Office of Utilities Regulation

Estimate of the Weighted Average Cost of Capital for Cable and Wireless Jamaica

Consultative Document

OFFICE OF UTILITIES REGULATION

Proposed Publication Date: May 9, 2008

Estimate of the Weighted Average Cost of Capital for Cable and Wireless Jamaica
Consultative Document
Document No: TEL 2008/05: Con/01
May 9, 2008
Office of Utilities Regulation

Contents

ABSTRACT

The Telecommunications Act 2000 (The Act) is the primary legislation governing Jamaica's telecommunications sector. Under this Act the Office of Utilities Regulation (OUR) has been assigned certain regulatory duties. Sections 46 and 81 of the Act provide for Cable & Wireless Jamaica (C&WJ), to be regulated under a Price Cap regime as of March 2001.

This Consultation Document seeks to calculate the weighted average cost of capital (WACC) for C&WJ based on the estimated cost of debt and equity. The resulting cost of capital will be used to determine C&WJ's initial prices for the second price cap regime and the level of the cap for the price cap period.

The methodology used to estimate the cost of equity is the Capital Asset Pricing Model (CAPM). The risk to C&WJ's equity holders in the provision of telecommunication services is estimated by a proxy of the risk of this industry in a global setting. The resulting cost of equity is adjusted for the risks specific to Jamaica. In Jamaican dollar terms, C&WJ's actual (weighted) cost of debt is added to the cost of equity in order to derive an estimate of the Company's weighted average cost of capital.

COMMENTS FROM INTERESTED PARTIES

Persons who wish to express opinions on this Consultative Document are invited to submit their comments in writing to the OUR. Responses to this Document should be sent by post, fax or email to:

Rohan Swaby
P.O Box 593
36 Trafalgar Road
Kingston 10
Fax: (876) 929-3635
Email: rswaby@our.org.jm

Responses are requested by June 20, 2008

Respondents are requested to limit their use of confidentiality markings as far as possible, and are encouraged to supply their responses in electronic form so that they can be posted to the OUR's website.

Comments on Responses

There will be a specific period for respondents to view other responses (non-confidential) and to make comments on them. The replies may take the form of either correcting a factual error or putting forward counter arguments.

Comments on responses are requested by July 4, 2008

Arrangement for viewing responses

The responses received by the OUR will also be made available to the public through the OUR's Information Centre (OURIC). Persons who wish to view the responses should make an appointment by contacting Gillian Henderson, Senior Information Officer by one of the following means:

Telephone: (876) 968 6053

Fax: (876) 929 3635

Email: ghenderson@our.org.jm

Individuals with appointments should visit the OUR's offices at:
3rd Floor, Petroleum Corporation of Jamaica (PCJ) Resource Centre,
36 Trafalgar Road, Kingston 10.

Photocopies of selected responses may be requested at a price which just reflects the cost to the OUR.

Consultative Timetable

The timetable for this consultation is summarized below:

Event	*Date*
Publish Consultative Document	May 9, 2008
Responses to this document	By June 20, 2008
Comments on Responses	By July 4, 2008
Determination Notice	By August 29, 2008

CHAPTER 1: REGULATORY FRAMEWORK

1.0 The Telecommunications Act 2000 (The Act) is the primary legislation governing Jamaica's telecommunications sector. Under this Act the OUR has been assigned certain regulatory duties, including the regulation of the telecommunications service offered by Cable & Wireless Jamaica (C&WJ) under a Price Cap regime.

1.1 Section 46 of the Telecommunications Act (The Act), defines "prescribed price caps" as such restrictions on the price of prescribed services as are prescribed in rules made under this section; "prescribed services" means services to which prescribed price caps apply; "price cap" means a restriction whereby the weighted aggregate price, calculated in the prescribed manner, for prescribed services shall not be greater than a specified price.

1.2 Sections 46 and 81 of the Act provide for C&WJ to be regulated under a Price Cap regime as of March 2001. The Office is mandated under Section 81 of the Act to "…make rules providing for the imposition, monitoring and enforcements of price caps."

