Consultancy Services to review and update Accounting Separation Guidelines and development of review and recalculation of WACC

WACC Methodology and preliminary results

FINAL

7th December, 2020

pwc

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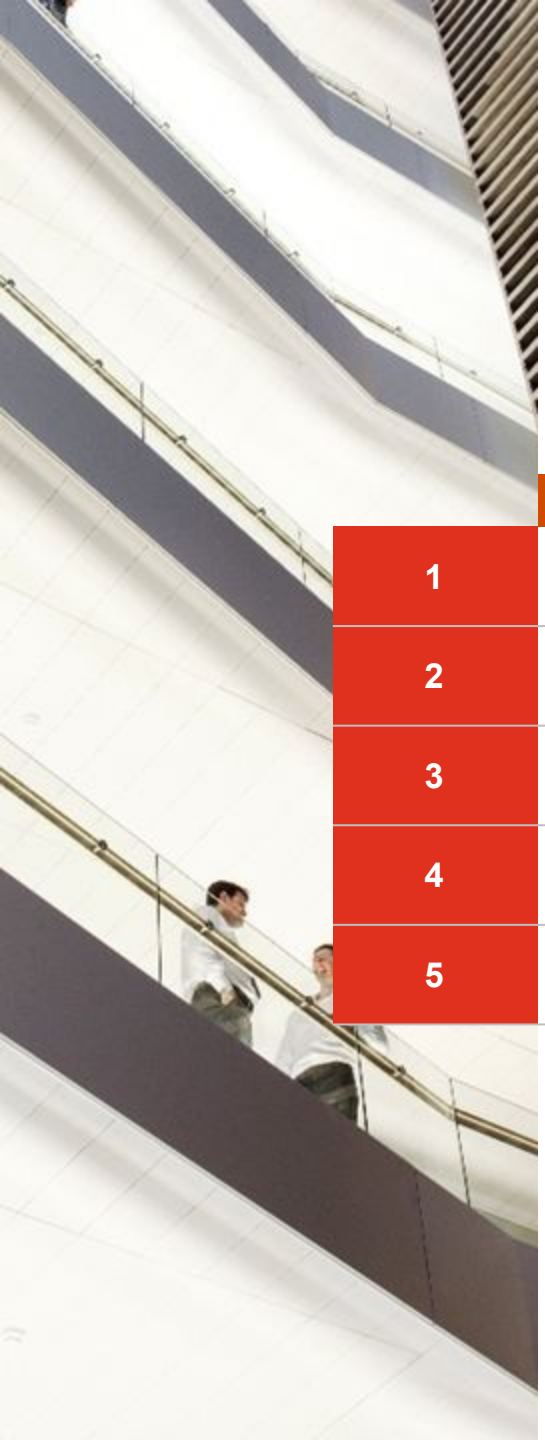
Background information

The PwC has been appointed by the Communication Commission ("ComCom") to review the current WACC methodology and calculation, to acquire data and to provide support in estimating the telecoms-specific parameters to feed into the estimation of the cost of capital in the telecommunication sector as an input when determining price regulation on relevant markets where one or more operators has been found to have significant market power according to best practices used in EU Member states region.

In this report we present the results of our data gathering exercise as well as the relevant analysis associated with the estimation of these parameters.

We understand that ComCom needs to establish a level of weighted average cost of capital ("WACC") to help assess, among other things, adequate level of profit for companies operating on Georgian telecommunications market. In order to obtain this information, we were asked to develop methodology and calculate the level of WACC for theoretical efficient operator providing telecommunication services at Georgian market, while considering current best-practices in the area of WACC calculation recommended by European Commission ("EC") and especially methodology developed for European Commission by The Brattle Group, published as Review of approaches to estimate a reasonable rate of return for investments in telecoms networks in regulatory proceedings and options for EU harmonization. Further sourced documents are the best-practices applied by European regulatory authorities, ITU and BEREC.



