issues are still in place and reflecting the increased technical and market convergence between fixed and mobile services, the CRA is minded to maintain the position developed during the previous WACC determination, that is setting a single WACC for the entire telecommunications sector, which will then be applied in all regulatory and competition matters that consider the WACC as an input.

Question 1 Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?

⁸ Cadman, R. and Dineen, C. (2009): "Price and Income Elasticity of Demand for Broadband Subscriptions: A Cross-Sectional Model of OECD Countries," SPC Network, available at http://spcnetwork.eu/uploads/Broadband_Price_Elasticity.pdf

⁹ Dewenter, R. and Haucap, J. (2008): "Demand Elasticities for Mobile Telecommunications in Austria", Jahrbücher für Nationalökonomie und Statistik / Journal of Economics and Statistics, Vol. 228, No. 1, pp. 49-63.

5.2 Framework for estimating the Weighted Average Cost of Capital

- 95. This section considers three matters of principle in relation to the determination of the WACC. The first concerns the way in which tax and inflation is considered in the estimation and benchmarking of the WACC. The second considers different ways for quantifying the WACC and how CRA can ensure that the final WACC value stemming from this Consultation reflects the market situation in Qatar. The third considers the validity period of the WACC determination and whether or not this has any implications for the way in which the WACC is estimated.
- 5.2.1 Reflecting tax and inflation in the determination of the Weighted Average Cost of Capital
- 5.2.1.1 The effect of taxation
- 96. How tax should be considered in the determination of the WACC depends on how the WACC is used in the regulatory process. Specifically, if a regulated SP's cost base includes taxation on profit as a dedicated cost category, an allowance for this tax should not be included in the WACC.
- 97. If a tax is not specifically considered in a SP's cost base, it must be taken into account in the WACC to ensure that the return a SP is able to generate takes into account the deduction of tax. If it were not included here, a SP would be unable to compensate investors according to their expectations.
- 98. Taking these factors into account, regulators typically distinguish between three types of WACC:
 - (a) Pre-tax WACC = g.RD + (1-g)/(1-t).RE
 - (b) Vanilla WACC = g.RD + (1-g).RE
 - (c) Post-tax WACC = g.(1-t).RD + (1-g).RE
- 99. The **pre-tax WACC** includes an allowance to recognise the fact that the return calculated by the cost of capital will be considered as a profit for tax purposes. This is done by applying a "tax wedge" 1/(1-t) to the cost of equity, which has the effect of increasing the cost of equity and hence the WACC. A similar tax wedge is not applied to debt, because returns on debt finance are typically not taxable.
- 100. A **post-tax WACC** is used when the regulatory regime explicitly treats tax expenses as a recoverable allowance in the regulated business' costs e.g. in a cost plus regulatory regime. A post-tax WACC is also considered in the context of regulatory accounting where the actual tax payments are attributed to separated accounts on the basis of the relative profits generated by the separated services.
- 101. A **vanilla WACC** is typically referred to when any impact of tax on the WACC is disregarded, for example for comparative reasons.
- 102. The CRA considers that the most likely circumstance of it using the WACC is in connection with regulatory accounting information; for example for determining cost based regulated wholesale prices using Ooredoo's separate regulatory accounts. Any corporate tax or similar obligations, such as contributions to DAAM¹⁰ or other profit related Industry or Licensee Fees, would be considered as a separate cost item in that case.

¹⁰ Social and Sports Activities Support Fund

- 103. The CRA therefore considers that any additional recognition of the tax in the WACC is unnecessary and proposes a vanilla WACC. However, should the need arise to consider a tax as part of a WACC, for example when using the WACC in the context of determining costs using a bottom-up modelling approach, the CRA will then determine a corresponding adjustment to the WACC as part of these proceedings.
- Question 2 Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?

5.2.1.2 The effect of inflation

- 104. Inflation is taken into account when determining the WACC because what matters to investors are the real returns they receive which implies that nominal returns must also account for the loss in purchasing power as a result of inflation. In line with international regulatory precedents, the CRA considers that there are two possible ways of allowing for inflation: either the regulatory asset base (RAB) is adjusted for inflation and a real WACC is applied, or the necessary compensation for inflation is provided by the WACC itself, which is calculated on a nominal basis.
- 105. The previous consultation on the WACC, referred to in Section 4.2, determined a nominal WACC. This is because the regulatory regime employed in Qatar is generally concerned with current prices and current costs and therefore nominal values apply, in line with similar regulatory practices in other jurisdictions.
- 106. The use of a real WACC could also be considered when the rate of inflation is erratic or prone to sudden changes which could potentially imply that regulated prices set using a nominal WACC may not be sufficient to recover the actual cost an operator incurs. in this case, it could be more appropriate to determine regulated prices using a real WACC, with those prices being regularly updated to account for expectations of short term inflation.
- 107. However, apart from a period between 2005 and 2010, Qatar has enjoyed a stable inflation rate, similar to that of the US. The unusual rise in consumer prices prior to 2010 was largely due to rising property prices, demand pressures for goods & services and depreciation of the US Dollar against major currencies. Inflation slowed down sharply to -4.9% in 2009 due to the global financial and economic crisis. Between 2010 and 2016, the inflation rate was again stable within the range of 1%-3%. This is also shown in Figure 3 below.



Figure 3. Qatar vs US inflation, annual %, Source: IMF and Qatar National Statistics Office, May 2017¹¹

- 108. The CRA expects inflation to remain at reasonably constant rates in the near future. Indeed, the CRA expects that the persistent drop in global oil and gas prices and intensified competition in the gas market will counterbalance the pressure population growth continues to exert on land prices. In conclusion, since the risk of significant fluctuations in the inflation rate is unlikely, revenues are not linked to macroeconomic fluctuations in the CPI and a nominal WACC is therefore appropriate.
- 109. Therefore, the CRA does not see any need to consider the use of a real WACC.

Question 3 Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?

¹¹ The IMF provides data on the US inflation rate over the period 1990-2016 and on the Qatari inflation rate over the period 1990-2015, http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx. The 2016 Qatari inflation rate is taken from the National Statistics Office of the Qatar Ministry of Development Planning and Statistics, www.mdps.gov.qa/en/statistics1/. Since the IMF data for Qatar is also taken from the Qatar National Statistics Office, we believe that the 2016 data is consistent with the 1990-2015 estimates.

- 5.2.2 Defining the business for which the Weighted Average Cost of Capital is estimated
- 110. When estimating the WACC it is important to consider how the method of estimation best reflects the required return for investing in the provision of telecommunication services in Qatar. That is, regardless of the structure of companies present in Qatar and their individual international exposure to risks, the purpose of determining the WACC for regulatory purposes in Qatar requires an assessment of the non-diversifiable risk of investing in Qatar alone.
- 111. In other words, the WACC determined in this process should not depend on whether those services are provided by an SP only present in Qatar, an internationally diversified group of companies operating out of Qatar or an internationally diversified company with a Qatari subsidiary.
- 112. The previous consultation recognised SPs are often part of larger international groups. The stocks of such SPs are unlikely to be suitable for estimating the Qatar specific WACC directly even if they operate in Qatar. The estimation will therefore also need to consider the country specific risk of investing in Qatar separately.
- 113. Considering the two biggest telecommunications companies present in Qatar, the above discussion becomes very clear. For instance, Ooredoo has broadened its reach from its domestic market to now have operations in over 16 countries across the Middle East, North Africa and Asia Pacific regions. Ooredoo has 95 million mobile subscribers around the world, and Qatar accounts for only 3 million of these.
- 114. Similarly, Vodafone's Qatar operations represent only a small fraction of its total business: in Qatar the company has only 1.5 million mobile subscribers and 6,000 broadband subscribers, out of 430 million overall mobile subscribers and 14 million overall broadband subscribers.¹²
- 115. Having made the same observations during the previous procedure for determining the WACC, the final determination considered two methods for estimating the WACC:
 - (a) a domestic scenario; and
 - (b) a global scenario.
- 116. The **domestic scenario** calculated the RF and beta on the basis of Qatari and MENA bond and stock market information; whereas the **global scenario** estimated the parameters on the basis of global mature stock market indices considering Qatari information as a basis for calculating country specific risk premiums for debt and equity.
- 117. The questions of whether and how to adjust for local/non-local operations, and whether WACC parameters should be derived from local or international stock market indices has been dealt with differently by different regulators.
- 118. Below, the CRA looks at the precedent on both of these points.
- 119. In considering, first, whether to adjust the WACC for local/non-local operations, the CRA looked at two regional approaches Bahrain and Jordan.
- 120. In considering, second, how to make the adjustments, the CRA additionally looked at one European approach that used by Ofcom.
- 5.2.2.1 How have regulators made adjustments for local/non-local operations?
- 121. **TRA Bahrain** does not make an adjustment for local/non-local operations. In order to find the asset beta ranges for domestic and international investors respectively, it takes

¹² Telegeography, April 2017

an average across Zain, Batelco, and STC in three estimation categories: 2-year weekly, 5-year weekly, and 5-year monthly. Rather than accounting for the companies' local/non-local operations, it simply regresses the returns on Zain, Batelco, and STC equity (respectively) on the returns on each of (i) the domestic equity market where the companies are listed, and (ii) the world equity market (the FTSE All World). The final WACC is based on an average of the estimates.

- 122. **TRC Jordan** makes an adjustment for local/non-local operations. While Jordan Telecom Group (JTG) is a Jordanian corporation, Zain Group and Batelco Group are internationally-diversified corporations with Jordanian subsidiaries. Zain Jordan is nearly wholly-owned by Zain Group and makes up only around 12% of Zain Group's revenues, while Umniah is part of the Batelco Group and makes up around 21% of total group revenues. As a consequence, the beta estimates of Zain Group and Batelco Group are not relied on, as they reflect the systematic riskiness of the entire group relative to their local reference index, rather than the risk specific to their Jordanian subsidiaries. Instead, the TRC assumes that Zain Jordan's and Umniah's betas are affected by the risk of the Jordanian revenue share in a similar way to JTG's mobile business. The TRC's view is that Umniah's and Zain Jordan's betas should therefore be based on that estimated for JTG's mobile division, Orange Jordan.
- 5.2.2.2 Have regulators compared local or international stock market indices?
- 123. **TRA Bahrain** estimates asset betas for domestic and international investors separately (as it does for all elements of the WACC), to account for the fact that some investors in the domestic market may not always hold investment portfolios that are internationally diversified. That is, they may be subject to some degree of 'home bias' in their investment choices. The corresponding estimates feed into the TRA's domestic and international estimates of the WACC which are considered in an average for the final determination of the WACC.
- 124. **TRC Jordan**, on the other hand, only calculates asset betas on the basis of the domestic stock market: the Jordanian stock market index (the Amman Stock Exchange General Index). The TRC justifies this decision by observing that this is in line with investors' probable market portfolio: 'home bias' leads investors to favour stocks in their home market.
- 125. Ofcom also makes its calculations of asset betas on the basis of a comparison against a domestic index the FTSE All Share. Although Ofcom also calculates asset betas on the basis of a comparison against the FTSE All World index, it uses the asset betas from the FTSE All Share calculation in its final estimation of the WACC. Ofcom justifies this decision slightly differently to TRC Jordan, however, by not only pointing to the 'home bias' of investors, but also to the fact that the FTSE All Share is a well-diversified index with high levels of liquidity. Ofcom also makes reference to literature from NERA and Legg Mason which supports the idea that 'home bias' has a significant impact on investors' choices.

5.2.2.3 Conclusions

126. Consistent with the approach considered in the previous determination of the WACC and corresponding regional precedent, the CRA considers implementing a global and domestic approach for the calculation of the WACC. In other words, the final determination of the WACC should take estimates of the WACC based on both concepts into account.

Question 4 Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 5.2.3 Period over which the Weighted Average Cost of Capital determined in this Consultation is valid
- 127. Finally, the CRA also considered the period of validity for the WACC determined in this proceeding.
- 128. A variety of validity periods have been used by other regulators when determining the WACC, often 5 years or less.
- 129. For example, the UK, the UAE, and Portugal have all previously set WACC for a period of 1, 2, and 3 years respectively. TRA Bahrain set the WACC for a period of three to five years in 2013.
- 130. Regulators have either revised the WACC whenever a decision on regulated prices was considered, (e.g. Ofcom in the UK follows this approach) or set the WACC for a given period, with that WACC then being used in all determinations over the period.
- 131. The CRA is of the view that a determination of the WACC over a period of time is a reasonable approach for implementing reliable regulation that provides affected SPs and their investors with regulatory certainty over a reasonable planning horizon. As such, the CRA considers that the WACC determined as a result of this proceeding should be valid for a certain period of time and not be updated for any specific regulatory determination.
- 5.2.3.1 Conclusion
- 132. In keeping with the previous determination, CRA believes that setting the WACC for a period of up to four years is reasonable and consistent with the benchmarks. This is because the CRA does not expect a significant change in the structure of the market or the nature of the services provided during that period.
- 133. This does not mean that CRA does not expect there to be significant technological changes (on the contrary, CRA recognises that new technologies, such as 5G are likely to be launched in this period). However, the fundamental structure of services is unlikely to change. It is therefore also likely that there will not be any major changes to the risk profile of the sector.
- 134. Whilst the CRA does not currently expect any major changes to the market debt and equity returns underlying the calculation of the WACC, there could obviously be reason why the WACC could change over the next four years. Aspects such as changes in inflation or credit default risks or major global economic events affecting the market as a whole could affect the WACC.
- 135. The CRA will monitor these aspects whenever the WACC is used for the purpose of regulatory decision making and will consider making adjustments to the WACC should it find that the original WACC determined as a result of this proceeding is no longer suitable to reflect efficient costs.
- 136. For the avoidance of doubt, the CRA does not consider there to be any link between the period for which the WACC is estimated and the periods considered when selecting data for the purpose of estimating the parameters of the WACC.

Question 5 Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?

5.3 Calculating the Weighted Average Cost of Capital

- 137. While the WACC and CAPM formulas are quite simple, the determination of each of the parameters can be a complex task. In this section, possible methods to calculate the parameters of the WACC are discussed. For each parameter, the methodology adopted in the last consultation is summarised,, followed by a description of the approach proposed to determine that parameter in the current process.
- 138. For each parameter and where such a distinction is relevant, this section sets out the global and domestic approach for estimating the WACC and reports both estimates in parallel.
- 139. In the domestic approach only Qatari and regional SPs are considered when estimating parameters such as betas. On occasion, the estimate of a parameter may be limited to a single SP, e.g. Ooredoo. However, the fact that only a single SP is considered does not imply that the corresponding WACC is only relevant for that SP. Rather, it is a consequence of only one particular SP having the relevant information required for the parameter estimation. For example, only Ooredoo has debt issued in Qatar which can be used for the determination of a domestic debt premium. The CRA nevertheless considers that the corresponding result equally applies to all SPs, and all policy decisions considering the WACC, unless otherwise specified.

5.3.1 Risk-free rate

- 140. Based on the two methodologies considered for the estimation of the WACC, global and domestic, the CRA considers two approaches for determining the RF.
- 5.3.1.1 The global approach
- 141. When implementing the **global approach**, estimates should be based on government bonds from countries with the best global credit rating. This is typically considered to be countries with AAA or Aaa (Moody's) ratings. For comparison, Qatar's credit rating is AA (or Aa2 for Moody's).
- 142. This means that for an international investor, a Qatari government bond already includes some degree of risk which it can avoid by obtaining a government bond from the US or Germany (considered to be more "riskless" assets).
- 143. When considering the global approach, the CRA therefore uses the government bond yields of the two largest economies with a AAA credit rating, US and Germany using the Bloomberg 10 year bond indices (USGG10YR Index and GDBR10 Index). Figure 4 shows the bond yields for the last 5 years.



Figure 4. Yields of US and German government 10-year bonds, Source: Bloomberg

- 144. It is noticeable that German bonds (DE 10y yield in the graph) quote significantly lower yields than US bonds (US 10y yield in the graph). However, this may be driven by statutory obligations for some market participants to hold German bonds, which are likely to cause an artificially inflated demand and rates that are below a "market price" for German bonds.
- 145. Given that the US debt markets are the most relevant base for Qatar and Ooredoo debt costs (with bonds issued in USD and priced from the US Treasury curve), CRA proposes to base the RF on the US 10-year government bonds yields calculating an average for the last two years.
- 146. The RF under the global approach using US 10y daily bond yields over the 4-year period (2013-2017) is equal to 2.2%.
- 147. The CRA also reviewed decisions based on a global approach for estimating the RF from regulators in other jurisdictions.