1.3 The General and Specific Rules were drafted to enforce the Price Cap Regime. The General Rules address the obligations of carriers to provide information, penalties for failure to comply with Price Control Rules and review and renewal of Price Cap controls. The Specific Rules address the classification of services, veracity of information submitted to the Office, treatment of "Unused" Cap, approach to ensuring compliance throughout the Year, treatment of discounts and promotional offerings, service quality standards, exogenous factors, rate rebalancing, the Price Cap Index Formula and the classification of services.

PURPOSE OF THIS CONSULTATION

1.4 This Consultative Document presents the study of the cost of capital for the business of providing telecommunications service (interconnection, retail telephony and data services) by the dominant fixed line telecommunications operator in Jamaica, Cable & Wireless Jamaica Limited (C&WJ). The cost of capital will primarily be used by the Office

of Utilities Regulation (OUR) for resetting the price-cap for C&WJ, as required under the Telecommunications Act, 2000.

1.5 This Consultation Document seeks to:

- Estimate C&WJ's cost of debt
- Estimate C&WJ's cost of equity
- Calculate the weighted average cost of capital (WACC) for C&WJ based on the estimated cost of debt and equity.

STRUCTURE OF THIS DOCUMENT

1.6 The document presents a "General Framework for Estimating the Cost of Capital" in Chapter Two. Chapter Three estimates C&WJ's Weighted Average Cost of Capital using the weighted cost of existing debt and the weighted cost of equity (using the Capital Asset Pricing Model - CAPM). Chapter Four presents a summary of the parameters used in this study and the conclusions based on the cost of capital assessment in Chapter Three.

CHAPTER 2: GENERAL FRAMEWORK FOR ESTIMATING THE COST OF CAPITAL

WEIGHTED AVERAGE COST OF CAPITAL

2.0 In general, a firm's cost of capital is determined by a mix of debt and equity. This is the firm's weighted average cost of capital (WACC) which is represented as follows:

$$WACC = w_d * k_d + w_e * k_e \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where,

w_d = the fraction of debt in the capital structure,

k_d = the forward-looking cost of debt,

w_e = the fraction of equity in the capital structure,

k_e = the forward-looking cost of equity.

2.1 To calculate the WACC from equation (1), one must estimate:

a) the forward-looking cost of both debt and equity; and

b) the appropriate mix of debt and equity capital.

Cable & Wireless Jamaica Limited.

2.2 Cable and Wireless Jamaica (C&WJ) is incorporated in Jamaica and its ordinary stock units are listed on the Jamaica Stock Exchange (JSE). C&WJ is a 79% subsidiary of Cable and Wireless (CALA Investments) Limited, with the ultimate parent company being Cable and Wireless plc., incorporated in England. Another subsidiary of Cable and Wireless plc., holds 3% of C&WJ's ordinary stock.

2.3 C&WJ is primarily involved in the provision of domestic and international telecommunications services under various operating licenses granted on March 14, 2000, under the Telecommunications Act (the Act). All the Company's operating licenses extend to March 14, 2015. These are listed below:

Carrier (Cable & Wireless Jamaica Limited) License;
Service Provider (Cable & Wireless Jamaica Limited) License;
Spectrum (Cable & Wireless Jamaica Limited) License;
Domestic Mobile Carrier (Cable & Wireless Jamaica Limited) License;
Domestic Mobile Service Provider (Cable & Wireless Jamaica Limited) License;
Domestic Mobile Spectrum (Cable & Wireless Jamaica Limited) License;
Free Trade Zone Carrier (Jamaica Digiport International Limited) License; and
Free Trade Zone Service Provider (Jamaica Digiport International Limited) License.

2.4 In accordance with the Act, rates on fixed line services are subject to a "price-cap" methodology applied by the OUR. The initial price cap was set for four years from September 2001 to August 2005. However, in the context of existing headroom of approximately 30%, a request by C&WJ for an extended period under the existing cap and increasing uncertainty over the development of competition in various telecommunications markets, the Office has not yet rendered a decision on a new price cap plan.