Contents of the methodology

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Calculation of Weighted Average Cost of Capital

Nominal pre-tax WACC is the weighted average pre-tax costs of debt and equity

Weighted Average Cost of Capital ("WACC") represents the minimum rate of return required by both debt and equity investors operating in the area of providing telecommunication services in Georgia, weighted by their respective contributions of capital. It is generally used by both the finance community, the industry, and by many regulators. The conventional formulas for deriving the WACC and the associated definitions are presented below:

$$After-tax\ WACC = Kd * (1 - T_c) * (\text{Gearing}) + Ke * (1 - \text{Gearing})$$

Where:

- ***Kd:*** *Pre-tax cost of debt*
- ***T_c :*** *Effective tax rate*
- ***Ke:*** *Cost of Equity*
- ***D:*** *Market value of debt*
- ***E:*** *Market Value of equity*

Debt level in company's asset base

$$Gearing = \frac{D}{D+E}$$

$$\text{Ke} = Rf + \beta * (Rm - Rf)$$

$$Kd = Rf + Debt\ premium$$

Where:

- ***Rf -*** *Risk free rate*
- ***β -*** *Equity Beta*
- ***(Rm-Rf) -*** *ERP or Return on market portfolio*

In the regulatory context, proceeds acquired from the regulatory pricing, which includes WACC compensation, will be later subject to taxation. In order to reflect this, post-tax WACC needs to be adjusted for pre-tax WACC as follows:

$$Pre-tax\ WACC = {(After-tax\ WACC)}/{(1 - T_c)}$$

General approach and the results of the WACC calculation for Geogian telecommunication market

The recalculation is based on the Capital Asset Pricing Model (CAPM) model, that despite its shortcomings, is the most appropriate and widely adopted model to estimate the cost of equity. Is it recommended in Brattle study as the best approach possible. .

The variables composing of the costs of capital calculation using the CAPM methodology comprise the following:

- **The Risk free rate (RFR or Rf)** is the expected return on an asset which theoretically bears no risk of default and that bears no reinvestment risk;
- **Equity risk premium (ERP)** represents the additional expected return that an investor demands for investing demands for investing in equities rather than in a risk free investment;
- **Equity/asset beta** represents the premium risk of a particular company's shares being considered in relation to the stock market as a whole. It is measured as the volatility of that stock relative to the overall market volatility;
- **Debt premium** represents the premium by debt owners to compensate for the risk of default and;
- **Gearing** corresponds to the weight of the debt capital as a portion of total invested capital.

As it will be explained in the Section 5 of this methodology**, an NGA risk premium will be calculated and added to the WACC results for services relating with access to NGA networks in line with EC Recommendation 2010/572/EU**. With NGA risk premium we mean the increase in WACC for an NGA network relative to a legacy network, required to compensate the SMP operator for additional systematic risk of NGA investments relative to legacy networks. **We recommend the use for determination of the fixed network related price caps for FTTH/FTTB networks.**

Preliminary calculation of the WACC based on data ending 31.10.2020.

WACC results

Parameter	
Risk free rate (RFR)	9.67%
Equity risk premium (ERP)	6.00%
Equity beta	0.72
Ke - CoE - post tax	14.02%
Ke - CoE - pre tax	**16.49%**
Debt premium	2.06%
Kd - Cod - pre tax	**11.73%**
Optimal gearing	42.0%
Tax Rate	15.0%
post-tax WACC	12.32%
pre-tax WACC	**14.49%**
NGA premium	2.39%
WACC rate	**16.88%**

Source: PwC Analysis, CapIQ, NBG data, BEREC (for NGA risk premium data)

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Definition of the peer group and Gearing calculation

Peer group definition

From the historical point of view and based on the annual statistics prepared by the BEREC, the majority of EU Member state NRAs still have in place the WACC results defined separately for mobile and fixed networks.

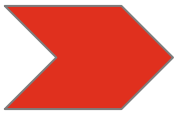
But in the last period the regulatory WACCs for fixed and mobile networks have converged. This may mean that in practice the regulatory WACC may be the same for fixed and mobile networks because of difficulties in estimating the input parameters reliably. This is the case of multiple NRAs through the EU (e.g. Czech Republic, Luxembourg, Germany, Austria, France) that applied the same single WACC to mobile and fixed networks and this approach is supported by the recent EC Recommendation. It is also stated by the Brattle study that states that there are no "pure play" fixed legacy networks in the EU and **that the betas for mobile and fixed activities are likely to be similar.** This is also case of the Georgia market.

To be in line with the requirements the peer group selection would be subject to multiple criteria defined by Brattle or European Commission, such as:

1. Companies are listed on a stock exchange and have liquidity traded shares;
2. Own and invest in electronic communications infrastructure;
3. Have their main operations located in European Union;
4. Have an investment grade credit rating;
5. Are not, or have not been recently involved in any substantial M&A

Considering the territory aspects and the continuity with the previous periods when the ComCom reviewed and recalculated the WACC we recommend to select the peer group based on combination of the EU telecom companies that are recommended by either Brattle study or EC Notice and BEREC recommendation and the telecom companies outside the EU that were used in the previous WACC calculations. The peer group consists of 21 integrated telecommunication operators, 2 cable and satellite companies and 2 providers of wireless telecommunication services from EU, Turkey, China and Russia.