Country	Year of source document	Nominal RF
Bahamas	2015	2.5-3.9%
Bahrain (global approach)	2013	3.5-4.0%
Belgium	2014	2.63%
Sweden	2011	3.7%
Italy	2010	3.9%
UAE	2012	3.07%
Luxembourg	2013	3.3%
Norway	2013	4.5%

Average	3.5%
Median	3.6%

Table 2 Benchmarks of RFs using global securities, Source: see Annex III

- 148. Table 2 shows that international benchmarks of the risk free based on a global estimation approach range from 2.5% to 4.5%. CRA's estimated global rate (2.2%) falls below that range.
- 5.3.1.2 The domestic approach
- 149. The **domestic approach** considers Qatari government bonds as a basis for the "riskfree" rate. This recognises that any investor seeking to invest in Qatar's telecommunications sector would also bear the risk of investing in Qatar more generally. That is, prior to considering any corporate equity or debt specific risks, an investor must already be able to earn a corresponding return for the Qatar specific risk he will face.
- 150. The return on government bonds will depend on when a bond is due to mature. As with the previous determination, the CRA proposes to consider 10 year bonds when determining the RF. The 10 year bond is appropriate because it still exhibits sufficient liquidity to provide reliable estimates of the yield investors can expect from a "risk-free" investment (i.e., bonds with longer maturity are less frequently traded, which can imply that the observed yield is one that is no longer reflective of the yield investors would obtain if a trade was to take place).
- 151. Whilst shorter maturity bonds are also frequently traded, they may not be appropriate for determining the RF. This is because these bonds are often subject to secondary trading by central banks (e.g. with measures of "quantitative easing" central banks buy short term government loans in an attempt to increase the amount of money supplied in an economy). As a result of this, yields on such bonds can be distorted as a result of the artificial demand central banks are creating for the bonds. Central banks typically engage in this practice using shorter maturity bonds because the volume and liquidity of such bonds is much greater (than longer term bonds) and the impact of the measure therefore less pronounced.
- 152. For estimating the "risk-free" rate, the CRA has used the yields of Qatari government bonds. Again CRA considers bonds with maturity of 10 years. Figure 5 shows the weekly bond yields for the last 3 years (2014-2017), which is the maximum period available for the type of bond considered. Specifically, we use the USD Qatar International Bond BVAL 10 year, as provided by Bloomberg, which is populated with USD denominated senior unsecured fixed rate bonds issued by the Qatar Government.



Figure 5. Yields of Qatar 10-year bond indices, Source: Bloomberg

- 153. The RF under the domestic approach using the 3-year evidence outlined above is equal to 3.5%.
- 154. The CRA has also reviewed recent decisions on the RF considered in domestic scenarios in other jurisdictions. Table 3 below summarises the benchmarks.

Country	Year of source document	Nominal RF
Portugal	2013	3.96%
Netherlands	2015	1.49%
Bahrain (domestic approach)	2013	4.4-4.9%
Denmark	2013	1.45%
France	2013	3.7%
Sweden	2014	2.92%
UK	2016	4.3%
Average		3.4%
Median		3.8%

Table 3 Benchmarks of RFs using domestic securities, Source: see Annex III

155. Benchmark rates using a domestic approach show a wider range (1.45% - 4.9%) than the one established by benchmarks using a global approach. This is likely to be the result of those benchmarks reflecting wider range of country specific risks being reflected in the estimate of the (domestic) RF. CRA's own estimate of the domestic RF at 3.5% falls well within that range.

5.3.1.3 Conclusion

156. Given the evidence discussed above the CRA proposes the following RFs:

- (a) Under the global scenario, a range with the lower bound based on a the RF as calculated in this section and the upper bound based on the average rate according to international benchmarks. This is more conservative than using the entire range suggested by international benchmark. The corresponding range is 2.2% to 3.5%.
- (b) Under the domestic scenario, a RF of 3.5% based on the CRA's own estimate, without reference to international benchmarks. This is because the relevance of the international benchmarks is likely to be limited in this case, given that the estimates reflect country specific risks that are unlikely to be relevant for the WACC in Qatar.
- Question 6 What are stakeholders views with regard to the determination of the risk-free rate?

5.3.2 Cost of debt: Debt risk premium

- 157. Along with the RF, the DRP is one of the components of the cost of debt. It measures the additional required return, over and above the RF, required by a lender to invest in the corporate bond market in Qatar. This premium compensates lenders for the risk of credit default, and also for the opportunity cost of funds loaned. All else equal, the larger the debt premium, the greater the cost of debt, and as a result, the higher the estimate of WACC.
- 158. The previous determination of the WACC measured the DRP as the difference between a yield on a 11 year Qtel bond with maturity in 2025 (adjusted to reflect a 10 year bond) and the yield on 10 year US government bonds (also considered for the RF). This led to a yield spread of 1.1%, based on a 2 year average corporate bond yield of 4.65% and an average US government bond yield of 3.54% over the same period. This was then rounded to a DRP of 1%.
- 159. In keeping with the previous approach, the CRA again proposes to measure the DRP by comparing the yield on Ooredoo's corporate bonds with appropriate government bond yields, to estimate the additional returns that debt holders seek in compensation for the additional risks faced when financing telecommunications operations in Qatar, over and above the RF.
- 160. For this purpose, the CRA has considered Ooredoo's corporate bond yields (UICTQTEL Index) against Qatar government bond yields, reflecting the fact that Ooredoo is a Qatari company. However, the CRA does not intend to include any country specific debt premium over that included implicitly in the RF calculated under the domestic scenario. The corresponding yields for Ooredoo and Qatari government debt are shown in Figure 6 below.



Figure 6. Yields of and Ooredoo and Qatar government 10-year bonds, Source: Bloomberg

- 161. When measured over the 3-year period 04/2014-03/2017, the average spread between weekly Qatari government and Ooredoo 10 year bond yields is equal to 0.31%.
- 162. If the global approach is used for determining the RF, the estimation of the cost of debt also needs to consider a country specific risk premium. (The domestic approach already considers the country risk premium as part of the "risk-free" rate of return on Qatari government bonds.) This is because the risk associated with investing in Qatar compared to larger AAA rated jurisdictions is not taken into account when the RF is based on government bond yields from the US. This is considered in the following section.
- 5.3.2.1 The global approach for estimating the Debt Risk Premium
- 163. In addition to the DRP estimate set out above, the global approach for estimating the WACC also needs to take into account the specific risk of investing in Qatar. For this we consider two primary approaches, consistent with the approaches considered in the previous determination. The first estimates the additional risk by considering the yield spread over the 3-year period 2013-2017 of weekly Qatari and US government bonds¹³. This is shown in Figure 7 below and results in an average spread of 1.36% based on the 2014-2016 average.

¹³ USD denominated



Figure 7. Yields of US and Qatar 10-year bonds, Source: Bloomberg

- 164. The second approach considers directly country specific debt premium calculated by Prof Aswath Damodaran. Based on Prof Damodaran's most recent publication¹⁴ of country risk premiums, the premium for Qatar is equal to 0.57% or 0.79%. The first figure is obtained using credit ratings (from Moody's) and estimating the default spread for that rating over a default free government bond rate. The second value is calculated using Credit Default Swaps (CDS) spread for Qatar and comparing it to US CDS spread.
- 165. Under the global approach, CRA therefore considers an additional mark-up for the country risk premiums of 0.57% 1.36%.
- 5.3.2.2 Benchmark evidence of the Debt Risk Premium
- 166. The following table sets out a range of DRPs from other jurisdictions. This also sets out the country DRP as estimated by the relevant authority.

Country	Year of source document	Debt risk premium	Country debt risk premium	Total cost of debt (over RF)
Bahamas	2015	1.65%	1.9%	3.55%
Bahrain	2013		1.7-2%	
Jordan	2017	0.3%	3.9%	4.2%
UAE	2012	1.12%		1.12%
France	2013	0.7%		

¹⁴ <u>http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html</u>, accessed on 12/04/17.

Norway	2013	1.5%		
Portugal	2013	2.79%		
UK	2016	1.2%		1.2%
Sweden	2014	2.2%		2.2%
Average		1.43%	2.9%	2.28%
Median		1.35%	2.9%	2.0%

Table 4: Benchmarks of Debt Risk Premiums, Source: see Annex III, CRA calculations

- 167. These benchmarks highlight that the estimate of the debt risk premium based on comparing Ooredoo's corporate bonds against Qatar government bond rates is comparatively low. The CRA considers that there could be two main reasons for this:
- 167.1 Ooredoo's wider exposure in countries beyond Qatar can imply that the relevant government bond benchmark should be wider than just Qatari government bonds. For example, the performance of the S&P Mena government bond index suggests an average Yield to Maturity over the last 3 years of around 3.1% significantly lower than Qatar's bond yield. Comparing this against Ooredoo's bond yields would result in a higher estimate of the debt risk premium. However, the S&P Mena government bond index comparable to Ooredoo's bond yields.
- 167.2 The previous determination considered the potential impact that Ooredoo's ownership structure (including the strong backing it receives from Qatari sovereign investment funds) might have on the risk of investing in Ooredoo. It noted that Ooredoo's credit rating exceeds that of other integrated telecommunications providers and may therefore not be representative of the actual risks of investing in telecommunications in Qatar. Although some minor downgrading of Ooredoo took place in 2015, the CRA considers that this is still the case today. As such, a relatively lower DRP for Ooredoo than that used by other regulators when determining WACC for telecommunications SPs may be appropriate. However, this may not be appropriate for the Qatari market as a whole.

5.3.2.3 Conclusion

- 168. Given the factors outlined above, the CRA believes it is also appropriate to take account of recent benchmarks from other jurisdictions when considering the appropriate the debt premium for the calculation of the WACC. This suggests a range for the debt premium of 0.3% to 1.43%. The lower value is based on the average spread between weekly Qatari government and Ooredoo 10 year bond yields, while for the latter the CRA has taken the average value found according to international benchmarks. Again, the CRA considers this as a conservative approach which does not take into account the entire range of international evidence provided in relation to this parameter.
- 169. The CRA concludes that a country risk premium needs to be taken into account when applying the global approach for estimating the WACC. The corresponding range for the CRPd is from 0.57% to 1.36%. The former is based on Damodaran's most recent publication, with the latter on the yield spread of weekly Qatari and US government bonds. This results in a total range for the debt premium under the global approach of 0.87% to 2.79%.

Question 7 What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

5.3.3 Cost of equity – Equity Risk Premium

- 170. The ERP is one of the components in the estimation of the cost of equity. The ERP measures the additional expected return, over and above the RF, required by investors to compensate them for holding the market portfolio a hypothetical portfolio of assets comprising all assets in the economy (including all traded and non-traded assets). All else equal, an increase in the ERP would result in an increase in WACC.
- 171. The ERP is not specific to Qatar, but provides the basis for estimating a Qatar specific cost of equity. This is considered to be the base ERP which is considered first in this section. Later in this section we also discuss the Qatar specific equity Country Risk Premium (CRPe) in the context of implementing the global and domestic approach to the WACC.
- 172. ictQATAR's previous determination of the WACC estimated the ERP based on three methods:
 - (a) Historic global ERP;
 - (b) An implied US ERP; and
 - (c) International benchmarks from other regulatory decisions.
- 173. The CRA considers that all three methods continue to provide valuable insight into the possible level of the ERP and so again proposes to consider all three sources.
- 5.3.3.1 Historical global Equity Risk Premium
- 174. As in ictQATAR's previous determination of the WACC, the CRA proposes to take into account the ERP historic estimate based on Dimson, Marsh and Staunton (DMS) as a basis for estimating the ERP. DMS provide estimates of both the arithmetic and geometric means of the ERP.



Figure 8. DMS historic ERPs (in%), specific countries and world (1900-2015), Source: Credit Suisse Global Investment Returns Yearbook 2016

- 175. As set out in Figure 8, the historic long term estimate of the ERP according to DSM is 4.4% across all countries (applying the arithmetic mean) and 6.4% for the US.
- 176. However, consistent with the previous determination of the WACC, the CRA considers that the arithmetic mean may not be considered on its own. In addition, the CRA considers a mark-up on the geometric mean to reflect a forward-looking assessment of volatility, which is considered by some practitioners¹⁵ to be lower than the volatility implied in the arithmetic mean of historic ERPs.
- 177. Therefore, in order to estimate a base ERP taking account of potential differences between historic and current volatility we also consider the geometric mean of historic ERPs including an uplift based on recent volatilities in the market. For this the CRA consider the volatility of world (MSCI Global Index) and US (S&P 500 Index) equity markets over the last three years which is estimated at 0.13 for both.¹⁶ The corresponding ERP is equal to 4.1% and 5.2%, after adding $\sigma^2/2 = 0.9\%$ to the geometric means of the US and world based historic ERPs.
- 5.3.3.2 An implied Equity Risk Premium on the basis of US stock and bond returns
- 178. As a second approach to estimating the ERP, the CRA has examined the implied ERP based on US government bond and equity market returns. This estimate is sourced from the regular publications of Prof Damodaran and is shown in Figure 9 below.



¹⁵ Dimson, E., P. Marsh, and M. Staunton (2001): "Millennium Book II: 101 Years of Investment Returns," Discussion paper, London Business School; Wright Mason Miles (2003), Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K., Commissioned by U.K. Economic Regulators and the Office of Fair Trading.

¹⁶ The prices to calculate the volatility of the returns of the MSCI Global Index over the 3-year period mid-April 2014 / mid-April 2017 were taken from https://www.investing.com/indices/msci-world-stock-historical-data, April 2017. The prices to calculate the volatility of the returns of the S&P 500 Index over the 3-year period mid-April 2014 / mid-April 2017 were taken from Bloomberg.

Figure 9. Implied US ERP since May 2013, Damodaran

- 179. Using this data gives an estimate for the ERP, using a four year average, of 5.7%; similar to the historic rate (based on the arithmetic mean) estimated for the US by DMS.
- 5.3.3.3 Equity Risk Premium based on benchmark decisions from other jurisdictions
- 180. Table 6 below sets out a range of recent decisions from telecommunications regulatory authorities in other jurisdictions on the ERP.

Country	Year of source document	ERP
Bahamas	2015	4-6%
Bahrain	2013	4.5-5.5%
Jordan	2017	5.8%
UAE	2012	5.75%
Denmark	2013	3.85%
France	2013	5.0%
Netherlands	2015	5.0%
Norway	2013	4.5%
Portugal	2013	8.94%
UK	2016	5.3%
Sweden	2014	5.5%
Belgium	2014	5.4%
Finland	2009	5.0-5.5%
Ireland	2014	5%
Average		5.3%
Median		5.3%

Table 5: ERP Benchmarks from other jurisdictions, Source: see Annex III

5.3.3.4 Conclusion on base Equity Risk Premium

- 181. The CRA considers that the three sources set out above provide a broadly consistent range of base ERP values, ranging from a lower bound of 4.1% based on the long term historic estimation of the ERP (section 5.3.3.1) to an upper bound based on the implied ERP of 5.7% (section 5.3.3.2). International benchmarks are broadly consistent with that range with their average falling well within that range.
- 5.3.3.5 The Equity Risk Premium the Country Risk Premium on equity
- 182. Similar to the debt premium, the cost of equity also needs to consider the additional return equity investors expect for accepting the non-diversifiable risks of equity investments in Qatar. How this should be estimated depends on whether the global or domestic approach is used to estimate the WACC.
- 5.3.3.6 The global approach for estimating the Country Risk Premium on equity
- 183. The CRPe can be estimated using similar approaches to those set out in relation to the CRPd (the debt country risk premium) earlier in this Consultation. The first approach estimated the country-risk premium by adopting Prof Damodaran's approach using sovereign credit ratings and CDS spreads. The second approach considered US and

Qatari government bonds to estimate the additional risk associated with debt investments in Qatar, over and above the RF.

- 184. Prof Damodaran estimates the equity country risk premium for a number of countries, based on the relative volatility of equity to bond markets. Using this approach, Damodaran's most recent publication¹⁷ estimates a CRPe for Qatar of 0.71% to 0.97%. This represents an uplift of 0.14% to 0.18% compared to the CRPd alone.
- 185. The CRA's second approach is similar to that of Damodaran's. Specifically, CRA multiplies the CRPd by a relative volatility ratio, using the 3 year average of annualized weekly standard deviations of the Qatari equity market index and the 3 year average of annualized standard deviation of the 10 year Qatari government bond index. By calculating CRPe = CRPd x sigma^2(e) / sigma^2(d), we estimate a CRPe of 1.7%, where CRPd (i. e. the spread between the US 10 year bond yields and the Qatari government 10 year bond yields) is equal to 1.36%, sigma^2(e) (i. e. the volatility of the equity market DSM index in Qatar) is equal to 20.8% and sigma^2(d) (i. e. the volatility of the Qatari government bond used to estimate the spread) is equal to 16.7%.
- 186. The total range of the CRPe based on the methods considered above is 0.71% to 1.7%.
- 5.3.3.7 The domestic approach for estimating the Country Risk Premium on equity
- 187. Under the domestic approach, the "risk free" rate already takes into account some of the risk associated with investing in Qatar. However, this is related to debt investments and should be further adjusted to take account of country specific equity risks. This is especially the case if the ERP is based on international evidence rather than Qatar specific information.
- 188. Similar to the approach set out in the previous determination, the CRA proposes to calculate the CRPe by estimating the difference between the debt risk premium and equity risk premium following the approach by Damodaran. The second approach uses the volatility of Qatari equity and government bond markets and calculates CRPe as CRPd x ($\sigma^2(e)/\sigma^2(d)$), where CRPd (i.e. the average spread between Qatari government and Ooredoo 10 year bond yields over the period 2014-16) is equal to 0.32%, $\sigma^2(e)$ (i. e. the volatility of the equity market DSM index in Qatar) is equal to 20.8%), and $\sigma^2(d)$ (i. e. the volatility of the Qatari government bond used to estimate the spread) is equal to 16.7%. According to the above formula, the CRPe under the domestic approach is equal to 0.4%.
- 189. The CRA proposes a range for the CRPe under the domestic approach based on both methodologies of 0.14% to 0.4%.
- 5.3.3.8 Conclusions
- 190. The range for the CRPe under the domestic approach is 0.14% to 0.4%.
- 191. Under the global scenario, the total range of the CRPe is 0.71% to 1.7%. The first figure is based on Damodaran's most recent publication, while the second is based on the multiplication of the relevant CRPd by the relative volatility ratio, as described above.

¹⁷ <u>http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.htm</u>, accessed on 12/04/17.