2.5 Although C&WJ is listed on the JSE, the thinness[1] of the Jamaican Stock market makes it less than ideal to assess the risk of providing telecommunications services in Jamaica. The Jamaican Stock Exchange is dominated by a handful of companies with C&WJ being one of the largest companies traded on the Exchange. Even setting aside the instability experienced in the 1990's, the thinness of the market makes it unwise to

[1] A market in which trading volumes are low, and consequently, bid and ask quotes are wide and the instrument traded is not very liquid. Thus, there are very little stocks to buy or sell. See http://www.duke.edu/~charvey/Classes/wpg/bfglost.htm.

use Jamaican stock market data to determine the cost of capital of any Jamaican company in the same manner as is traditionally done in developed markets which have relatively stable, broad and well-diversified markets.

2.6 Consequently, in order to assess the risk of C&WJ's provision of telecommunication services, it is reasonable to estimate the risk of this industry in a global setting and then make adjustments that focus on the risks specific to Jamaica.

COMPARABLE COMPANIES

2.7 The sample of comparable companies for which the cost of capital is estimated is composed of large diversified international telecommunications companies. This sample is comprised of ten of the largest companies in telecommunications and telecommunication services categories. This sample is a subset of the sample of eighteen companies used in the study commissioned by the OUR and conducted by Charles Rivers Associates (CRA) in June 2000 with the addition of Verizon Communications which was formed in 2000 as a result of the merger of Bell Atlantic and GTE. In recent years, the global telecommunications industry has experienced increased concentration as a result of merger activities.

2.8 The OUR calculated the cost of equity for the sample companies as at December 31, 2007. At the time when the data was acquired, this was the latest date for which the most comprehensive data set was available to perform a complete study of the cost of capital.

2.9 The companies presented in Exhibit 1, operate a variety of businesses, some of which are riskier than others. Consequently, the operating risk of a corporation is a weighted average of the risks of all of its constituent businesses.

Exhibit 1
COST OF DEBT FOR COMPARABLE GLOBAL COMPANIES

Company	Country	Moody's Ratings	Fitch Ratings	Market capitalization	Cost of Debt
AT&T	USA	A2	A	$252,051,384,040	5.49%
BCE INC	Canada	Baa2	BB-	$31,987,004,180	6.65%
BRITISH TELECOMS	UK	Baa1	BBB+	$43,112,323,728	6.65%
NIPPON TELEGRAPH & TEL	Japan	Aa1	N/a[1]	$77,634,612,154	5.49%
FRANCE TELECOM S.A	France	Ca	N/a[1]	$92,952,648,530	N/a[2]
TELEFONICA S.A.	Spain	Baa1	BBB+	$155,281,824,880	6.65%
DEUTSCHE TELEKOM AG	Germany	A3	A-	$94,506,683,920	5.49%
VODAFONE	UK	Baa1	A-	$198,227,456,520	6.65%
TELEFONOS DE MEXICO S.A.	Mexico	A3	A-	$20,396,410,740	5.49%
VERIZON	USA	A3	A+	$126,278,386,630	5.49%
			Weighted average Cost of Debt		5.99%

1 - Bond rating not available

2 - Bond yield not available

THE COST OF DEBT CAPITAL

2.10 It is proposed to use the actual debt obligations of C&WJ to estimate the Company's cost of debt. All interest bearing long-term debt should be included in the calculation of a weighted average cost of debt. Additionally, interest free loans are assigned an appropriate proxy cost of debt and are included in the weighted average cost of debt calculation.

THE COST OF EQUITY CAPITAL

2.11 This document uses the CAPM model to estimate the cost of equity. This is "a model that describes the relationship between risk and expected return and is used in the pricing of risky securities.

$$\bar{r}_a = r_f + \beta_a(\bar{r}_m - r_f)$$

Where:

r_f = Risk free rate

β_a = Beta of the security

$\bar{r}_m$ = Expected market return

2.12 The general idea behind the standard form of the CAPM is that investors need to be compensated in two ways: time value of money and risk. The time value of money is represented by the risk-free (r_f) rate in the formula and compensates the investors for placing money in any investment over a period of time. The other half of the formula represents risk and calculates the amount of compensation the investor needs for taking on additional risk. This is calculated by taking a risk measure (beta) that compares the returns of the asset to the market over a period of time and to the market risk premium (r_m-r_f)."[2]

[2] See http://www.investopedia.com/terms/c/capm.asp.