In the recalculation of the equity and asset beta and the gearing we use 5 year averaging of data as is recommended by latest BEREC recommendation. In next step the Peer group companies were adjusted based on statistical tests of volume of stock price changes to market index (MSCI World index), where we assess determination coefficient and p-test to evaluate if the company is statistically significant for Beta calculation. For Gearing calculation all of the companies in Peer group are used.

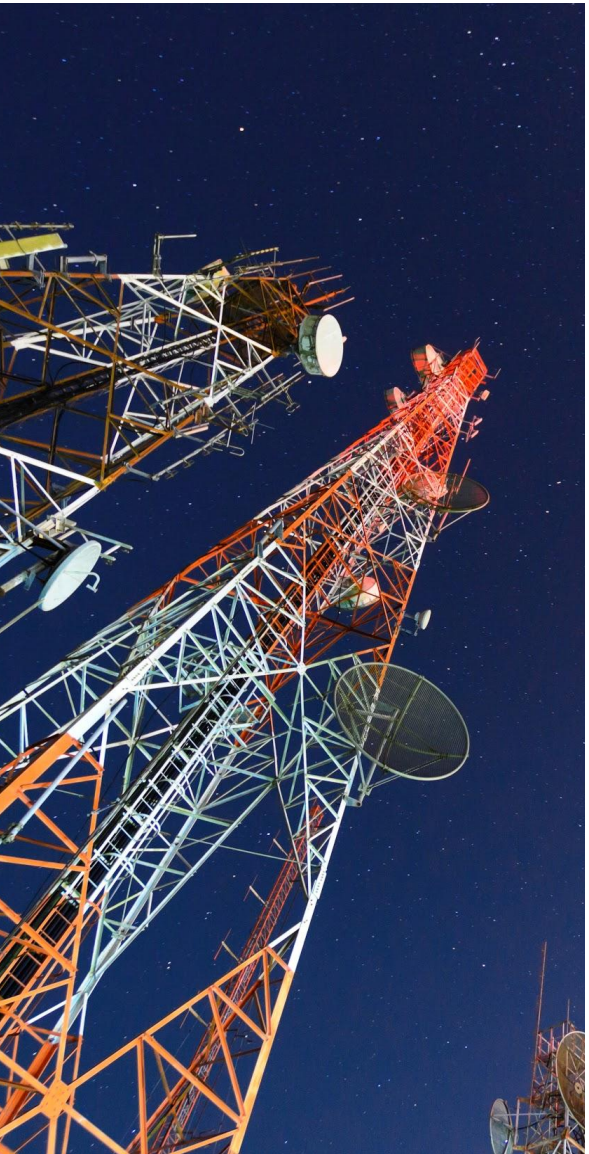


Peer group selection

Number	Company name	Ticker	Primary industry
1	Hellenic Telecommunications Organization S.A.	ATSE:HTO	Integrated Telecommunication Services
2	Magyar Telekom Távközlési Nyilvánosan Müködö Részvénytársaság	BUSE:MTELEKOM	Integrated Telecommunication Services
3	O2 Czech Republic a.s.	SEP:TELEC	Integrated Telecommunication Services
4	Telekom Austria AG	WBAG:TKA	Integrated Telecommunication Services
5	Swisscom AG	SWX:SCMN	Integrated Telecommunication Services
6	Vodafone Group Plc	LSE:VOD	Wireless Telecommunication Services
7	Orange Polska S.A.	WSE:OPL	Integrated Telecommunication Services
8	China Telecom Corporation Limited	SEHK:728	Integrated Telecommunication Services
9	Proximus PLC	ENXTBR:PROX	Integrated Telecommunication Services
10	Orange S.A.	ENXTPA:ORA	Integrated Telecommunication Services
11	Public Joint Stock Company Rostelecom	MISX:RTKM	Integrated Telecommunication Services
12	Tattelecom Public Joint-Stock Company	MISX:TTLK	Integrated Telecommunication Services
13	Telia Company AB (publ)	OM:TELIA	Integrated Telecommunication Services
14	BT Group plc	LSE:BT.A	Integrated Telecommunication Services
15	Türk Telekomünikasyon Anonim Sirketi	IBSE:TTKOM	Integrated Telecommunication Services
16	Telecom Italia S.p.A.	BIT:TIT	Integrated Telecommunication Services
17	Telefónica, S.A.	BME:TEF	Integrated Telecommunication Services
18	Koninklijke KPN N.V.	ENXTAM:KPN	Integrated Telecommunication Services
19	Deutsche Telekom AG	DB:DTE	Integrated Telecommunication Services
20	Telenet Group Holding NV	ENXTBR:TNET	Cable and Satellite
21	Elisa Oyj	HLSE:ELISA	Integrated Telecommunication Services
22	Kabel Deutschland Holding AG	HMSE:KD8	Cable and Satellite
23	Telenor ASA	OB:TEL	Integrated Telecommunication Services
24	NOS, S.G.P.S., S.A.	ENXTLS:NOS	Integrated Telecommunication Services
25	Tele2 AB (publ)	OM:TEL2 B	Wireless Telecommunication Services