Question 8 What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

5.3.4 Debt and equity ratios (gearing)

- 192. In calculating the cost of capital, the gearing of a company is considered in two places.
 - (a) First it is used to estimate the asset beta when deleveraging benchmark equity betas to account for the financial structure of the company from which the benchmark beta is obtained. For this, gearing should be measured over the same period as that over which the beta is measured.
 - (b) Second, it is required for the purpose of estimating the final WACC and specifically, for determining the appropriate weighting to place on the cost of equity versus the cost of debt, as well as re-leveraging the appropriate asset beta to the equity beta considered in the final estimate. For this purpose, the CRA considers it should use expected forward looking gearing. While this is also likely to be based on historic information, it does not necessarily need to be consistent with the period used to determine asset betas.
- 193. This section considers the gearing that should be used for the second purpose (i.e., when re-leveraging asset betas to equity betas and when determining the overall weighting to be given to the cost of debt and the cost of equity).
- 194. Table 6 sets out the CRA's quantitative analysis for assessing the gearing of Qatari and regional SPs. Column (a) in Table 6 shows the average gearing over the 4 year period 2012 2016. Column (c) shows the current gearing for each company as of end 2016. The table also shows, for comparison, the difference between the current estimates and those derived in the previous determination of the WACC.

			Gearing D/(D+E)*			
SP	Country/Scale	Profile	(a) Average gearing	(b) ∆ previous determina tion	(c) Current gearing	(d) ∆ previous determina tion
Ooredoo	International	More mobile	42%	-8%	42%	0%
Vodafone	Qatar	Mobile	4%	-5%	-4%	-16%
Batelco	Mainly Bahrain	Integrated	1%	13%	4%	18%
Omantel	Oman	Integrated	-8%	-3%	-9%	2%
STC	KSA/International	Integrated	-7%	-28%	-10%	-28%
Etisalat	UAE/International	Mainly mobile	-1%	7%	-1%	12%
Zain	International	Mainly mobile	20%	11%	34%	23%

*Averages (column a) computed with half-year gearings and EV/EBITDA between 2012 and end 2016. Current gearing (column c) as of end of 2016. Δ previous determination (columns b and d): percentage point difference between the final determination's 4 year average and the 4 year averages now, or between end 2012 and end 2016.

Table 6: Gearing for regional SPs, Source: Bloomberg, CRA calculations

195. The CRA finds that the trend of unusual gearings levels in the region has been maintained and (by comparing columns a and b and c and d respectively), has even

become more pronounced in some instances. This is driven by ownership structures of SPs in the region as well as preference for equity finance.

196. Therefore, as with the previous WACC determination, the CRA considers it useful to use wider global benchmarks of gearing ratio as shown in Table 7.

Country	Year of source document	Gearing ratio
Bahamas	2015	10-30% [midpoint 20%]
Bahrain	2013	0%
Jordan (mobile)	2017	33%
Jordan (fixed)	2017	33%
UAE	2012	31.34%
France	2013	23%
Portugal	2013	42.5%
UK	2011	50%
UK	2015	40%
UK	2016	30%
Netherlands (KPN and FTTH)	2015	42%
Norway	2013	20%
Sweden	2014	35%
Average		29%
Median		32%

Table 7: Gearing benchmarks from other regulatory decisions, Source: see Annex III

5.3.4.1 Conclusion

197. Taking into account the evidence from regional comparator companies and the range exhibited by regulatory benchmarks from other jurisdictions, the CRA proposes to estimate the WACC with reference to a gearing in the range of 29% to 42%. The lower value of the range is equal to the average of international benchmarks given that the lower ranges seen for regional comparators are unlikely to reflect reasonable levels of gearing and rather represent ownership structures of SPs in the region as well as a cultural preference for equity finance. For the upper bound of the range we consider Ooredoo's gearing as one example of gearing levels in Qatar (which is broadly consistent with international benchmarks)

Question 9 What are stakeholders' views regarding the determination of the gearing?

5.3.5 Cost of equity - beta

198. The equity beta measures the exposure of a common equity stock to 'systematic risk', the risk related to the entire market or an entire market segment. It also captures the
impact of financial structure on the risk faced by the business; typically, the greater the level of debt in the business, the greater will be the equity beta. Removing the latter effect on the equity beta provides the asset beta, which measures the systematic risk purely associated with the activity of the business. All else equal, when calculating the cost of equity the larger the equity beta the greater the weight placed on the ERP and country equity risk premium. An increase in the beta would result in an increase in the estimated WACC.

5.3.5.1 CRA's approach

- 199. To estimate the beta, the CRA proposes to consider a similar mix of approaches to those in the previous determination of the WACC, namely:
 - (a) a group of Qatari and regional comparator SPs against global and regional (MENA) equity markets;
 - (b) Benchmark estimates of beta from other jurisdictions.
- 200. Under the global approach to estimating the WACC, the equity beta is estimated against the global stock market index (MSCI World), whilst under the domestic approach, the equity beta is estimated against a regional (MENA) equity market index. A MENA based equity market index appears more reasonable in this context (compared to a Qatari stock market) given the typical exposure of company groups in the region and the consideration of regional comparators in addition to Qatari companies.

201. The following calculations are applied for both approaches to estimate the beta:

- (a) Equity betas are estimated by regressing the relevant stock against the market index (MSCI World, DJMENA). This is based on a two year rolling average and a point estimate of the beta based on four years' worth of stock data. For this we use weekly data.
- (b) Consistent with the previous determination, CRA calculates the Vasicek beta adjustment¹⁸ and "Ooredoo-R" adjustment¹⁹ for each of the individual beta estimates. The Ooredoo-R adjustment is applied to other companies to adjust for the fact that other SPs in the group do not represent an integrated SP with fixed and mobile operations in Qatar of which Ooredoo is the closest available proxy.
- (c) The asset betas are estimated using the corresponding two year rolling average gearing and the four year average gearing to calculate corresponding asset betas. This uses the formula BetaA = BetaE x E / (E + D).
- (d) The final beta estimate is constructed consistent with the approach applied in the previous determination:
 - (i) 1/3rd weight is applied to the beta constructed from the four year average point estimate;

¹⁸ BetaAdjusted = BetaRaw.(1-x) +1.x $x = 1 - [Var(\beta)]Mkt / ([Var(\beta)]Mkt+SE²(\betaRaw))$ $SE²(\beta_{Raw})$ is the squared standard error of the OLS¹⁸ estimate of Beta $[Var(\beta)]Mkt$ is the variance of Betas across the market

¹⁹ $\beta_i^{Ooredoo-R} = \beta_i \frac{R(Ooredoo)}{R(i)}$ for $i \neq Ooredoo$, $i \in Market Index$, where R(i) measures the correlation between the relevant security of company i and the market index.

(ii) 2/3^{rds} weight is applied to the average of the two year rolling average beta estimates.

		BetaA vs. DJM	BetaA vs. DJMENA		BetaA vs. MSCI global	
SP	Gearing	Bay. Adj.	& Ooredoo-R adj.	Bay. Adj.	& Ooredoo-R adj.	
Ooredoo	42%	0.67	0.67	0.23	0.23	
Vodafone	1%	0.85	0.68	0.28	0.35	
Batelco	-8%	0.19	1.24	0.01	0.04	
Omantel	-7%	0.58	0.59	0.17	0.24	
STC	4%	0.93	0.79	0.20	0.21	
Etisalat	-1%	0.50	0.71	0.15	0.25	

202.	The results of the calculations	outlined above are sho	wn in Table 8 below.
202.			

Table 8: Beta estimates and adjustments for Ooredoo and regional comparator companies,Source: CRA calculation

- 203. The phenomenon of low and weak beta estimates for regional companies against global stock markets was already observed in the previous determination of the WACC. CRA's assessment in this proceeding finds similar shortcomings with the beta estimation for regional companies against global indices which is likely to imply that there are some regional specialities of telecommunication companies that make them unsuitable for estimating the risk of equity investments in telecommunication. For this reason, the CRA proposes to set the equity beta in the global approach based on international benchmarks.
- 5.3.5.2 Benchmark evidence of asset betas
- 204. Table 9 sets out benchmarks of beta estimates from other jurisdictions. These should be considered against the global approach as most benchmark betas are estimated against a global rather than a local market (or a local market more global than the local market in Qatar).

Country	Year of source document	Asset beta
Bahrain (international investor)	2013	0.5-0.6
Bahrain (domestic investor)	2013	0.75-0.85
Jordan	2017	0.5-0.56
Jordan (mobile)	2017	0.8-0.89
UAE (fixed: Etisalat)	2012	0.51-0.94
UAE (mobile: Etisalat)	2012	0.6-0.94
Denmark	2013	0.5
France	2011	0.8
France (fixed: France Telecom)	2011	0.48
France (mobile)	2011	0.62
UK (BT Group)	2016	0.72
Sweden (fixed-line)	2011	0.54

Sweden (mobile)	2011	0.65
Spain (fixed: Telefonica de España)	2011	0.43
Spain (mobile: Telefonica Mobiles España)	2011	0.51
Spain (mobile: Vodafone España)	2010	0.54
Belgium (fixed: Belgacom)	2014	0.5-0.6
Belgium (mobile: Belgacom, Mobistar, Telenet)	2014	0.6
Italy (fixed: Telecom Italia)	2010	0.43
Finland (fixed-line)	2009	0.55-0.7
Finland (mobile)	2009	1.1-1.2
Netherlands (KPN and FttH)	2015	0.45
Norway (mobile)	2013	0.9
Average	Total	0.67
Median	Total	0.6

 Table 9: Beta estimates considered in regulatory determinations in other jurisdictions,

 Source: see Annex III, CRA calculations

205. Table 10 and Table 11 also outline beta estimates calculated for comparator companies in regulatory procedures in Bahrain and Jordan.

Country	Year of source document	Asset beta – 5-year Estimated using weekly / monthly data
Zain (domestic) ²	2013	1.01 / 0.921
Batelco (domestic) ²	2013	0.9 / 0.751
STC (domestic) ²	2013	0.64 / 0.681
Zain (FTSE All-world) ³	2013	0.53 / 0.651
Batelco (FTSE All-world) ³	2013	0.43 / 0.41
STC (FTSE All-world) ³	2013	0.49 / 0.561
Average		0.666 / 0.663
Median		0.585 / 0.666

2 Total returns on equity are regressed on total returns on domestic equity markets

3 Total returns on equity are regressed on total returns on the FTSE All-world index

Table 10: Beta estimates of comparator companies considered in regulatory procedure for the determination of the WACC in Bahrain, Source: TRA Bahrain (2013) – 2013 Cost of Capital: Final Determination

Country	Year of source document	Asset beta – 5-year
BT	2017	0.7
TalkTalk	2017	0.54
Sky	2017	0.54
Colt	2017	0.4

Telefonica	2017	0.45
Deutsche Telekom	2017	0.34
Belgacom	2017	0.4
Telecom Italia	2017	0.29
Orange	2017	0.39
lliad	2017	0.42
Swisscom	2017	0.31
Average		0.43
Median		0.4

Table 11: Beta estimates of comparator companies considered in regulatory procedure for the determination of the WACC in Jordan, Source: TRC Jordan (2017) – Regulatory Decision on the Weighted Average Cost of Capital for Jordanian Telecom Operators

5.3.5.3 Conclusion

- 206. In light of the above calculations and the benchmark analysis, the CRA proposes to apply the following beta values:
 - (a) A range of asset betas of 0.59 0.79 for the 'Domestic' WACC. This range is based on the asset betas shown in Table 8, as calculated with the Ooredoo-R adjustment, after excluding Batelco and Etisalat (as in the previous consultation). This implies a range of equity Betas of 0.83 – 1.36, given the gearing proposed in the relevant section;
 - (b) An asset beta of 0.67 for the 'Global' WACC based on the average of beta values used in other jurisdictions as shown in Table 12. The corresponding equity beta range is 0.94 to 1.16.

Question 10 What are stakeholders' views regarding the determination of the equity beta

6 Conclusion

207. This section summarises the parameter estimates derived in the previous sections and then provides the estimates of the vanilla and pre-tax WACC. *Table 12* below summarises the CRA's findings.

Parameter	Global approach	Domestic approach
Risk free rate	2.2% – 3.5%	3.5%
Debt risk premium	0.3% – 1.43%	0.3%-1.43%
Country risk premium (debt)	0.57% – 1.36%	
Cost of debt	3.1% – 6.3%	3.8%-4.9%
Gearing	29%-42%	29%-42%
Equity risk premium	4.1% – 5.7%	4.1% – 5.7%
Country risk premium (equity)	0.71% – 1.7%	0.14% - 0.4%
Asset beta	0.67	0.59 – 0.79
Equity beta	0.94 – 1.16	0.83-1.36
Cost of equity	6.7% - 12%	7%-11.8%
Inflation adjustment	1.83%	1.83%
WACC	7.61% – 11.63%	8.03% – 10.91%

Table 12: Summary of the parameters and the WACC rates, Source: CRA calculations

- 208. The parameter values set out in *Table 12* reflect the discussions on each individual parameter, as set out in the preceding sub-sections of this Consultation. However, in presenting its proposed ranges for the WACC, the CRA has also made an adjustment for Qatari inflation which is considered at a rate of 1.83%. This is because estimates of required nominal returns that are based on USD denominated financial information only take into account expected inflation in the US.
- 209. The formula for this adjustment is:

(1 + WACC(USD))*(1+Inflation(Qatar))/(1+Inflation(US)) -1.

- 210. In deriving this adjustment factor, the CRA uses a forecast for US inflation over the period to 2018 of 1.74%, taken from the OECD.²⁰ Forecast Qatari inflation is set at 3.6% for the same period, also taken from the OECD.²¹
- 211. Taking all of these factors together, the final ranges of WACC estimates using the global and domestic approach for estimating the WACC are 7.61% 11.63% and 8.03% 10.91% respectively.
- 212. Given these findings and subject to considering industry respondents' submissions, the CRA is not opposed to retaining the rate of 10.75% established during the previous determination of the WACC. For this, the CRA not only considers the range of WACC

²⁰ OECD Economic Outlook: Statistics and Projections

²¹ Ministry of Development Planning and Statistics, Qatar (2016) - Qatar Economic Outlook 2016 - 2018

estimates determined in this document but also the value of applying a stable regulatory environment for SPs and investors. Whilst recognising that this value is in the upper half of the range established in this Consultation, the CRA considers that maintaining this WACC is appropriate, given the risk to investment from setting WACC below its actual level.

Question 11 What are stakeholders' views regarding maintaining a WACC of 10.75%?

Question 12 To enable the CRA to take into account all arguments, response by a service provider to the questions listed below should include comments with regards to the CRA's methodology for the calculations of the Cost of Capital. If a service provider is in disagreement with the CRA's methodology the service provider is requested to provide, in its response: a) The reasons for disagreement with the CRA's methodology; b) Its alternative methodology in a clear and concise manner; c) All calculations relating to its alternative methodology; and d) The assumptions, relevant justifications and references of all data sources behind its alternative methodology.

Annex I List of questions

Question 1	Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?19
Question 2	Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?21
Question 3	Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?
Question 4	Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?
Question 5	Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?
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Question 7	What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?35
Question 8	What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?
Question 9	<i>What are stakeholders' views regarding the determination of the gearing?</i> 40
Question 10	What are stakeholders' views regarding the determination of the equity beta44
Question 11	What are stakeholders' views regarding maintaining a WACC of 10.75%?
Question 12	To enable the CRA to take into account all arguments, response by a service provider to the questions listed below should include comments with regards to the CRA's methodology for the calculations of the Cost of Capital. If a service provider is in disagreement with the CRA's methodology the service provider is requested to provide, in its response: a) The reasons for disagreement with the CRA's methodology; b) Its alternative methodology in a clear and concise manner; c) All calculations relating to its alternative methodology; and d) The assumptions, relevant justifications and references of all data sources behind its alternative methodology

Annex II Previous determination of the Weighted Average Cost of Capital

 The previous proceeding for the determination of the WACC was launched on 6 June 2011 with the publication of the consultation document "Definition of the relevant cost of capital for Ooredoo Qatar (Ooredoo) Q.S.C. for the purposes of regulatory accounting" (ICTRA 2011/06/06).

1 First consultation round

- 2. The first consultation document set out the principles of the WACC calculation as well as some issues that affect how the parameters are defined. This first consultation did not calculate the WACC but sought comments and values from industry respondents. However, respondents to the consultation submitted their own initial estimates of the WACC.
- 3. Ooredoo (then Qtel) determined a base WACC rate of 15.7% on a nominal pre-tax basis. This was derived from the following estimations:
 - (a) a risk free rate of 5.45%, (based on the UK RF plus a country risk premium for Qatar);
 - (b) a group company ERP of 1%, to which it added, for operations in Qatar, a 'single-industry' RP of 0.5% (because of Qatar's undiversified economy), and
 - (c) a 'market liberalization' RP, also proposed at 0.5%;
 - (d) an EMRP of 19.6%, calculated based on the Doha Stock Market Index (DSM) over a ten year period, which it considered appropriately reflected Qatar's buoyant economy compared to slow-growth markets from which much lower EMRP are usually derived;
 - (e) a 6-year monthly βE of 0.72, based on Ooredoo shares and the DSM. Ooredoo noted this value was, lower than the MENA average (0.8) and Ooredoo's most direct regional competitors (0.9);
 - (f) a tax rate of 2.5%, to take into account a new permanent form of taxation (for the Qatar social and sports activities support fund);
 - (g) an additional allowance for expected annual inflation (2.3%); and
 - (h) a gearing ratio of 36.7%.
- 4. Ooredoo also considered that its fixed line access, fixed line core network, mobile network and next generation access (NGA) business units have markedly different risk characteristics, and should be granted distinct WACC rates. It therefore proposed values for each business unit varying from 14.87% to 17.09%. This was determined by applying differentiated WACC estimates (e.g. wholesale, retail, fixed and mobile) from regulatory determinations in other jurisdictions.
- 5. In contrast, Vodafone considered two scenarios when determining an appropriate WACC and supported the use of a single sector-wide WACC:
 - (a) a first scenario based on Ooredoo Group financial information, which resulted in a pre-tax nominal rate of 8%; and
 - (b) a second scenario based on Qatari SPs taken in isolation, which resulted in a nominal pre-tax WACC of around 10.2%.