CHAPTER 3: ESTIMATING C&WJ'S WEIGHTED AVERAGE COST OF CAPITAL

THE COST OF DEBT CAPITAL

The Cost of Debt for C&WJ

3.0 A significant portion of C&WJ's debt issues is usually guaranteed by its parent company, Cable & Wireless plc. C&WJ's Audited Financials for year ended March 31, 2007 indicate that over 50% of these debt obligations were owed to subsidiaries but are identified as "…interest free long term loans for which no fixed repayment terms have been determined." The external debt (outside of related companies, including CW plc.) includes an interest free Export Development Corporation loan (repayable 1999/2038). The Annual Report indicated that this loan has been re-measured to fair value using an imputed interest rate of 3.3%. The major portion of the loan from the parent company was issued at 2% above the six months Treasury-bill rate, which, at March 31, 2007 was 13.26%. About 6% of this loan was US$ denominated and issued at 2% above the London Inter-bank Offer Rate (LIBOR) which was 5.64% as at June 30, 2006. There is also a short-term bridge financing loan from Citibank N.A which bears interest at 1 month LIBOR plus 1% or 2% given evidence of default on the U.S dollar denominated portion (repayable on demand or if not demanded, on April 27, 2007), with the Jamaica dollar portion bearing an interest rate of 13.65%.

3.1 The average Moody's rating on Aaa and Baa corporate bonds in December 2007 was 5.49% and 6.65%, respectively[3]. Using this as a proxy, the weighted average yield on the debt of the sample of global telecommunications companies is 5.99%.

3.2 C&WJ's 2007 annual report indicates that unsecured loans were issued at a maximum rate of the 1 month LIBOR plus 2%. As at December 2007 the LIBOR rate was 4.60%[4]. Therefore, the U.S. dollar denominated yield on CWJ's unsecured debt was a maximum of 6.60%.

---

[3] See http://www.federalreserve.gov/releases/H15/data/Monthly/H15_AAA_NA.txt and http://www.federalreserve.gov/releases/H15/data/Monthly/H15_BAA_NA.txt

[4] See http://www.bba.org.uk/bba/jsp/polopoly.jsp?d=141&a=11947

3.3 The spread between C&WJ's unsecured debt and the weighted average yield on debt of the global telecommunications companies is (6.6% - 5.99% = 0.61%). This is a measure of the risk that investors apportion to investing in Jamaican telecommunications companies. This premium is lower than the sovereign risk premium of 3.13% implied by the spread between Government of Jamaica global bonds and similar U.S. government issues. Adding the currency exchange risk premium (7.13%) to the maximum rate on C&WJ's unsecured debt results in a rate of 13.73% in Jamaican dollar terms. The Government of Jamaica latest one year Treasury bill issued in October 2007 had an average yield of 14.06%[5].

3.4 Using the actual debt obligations of C&WJ to estimate the Company's cost of debt, in US dollar terms the cost of debt for C&WJ is 6.6%. In Jamaican dollar terms a rate of 13.73% will be used as the company's cost of debt in the model.

THE COST OF EQUITY CAPITAL

CAPITAL ASSET PRICING MODELS (CAPM)

Model Description

3.5 As noted above, the CAPM is a theory of the relationship between a security's risk or a portfolio of securities and the expected rate of return associated with that risk. The theory is based on the assumption that security markets are efficient and investors' general willingness to trade risk for a higher expected return.

3.6 Based on the limitations of the Jamaica capital market, in order to measure the risk faced by a firm in Jamaica's telecommunications industry, this estimation must be conducted in a global setting with adjustments for the risks specific to Jamaica. The measurable relationship between risk and expected return in this instance is given by the following CAPM model:

[5] http://www.mof.gov.jm/dmu/download/2008/tbills/0803-tbill-yield.pdf

Cost of equity capital	=	**Risk-free rate**	+ **Beta**	*	**Market risk premium**	+	**Sovereign Risk**	+ **Exchange Rate Risk**

This is represented by the following mathematical expression

$$R_i = R_f + \beta_i [R_m - R_f] + S_r + E_r, \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where R_i is the expected return on security or portfolio i, R_f is the return on a risk-free security like a U.S. Treasury bond, β_i is the beta of security or portfolio i, R_m is the expected return on a broad index of equity market performance, S_r is the Sovereign risk and E_r is the exchange rate risk.