Source: CapIQ

Gearing



Gearing level represents the ratio of net debt (D) to the value of the firm, including equity (D+E). Consequently, gearing determines the relative weight of debt and equity in the WACC. Debt financing provides higher tax shield to the company, which is in turn reflected in a higher equity beta, i.e. asset beta relevered using the Debt / Equity ratio. The common practice for defining Gearing level to be used for calculation provides various options:

- Gearing level at the level of Peer group used to estimate Beta;
- Gearing level at the level of regulated company (SMP or Theoretical efficient operator), whereby the market value of equity to be used is preferred to the use of book value of equity. In addition, the EU regulatory practice stipulates the gearing of regulated company should not exceed (or be below) the Peer group gearing by 10 percentage points, and overall should not be above 50%-55%.

As ComCom recognizes multiple SMPs at the relevant market, the Gearing level at the level of regulated company would cause multiple levels of WACC, which is not a common practice. Moreover, the market value of assets of regulated company is often not available, similarly as the gearing level of Theoretical efficient operator. As a result, we recommend ***ComCom to use 5 year averaging data and selecting a median of Gearing levels of Peer Group companies considered when estimating the Debt/Equity ratio and further estimation of Beta****. The Peer Group can be further adjusted to reflect target situation of Peer Group companies' specifics.*

Group	D/(D+E)
Peer group mobile and fixed	42.0%

Source: CapIQ (data 1.10.2015 - 31.10.2020)

For more detailed data set please see page number 13 of this report with individual results of D/(D+E) ratio of peer group companies.

Beta calculation

The Beta coefficient is a measure of contribution of an individual asset to the risk of a well-diversified portfolio. It is a measure of systematic risk. It describes how the expected return of given stock of portfolio is correlated to the return of the financial market as a whole.

A beta of one indicates that the price of the stock moves in line with the market. A beta less than one indicates that the price of stock is less volatile than the market (or, over time, the security's change in value is less dramatic that market's in both directions); while beta greater than one suggests greater then market volatility with security's change in both directions being more significant then market's over time.
Beta coefficient can be determined by analysing stock market data of a comparable group of companies (Peer group).

The most current EC Notice states that the equity beta calculation should use weekly data (if available), and a time windows of five years, which is in line with the time window used for the calculation of the gearing.

For each of these companies, following steps are performed based on the data sourced from Capital IQ database:

- analysis of weekly movements of stock prices over at least five-year period of time
- analysis of weekly movements of market index (MSCI World index) on which these stocks are quoted (over the same period of time);
- assessment of companies for their statistical significance - regression analysis of the above movements to determine correlation coefficient (beta) between movement of stock price and its respective market index and p-test;
- In the first step the individual equity betas are calculated for analysed peer companies;
- In the second step they are adjusted by the Blume adjustment toward one to reflect that, over time, there is a tendency on the part of betas of all companies to move towards one since companies, as they grow, become more established on their markets and less volatile to its movements;
- In the last step the respective Equity betas are unlevered based on the capital structure of the individual companies. The median value (0.42) is releveled by the 5 year average of capital structures of the companies in the peer group to the value of 0,725 of the Releveled equity beta used in the WACC calculation.