- 6. Both Vodafone's scenarios had in common:
 - (a) a risk free rate of 4.2%, sourced from the most recent (at the time) Qatari government bond yield with a 2020 maturity;
 - (b) an EMRP of 8%, balancing the wide range of market risk premiums derived from Qatar's DSM (4%-16%) with typical results from international studies (4%-8%);
 - (c) an equity Beta of 0.78, based on Ooredoo's share prices, but broadly consistent with the median Beta of European SPs; and
 - (d) a statutory Qatari tax rate of 0%.
- 7. Vodafone then distinguished its two scenarios through the chosen gearing ratio and RP. In the first scenario, Vodafone applied Ooredoo's 2010 gearing ratio (47%) and actual RP (0.7%); whilst in its second scenario it applied a lower gearing ratio (35%, sourced from another regulator) and a higher RP (1.5%).
- 1.1 Summary of stakeholder's Weighted Average Cost of Capital submissions during the 1st round of the consultation
- 8. The following table summarises the specific WACC estimates submitted by stakeholders during the first round of the previous consultation procedure.

Respondent	Ooredoo	Vodafor	1e
Variant		Group	Domestic
Risk-free rate RF	5.45%	4.3%	
EMRP	19.59%	8%	10%
RM = RF+EMRP ²	25.04%	12.3%	14.3%
Tax rate t	2.5%	0%	
Gearing g =D/(D+E)	36.7%	47%	30%
Debt premium RP	1.96% ⁵	0.7%	1.5%
Cost of Debt RD = RF+RP	7.41%	5%	5.8%
Asset Beta βA ⁶	0.45	0.41	0.55
Equity Beta $\beta E = \beta A/(1-g)$	0.72	0.78	0.78
Cost of Equity RE= Rf+βE.EMRP	19.48%	10.6%	12.1%
WACC _{Pre-tax} = g.RD+(1-g).RE]/(1-t)	15.37%	7.97%	10.23%
WACC rate(s)	15.72% ⁸	10.2%	

Table 13: Parameters and WACC rates proposed during the 1st round of the previousconsultation process

2 Second consultation round

- 9. The second round of the previous WACC consultation examined in more detail the key parameters of the WACC calculation, taking into consideration the submissions that stakeholders had made during the previous consultation round.
- 10. In proposing an appropriate WACC, ictQATAR took into account international best practice as followed in neighbouring countries and EU member states. However, the

WACC from other countries was not used directly, as ictQATAR remained cautious over the use of an internationally benchmarked WACC, given that an appropriate WACC for Qatar must reflect economic and market conditions in Qatar.

- The second round of the consultation proposed a pre-tax WACC in the range of 8.4%-9.6% for both fixed and mobile telecommunications services regulated in Qatar. These values were based on ictQATAR applying the following approach:
 - (a) Giving equal weight to Ooredoo's Group WACC and an Ooredoo Qatar WACC, to reflect the ability of Ooredoo's Group function to support capital financing in Qatar;
 - (b) Calculating a single industry-wide WACC, to reflect technological convergence;
 - (c) Determining the ERP and Beta estimations using the entire MENA region as a reference market, rather than Qatar; and
 - (d) Using data collected over a two to three year period, in order to derive stable and robust estimates.
- 12. As a result, ictQATAR applied the following parameter in its determination of the WACC:
 - (a) a risk free-rate of 4.7%, based on averaged yields on a 2020 Qatari bond, used to extrapolate the yield of a 10-year maturity bond;
 - (b) a MENA ERP of 6.3%-6.8%, adding to a US ERP of 5.5%-6%, a weightedaverage MENA region risk premium 0.8%;
 - (c) a forward-looking gearing of 45% for Ooredoo Group and approximately 20% for Ooredoo Qatar;
 - (d) a Group risk premium of 0.7%, estimated from the average yields of its 2021 bond and adjusted as RF;
 - (e) a smaller 'Qatari' RP of 0.5%, because of its lower financial leverage;
 - (f) a re-levered βE of 0.82 for the Ooredoo Group, and 0.69-0.75 for the Ooredoo Qatar, as derived from the βA of Omantel, Vodafone, Ooredoo, STC and Batelco in order of relevance (with estimates based on timeaveraged and Blume-adjusted 2-year weekly Betas); and
 - (g) a tax rate of 2.5% in the 'Qatari' variant, due to new obligations in favour of DAAM (the Social and Sports Activities Support Fund), against an effective rate of 21% for Ooredoo Group.
- 13. In response to the second round of the consultation, Ooredoo submitted that a single pre-tax nominal WACC rate for telecommunications services in Qatar was likely to be around the upper boundary of the range of the pre-tax nominal WACC rate it submitted in response to the first consultation round (12.10%-13.02%).
- 14. Ooredoo also submitted another range for the WACC in response to the second consultation which resulted in a pre-tax nominal WACC range of 9.97%-11.27% as of January 31st 2013. These values were based on the following assumptions:
 - (a) Determination of the WACC based on a Qatari reference market (using the DSM);
 - (b) a Qatari 10-year RF estimated at 6.54%. This was estimated from a US RF of 4.4% and a sustainable Qatari default spread estimated at 2.14% (vs. a current Qatari RF of 2.92%);
 - (c) a Qatari EMRP of 8.76%, derived from a variant of the Gordon Growth Model (vs. a current Qatari EMRP of 12.38%);
 - (d) a gearing assumption of 25% for Qatari operations (vs. 35% actual gearing);

- (e) a current and future assumed RP of 1.1% for Ooredoo bonds over the RF, including a a mark-up for higher spreads of newly issued bonds and associated issuance costs;
- (f) a βE between 0.77-0.90 derived from a combination of weekly and monthly beta Blume adjusted measures; and
- (g) a tax rate of 2.5%.
- 15. Vodafone noted that ictQATAR's recommended WACC was broadly similar to the values proposed in Vodafone's submission in response to the first consultation round. As such, it was generally in agreement with the estimated range.
- 16. QNBN, on the other hand, proposed a range for the market-wide pre-tax WACC between 6.18% and 7.43%. It further argued that this WACC should be split into two different figures: a WACC rate for fixed infrastructure services, which it estimated at around 6.18%-6.19%, and a WACC for Ooredoo's other services, which it estimated in the range of 7.31%-7.43%. QNBN's proposals were based on the following approach:
 - (a) a Domestic scenario considering a Qatari reference market (i.e. considering a Qatari SP not a group of companies with some share in the Qatari market);
 - (b) a risk-free rate of 4.7%, a debt premium of 0.5%-0.7% and an EMRP of 5.5%-6%;
 - (c) a gearing ratio between 20% and 45%,
 - (d) asset Betas between 0.2-0.4, derived from Damodaran's 5-year weekly Betas measured against local indices for the above comparators;
 - (e) a tax shield of 0%, applied to deduct interest payments; and
 - (f) a tax rate of 2.5%.

2.1 Summary of WACC submissions/determinations during the second round of the previous consultation procedure

17. The following table summarises the specific WACC estimates submitted by stakeholders and determined by ictQATAR during the second round of the previous consultation procedure.

Respondent	Ooredoo		Q.NBN		ictQATAR	
Variant	Current	Sustainable	Fixed Infra.	All Other	'Qatari'	Group
Risk-free rate RF	2.92%	6.54%	4.7% ¹		4.7%	
EMRP	12.38%	8.76%	5.5%-6.0% ¹		6.3%-6.8%	
RM = RF+EMRP ²	15.30%		10.2%-10.7% ¹		11%-11.5%	
Tax rate t	2.5%		0% / 2.5% ³		2.5%	21%
Gearing g =D/(D+E)	35%	25%	45%-20% ⁴		20%	45%
Debt premium RP	1.10%		0.5%-0.7%		0.5%-0.7%	
Cost of Debt RD = RF+RP	4.02%	7.64%			5.2%-5.4%	
Asset Beta βA ⁶	0.52–0.62	0.58–0.68	0.2	0.4	0.55–0.60	0.45
Equity Beta $\beta E = \beta A/(1-g)$	0.80-0.96	0.77-0.90	0.30-0.25 4	0.73–0.50	0.69–0.75	0.82
Cost of Equity RE = Rf+βE.EMRP	12.82%-14.80%	13.29%-14.42%	6.7%-6.2%	8.7%-7.7%	9.03%-9.80%	9.85%-10.26%
WACC _{Pre-tax} = g.RD+(1-g).RE]/(1-t)	9.97%-11.27%	12.10%-13.02%	6.18%-6.19%	7.31%-7.43%	8.45%-9.08% ⁶	9.29%-9.58% ⁷
WACC rate(s)	Towards 13% (for a single rate)		6.2% for fixed infra. 7.3%-7.4% all other		8.45%-9.58%	

Table 14: Parameters and WACC rates proposed during the 2nd round of the previousconsultation process

3 The Final Response Document and Decision

- 18. In the final determination of the WACC, ictQATAR estimated ranges under both a global and domestic approach. The corresponding ranges were 7.71% to 8.94% for the domestic scenario and 6.47% to 7.81% for the global scenario. These estimates relied on the following parameters.
 - (a) averaged risk free rates of 3% for RF(US) and the 'Global' WACC, 4.15% for RF(Qatar) and the 'MENA' WACC, both with a 10-year maturity;
 - (b) an (EMRP+CRPe) of 5.9%-6.4% and 7.1%-7.6% resp. for the 'MENA' and 'Global WACC;
 - (c) an average forward-looking gearing of 30%, matching averages of Ooredoo's closest regional comparators and the group itself, Ooredoo's indicated current and target ratios, as well as values for a wider sample of comparators and regulatory precedents;
 - (d) a debt RP of 1% estimated from the average yields of Ooredoo's 2025 bond, alongside the implementation of several adjustments;
 - (e) a range of 'MENA' asset Betas of 0.55-0.70, taking into account the implementation of a "Ooredoo-R" adjustment which enhances the relevance of benchmarked estimates from GCC SPs, in addition to a smaller tailored Bayesian-adjustment on 4-year and time-averaged 2Y weekly Betas;
 - (f) a range of 'Global' asset Betas of 0.40-0.55 (because of measurement issues, these values are not inferred from estimates with a global index, but are rather approximated by 'MENA' asset Betas: Ooredoo group's for the lower bound, previous lowest estimate for the upper bound.
- 19. The final estimates as well as other estimates submitted in response to the consultation rounds and considered for the final determination of the WACC in 2013 are set out in Table 15.

Reference Market	ictQatar 'Domestic'	ictQatar 'Global'	Ooredoo (CD2)	Q.NBN (CD2)	Vodafone (CD1)
Risk-free rate	4.15%	3%	2.29%-6.54%	4.7%	4.3%
ERP	5.7%-6.2%	5.0%-5.5%	8.76%-12.38%	5.5%-6.0%	8%-10%
Corporate tax t	0.0%	0.0%	2.5%	0%-2.5%	0%
Gearing	30%	30%	25%-35%	20%-45%	30%-47%
Debt	1.0%	1.0%	1.10%	0.5%-0.7%	0.7%-1.5%
Cost of debt	5.15%	5.15%	4.02%-7.64%		5%-5.8%
Asset Beta	0.55-0.70	0.40-0.55	0.52-0.68	0.2-0.4	0.41-0.55
Equity Beta	0.79-1.00	0.57-0.79	0.77-0.96	0.25-0.73	0.78
Cost of equity	8.80%-10.57%	7.04%-8.95%	12.82%-14.42%	6.2%-8.7%	10.26%-12.1%
Pre-tax WACC	7.71%-8.94%	6.47%-7.81%	9.97%-13.02%	6.2%-7.43%	7.97%-10.23%

Table 15 Parameters and WACC considerer in the final determination of the previous consultation process

- 20. The final determination of the WACC then considered ictQATAR's own estimation of the WACC, the submissions of industry respondents and the specific methodological and computational issues raised during the consultation. Based on an overall range of WACC estimates of 6.2% to 13.02%, ictQATAR determined a final WACC of 10.75%. In determining this estimate ictQATAR considered it was appropriate to err on the side of caution and establish a rate that is within the upper bounds of the range, in order to ensure that the basis for realising important investments in the sector was maintained.
- 21. The final determination highlighted that the differences in values proposed by the individual stakeholders was an indication of how difficult it is to estimate the WACC, with the final value heavily influenced by several parameters. In this context, the final determination noted that due care should be taken when determining the WACC rate, given the risks that exist from both under and over-estimating the appropriate parameters.
- 22. ictQATAR's decision thus reflected an objective to mitigate the risk of setting WACC incorrectly, either by setting it too low and adversely affecting investment or setting it above the appropriate level and so allowing regulated SPs to earn excessive returns.

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Consultation on Cost of Capital

CRA REFERENCE: CRARAC 2017/05/08

Ooredoo reference: [OQ/Reg-4995/2017-07] 27 July 2017

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1. Executive Summary

Introduction

- 1.1 Ooredoo is pleased to provide its response to CRA's consultation with regard to Cost of Capital determination for the forward regulatory period, issued on 8 May 2017 (Ref: CRA/RAC-E/041/2017 and CRARAC 2017/05/08) ('Consultation Document').
- 1.2 This document addresses the questions as set out in the Consultation Document.
- 1.3 Ooredoo notes the CRA letter of 20 June 2017 (Ref:CRA/RAC-E/068/2017), and thanks the CRA for granting an extension to the deadline for consultation responses. We however disagree with the CRA assertion that the current political situation will not materially impact the cost of capital. Whilst we concur with the CRA that the Qatari Institutions and our leadership will deal with the blockade in the most efficient fashion, continued action has the **very real possibility of materially increasing the cost of capital** for the country, as well as increasing the business risk for service providers. Ooredoo therefore respectfully submits that **the cost of capital must be reviewed as deemed appropriate as the current situation evolves or not as the case may be.**
- 1.4 The CRA Consultation Document focuses primarily on updating the previous approach for the determination of the Cost of Capital held during 2013. Ooredoo concurs with this approach and the use of the Weighted Average Cost of Capital and the use of the Capital Asset Pricing Model (CAPM) for determining expected equity returns.
- 1.5 Ooredoo maintains an interpretation of the CAPM for the determination of the Cost of Capital that is well suited to the requirements of this consultation, Ooredoo's financial management practices and reflects up-to-date financial market conditions.
- 1.6 The model maintained is essentially the same as presented during the previous consultation held and reference can be made to the previous submission for any points not covered in this document.

Cost of capital likely to be higher than currently set regulated rate

1.7 Ooredoo strongly believes that regulation must be based on sustainable medium term WACC rates and not snapshots in time. This enables sound business planning and investment in the sector. A single WACC rate for telecommunications services in Qatar is most probably towards 13.46%.



- 1.8 Ooredoo has made no impact adjustment in this WACC assessment for a potential economic crisis, which may result from the current dispute with GCC neighbors.
- 1.9 Ooredoo has taken as an approach to look forward when considering cost of capital but review 1) the level of capital cost existing today and 2) where the cost of capital is expected to be over the coming four-year period. This expected cost of capital over the coming four-year period is what we believe to be the sustainable cost of capital.
- 1.10 The current capital market environment is not likely to be sustainable for much longer. Sustainable costs of capital, expected to prevail over a future period, are more relevant for regulatory purposes and can be determined from historical norms and economic relationships known to exist fundamentally.
- 1.11 We hold to the belief that regulation should consider forward looking estimates of WACC. Ooredoo plans for the long term when it reviews its capital structure and asks that regulation makes due consideration for probable future outcomes, both in capital markets and for risks in the telecoms industry.

Debt market conditions likely to see increases in cost of debt financing

- 1.12 Ooredoo continues to hold the view that current conditions in debt markets remain an anomaly in the context of historical norms. Strongly supportive monetary measures have been sustained, in the form of historically low interest rates and extraordinary measures (Quantitative Easing (QE)), for a far greater period than the architects of such measures would have thought possible or necessary at the time of first deployment.
- 1.13 Debt levels, particularly in developed economies, remain very high and still growing. Fiscal consolidation has had some success in controlling debt burdens however, demographic challenges mean reducing debt levels will be difficult without stronger economic growth. There are early signs of building inflationary pressures and gaining employment, however in many developed markets wage growth is still disappointing.
- 1.14 It is now hoped that fiscal stimulus can provoke greater demand where this is weak and allow monetary policy to move back to a more normal state. A growth friendly fiscal boost can lead to better resource allocation. Normal levels for interest rates also promote better resource allocation more generally, so it is right the Federal Reserve now leads world central banks in gradually curtailing monetary stimulus and progressively increasing its interest rates.



1.15 The cost of debt capital should now be heading higher and we hope this is at a measured pace and accompanied by incremental productivity, which has been lacking thus far.

Domestic approach to Cost of Capital more appropriate

- 1.16 Ooredoo differs from the CRA in its approach to the WACC calculation as set out herein. In essence, **Ooredoo only considers a Domestic approach to the WACC calculation and does not believe the Global approach is necessary or relevant**.
- 1.17 Ooredoo uses a direct measurement approach from the capital markets, mainly the local market but also the US market given the currency peg and sourcing of debt capital in USD. Meanwhile, the main equity capital provision is locally based and so a blend based on direct market observance is taken.