3.7 The CAPM is designed to give the risk premium; that is the premium over the rate on risk free rates, required to induce investors to hold specific issues of common stock.

3.8 To apply the CAPM for a given company, it is necessary to estimate both that company's beta and the market risk premium. The CAPM says that only systematic risks, as measured by beta, are associated with a risk premium. Non-systematic risks are not associated with premiums because they can be eliminated by diversification.[6]

A. Beta Estimates

3.9 The beta coefficient measures the systematic risk of investing in a company's equity. The CAPM is built upon the insight that investors will be rewarded for bearing only those risks, called systematic risks; that cannot be diversified.

3.10 Historical estimates of beta are often used but are considered to be inconsistent with the CAPM's reliance on prospective beta coefficients. Historical estimates only reflect the past riskiness of an equity security

[6] Competition, for example, is a diversifiable risk which does not increase the risk premium according to capital market theory. See CRA's 2001 cost of capital study for C&WJ.

that need not be representative of the future riskiness that is relevant to equity investors. Since CAPM is designed to reflect investors' expectations, the exclusive reliance on historical measures of riskiness would not reflect the true expected return performance of stocks. The beta coefficients used in this CAPM analysis are prospective measures supplied by BARRA, a widely recognized provider of such data.

3.11 BARRA (formerly Rosenberg Associates) is an internationally known financial consulting firm providing risk measurement services to investment managers, corporations, consultants, securities dealers and traders, and master custodians. The predicted betas are developed using sophisticated financial modeling techniques which account for factors which impact the future risk of a company. Unlike conventional regression betas, therefore, the BARRA betas do not rely solely on historical stock returns and explicitly consider forward-looking projections. Copeland, Koller and Murrin recommend the use of BARRA predicted betas.[7] The predicted levered BARRA beta for the sample is **0.71** as of December 31, 2007.

B. Risk-Free Rate of Return

3.12 The risk free asset is an asset with a certain future return. Treasury securities are usually considered to be risk-free since these are Government backed securities. The level of risk on these assets is so small that, the average investor considers Treasury securities from stable governments to be risk-free.

3.13 In order to be consistent with the forward looking emphasis of the CAPM, the expected market yield on U.S. Treasury securities at 30-year constant maturity[8] is used as a proxy for the risk-free rate. The market yield as at December 2007 was 4.53%[9].

C. Estimating the Market Risk Premium

3.14 The risk premium on the market is the amount of added expected return that investors require to hold a broad portfolio of common stocks instead

---

[7] Copeland, Koller, and Murrin, p. 264.

[8] http://www.federalreserve.gov/releases/h15/data/Monthly/H15_TCMNOM_Y30.txt

[9] This is the most recent date for which comparable Jamaican bond information was available.

of risk-free Treasury securities. The size of the premium will vary as the risk in a particular stock, or in the stock market as a whole, changes. A recent study by the Schwab Center for Investment Research, estimates the international market risk premium to be 4.1%[10]. Rather than attempting a direct estimate of the risk premium, the OUR used the average of 4.1% given by this study.

D. Sovereign Risk

3.15 This is the risk that a government will default on its obligations because of a change of national government or policy, or the government's inability to meet its financial obligations. For example, this reflects the risk that the central bank enforces foreign currency regulation that reduces the value of contracts denominated in foreign currency.

E. Currency Exchange Risk

3.16 This is the risk that an investment's value will change because of currency exchange rates, or the uncertainty about the rate at which revenues or costs denominated in a particular currency can be converted into another.

The CAPM Estimated Cost of Equity Capital

As noted, the standard CAPM model is as follows:

Cost of equity capital = Risk-free rate + Beta * Market risk premium .

3.17 To estimate this portion of equation (2), the 30-year US Treasury Bond rate will be used as the measure of the risk free rate and each company's estimated beta, along with the specified market risk premium gives various estimates of the cost of equity for each company in the sample as shown in Exhibit 2. The average yield on the 1-month US Treasury Bill

[10] See http://a15.g.akamai.net/f/15/5616/5s/schwab.download.akamai.com/5616/report/longterm_returns.pdf.

was also used as a measure of the risk free rate. The resulting estimates of the cost of equity varied widely from 5.27% to 9.86%. Given this wide gap, the OUR decided to use the average yield on the 30-year US Treasury security as the risk-free rate which should be more reflective of the forward-looking value of money.