Group	Unlevered beta	Relevered beta	D/E	D/(D+E)
Peer group results				
WACC	0.42	0.72	72.3%	42.0%

Source: CapIQ

Data set for Beta calculation

								Beta unlevered	*Equity beta adj.*	*Relevered beta*	*Debt to invested capital D/(D+E)*						*D/E ratio*
								31.10.2020	31.10.2020		31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019	31.10.2020	
Number	Company name	Ticker	Beta adjusted	Number of points	R2 Correlation	p-value	Selection (use of beta or not)	5 - year	5 - year		FY2015	FY2016	FY2017	FY2018	FY2019	LTM	Average	
1	Hellenic Telecommunications Organization S.A.	ATSE:HTO	1.0	60	33.4%	0.00%	yes	0.73	1.04		33%	33%	27%	29%	24%	31%	29%	
2	Magyar Telekom Távközlési Nyilvánosan Müködö Részvénytársasá	BUSE:MTELEKOM	0.7	60	22.9%	0.01%	yes	0.40	0.74		51%	43%	40%	39%	45%	57%	46%	
3	O2 Czech Republic a.s.	SEP:TELEC	0.5	60	7.2%	3.80%	no				4%	8%	11%	13%	21%	22%	13%	
4	Telekom Austria AG	WBAG:TKA	0.4	60	1.8%	30.61%	no				50%	43%	33%	46%	43%	47%	44%	
5	Swisscom AG	SWX:SCMN	0.3	60	0.0%	99.55%	no				25%	26%	24%	25%	26%	28%	26%	
6	Vodafone Group Plc	LSE:VOD	0.7	60	10.2%	1.31%	yes	0.32	0.71		38%	49%	41%	50%	55%	73%	51%	
7	Orange Polska S.A.	WSE:OPL	0.8	60	7.5%	3.39%	no				34%	50%	49%	55%	48%	53%	48%	
8	China Telecom Corporation Limited	SEHK:728	0.8	60	19.4%	0.04%	yes	0.58	0.84		32%	30%	29%	25%	34%	34%	31%	
9	Proximus PLC	ENXTBR:PROX	0.4	60	0.3%	68.10%	no				20%	20%	22%	27%	26%	34%	25%	
10	Orange S.A.	ENXTPA:ORA	0.5	60	2.3%	24.83%	no				46%	47%	46%	48%	56%	63%	51%	
11	Public Joint Stock Company Rostelecom	MISX:RTKM	1.0	60	28.2%	0.00%	yes	0.42	0.99		48%	50%	57%	59%	61%	64%	57%	
12	Tattelecom Public Joint-Stock Company	MISX:TTLK	1.2	60	23.2%	0.01%	yes	0.68	1.24		50%	51%	52%	45%	40%	23%	43%	
13	Telia Company AB (publ)	OM:TELIA	0.5	60	2.8%	20.15%	no				36%	37%	37%	35%	42%	45%	39%	
14	BT Group plc	LSE:BT.A	0.9	60	16.3%	0.14%	yes	0.48	0.89		21%	29%	32%	38%	47%	72%	40%	
15	Türk Telekomünikasyon Anonim Sirketi	IBSE:TTKOM	0.7	60	2.6%	21.67%	no				40%	46%	44%	60%	46%	52%	48%	
16	Telecom Italia S.p.A.	BIT:TIT	1.0	60	16.3%	0.14%	yes	0.24	0.95		63%	67%	69%	76%	74%	84%	72%	
17	Telefónica, S.A.	BME:TEF	0.8	60	17.3%	0.09%	yes	0.29	0.82		55%	58%	57%	59%	65%	80%	62%	
18	Koninklijke KPN N.V.	ENXTAM:KPN	0.4	60	0.6%	56.33%	no				40%	42%	39%	45%	41%	44%	42%	
19	Deutsche Telekom AG	DB:DTE	0.8	60	24.9%	0.00%	yes	0.37	0.79		45%	46%	45%	47%	56%	70%	51%	
20	Telenet Group Holding NV	ENXTBR:TNET	1.1	60	29.6%	0.00%	yes	0.55	1.11		40%	44%	42%	55%	57%	60%	50%	
21	Elisa Oyj	HLSE:ELISA	0.3	60	0.6%	54.30%	no				15%	19%	18%	17%	14%	19%	17%	
22	Kabel Deutschland Holding AG	HMSE:KD8	0.4	54	2.4%	26.22%	no					23%	21%	19%	17%	25%	21%	
23	Telenor ASA	OB:TEL	0.6	60	10.5%	1.14%	yes	0.40	0.59		26%	31%	22%	23%	39%	43%	31%	
24	NOS, S.G.P.S., S.A.	ENXTLS:NOS	0.9	60	21.6%	0.02%	yes	0.61	0.91		24%	29%	29%	32%	36%	45%	33%	
25	Tele2 AB (publ)	OM:TEL2 B	0.6	60	8.2%	2.69%	no				21%	23%	18%	27%	25%	31%	24%	
	Median							**0.42**	**0.89**	**0.72**	**36.7%**	**42.4%**	**36.6%**	**39.0%**	**42.0%**	**45.2%**	**42.0%**	**72.3%**