Effects of VAT must be given consideration

1.18 Ooredoo has attempted to best quantify the effects of an introduction of VAT at 5% in Qatar from January 2018. Ooredoo considers the impact of VAT is probably best factored as a business risk akin to operating leverage when modelling WACC given the impact to margin expected. Further, given the fiscal consolidation motive for VAT introduction, increments may follow with the ultimate level of VAT reaching 15%. VAT is clearly an incremental factor to previous determinations.

Vanilla WACC considered appropriate

- 1.19 **Ooredoo calculates the <u>current</u> vanilla WACC, with no tax consideration** (Tax at 0%), existing as of March 31st 2017 to be 10.92%, based on verifiable parameters (including VAT effect at 5%).
- 1.20 **Ooredoo calculates the <u>sustainable</u> medium term (3 7 years) vanilla WACC**, with no tax consideration (Tax at 0%), to be 13.46%, based on verifiable parameters (including VAT effect at 5%).
- 1.21 Details of the calculations for these two WACC values are provided in the responses to the CRA questions below.

2. General observations

2.1 Ooredoo provides comments to each of the question posed by the CRA, after some general observations and some discussion related to sections 4 and 5 of the CRA Consultation Document.



Investor expectations for returns higher than WACC

2.2 The WACC is the minimum return required to satisfy providers of capital for their perception of risk regarding the entity concerned. ROIC needs to be greater than WACC in order for investors to earn an excess return and fund growth in the business. Ooredoo believes investors look for a spread cushion above WACC to be encouraged and indeed for the business itself to be encouraged into new investment. Ooredoo believes this spread depends on market conditions and risk perceptions but can be around 3% points over WACC¹.

Capital requirements higher with break even harder

- 2.3 Ooredoo is expecting to invest in many growth projects in the run up to 2022 and the roll out of 5G technology in the forward regulatory period promises to be expensive².
- 2.4 Ooredoo notes that the technology cycle appears to be shortening in time; as such, cost recovery on capital invested for break-even is more challenging.

Increased competitive pressures

2.5 The telecoms sector has seen falling ROIC amid competition from outside the sector where free to end user models are used as these competitors have little capital intensity and maximize user base to profit from e.g. advertising placement revenue³.

Qatar Economic fundamentals under pressure

- 2.6 Qatar is currently on negative watch for credit downgrades with all rating agencies. Further downgrades would be expected to affect borrowing costs.
- 2.7 Exchange rate peg risk is not addressed but any change to Qatar's fixed exchange rate to USD would alter the WACC calculation significantly.

3. Comments on CRA's framework for estimating WACC and Ooredoo's approach

Section 4: Background

¹ Reference pages 62/63 of Damodaran's paper on Return on Capital (Bibliography)

² Reference DBS Group Research sector briefing "The Push for 5G" (Bibliography)

³ Ibid



Use of CAPM

- 3.1 The CRA uses a blend of approaches in determining the cost of equity, including historic global rates, implied US rate and international benchmarks from other regulatory decisions.
- 3.2 Ooredoo uses a CAPM based model for WACC determination but as mentioned in our previous submission we use an Implied Equity Risk Premium model based directly on Qatar market data.
- 3.3 A variant of the Gordon Growth Model is used to estimate the expected market return from which the deduction of the risk free rate gives the Equity Risk Premium (ERP).
- 3.4 In our model, expected market return is given by the forward dividend yield plus Qatar's trend earnings growth rate (TEGR). In Qatar, we use a fundamental approach to estimate TEGR using IMF forecasts for real GDP growth, inflation and a scaled estimate of the shadow economy effect⁴.
- 3.5 Usefully, Professor Damodaran of NYU has just updated his research paper (March 2017) on Equity Risk Premiums which covers the best methods of estimation. This is a fine document and does support Implied Equity Premiums approach as probably the best means of ERP estimation. Our model is a variant of several methods explored in the paper and we believe very robust for dynamically estimating both current and future expected premiums.
- 3.6 Our model therefore captures risk premiums directly and we do not use a "building block" approach, which adds a Country Risk Premium on Equity to an estimate of the US Equity Risk Premium. We believe that by taking data directly from the local market and using an Implied ERP approach we can derive the risk premiums as they actually are currently and can be expected to be into the future and this will be more accurate than bolting historical averages together.

Cost of debt

3.7 On Debt Risk Premiums, again we are fortunate that Qatar and Ooredoo have well defined yield curves and we use 10-year rates for Qatar risk free and Ooredoo's cost of debt. We can directly observe the premiums to US Treasuries actually paid historically and where spreads are now in the secondary market. We cross-reference by looking at Credit Default Swaps and review spreads determined by credit rating. We accept and use Damodaran's work on spreads by rating for

⁴ As per previous submission. The Shadow economy is the Black Market which is not recorded in official statistics but which is often captured by businesses where cash receipts are prevalent.

Country Default Spreads but we update Company Default Spreads on our own using US Industrials yield curves⁵. We believe corporate spreads by rating are effectively portable.

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Local market approach

- 3.8 Overall we use a predominantly local market approach (QE Index) and this includes for Equity Beta determination but we do use US ERP and spreads to US Treasuries for the Debt Beta used in cost of capital determination as both Ooredoo and Qatar raise debt capital in USD and given the fixed exchange rate we do not expect this to change.
- 3.9 In general, we follow where the market data takes us and we may use appropriate proxies where this is market practice and fundamentally supported. Our approach to WACC is therefore very different and well outlined in the previous submission in 2013 but the outputs are not substantially different to the CRA's approach. We do however have a more forward looking approach overall.

Section 5: Determination of Weighted Average Cost of Capital.

Convergence may align asset Betas, but business risks may increase

3.10 Ooredoo broadly accepts the CRA's conclusion on the scope of the WACC and that the Cost of Capital can be calculated as a single value rather than separate WACCs for different business segments. Ooredoo also believes communications services are increasingly integrated. Sector asset Betas are historically around 0.7 also in our view and convergence has happened between fixed and mobile service providers. However, we feel that asset Betas may be migrating higher as business risks to telecoms emerges from outside the sector and service provider's look to add additional services.

Price elasticity effects underestimated

- 3.11 The Consultation Document also discussed price elasticity. Ooredoo believes that these studies are too historic and price elasticity is more negative than -1 for service providers today.
- 3.12 Over The Top (OTT) services only became prevalent since 2009. These new competitors offer free calls and messaging which is known to have attacked SMS and voice revenues. These services still account for a fair proportion of service provider revenues and any price increase would cause a substantial decline in demand or near total loss of usage. Today we must price bundles based on data

⁵ Source: Bloomberg (FMHS function)



but the overall price sensitivity is much higher than -0.5. These studies are probably irrelevant and need to be updated because the sector has changed and even how one defines the sector has changed. (S&P Dow Jones Indices and MSCI Inc. are currently contemplating radical overhaul of the Telecoms Indices⁶.) We would also note that there are cross price elasticities relating to substitution effects at play and price elasticities can rise (in absolute values) in economic downturns.

VAT introduction effects not considered by the CRA

- 3.13 The CRA's Consultation Document takes no consideration of the pending introduction of VAT in Qatar and GCC. Ooredoo has pointed this out in a recent meeting with the CRA and agreed to attempt some incorporation of the effects, which may occur as a result of the VAT introduction.
- 3.14 Qatar plans to introduce VAT at 5% from 1st January 2018. Ooredoo believes this has significant implications for service providers. The IMF has published (September 2015) a Working Paper titled "Estimating VAT Pass Through" based on extensive data on European VAT regimes⁷. The raw data available in Europe is of the highest quality so this probably represents the best study on the effect of VAT introduction available.
- 3.15 The IMF study makes a few key points of relevance:
 - Standard pass through rates (VAT Increases and Introductions) for services (non-durables) are significantly lower than seen for goods, at around 68%. Goods experience some price anticipation of the pending VAT introduction where services (which are delivered in real time) cannot enjoy such preemption. Telecoms is a service.
 - Introductions of VAT for reasons of Fiscal Consolidation (i.e. national budget purposes) tend to halve the pass through rate. This is the case for the GCC and Qatar VAT introduction and this means the pass through could effectively be 34%.
 - Broad introductions, in terms of goods and services covered, tend to see lower pass through.

⁶ See Reuters article titled: US index providers propose overhauling telecom benchmark: By Trevor Hunnicutt and Caroline Valetkevitch NEW YORK (Reuters).

⁷ IMF Working Paper – Estimating VAT Pass Through. September 2015. Dora Benedek, Ruud De Mooij, Michael Keen and Philippe Wingender. Version - WP/15/214. Web:

https://www.imf.org/external/pubs/ft/wp/2015/wp15214.pdf



- Budget share and elasticity of substitution can further lower pass through.
- 3.16 Overall, we believe these conclusions make sense. In a broad introduction of VAT where the population has already suffered goods price increases there will be natural resistance to service price increases as well or greater price vigilance. In periods of austerity, the effect is doubled and elasticity matters.
- 3.17 Ooredoo believes there will be total impact on margins because we believe price elasticity is now more negative than -1 but we take -1 as a maximum.

		Pass through with					
VAT Introduction	Pass Through	Austerity (50%)					
5%	68%	34%					
Price Increase for Telecom Services	3.40%	1.70%					
EBITDA Margin Impact of pass through	- 1.60%	-3.30%					
Price Elasticity Assumption -0.5	-1.70%	-0.85%					
Price Elasticity Assumption -0.75	-2.55%	-1.28%					
Price Elasticity Assumption -1.0	-3.40%	-1.70%					
Ebitda Margin Impact Pass Through + Elasticity							
Elasticity -0.50	-3.30%	-4.15%					
Elasticity -0.75	-4.15%	-4.58%					
Elasticity -1.00	-5.00%	-5.00%					
* IMF Research suggests pass through is lower when VAT is introduced for fiscal consolidation purposes (Austerity). Elasticities are greater in austerity and substitution effects have grown in telecoms since previous elasticity studies. Taking all effects into price elasticity may suggest elasticities are more negative than -1 today as substitues are offectively free.							

3.18 The below table shows our estimate of the impact:

- 3.19 The pass through effect is self-explanatory. Ooredoo believes we are looking at the "austerity" case of 34% pass through for telecom services, (right hand column). We ignore the other pass through reduction effects due to broad introduction and elasticities but these could reduce pass through to 27.5% only.
- 3.20 A pass through of 34% would mean a direct margin impact (we assume all other things held equal) of what is not passed through i.e. 3.3% points of the 5% VAT increase. Services will have a 5% VAT applied but the base price will absorb most of the VAT increase. The impacts shown are percentage points off margin. The price elasticity effect occurs on whatever the pass through achieved. (Note: The IMF study is general, relating to pass through to overall CPI Indices; telecom elasticities would be greater in absolute terms). One must remember that the price increase is NOT the service provider's price increase but the governments!



- 3.21 The service provider passes this revenue to the government but suffers the decline in demand due to the elasticity i.e. any loss in demand is a total loss for the service provider or a totally uncompensated loss through price. The total impact is shown in the lower grey box. Regardless of the pass-through, an elasticity of -1 means VAT is a total margin impact. I.e. one can debate the pass through mechanism but if price elasticity is -1, usage decline will completely offset any price increase. The effect of VAT introduction could be an absolute margin deduction for Telecom services!
- 3.22 The impact is assumed on EBITDA margin because while Ooredoo will clearly offset VAT it pays through the VAT process (collections payments), the difference is obviously passed to government and the impact is real to margins. This is a simple analysis and there are bound to be compounding effects but it shows what the effect can be.
- 3.23 In essence, a VAT scheme is a transfer of wealth from private sector (consumers and/or corporate sector) to government. The sharing of the pain between the end consumer and business is a commercial decision and in Telecoms competition may not allow much pass through especially as some competition is borderless (e.g. OTT) and not subject to the VAT in Qatar. There are other factors such as costs to collect and administer but these are mostly one off.
- 3.24 If we assume a total EBITDA margin impact, this means Ooredoo margins fall from 50% to 45%. We believe the effect is akin to operating leverage, which increases business risk, and therefore this should affect the Beta. We calculate a multiplier effect on the Beta of 1.13x, given by the formula

1 / (1-(VAT of 5% / EBITDA margin $_{t+1}$)).

Where t is time of VAT implementation

- 3.25 Note: The effect is dampened by then making a Blume adjustment to the resulting Equity Beta.
- 3.26 Ooredoo has also considered the possibility that VAT introduction at 5% is not the end point. As has been seen in Europe and elsewhere VAT is often raised frequently. It is quite possible to imagine VAT at 15% in Qatar by 2022. Ooredoo has shown what this might mean for WACC under 10% VAT and 15% VAT scenarios. EBITDA margins are assumed to drop by the extent of VAT rate from present levels. Business risk rises as VAT rises given the fall in margins and so we have reflected these scenarios via effect on Beta as above.



- 3.27 At 10% VAT the Beta effect is 1.33x to yield a Beta of 1.22 and 1.29 in the Current and Sustainable views of WACC respectively. At 15% VAT the Beta effect is 1.75x with Betas of 1.49 and 1.58 respectively. Note: While Beta may begin a renewed glide path towards 1, the effect here also acts as a proxy for the permanent loss of debt capacity due to permanent loss of margin. (Debt capacity is often measured in terms of interest coverage and Net Debt/EBITDA ratios). Loss of debt capacity increases WACC by virtue of weight shift in the capital structure as the company responds to the increase in the cost of debt itself, resulting from deteriorated credit metrics.
- 3.28 A review of other jurisdictions with VAT at higher levels shows EBITDA margins are generally lower and indeed often in the 30% to 35% range where VAT is around 20%. It is difficult to disaggregate the business risk effects since most service providers also have international operations and correlation with the local market can fall affecting the Beta outcome as measured against the local index. It would be interesting to study the effects on pure play single market service providers but this is beyond the scope of this submission.

4. Specific responses to CRA questions

Basis of Ooredoo's analysis

- 4.1 Note all values are based on key findings and considerations as of 31/3/2017. However, we note: certain figures are already overtaken by the recent dispute between Qatar and certain GCC neighbors. For example, the Qatar 10-year rate is approaching 3.8% at the time of writing and spreads have widened in reflection of increased political and business risk. It is hoped the dispute shall soon be resolved and these effects are transitory **but the WACC is probably well above 10.75% presently.**
- 4.2 The QE Index (DSM Index) has been used as the reference market.

Question 1: Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?

4.3 Yes, Ooredoo agrees. Whilst the risk profile of different business segments may differ, Ooredoo concurs that the calculation of separate WACCs for different business segments may be problematic in practice.

Question 2: Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?



4.4 Yes, Ooredoo agrees and concurs that this must be reconsidered where the WACC is being used for any other purpose than determining cost-based rates of existing wholesale services utilizing the regulatory accounting information. Ooredoo believes that where the WACC is being used for determining cost-based rates for new services, which inherently would carry greater business risks, the WACC should be given appropriate consideration and risk premium added to the WACC where necessary.

Question 3: Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?

- 4.5 Yes, Ooredoo agrees with the use of a nominal WACC.
- 4.6 However, Ooredoo disagrees with the CRA assertion that inflation in Qatar will be stable.
- 4.7 Qatar has a history of substantial changes in pricing and the CRA needs to look forward to 2022 for a potential ramp to inflation as was experienced up to 2008. Recent relative price stability should not be the guide.
- 4.8 We note also that the VAT increase in 2018 has been taken into account by other forecasters such as the IMF for example. Ooredoo also believes that the ramp period to 2022 could be inflationary if there is a boost to migration into Qatar, an expansion of credit growth or inflation elsewhere also picks up.
- 4.9 Ooredoo anticipates 3.77% average inflation as a base case to 2019 driven largely by the VAT introduction, but we note that should further increments to VAT occur for Qatar's fiscal need, then assuming an end goal of VAT at 15%, we would need to uprate IMF forecasts to average inflation to 2022 to over 4.5% as per below table.

Shadeo	d cells indicate	e IMF staff e	estimates									
Country	Subject Descriptor	Units	Scale	Country/S eries- specific Notes	2015	2016	2017	2018	2019	2020	2021	2022
Qatar	Gross dome	Percent ch	ange		3.551	2.683	3.405	2.842	2.311	2.038	1.64	1.635
Qatar	Inflation, ave	Percent ch	ange		1.814	2.661	2.613	5.672	3.03	2.222	2.086	2.058

Source: IMF World Economic Outlook April 2017⁸

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⁸http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/weorept.aspx?sy=2015&ey=2022&scsm=1 &ssd=1&sort=country&ds=.&br=1&c=453&s=NGDP_RPCH%2CPCPIPCH&grp=0&a=&pr.x=64&pr.y=4



IMF inflatio	Average								
2018	Average								
5.67	3.04	5.62	2.90	5.46	4.5368				
Year 1 impact with year 2 follow on impact. Using IMF pass through research									

4.10 The nominal WACC is most likely higher into the forward period on account of expected inflation alone.

Question 4: Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 4.11 No, Ooredoo does not agree.
- 4.12 Ooredoo considers only a domestic scenario is relevant or necessary. Ooredoo costs of capital are related to the investor base. Nearly all equity investment is Qatar or regionally based with international investors accounting for a very small element on the shareholder register. Qatar investors have a strong home bias.
- 4.13 Debt is raised in USD given the Qatar Riyal peg to the USD and both Ooredoo and Qatar have well-established debt issuance and yield curves, which enable direct observance of borrowing costs. This element has a basis of US capital markets as debt instruments are priced off US Treasuries. Debt premiums for Qatar and Ooredoo risk can be observed directly or based on default spreads commensurate with credit ratings.
- 4.14 Overall, Ooredoo uses a direct approach and while this includes a blend of global (US market base on debt side) and domestic (local expected market returns) we consider it domestic. A petro economy is a USD basis economy.
- 4.15 Ooredoo QSC has recently cancelled its London GDR listing due to much improved liquidity on the Qatar Exchange and the measures the market authorities are taking to further enhance the local market.
- 4.16 The MSCI and FTSE Russell indices have upgraded Qatar market to Emerging Market status since the last CRA consultation and this makes the domestic approach even more relevant as ease of inbound investment means the price for Qatar risk can be observed in Qatar.

Question 5: Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?



- 4.17 Yes, Ooredoo agrees but adds that it needs to be made more forward looking and consider forecasts, known events and market conditions.
- 4.18 Whilst the four year period does support regulatory certainty and is a reasonable planning period as desired by Ooredoo and probably other service providers, Ooredoo is concerned at present there could be a shift to higher costs of debt and the starting point for investors in the local equity market, where share prices are depressed, suggests return requirements are higher today. 2017 may be an inflection year. As such, the appropriate WACC is likely higher than current CRA estimates and further review should not be ruled out in 2018.

Question 6: What are stakeholders' views with regard to the determination of the risk-free rate?

- 4.19 Ooredoo believes the risk free rate (rf) for the Qatar market is correctly specified as the Qatar Government 10 year international bond.
- 4.20 The global approach is irrelevant. The CRA has correctly alluded to the distortions in the German market where banks dominate holdings for regulatory capital reasons.
- 4.21 The US 10 year Treasury is the correct base but the CRA needs to look forward as the US is emerging also from distortions to Treasury yields. The Federal Reserve is planning to lift US interest rates and spreads will widen if not immediately. The Fed dot plot shows expectations for interest rates by the policy makers themselves and the target is currently 3% by 2019.



Source: Bloomberg

4.22 The 10-year maturity is the relevant risk free rate because we match a long-term business with this funding horizon. The Qatar 10-year bond captures the credit risk of investing in Qatar and looking at other region's domestic securities is irrelevant for Qatar regulation. Scandinavian countries as shown in the Consultation Document are a special case and the other countries, excluding Bahamas and Bahrain, are diverse economies.



- 4.23 The Qatar 10 year yield of 3.32% (as of 31/3/2017) is used but we note that owing to the current dispute with GCC neighbors, the yield recently approached 3.8% as the spread over US 10 year Treasury widened. Qatar has also been downgraded by most credit rating agencies and been moved to negative outlook by Moody's more recently⁹. We have factored an Aa3/AA- rating but further downgrades cannot be ruled out.
- 4.24 Note: Ooredoo Data is as of 31 March 2007 for this submission but the credit default spread chart below indicates market actions since March.



Source: Bloomberg

- 4.25 Ooredoo believes that a forward view of the risk free rate should conclude that Qatar 10 year international bonds may normalize to yield 5.93%. This is our estimate of the sustainable rf rate for Qatar.
- 4.26 This is derived from the mid-range of the Fed's estimate of US Trend real economic growth at 1.9% plus the mid-range of the Fed's "soft" target range for inflation as "comfortable" of 2.25% (2.0% 2.5%).

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⁹ Rating Action: Moody's downgrades Qatar's rating to Aa3 from Aa2 and changes the outlook to stable from negative: Global Credit Research - 26 May 2017. Moody's Investor Service - CREDIT OPINION 04 July 2017: Government of Qatar – Aa3 Negative

- 4.27 This means the sustainable US 10 year Treasury yield can be expected to yield 4.15% at a minimum on a fundamental basis. Further, the average term structure from interest rate to 10 year yield has been 1.19% since 1971¹⁰ (it is similar now) so the US 10 year yield target could be 5.34%. Alternatively, it is conservative to add the term structure to the Fed target interest rate of 3% given in the dot plots. We can assume that on reaching 3% interest rates the Quantitative Easing (QE) (bond buying) would also cease, allowing a positive yield curve to be maintained as exists now. Either way, a 4.15% 10-year yield is a realistic minimum expectation by 2019.
- 4.28 Qatar rf will need to include spread to the US rf.
- 4.29 A look at the table below shows that the average of the spread at issue on 5 and 10-year Qatar bonds and of the average 10-year bond spread in the secondary market is 178 basis points or 1.78%. Across good and bad times for issuance, this should be seen as the minimum new issuance spread for Qatar.

Qatar Sovereign					
Bonds					_
		CODEAD TO TOV ICCLIE	DNICHNADIA TOV ICCLIE		Term
	MATURITY	SPREAD_TO_TSY_ISSUE	BINCHIVIRK_ISY_ISSUE	ISSUE_DI	yrs
EI893741 Corp	1/20/2042	287.5	T 3 3/4 08/15/41	12/5/2011	30
EI893749 Corp	1/20/2022	262.5	T 2 11/15/21	12/5/2011	10
LW2393194 Corp	6/2/2046	210	T 2 1/2 02/15/46	6/2/2016	30
EI053170 Corp	1/20/2020	195	T 3 3/8 11/15/19	11/24/2009	10
LW2393129 Corp	6/2/2026	150	T 1 5/8 05/15/26	6/2/2016	10
EC268241 Corp	6/15/2030	385	T 6 1/8 08/15/29	6/29/2000	30
LW2393202 Corp	6/2/2021	120	T 1 3/8 04/30/21	6/2/2016	5
EH781100 Corp	4/9/2019	380	T 2 3/4 02/15/19	4/9/2009	10
EI053154 Corp	1/20/2040	215	T 4 1/2 08/15/39	11/24/2009	30
	Average	245			
		246.88	10yr		
		120.00	5yr		
Average issue					
spread	10yr+5yr	221.50			
Average spread since	e issue on				
10yr		134.994			
Average Qatar					
Spread		178.25			

Source: Bloomberg

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¹⁰ Source: Bloomberg – note many statistics we use herein are sourced from Bloomberg.



4.30 Whilst the current rf based on Qatar 10yr bond yield is 3.32%, a sustainable Qatar rf is estimated at 5.93% based upon the US sustainable rf, estimated at 4.15% plus the sustainable Qatar default spread estimated at 1.782%. The Qatar 10yr yield may reach this level in the relatively near future given the Fed intentions for US interest rates.

Question 7: What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

- 4.31 Ooredoo believes the Debt Risk Premium (DRP) can be observed in the local market as the CRA suggests. However, one needs to look forward and not only at recent history. There are also several additional factors to take into account when assessing DRP.
- 4.32 The Qatar rf does capture the overall Country Risk Premium (CRP) on debt associated with investing in Qatar and this broadly is an assessment of willingness and ability to repay debt. Ooredoo notes that in theory there should also be an inflation differential applied to gross up this debt cost if the purpose is to assess what the rf would be if it were Qatar Riyal debt issuance.
- 4.33 There are QAR bonds and the 2027 bond was issued with coupon of 4.25% but these are held closely by banks and rarely traded. 4.25% does appear a good indication because if we add the above mentioned average Qatar spread of 178.25 bps to the current US 10yr treasury yield of 2.39% we can also arrive at 4.17%. I.e. spread at issue tends to make a better assessment of ability to repay, which includes inflation differential.
- 4.34 The mere credit spread observed in the secondary market is not a complete assessment of debt risk premiums. There is inflation, actual spread at issuance to induce investors and the cost of the issue to consider.
- 4.35 Ooredoo's costs to issue are very low given the experience and expertise in debt capital markets is well established, however costs are still 0.15%. We observe our cost of bond issue as the Average YTM of Ooredoo bonds at issuance (4.47%) minus the Average Coupon on outstanding Ooredoo bonds (4.32%), which gives a cost of issuance of 0.15%. The government may have similar costs. This cost cannot easily be observed externally.
- 4.36 Ooredoo also agrees with the process followed by Damodaran. The DRP given by Damodaran's work is mainly for countries, but for companies it is very similar.
- 4.37 We evaluate spreads by credit rating and find Ooredoo should consider a DRP of 0.95% over Qatar rf assuming a credit rating of A- by S&P. Using Damodaran as a



proxy would indicate a higher spread but our analysis of US industrial debt curves by credit rating is better and more updated.

- 4.38 Ooredoo is perceived as a geographically diversified credit in debt markets so a standalone Qatar spread should be wider. Additionally, Ooredoo's Baseline Credit Assessment (BCA) is three notches lower so the DRP would then be 1.26% to 1.63% were it not for the state support uplift.
- 4.39 The table below shows the indicated spreads as of 31 March 2017 along with rating agency assessments. However, looking at credit default swaps we note the market has jumped Ooredoo spreads since. Moody's has recently reaffirmed Ooredoo Credit outlook but the company is on negative outlook with the other agencies¹¹.

Fitch's Rating	S&P's Rating	Moody's Rating	Default spread in basis points*
AAA	AAA	Aaa	66
AA+	AA+	Aa1	70
AA	AA	Aa2	74
AA-	AA-	Aa3	79
A+	A+	A1	83
A	A	A2	85
A-	A-	A3	95
BBB+	BBB+	Baa1	117
BBB	BBB	Baa2	126
BBB-	BBB-	Baa3	163
BB+	BB+	Ba1	273
BB	BB	Ba2	327
BB-	BB-	Ba3	365
B+	B+	B1	367
В	В	B2	415
В-	В-	B3	523
CCC+	CCC+	Caa1	700
CCC	CCC	Caa2	850
CCC-	CCC-	Caa3	1000

Rating Agency Ratings: Company Default Spreads						

Source: Ooredoo analysis of rating agencies

4.40 Ooredoo does also have the issuance cost (0.15%) as mentioned earlier and new issue premium as shown in the table further below. The last issuance in 2016 did also have a similar spread at issue to the average shown. It should be noted that market conditions have been good for new issues in recent years but our concern is that as liquidity in the market dries up, we may encounter a step move in spreads to access refinancing in the size required so the DRP of 0.95% may even be conservative to where spreads are right now. One never knows exactly what

¹¹ http://ooredoo.com/en/investors/analyst coverage/rating-agencies/



Qtel Bonds	MATURITY	SPREAD_TO_TSY_ISSUE	BNCHMRK_TSY_ISSUE	ISSUE_DT	Term yrs
EH8543603 Corp	6/10/2019	435	T 3 1/8 05/15/19	6/10/2009	10
EI4299695 Corp	2/16/2021	245	T 2 5/8 08/15/20	10/14/2010	10
EJ4737361 Corp	2/21/2023	175	T 1 5/8 11/15/22	12/19/2012	10
El4368631 Corp	10/19/2025	262.5	T 2 5/8 08/15/20	10/19/2010	15
LW4684749 Corp	6/22/2026	227.2	T 1 5/8 05/15/26	6/22/2016	10
EJ5291327 Corp	1/31/2028	215	T 1 5/8 11/15/22	1/31/2013	15
EJ5291525 Corp	1/31/2043	162.5	T 2 3/4 08/15/42	1/31/2013	30
EJ9505219 Corp	12/3/2018	171.7	T 1 1/4 10/31/18	12/3/2013	5
	Average new issue spread	236.74	basis points		

spread until actually approaching the market for funds, observing the secondary market will not capture the full effect of recent events.

Source: Ooredoo analysis

- 4.41 In summary, Ooredoo believes in the domestic approach given well-developed yield curves of local issuers. Observed spreads in the secondary market do not reflect issuance spread required to induce investors or costs of issuance. These need to be added. The CRA's upper bound is more appropriate and looking forward is required given budget risks, Qatar credit downgrades and VAT introduction. Local businesses are feeling the effects of recent events and these will transmit to service providers.
- 4.42 DRP should be 0.95% or higher for Ooredoo plus the costs of issuance, but higher still for the sector as a whole.
- 4.43 A current and future assumed default spread is 1.1% for Ooredoo bonds over the Qatar 10-year yield, inclusive of new issuance spread and issuance costs. However, this is likely to be higher still for the sector as a whole but for the state support some entities benefit from.

Question 8: What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

4.44 Ooredoo's view on Equity Risk Premium (ERP) is that this can be best derived from an implied ERP method and it should focus on the local market, be dynamic by taking into account the starting point for the local equity market and be forward looking. An arithmetic assessment is also better for any forward period.


- 4.45 Ooredoo's implied ERP for the US market (S&P 500) yields similar results to Damodaran's, however we use a similar approach for Qatar and the resulting ERP is much higher. One cannot look at amalgamated ERP estimates from mostly developed markets elsewhere and apply to a single market like Qatar!
- 4.46 This is not a diversified economy as yet but still driven primarily by oil and gas prices and output (a single sector economy). Historic global ERP and International benchmarks from other regulatory decisions are interesting but not the basis for determining Qatar ERP in Ooredoo's view.
- 4.47 Ooredoo therefore uses a fundamental approach to estimate the Expected Market Return (EMR). From this, the rf is deducted to give the implied ERP for Qatar.
- 4.48 The ERP = Expected Market Return (EMR) rf
 - rf = Local 10 year Government Bond yield
 - EMR = Dividend Yield (forward estimate) + Qatar Trend Earnings Growth Rate (TEGR)*

*In the long run earnings growth is equivalent with dividend growth on a steady payout ratio.

- 4.49 This model captures: inflation, real growth in the economy and wealth creation (additional return to private enterprise over economic growth). The forward dividend yield is a means of adjusting for the starting valuation of the market. A high dividend yield typically means prices are below average and vice versa. This will affect the EMR, with higher return expectations after a period of depressed prices and vice versa.
- 4.50 The current forward dividend yield of the QE Index is observed as 4.11%.
- 4.51 The TEGR for Qatar uses IMF forecasts as a base as shown in tables below. An average of a base case and high case is taken. The high case takes forecasts for oil prices into account more directly to augment IMF forecasts for GDP growth, which only takes forward curve prices as a guide, and for this reason we truncate the IMF forecast period to include only to 2019, which are seen as reasonable.



Shaded cells indicate IMF staff estimates								
Country	Subject Descriptor	Units	2015	2016	2017	2018	2019	Average of 2017 to 2019*
Qatar	Gross domestic product	Percent change	3.551	2.683	3.405	2.842	2.311	2.85
Qatar	Inflation, ave consumer price	Percent change	1.814	2.661	2.613	5.672	3.03	3.77
* Average t	* Average to 2019 only as IMF is very conservative on oil & Average Nominal GDP forecast					6.62		
gas price recovery and activity ramp to 2022				Shadow Eco	nomy effe	ct		0.79
				Qatar Trend	l Earnings F	orecast (Base)	7.42

Oil Price growth per	Sector share of	GDP Growth	
annum to 2021	GDP	boost	
4.66%	60%	2.80%	
IMF Forecast Real GDP		2.85	
Oil price boosted Real GDP		5.73	
IMF inflation forecast		3.77	
Shadow Economy effect		0.79	
Qatar Trend Earnings Foreca	10.29		
* Assuming price moves to \$60 from \$50 and Formula =(60/50)^(1/4)-1			

* Assuming price moves to \$60 from \$50 and Formula =(60/50)^(1/4)-1

Average	TEGR	methods	

8.85

Brent Forecasts (USD)	Spot	As Of	2017	2018	2019	2020	2021
Median		09JUN2017	55.5763	60.5	62	67.25	70
Mean		09JUN2017	55.2812	59.7374	62.8408	68.1182	70.0003
High		09JUN2017	64.12	78	93	90	90
Low		09JUN2017	45	37	39	54	54
Forward	48.56	09JUN2017	51.0382	50.3931	51.1826	52.1048	
Diff (Median - Curr)			4.5381	10.1069	10.8174	15.1452	
Source: Bloomberg (CPFC function)							

Г



Source: Bloomberg



4.52 In light of Qatar's recently announced boost to gas production output (An increase of 30% planned; 77m tons to 100m tons) we have taken this into account to generate estimates of economic growth potential for the sustainable model as IMF would not have known of this plan at the time of forecasting.

Years to Full Capacity	Annualised GDP Increment
7	3.82%
Quitaut	
	Years to Full Capacity 7 Output

	Output	GDP Growth	
Oil Price Boost	Increment Boost	boost	
2.80%	3.82%	6.72%	
IMF Forecast Real GDP		2.85	
Oil Price and Output booste	9.77		
IMF inflation forecast		3.77	
Shadow Economy effect		0.79	
Qatar Trend Earnings Forec	14.33		
* Assuming price moves to \$60 from \$50 and Output to 100m tons			

Average TEGR methods	10.87

- 4.53 The average TEGR in the sustainable scenario is therefore 10.87%.
- 4.54 Ooredoo's resulting ERP for Qatar breaks down as follows:

Current	
Qatar 10yr yield	3.32%
Forward Dividend Yield	4.11%
Trend Earnings Growth	8.85%
Expected Market Return	12.96%
Qatar ERP	9.65%
Sustainable	
Optor 10 ur viold	E 0.29/
Qalar Toyr yleiu	5.95%
Forward Dividend Yield	4.11%
Forward Dividend Yield Trend Earnings Growth	4.11% 10.87%
Forward Dividend Yield Trend Earnings Growth Expected Market Return	4.11% 10.87% 14.98%

4.55 These ERPs are much higher in part due to the artificially low rf rate but also because in Qatar's case the market is coming from a low base with significant



upside potential. The risk perception around Qatar is high at present and so the required return from equity investors is high and the marking down of the QE Index reflects this. The main driver has been the collapse in oil prices. However, the oil market now has prospect of recovery. This may take some time yet but a return to \$60 per barrel would support state budgets and project activity. Qatar has also announced a boost of 30% to planned output and investment for this increased capacity will begin soon and have some impact itself ahead of output coming on stream. With high negative sentiment priced into Qatar shares, the returns prospects are higher. The EMR and ERP's that Ooredoo believes investors now expect are not out of line with history as the Bloomberg total return chart shows. This chart covers a full market and business cycle with expansion and contraction with returns of 14.85%.