Source: CapIQ

3

Cost of equity

Cost of equity and it's parameters (1/3)

As described in the general principles of this methodology the cost of equity is calculated using **CAPM** model.

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

Where:

Ke - *Cost of equity*

Rf - *Risk free rate*

β - *Beta*

(Rm-Rf) - *Equity risk premium (ERP) or Return on market portfolio*

Note: Size premium is not considered due to alignment with methodology prepared European Commission by Brattle and

Beta

Calculation of Beta is explained and described in previous section of this methodology with the result of Equity Beta at level of 0,72.

Risk Free Rate (RFR or Rf)

Rf is the starting point of assessing the cost of equity. To consider an asset to be risk free, its cash flows should be considered as having no risk of default. Moreover, actual return on investment should be equal to its expected return, therefore there should be no reinvestment risk of not knowing what the rate of return will be in the future. In this case the Rf should be based by default-free long term domestic bonds issued in applicable year to achieve forward looking approach with the respect to the financial situation, but to overcome the short term volatility of the spot rates.

Calculation of Risk free rate is based on the arithmetical average of market value of yield on Georgian government bonds issued in the last year (1st Oct 2019- 30th Oct 2020). This is in line with the BEREC and EC position that use yields on domestic 10-year government bonds for calculation of the risk free rate. The data source for the Georgian government bonds is the National Bank of Georgia with the result of **9,67%** for selected period.

The selected period of one year is in line with our recommendation and ComCom approach to define the frequency of updating the WACC on annual basis. More detailed data are provided on next page.

Cost of equity and it's parameters (2/3)

As described in the general principles of this methodology the cost of equity is calculated using **CAPM** model.

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

Where:

Ke - *Cost of equity*

Rf - *Risk free rate*

β - *Beta*

(Rm-Rf) - *Equity risk premium (ERP) or Return on market portfolio*

Note: Size premium is not considered due to alignment with methodology prepared European Commission by Brattle and

Rf represented by Georgian government bonds with 8, 10 years maturity.

	TIBR		NBG CD-s		Yield on Government Bonds				
	1 day	7 days	3 months	6 months *	6 months	1 year	2 year	5 year	8, 10 year
October-2019	7.75%		8.10%		7.98%	8.00%	8.19%	9.14%	9.64%
November-2019	8.53%		9.04%		8.97%	9.07%	9.28%	9.46%	
December-2019	8.86%		9.09%		8.85%	9.17%	9.37%	9.42%	9.82%
January-2020	9.08%		9.00%		9.20%	9.08%	9.32%	9.18%	9.45%
February-2020	9.03%		9.03%		9.02%	8.89%	9.04%	9.01%	
March-2020	9.06%		9.09%		9.01%	8.91%	8.84%	9.64%	
April-2020	9.06%		8.98%		8.98%	9.39%	10.17%	9.72%	10.24%
May-2020	8.52%		8.55%		8.72%	8.72%	8.89%	9.11%	
June-2020	8.46%		8.51%		8.66%	8.70%	8.75%	8.67%	
July-2020	8.26%		8.23%		8.31%	8.30%	8.37%	8.56%	9.20%
August-2020	8.04%		8.28%		8.27%	8.15%	8.31%	8.32%	
September-2020	8.01%		8.04%		8.10%	8.09%	8.17%	8.30%	
Average									**9.67%**

Source: National Bank of Georgia

Equity risk premium (ERP)

ERP represents the difference between the return on the market portfolio and the risk free interest rate and is usually referred to as the market risk premium. This premium reflects investor's required rate of return (in addition to risk-free rate) in order to invest in equities rather than risk-free government bonds.

Cost of equity and it's parameters (3/3)

Cost of equity pre-tax is 16,5% in Oct. 2019/Oct. 2020.