Source: Bloomberg

- 4.56 Our model does not derive CRPe estimates but ERP directly for Qatar, which already include such a country risk premium. Our conclusion is different to the CRA with ERP, so defined, above 9% and not out of line with history given current circumstances.
- 4.57 Ooredoo therefore believes the current Qatar ERP (Expected Market Return rf) is 9.65% and a sustainable ERP is 9.05%.

Question 9: What are stakeholders' views regarding the determination of the gearing?

4.58 Ooredoo accepts the CRA's use of forward looking gearing. Ooredoo is currently paying down debt; however, the fall in equity market capitalization has worked against the reduction in gearing expected at this time. Ooredoo is aiming for 30% gearing over the coming period and accepts the CRA's range guidance to use 30% as optimal gearing.



Question 10: What are stakeholders' views regarding the determination of the equity Beta

- 4.59 Ooredoo agrees with the CRA's estimate range for Asset and Equity Betas for the "Domestic" WACC. Ooredoo does not look at the "Global" method but Ooredoo Betas fall within these ranges also.
- 4.60 Ooredoo Betas are derived from regression of monthly returns over 5 years and weekly returns over 2 years relative only to the QE Index. Bloomberg is used to provide the Betas. These are weighted 2/3rd and 1/3rd in favour of monthly Beta. Beta is then de-geared using the standard formula but also the full formula shown below using debt Beta:

ß2 -	βe + (1-T) x βd (Vd/Ve)		
pa –	1 + (1-T) x Vd/Ve		

Where $\beta d = \frac{Credit Default Spread}{ERP}$

- 4.61 Given funding in USD for debt, the spreads to US Treasuries of 1.58% (Current) and 2.37% (Sustainable) are used with US ERP estimated at 6.07%.
- 4.62 CRA mentions using Vasicek Beta adjustment, which we reviewed. Research suggests the results are most often similar and the conclusion for improved forecast accuracy is to use one or other method in preference to none at all, so we are staying with Blume given the simplicity.
- 4.63 Rolling weekly Beta for Ooredoo shares is shown below from Bloomberg.





Source: Bloomberg

- 4.64 Ooredoo has made further adjustments to Beta for the VAT introduction at 5% as discussed under a previous section. The outcome is still within CRA ranges for Betas.
- 4.65 Ooredoo have taken the current leveraged Beta of 1.02 as a blend of 5 years monthly and 2 years weekly Betas and assumed 1/3rd weight given to the weekly Beta. The Asset Beta is therefore 0.69 using de-gearing process.
- 4.66 The Beta is re-geared for 30% optimal Debt to Total Capital assumption and **1.08 is** used for the current scenario.
- 4.67 For **Sustainable Asset Beta** we have de-geared using a different assumption for Debt Beta and asset Beta is 0.75 after de-gearing and is re-geared for 30% optimal Debt to Total Capital assumption and **1.14 is used**.

Question 11: What are stakeholders' views regarding maintaining a WACC of 10.75%?

- 4.68 **Ooredoo believes the actual cost of capital will be higher.**
- 4.69 Ooredoo calculates the vanilla WACC, with no tax consideration (Tax at 0%), existing as of March 31st 2017 to be 10.92%, based on verifiable parameters (including VAT effect at 5%).
- 4.70 Ooredoo calculates the sustainable medium term (3 7 years) vanilla WACC, with no tax consideration (Tax at 0%), to be 13.46%, based on verifiable parameters (including VAT effect at 5%).
- 4.71 Ooredoo strongly believes that regulation must be based on sustainable medium term WACC rates and not snapshots in time. This enables sound business planning and investment in the sector. A single WACC rate for telecommunications services in Qatar is most probably towards 13.46%.
- 4.72 Ooredoo has made no impact adjustment in this WACC assessment for a potential economic crisis, which may result from the current dispute with GCC neighbors.
- 4.73 Vanilla WACC calculation for Ooredoo Qatar operations Domestic approach (zero tax) are as below:

Weighted Average Cost of Capital	Current (A)	Sustainable (B)	
Cost of Debt			



Risk Free Rate	3.32% ^{A1}	5.93% ^{B1}
Debt Premium	1.10% ^{A2}	1.10% ^{A2}
Cost of Debt	4.42%	7.03%
Gearing (Debt / Equity)	42.86%	42.86%
Gearing (Debt/ (Debt+Equity)	30%	30%
Cost of Equity		
Risk ∉ree Rate (rf) C	3.32%	5.93%
Expected Market Return – Qatar (EMR)	12.97% ^{A3}	14.98% ^{B2}
Equity Risk Premium (ERP = EMR- rf)	9.65%	9.05%
Asset Beta (βa)	0.69 ^4	0.75 ^{B3}
Equi € y Beta (βe)	1.08 ^{A5}	1.14 ^{A5}
Costoof Equity = rf + βe (EMR -rf)	13.71%	16.22%
Weighted Average Cost of Capital		
Vanilla WACC - Includes effect of VAT at 5%	10.92%	13.46%
e		
Indicative VAT Scenarios:-		
WACC - VAT at 10%	11.85%	14.41%
VAT at 15%	13.72%	16.29%

k

et information sources and calculations:

1. Risk free rate

• 1.1. US Treasury (GT10 govt) 10 year yield as on 31 March 2017: 2.389%



- 1.2 Qatar 10 year bond proxy (QATAR 3 ¼ 06/02/26) G Spread as on 31 March 2017: 0.927%
- 1.3 (A1) Risk free rate (rf) = 3.32% (Based on secondary market observance only)

2. Debt premium

- 2.1 (A2) Company default spread for A- (S&P) rating on 31/3/2017 is 0.95% + Cost of bond issue of 0.15% = 1.10%
- 2.2 Cost of bond issue = Average YTM of Ooredoo bonds at issuance (4.47%) Average Coupon on outstanding Ooredoo bonds (4.32%) = 0.15%

3. **(A3)** Expected Market Return = Forward Dividend Yield (4.11%) + Trend Earnings Growth (8.85%) = 12.96% (Trend Earnings assuming modest oil price recovery boost to IMF forecasts).

4. **(A4)** Asset Beta derived from de-gearing observed Beta regressions to QE Index (weighted average of 5 years monthly data at 1.04 and 2 years weekly data at 0.96) using actual gearing and debt beta (β d) of 0.26.

5. **(A5)** Equity Betas are re-geared using 30% (debt to total capital) assumption and a VAT risk adjustment factor of 1.13 before finally a Blume adjustment for reversion to 1 expectation.

4.75 WACC based on long term rates and assumptions:

1. Risk free rate

- 1.1 US Treasury 10 year long term yield: 4.15%
- 1.2 Qatar bond Spread to US Treasury: 1.7825% (Average of new issue and secondary market)
- 1.3 (*B1*) Risk free rate (rf) = 5.93%

2. **(B2)** Expected Market Return = Forward Dividend Yield (4.11%) + Trend Earnings Growth (10.87%) = 14.98% (Trend Earnings including annualized boosts to IMF forecasts i) modest oil price assumptions taken from oil market forecasters and ii) +30% output increase announced by Qatar subsequent to IMF forecasting).

3. **(B3)** Asset Beta derived from de-gearing observed Beta regressions to QE Index (weighted average of 5 years monthly data at 1.04 and 2 years weekly data at 0.96)



using actual gearing and debt Beta (βd) of 0.39 where credit spreads have normalized.

4. **(B4)** Equity Beta is derived by de-gearing using a different assumption for Debt Beta and asset Beta is 0.75 after de-gearing and is re-geared for 30% optimal Debt to Total Capital assumption.



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August 2, 2017

Mr. Mohammed Al Mannai President Communications Regulatory Authority P.O. Box 23264, Al Nassr Tower Doha, Qatar

Dear Mohammed,

Re: Determination of the Cost of Capital in the telecommunications market in Qatar

This Submission is in response to the Consultation addressing the above noted matter.

At the outset Qnbn submits that the current political blockade should not impact these proceedings as an entrenched risk requiring a substantial change in posture as to the Cost of Capital. Firstly, as noted previously, Cost of Capital is based on a long-term forward-looking approach. Secondly, Qnbn trusts its leadership and institutions to deal with the blockade in the most effective and efficient manner.

Response to Questions raised by ictQatar

Q1 Do stakeholders agree with the CRA's view that the current process should result in a single, industrywide WACC?

Absolutely not! The CRA has shifted its emphasis from retail regulation to a substantive emphasis upon wholesale regulation. It only makes sense that and is appropriate that the CRA also utilize a separate WACC for wholesale services and that this latter WACC be utilized for all regulatory and competition matters affecting such matters as duct access and interconnection.

There are a number of ways that the WACC can be adjusted to reflect the lower risk for fixed infrastructure services. In the UK, Norway, Sweden and Bahrain regulatory authorities have used differentiated betas to capture this differential risk. Elsewhere (e.g., Jamaica) differentiated gearing has been used by the regulator. Bahamas used pure or close to pure-play comparators for measuring separate WACCs.¹

With respect to recent experience in the United Kingdom, Ofcom detailed its approach in its August 2005 statement, "Ofcom's approach to risk in the assessment of cost of capital". Ofcom used the betas of UK network utilities and US incumbent local exchange companies in its analysis for access network services.

¹ See http://www.urcabahamas.bs/download/021373300.pdf QnbnQnbn.ga





Ofcom confirmed this approach in its 2009 statement on the cost of capital for services provided by BT's network service provider, Openreach. In its latest cost of capital consultation 2011/12, Ofcom has yet again reaffirmed the approach. It first estimated a range for the BT Group asset beta of between 0.45 and 0.60. It then examined comparable UK network utilities and determined the asset beta for Openreach would be 0.05 lower than for BT Group. The range for Openreach's asset beta (i.e. 0.40- 0.55) was above the top end of the network utility range of asset betas, and consistent with Ofcom's belief that Openreach is more risky than a pure network utility. This asset beta range translated to an equity beta range (assuming 50% gearing) for Openreach of 0.68 - 0.98.

In Norway and Sweden, the fixed line beta was derived by calibrating the relevant company's business segment betas and conducting a regression analysis of other telecom operators' asset betas against their business segment shares.²

With respect to Bahrain, in its 2003 determination the TRA calculated four WACCs: for "last mile" access services; core fixed network interconnection services; mobile services; and unregulated internet and value-added services. The TRA did so by identifying the relative differences in betas for comparator companies operating in these service markets and using them to disaggregate the beta that it had calculated for the incumbent operator, Batelco, as a whole. Note for "last mile" access services the TRA used betas of utility companies as a proxy. For core fixed network interconnection services it used the betas of fixed network operators. For mobile companies and ISPs, it used the betas for pure play service providers in those markets.

QNBN strongly recommends that the CRA apply to fixed infrastructure services a WACC lower than that for the overall company-wide to reflect the significant lower risk that is involved with the provision of such services. We discuss in our response to Question 11 a conservative approach to capturing this lower risk in the fixed infrastructure WACC.

Q2 Do stakeholders agree with the CRA's view that the WACC determined should not separately consider corporate or similar taxes on a SP's profits?

Qnbn is if the view that tax considerations on a SP should not play any role in setting the WACC. The CRA should utilize a 'vanilla WACC'. It is not clear at this time what Ooredoo's strategy will be with respect to taxes as it may simply modify its prices in such a manner as any tax impact is passed onto the consumer in terms of new pricing plans. Its overall revenue after tax may not be sufficiently impacted as to warrant any "post tax WACC".

Q3 Do stakeholders agree with the CRA's view that the current proceeding should result in the determination of a nominal WACC rate?

Subject to the response to Question 1, Qnbn is of the view that a nominal WACC rate should be utilized for the very reasons stated by the CRA.

² See "Cost of Capital Norwegian Fixed Line Telecom", Thore Johnson, 29 January 2010 and "WACC for the fixed Telecommunications Net in Sweden, Copenhagen Economics, 26 October 2007.





Q4 Do stakeholders agree with the options CRA considers for global/domestic estimation of the WACC?

Qnbn is not in agreement and is of the view that the WACC should be arrived at solely as dependent on an SP solely providing services in Qatar. The WACC being utilized is for regulatory and competitive considerations by the CRA for the State of Qatar. Further, much of Ooredoo's diversification has taken place in far less prosperous countries and/or in already very competitive markets. The Cost of Capital will necessarily be higher in such countries.

The "Operator profile" issue concerns the inconsistency between the service profile to which the WACC will be applied—Ooredoo's services provided domestically—and the operational profile of Ooredoo itself, which is international and heavily skewed towards mobile service provision. The CRA seems to suggest that it could potentially deal with this inconsistency through examination of two valuation scenarios: the "Domestic" Scenario and the "Wider-Group" Scenario. Practically speaking, the difference between the two scenarios is that the Domestic scenario would rely on benchmarking input values from operators that had a service profile closer to those to which the WACC would be applied. In the Wider Group scenario, Ooredoo specific data would be used to a greater extent.

In fact, Qnbn believes that a "domestic" scenario is the most appropriate way of measuring the Ooredoo WACC. We believe this for several reasons. Firstly, it is better to make use of a robust set of benchmark values that more correctly reflect the underlying drivers of cost of capital for the relevant domestic services in Qatar than for "actual" values for an irrelevant service mix. Secondly, the degree of relevance of Ooredoo's group-wide data is dependent on the extent to which Ooredoo's international activity is similar to its Qatari operations. However, in this case, the Wider Group Ooredoo should be thought of as an additional benchmark in the domestic scenario. It should not mean that Ooredoo international-heavy values are a better proxy for all WACC inputs than other benchmarks. Qnbn acknowledges that arriving at the relevant drivers of cost of capital for the relevant domestic services in Qatar might involve greater effort.

Thirdly, given the disproportionate share of Ooredoo operations that are generated abroad it is likely that the "reality" of the supply of capital finance to Ooredoo is less related to the Qatar telecommunications service market. The CRA should be focused on the appropriate WACC for services supplied under imperfect competition in Qatar, not for also encompassing what appears to be the appropriate WACC for Ooredoo international generally.

Fourthly, the fact is that most of the WACC studies in those jurisdictions where the dominant operator has a minority of its invested capital in the domestic market (e.g., Norway or Sweden) are replete with robust benchmarking that ensures that the dominant operator's international investment structure would not distort the result for domestic application of the WACC.

Q5 Do stakeholders agree with the CRA's proposal to use the WACC for a period of up to 4 years.

Yes as this is in line with past practice and accords reasonably with the practice in other competitive environments.





Q6 What are the stakeholders views with regard to the determination of a risk-free rate?

Qnbn submits that the mix of countries utilized for bench marking purposes should be weighted far more with countries from the GCC as economic realities are more akin to one another than such countries as Sweden, Italy or France.

Q7 What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

Qnbn is generally in agreement with the range provided by the CRA for the appropriate debt premium. We highlight the fact that Ooredoo's high rating is associated with "its strong backup funding source (government of Qatar)". We note that this would certainly be the case in either a "Domestic" or "Wider Group" valuation scenario.

Q8 What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

Qnbn has no comment to offer on the CRA's determinations.

Q9 What are stakeholders' views regarding the determination of the gearing?

Qnbn finds it appropriate that the CRA considers utilization of wider global benchmarks in arriving at gearing ratios and finds a gearing estimate of 29% to 42% as acceptable.

Q10 What are stakeholders' views regarding the determination of the equity beta?

Qnbn has no comment to offer on the CRA's determinations.

Q11 What are stakeholders' views regarding maintaining a WACC of 10.75%?

Qnbn submits its view that, in consideration of the foregoing, the CRA's estimate for the business-wide WACC is inflated and seriously needs revision. Qnbn believes that the range should between [6.18]%-[7.43]%. Furthermore, Qnbn believes that the CRA must consider two ranges as more appropriate: one for fixed infrastructure services; and one for other Qtel services. Qnbn believes that, consistent with practice in other jurisdictions, those ranges for on the basis of the betas. In particular, we propose that the CRA use the low end of the estimated asset betas for fixed infrastructure service WACC and the high end for Ooredoo's other services. This implies that the range for the nominal WACC for fixed infrastructure services 7.31%-7.43%.

If the CRA is focused upon accuracy and fairness in arriving at a correct WACC and its application Qnbn respectfully submits that the suggested levels for both Qtel fixed infrastructure and other services be adopted.





Qnbn cannot convince itself that the WACC amount proposed is reasonable. It is much too high. Qnbn is of the view that such a number likely includes Ooredoo group and not simply Ooredoo Qatar. Additionally, if the WACC is going to be set this high, it is advisable to have separate WACC's for retail services and wholesale/infrastructure services, given the regulatory move from retail to wholesale.

Sincerely,

Philip Brazeau Head of Regulatory Qatar National Broadband Network



Vodafone Qatar P.Q.S.C. Submission to the Communications Regulatory Authority Consultation Document

"Determination of the Cost of Capital applicable to Service Providers declared as having a Dominant Position" issued 8 May 2017

31 July 2017



Introduction and executive summary

- Vodafone Qatar P.Q.S.C. ("Vodafone Qatar") welcomes the opportunity to respond to the Communications Regulatory Authority ("CRA") consultation document entitled "Determination of the Cost of Capital applicable to Service Providers declared as having a Dominant Position" ("Draft Determination") which was issued on 8 May 2017.
- In the Draft Determination, the CRA proposes to maintain the Weighted Average Cost of Capital ("WACC") at 10.75% for the next four years. The current WACC was set on 5 August 2013 by the then ictQatar in its "Decision and Order – Definition of the Weighted Average Cost of Capital for Qtel" ("2013 Determination").
- 3. The regulated cost of capital is a key value driver as it sets the allowed return on invested capital. Investors need to recover investment cost, referred to as the return "of" capital along with the return "on" capital, being the expected return on investment. In a regulatory setting, the return of capital is recovered via the allowed depreciation and the return on capital via the allowed return, WACC, applied to capital employed.
- 4. In Vodafone Qatar's view, the WACC should be set at 10% maximum in light of the empirical evidence provided. Notwithstanding our reservations to the way certain parameters have been estimated and the resulting ranges for each parameter, 10% is well above the ranges estimated by the CRA before the inflation adjustment. 10% is also above the mid-point of the ranges estimated by the CRA after the inflation adjustment which in our view is not warranted and has not been justified by the CRA.