Illustrative calculation applied on figures applicable for 2019/2020 in Georgia indicates following results:

	WACC
Cost of equity	31 October 2020
Unlevered equity Beta	0.42
D/E ratio	72%
Relevered equity beta	**0.72**
Risk free rate	9.67%
Equity market risk premium	6.00%
Relevered equity beta	0.72
Cost of equity - post tax	**14.02%**
Cost of equity - pre tax	**16.49%**

The Brattle study recommends that the NRAs could agree to estimate the ERP based on historical data on the excess return of stocks over bonds, as reported by Dimson, Marsh and Staunton (DMS). NRAs should base their ERP estimates on the arithmetic average of the historical excess returns. Based on the current evidence, in our view an ERP of 5-5.5% over bonds would be reasonable.

In BEREC report on WACC parameters according to the EC WACC Notice of 7th of November 2019 is described the EC notional approach to calculate the single EU-wide ERP using historical series of market premiums in EU Member states due to the fact that the financial markets are highly integrated and therefore have convergent ERPs, which also ensure consistency with the CAPM assumption that the investors should be rewarded only for non-diversifiable risks. The calculation of BEREC retrieves data for the single EU-wide ERP based on DMS Global Returns Data from 1900-2019 for the 13 EU Member states and defines the calculation for additional 15 Member states and their weighted effect on the ERP, that are not included in the DMS. The result of this calculation is geometric mean of 4,18% and arithmetic mean of 5,31%. The current arithmetic average of ERP used in current WACC calculations in EU Member states is approx. 5,93% including 32 NRAs results.

PwC standard approach and our recommendation for application of ERP is based on Duff & Phelps - International Valuation Handbook: Guide to cost of capital is 6% based on latest update in July 2020. It would be also in line with the ComCom's WACC methodology from 2018.

Other approach used by the selected analysed NRAs is the application of ERP obtained from A. Damodaran study that estimate the ERP based on historical data plus country risk premium that reflects the extra risk in specific market, **but it should be noted that this approach cannot be directly applied to Rf based on domestic government bonds as there would be an element of double-counting of the local risks.** As this approach would need to be applied to a mature risk free rate or Rf would need to be adjusted by the default spread and it's also not recommended in recent BEREC or EC documents we do not recommend to use it in recalculation of WACC. The current risk premium for a mature equity market is 6,01% based on Damodaran's data from April 2020. *[source:http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html]*

4

Cost of debt

Cost of debt and it's parameter (1/2)

$$Kd = Rf + Debt\ premium$$

$$After - \text{tax cost of debt} = Kd * (1 - Tc)$$

Where:

Kd - *Cost of debt*

Rf - *Risk free rate*

Tc - *Tax rate*

In estimating the cost of debt for use in a WACC the objective is to arrive at an overall estimate of the weighted average cost of debt finance for the company as if it was refinancing all of its debt. It consists of the Risk-free rate and the debt premium. The pre-tax cost of debt is multiplied by the interest-tax shield (1-Tc) to determine the after-tax (post-tax) cost of debt.

A company's cost of debt is normally identified by reference to the average cost of borrowing based on market values. However where market information is not available or where it is unlikely that a company continues to borrow at the current cost of borrowing, estimates are required.

Based on principles defined in the beginning of this report, it is recommended to use monthly average interest rate in period of the last year (Oct 2019 - Oct 2020) to avoid seasonality of corporate bonds with 10 years maturity provided in national currency to industry producers, published by the National Bank of Georgia.

The common approach to calculation of the **debt premium** is calculation of difference between the average yields on the 10-year risk-free government bonds and corporate bonds with 10-year maturity with rating comparable to the rating of subject company/market.

Cost of debt after-tax is 9,97% in Oct. 2019/Oct. 2020.

Based on the data published by the National Bank of Georgia, the average yield on 8,10 year government bonds is 9,67%. The average interest rate on loans provided in Georgia to industry producers by commercial banks is 11,73%. The Debt premium is therefore 2,06% and the applicable Cost of Debt is 9,97% for the last years.

Illustrative calculation applied on figures applicable for 2019/2020 in Georgia indicates following results

Cost of debt	WACC	
Risk free rate	9.67%	1Y Average yield on 8-10Y Georgian sovereign bonds (1.10.2019-30.10.2020)
Debt premium	2.06%	Difference of 1Y average of loans interest rates in Georgia and 1Y average yeild on 8-10year Georgian government bons
Estimated corporate pre-tax cost of debt	**11.73%**	
Corporate tax rate	15%	Nominal corporate income tax rate in Georgia
Cost of debt post tax	**9.97%**	

Debt premium calculated based on the recommended approach by EC and in line with ComCom's calculation in 2018 (2/2)

Annual Market Interest Rates on Loans

	Interest Rate on Loans, Total	Out of Which					
		In National Currency	O/W		In Foreign Currency	O/W	
			Legal Entities	Individuals *		Legal Entities	Individuals*
Oct-2019	11.6	15.0	11.20	17.6	7.2	7.3	6.7
Nov-2019	11.1	15.3	11.00	18.5	6.5	7.0	5.3
Dec-2019	10.1	15.4	11.50	18.6	6.3	6.8	4.9
Jan-2020	12.0	16.5	11.90	19.5	6.0	6.3	5.0
Feb-2020	11.8	16.3	12.00	19.1	6.1	6.5	5.2
Mar-2020	12.1	16.1	11.80	20.1	6.5	6.9	4.8
Apr-2020	12.4	15.7	12.10	21.9	6.9	6.9	6.1
May-2020	13.6	16.9	12.30	21.6	6.8	6.8	6.5
Jun-2020	12.2	16.2	12.30	19.5	6.9	6.9	6.7
Jul-2020	12.3	15.7	11.80	18.3	6.6	6.7	6.3
Aug-2020	12.6	15.6	11.70	18.5	6.8	6.9	6.5
Sep-2020	12.5	15.1	11.20	18.4	6.7	6.9	6.4
Average (Oct. 2019 - Oct. 2020)			**11.73**				

Source : National Bank of Georgia

Based on the data from National Bank of Georgia the debt premium is **2,06%,** calculated as difference between average interest rate on loans provided in Georgia to industry producers by commercial banks.

Calculation parameter	Value [%]
RFR	9,67
Average interest rates based on NBG data for Oct 2019 to Oct 2020	11,73
Debt premium	**2,06**

Comparing the average premium of Industrial loans over RFR in Georgia with premia of Telecom sector bonds, a comparable benchmark based on market based yields would lie between a premium of EUR 10y BBB rated Telco corporate bonds over AAA rated EU central government bonds and 10y EUR BB rated Telco corporate bonds over AAA central government bonds.

Debt premium benchmarking Georgia vs EUR premia

Telco yield premium over AAA	BBB	BB
Latest	1.44%	3.04%
1y avg	**1.48%**	**3.00%**
3y avg	1.35%	2.75%
5y avg	1.29%	2.62%

5

NGA premium

NGA premium calculation based on benchmarking method

In practice, the term "NGA network" encompasses a broad spectrum of technologies and configurations, such that it is hard to define precisely what we mean by an NGA network. In most cases the it usually included the FTTC and FTTH/B technologies. As we are not able to calculate the differences in the associated betas of the "pure play" operators providing only NGA services it must be evaluated whether NGA networks need a higher WACC an if so by how much. **The investment risk related to the roll-out of NGA is also recognised by the European Commission, who states in the NGA Recommendation "the costs of capital of the SMP operator for the purpose of setting [NGA] access prices should reflect the higher risk of investment relative to investment into current networks based on copper."** ***[source: EC 2010/572/EU]*****.**

For assessment of the NGA premium and application into to practice the both EC and Brattle study define the the criteria for it's setting and recommendations for application duration of this risk premium use.

Based on the 2019 BEREC regulatory accounting overview 12 NRAs estimate a risk premium for NGA FTTH/B services, 5 NRAs apply this risk premium also to the FTTC network without differentiating the final value.

The NRAs use several approaches:

- Beta decomposition approach;
- Financial modelling;
- Benchmarking.

Due to the lack of detailed publicly available data and based on the best practice of several EU countries we selected the benchmarking approach for calculating the average NGA risk premium. We also recommend to apply this systematic risk premium during the determination of the price caps for services based on the FTTH and FTTB networks.

Country	NGA premium [%] - in use of 2019	Note
CZ	1,41%	*only FTTB*
DK	2%	
ES	4,81%	*only active infrastructure*
HR	3,3%	
IT	3,2%	
LU	2,5%	
NL	2%	
PL	1,25%	*only passive infrastructure*
SI	2,5%	
UK	0,9%	
Average	**2,39%**	

Source: BEREC BoR (19) 240