CRA WACC ranges proposals

- 5. There is an inherent element of judgement involved in setting the WACC and regulators have to balance different considerations in selecting a point estimate. A WACC that is too low will provide insufficient return to investors given the risk profile of the business and in doing so would deter investment. Conversely a WACC that is too high will lead to excessive profits damaging competition and consumer interest without promoting additional investment. Hence the challenge of the regulator is to estimate a WACC commensurate with a firm's underlying business risk so that it can finance its operations and investments without making excessive profits, which would be detrimental to consumers and competition.
- 6. Based on the available empirical evidence provided by the CRA and the resulting WACC ranges summarised above setting the WACC at 10.75% would lead to the continuation of excess returns by Ooredoo to the detriment of competition, consumers and efficient investment.



7. We also kindly request the CRA to undertake a second round of consultation prior to finalising this Determination as previously committed to by the CRA, this is further justified in the light of the changes to the geopolitical environment that have taken place since the issuance of the Draft Determination. The effect of those changes, if any, on the individual parameters should be analysed by the CRA and consulted upon.



Question 1: Do stakeholders agree with the CRA's view that the current process should result in a single, industry-wide WACC?

- 8. The CRA proposes to set a single cost of capital and therefore refrain from adopting divisional WACC by activities, such as specific WACCs for fixed and mobile. The proposal is consistent with the 2013 Determination and is based on a review of empirical evidence from the Telecommunications Regulatory Authority of Bahrain ("**TRA**") and Ofcom.
- 9. Vodafone Qatar does not object to the proposal of the CRA. While there may be qualitative reasons for risk differentials by activities, there is no strong and robust empirical evidence supporting a disaggregation of the WACC by activities. We note however that it is common for regulators to set higher cost of capital for mobile than for fixed.¹
- 10. We also note that the cost of capital of a challenger like Vodafone Qatar may be higher than for an established incumbent like Ooredoo.² Investors may indeed require higher returns to compensate the risk they face (including regulatory risk), when considering investing in activities with uncertain return such as fixed line where there are significant barriers to entry, a super dominant operator and in the absence of effective wholesale and retail regulation. Hence Vodafone Qatar's view is that it may be required to apply a different WACC in some instances.

Question 2: Do stakeholders agree with the CRA's view that the WACC determined as a result of these proceedings should not separately consider corporate or similar taxes on a SPs' profits?

- 11. The CRA proposes to use a vanilla WACC, i.e. a WACC that does not take into account taxes.
- 12. Vodafone Qatar agrees with the proposal of the CRA in so far as it relates to corporate tax. Corporate tax or similar fees paid on profits after interest payments can be built in the cost base.

Question 3: Do stakeholders agree with the CRA's view that the current proceedings should result in the determination of a nominal WACC rate?

- 13. The CRA proposes to use a nominal WACC as it does not see the need to use a real WACC in so far as no significant fluctuations in inflation are likely.
- 14. We support the use of a nominal WACC in line with standard regulatory practice.

Question 4: Do stakeholders agree with the options CRA considers for global / domestic estimation of the WACC?

- 15. The CRA considers that a global and domestic approach should be used for the calculation of the WACC and that there should not be any adjustment for non-local operations.
- 16. We agree with the proposal of the CRA to consider international investor and domestic investor scenarios. This is consistent with the foundations of the Capital Asset Pricing Model ("CAPM") used by the CRA which suggest that investors can diversify exposure to idiosyncratic risks by investing in a global portfolio of securities and in doing so reduce risk. However, in practice there may be limitations to the extent of diversification (e.g. taxes) and investors may exhibit a preference for domestic equities

¹ This is the case for example in France, Austria, Greece, Ireland, Italy, Norway and the Netherlands (see Cullen International).

² Direct estimation of betas carried out by the CRA indicates that Vodafone Qatar asset beta is 22% to 26% higher than the asset beta of Ooredoo.



(the so-called "home-bias puzzle"). Further there are practical empirical challenges to estimate parameters under each scenario and hence consideration of both scenarios is appropriate for the estimation of the cost of capital.

Question 5: Do stakeholders agree with the CRA's proposal to use the determination of the WACC for a period of up to four years?

17. Vodafone Qatar agrees with the CRA to set the cost of capital for a period of up to four years with the caveat that the WACC could be revisited should market of service providers circumstances change materially.

Question 6: What are stakeholders' views with regard to the determination of the risk-free rate?

- 18. The CRA proposes a range of [2.2%-3.5%] for the international scenario. The lower bound is based on US government bounds of a 10 year maturity average over the last two years. Results from Germany, the other large economy with a AAA credit rating, are disregarded as the yields are too low. The upper bound is based on an average of a benchmark of regulatory decisions.
- 19. Under the domestic scenario, the CRA proposes an estimate of 3.5% which is based on a 10 year Qatari government bond denominated in US\$ and averaged over 3 years.
- 20. Vodafone Qatar has two concerns regarding the estimation of the risk-free rate. First, the CRA does not provide any rational for choosing 10 year bonds beyond the supposedly lower reliability of estimates based on maturities. This question of the choice of maturity of the risk free rate is of limited significance when the yield curve is flat but this is seldom the case given the time value of money. As can be seen from the below graph which plots yields on US government bonds, the choice of maturity has a significant impact on the risk-free rate.



21. Our view is that the choice of the maturity should be guided by the length of the regulatory period and the remaining useful life of the assets. This is consistent with the approach of other regulators such as Ofcom and the TRA. On that basis and in the absence of detailed information on Ooredoo's remaining asset lives we estimate that the maturity of the risk free rate should be between 4 years (the price control duration) and 7 years (our judgement of the remaining useful life of Ooredoo which can be cross-checked against the regulatory account of Ooredoo by the CRA). Based on extrapolation of the above data, the risk free rate could be estimated at 1.8%, this is the average of the 4 year and 7 year yield.



- 22. The basis for choosing benchmark countries and the extent to which they actually reflect other regulators' judgement or empirical data is unclear from the Draft Determination. Consequently, it is similarly uncertain whether they can be relied upon. For instance, in the case of Bahrain, the benchmark referred to is not based on data but reflect the TRA's judgement. Further, in some instances there is a question of comparability as estimates in some of them (e.g. UK) are not based on an international scenario.
- 23. In addition, we note that the CRA has used averaging periods of 2 years and 3 years for the international and domestic scenarios respectively. The use of historical averages has the disadvantage of being back-ward looking which is in contrast with the forward-looking estimate of the cost of capital in this determination. Conversely, spot rate may be prone to more short term fluctuations although they are more consistent with the forward-looking estimation of the cost of capital. For these reasons, we recommend the CRA to provide estimates of the risk free rates based on the spot rate, the 3 months and one year average. This is in line with standard regulatory practice to document and acknowledge the sensitivity of the risk-free rate to the averaging period. This provides transparency to the manner in which the regulator is exercising judgement.
- 24. The same comments apply to the risk-free rate based on the domestic scenario. If no adjustments are possible for a short maturity, then the current 3.5% rate has to be considered as including an uplift or 20bp to 40bp (the delta between yield on 10 year bond and 7 year and 5 year bond respectively).
- 25. Vodafone Qatar is mindful that interest rates remain at historically low levels. It is for this reason that some regulators include explicit uplifts to their estimate of the risk free rate.

Question 7: What are stakeholders' views regarding the determination of the debt risk premium and the debt country risk premium?

- 26. For the debt risk premium ("**DRP**"), the CRA provides a range of 0.3% to 1.43%. It is based on an estimation of the spread of Ooredoo's bonds above government bonds (0.3%) and an averaging of a selection of regulatory benchmarks.
- 27. Vodafone Qatar agrees with the direct estimation of the DRP. However, the upper value of the range is highly questionable and the CRA has provided no justification regarding the comparability of the benchmarks. For example, differences in credit ratings and gearing impact the DRP and should be controlled. It is not clear whether this has been done. We also query the relevance of the DRP estimate for the Bahamas for Qatar.
- 28. Regarding the country risk premium ("**CRP**") the lower bound of the range (0.57%) is based on estimates for Qatar (0.57% or 0.79%) calculated by Professor Damodaran who looks at the spread for specific credit ratings over a default government bond rate. The upper bound, 1.36%, is based on a 3 year weekly average of the spread of Qatari bonds over US bonds.
- 29. We broadly agree with the CRA approach for the CRP and invite the CRA to look into whether the recent downgrade from Aa2 to Aa3 by Moody's and the on-going regional situation warrant an adjustment to the estimates of Damodaran. The 3 year period of averaging is, in our view, too long for a forward looking estimate of the cost of capital. The data presented by the CRA clearly shows that the spread between US and Qatari yields is narrowing. Looking at the data of the CRA included in Figure 7, page 33, a reasonable estimate of the ERP based on the spread between the yield on Qatari and US bonds seems to be around 1% (versus the proposed 1.43%).



Question 8: What are stakeholders' views regarding the determination of the equity risk premium and the equity country risk premium?

Equity Risk Premium

- 30. The Equity Risk Premium ("**ERP**") is key parameter of the cost of equity. It represents the expected return by an investor over and above the risk-free rate for investing in a portfolio of equities that represents the equity market as a whole.
- 31. The CRA proposes a range of [4.1%-5.7%] for the ERP. The lower bound is based on the long term historic estimation of the world ERP from Dimson Marsh and Saunton ("**DMS**")³ and the upped bound on the implied ERP based on a four year average of data from Prof. Damodaran comparing US equity returns with US government bonds return.
- 32. The CRA also considered a number of regulatory benchmarks which produces an average of 5.3%.

Country Risk Premium on Equity

33. The CRA proposes a range for the Country Risk Premium on Equity ("**CRPe**") of 0.14% to 0.4% based on Prof. Damodaran for the domestic approach and of 0.71% to 1.7% for the global scenario based on some relative volatility ratio.

Overall

34. Overall the CRA proposes a range of 4.24% to 6.1% under the domestic scenario for the ERP and CRPe and a range of 4.81% to 7.4% under the global approach. While we have some reservations regarding the merits of the CRA's approach to add a specific CRPe as this is usual, we consider that the overall combined ranges arrived at by the CRA are reasonable.

Question 9: What are stakeholders' views regarding the determination of the gearing?

- **35.** Based on evidence from regional comparator companies and regulatory benchmarks, the CRA proposes a range for gearing of 29% (the average of the regulatory benchmark) to 42% (Ooredoo's current gearing).
- 36. While Vodafone Qatar notes that in the presence of no/low tax rates the optimal capital structure may be close to 100% equity, owing to the absence of tax shields benefits associated with debts, a company may still decide to adopt a positive gearing ratio. This is consistent with the levels of gearing observed in the region.
- 37. Vodafone Qatar does not have strong objections to the proposal of the CRA, although we note that Ooredoo stands as an as an outlier in the region with its relatively high level of gearing (49%).

Question 10: What are stakeholders' views regarding the determination of the equity beta?

38. The equity beta is the other critical parameter to the estimation of the cost of equity. It reflects the exposure to systematic risk of a company's equity relative to the overall equity market risk.

³ More specifically, the CRA takes the world geometric average of DMS (3.2%) to which it had uplift for recent volatilities of 0.9%. The world arithmetic average is 4.4%.



- 39. The CRA relies on a number of approaches to arrive at asset beta estimates. Under the globally diversified investor scenario, the CRA takes the average of a diverse range of regulatory decisions to propose an asset beta of 0.67. For the domestic scenario, the CRA proposes a range of 0.59 to 0.79. It is based on direct estimates of betas of Ooredoo, Vodafone Qatar and some regional comparators (Omantel and STC with Batelco and Etisalat being excluded). Betas are calculated against the DJMENA index.
- 40. From a methodological stand point, the approach raises a number of issues. First, domestic betas are estimated against regional indices. This is inconsistent with the domestic scenario under which beta should be estimated against the local index. Second the construction of betas lacks transparency and is not consistent with international best practice. The CRA has provided no adequate explanation why betas are made of a weighted average of 2 year betas (weight of 1/3) and 5 year betas (weight of 2/3). Third, there is no objective justification for the inclusion of what the CRA refers to as the "Ooredoo adjustment". Fourth, no data on the raw beta has been provided by the CRA. Fifth, there is no objective justification of benchmarks.
- 41. We recommend that the CRA addresses the above issues. We also kindly request the CRA to request its consultants to provide direct estimates of raw and adjusted betas using the so-called Blume adjustment utilising 2 year weekly, 5 year weekly and 5 year monthly data against both local indices and a world index as per standard regulatory practice to ensure consistency with the scenarios considered. We consider that this should inform the necessary judgement of the CRA in defining the appropriate range of asset beta.

Question 11: What are stakeholders' views regarding maintaining a WACC of 10.75%?

CRA Draft Determination						
Parameters	Global approach			Domestic approach		
	Low	Midpoint	High	Low	Midpoint	High
Risk free rate	2.20%	2.85%	3.50%	3.50%	3.50%	3.50%
Debt risk premium	0.30%	0.87%	1.43%	0.30%	0.87%	1.43%
Country risk premium (d)	0.57%	0.97%	1.36%		_	
Cost of debt	3.07%	4.68%	6.29%	3.80%	4.37%	4.93%
Gearing	29.00%	35.50%	42.00%	29.00%	35.50%	42.00%
ERP	4.10%	4.90%	5.70%	4.10%	4.90%	5.70%
Country risk premium (e)	0.71%	1.21%	1.70%	0.14%	0.27%	0.40%
Asset beta	0.67	0.67	0.67	0.59	0.69	0.79
Equity beta	0.94	1.05	1.16	0.83	1.10	1.36
Cost of equity	6.74%	9.26%	12.05%	7.02%	9.17%	11.81%
WACC	5.68%	7.65%	9.63%	6.09%	7.50%	8.92%
Inflation adjustment	1.83%			1.83%		
WACC with inf. Adjust.	7.61%	9.62%	11.63%	8.03%	9.47%	10.91%

42. The value estimated by the CRA for each individual parameter produce a WACC range 5.68% to 9.63% for the global approach and of 6.09% to 8.92% for the domestic approach.

Inflation adjustment

43. From those ranges the CRA then proceeds to add an adjustment for inflation of 1.83 percentage point "*because the estimates required nominal returns that are based on USD denominated financial information only take into account expected inflation in the US*" (Draft Determination, page 47, paragraph 208).



- 44. Vodafone Qatar disagrees with this material adjustment which should be removed. The CRA has provided no justification for this departure from its previous approach where no such adjustments were made. We are also not aware of any regulatory precedents for similar adjustment for inflation notwithstanding the requirement for the CRA to adopt regulatory approaches in line with international best practice. Similarly to the CRA, TRA Bahrain considers two scenarios to estimate the WACC, an internationally diversified investor and a domestic investor. To estimate individual parameters, TRA Bahrain also combines direct estimation of parameters and benchmarking. However, it does not include any adjustment to the overall WACC for inflation.
- 45. The CRA has not explained and justified the conceptual basis for adding an inflation adjustment and how it is consistent with international best practice. It has not provided any rational and justification for its approach to empirically estimate this adjustment. This is a material adjustment which leads to an increase of the mid-point estimates of 26%.

Proposal to maintain the WACC at 10.75%

- 46. Having defined range of 7.61% to 11.93% (mid-point of 9.62%) for the international investor scenario and 8.03% to 10.91% (mid-point of 9.47%), the CRA then goes on to propose to maintain the WACC at 10.75%. The CRA argues that the proposed 10.75% provides stability to the regulatory environment and that it is appropriate "given the risk to investment from setting the WACC below its actual level". The CRA also indicates that the WACC is within the ranges it has estimated.
- 47. We agree with the CRA view that some weight should be placed on providing a stable regulatory environment. However, this should not be equated to the continuation and validation of highly questionable precedent s. In its 2013 Determination, the then ictQatar took an unprecedented approach in so far as it: (a) selected a point estimate of 10.75% well above the WACC ranges it has defined ([7.71%-8.94%] for the domestic scenario and [6.47%-7.81%] for the international scenario; (b) took into account on face value the proposals of Ooredoo (upper bound of the range of 13.02%); and (c) selected a WACC estimate on the top end of the range. This approach was completely out of step with good regulatory practice.
- 48. In Vodafone Qatar view, the WACC should be set at 10% maximum in light of the empirical evidence provided. Notwithstanding our reservations to the way certain parameters have been estimated and the resulting ranges for each parameter, 10% is significantly above the ranges estimated by the CRA before the inflation adjustment. 10% is also well above the mid-point of the ranges estimated by the CRA after the inflation adjustment which in our view is not warranted and out of step with regulatory practice.





- 49. There is an inherent element of judgement involved in setting the WACC and regulators have to balance different considerations in selecting a point estimate. A WACC that is too low will provide insufficient return to investors given the risk profile of the business and in doing so would deter investment. Conversely a WACC that is too high will lead to excessive profits damaging competition and consumer interest without promoting additional investment. Hence the challenge of the regulator is to estimate a WACC commensurate with a firm's underlying business risk so that it can finance its operations and investments without making excessive profits, which would be detrimental to consumers and competition.
- 50. Based on the available empirical evidence provided by the CRA and the resulting WACC ranges summarised above setting the WACC at 10.75% would lead to the continuation of excess returns by Ooredoo to the detriment of competition, consumers and efficient investment.

- END -