3.18 Using market capitalization as weights, these results were averaged to derive the CAPM estimate of the cost of equity capital.

THE COST OF EQUITY CAPITAL FOR THE GLOBAL TELECOMMUNICATION BUSINESS

3.19 The OUR is of the view that a reasonable overall estimate for the cost of equity for the global business of providing telecommunication services is the weighted average using forward-looking BARRA betas within the CAPM model described above. Using forward-looking BARRA betas presented in Exhibit 2, the weighted-average CAPM cost of equity for this sample is estimated to be 7.75%.

Exhibit 2

ESTIMATED BETAS FOR GLOBAL COMPANIES

as of 31/12/2007

Company		Levered (Raw) Beta		Unlevered Beta		Re-levered Beta	
	Tax Rate	Bara Predicted	Historical	Bara Predicted	Historical	Bara Predicted	Historical
AT&T	40.00%	0.87	1.20	0.65	0.91	0.62	0.86
BCE INC	36.10%	0.56	0.79	0.37	0.52	0.71	0.99
BRITISH TELECOMS	30.00%	0.63	1.39	0.25	0.54	1.20	1.66
NIPPON TELEGRAPH & TEL	40.69%	0.65	0.14	0.48	0.10	0.64	0.90
FRANCE TELECOM S.A	33.33%	0.67	1.04	0.32	0.50	0.97	1.35
TELEFONICA S.A.	35.00%	0.65	1.06	0.23	0.38	1.30	1.81
DEUTSCHE TELEKOM AG	38.34%	0.66	1.60	0.41	0.99	0.76	1.05
VODAFONE	30.00%	0.68	0.90	0.55	0.72	0.59	0.82
TELEFONOS DE MEXICO S.A.	29.00%	0.85	1.07	0.52	0.65	0.77	1.08
VERIZON	40.00%	0.70	0.87	0.51	0.63	0.64	0.89
Weighted Average	35.25%	0.71	1.03	0.47	0.65	0.79	1.09

RISKS SPECIFIC TO INVESTMENTS IN JAMAICA

3.20 From an investor's perspective, emerging economies are generally more risky, with less stable investment climate relative to economies of industrialized countries. Consequently, investors require an additional premium (sovereign risk premium) to compensate for the additional

political and economic risks. Both the sovereign risk and the currency exchange risk premium were added to the standard CAPM model to derive the cost of equity capital for C&WJ.

Jamaican Sovereign Risk

3.21 The political environment in Jamaica has been relatively stable in recent years. Except for its impact on the level of the country's debt, the banking sector crisis in 1996 is not considered to have any significant residual effect.

3.22 Rating agency Standard and Poor's (S&P) maintained its 'B' rating for Jamaica in its May, 2007 Sovereign Rating in The Caribbean publication[11] and Moody's provided a credit opinion with a stable outlook. According to S&P, Jamaica's **"**policy execution and institutional environment are quite strong and, in fact, the country's political stability underpins the ratings. The supportive political and policy environment is evidenced through the government's continuation of challenging fiscal policies, the unwavering backing of the current economic program by both the public and private sectors, and the general consensus between the ruling party and the opposition on the main macroeconomic issues. Jamaica's institutions including the civil service, judiciary, and media are generally stronger and play a more vital role than those in the other 'B' rated countries … Ironically, despite the high risk related to their respective government's policy stance, country risk is relatively low in Grenada and Jamaica … Despite ongoing fiscal pressures stemming from high interest costs, the government is committed to bringing down its debt through high primary surpluses and prudent macroeconomic management, supporting investors' confidence."

3.23 In Moody's January 25, 2008 Credit Opinion on Jamaica, it noted that the country's government bond rating reflects the government's strong willingness to service obligations, a proven ability to deal with severe exogenous shocks, and a commitment to fiscal discipline. This is despite the Jamaican economy, fiscal and external positions, and public-sector debt dynamics remaining sensitive to external and domestic shocks.

---

[11] See http://www2.standardandpoors.com/spf/pdf/products/Soveriigns_Caribbean_2007.pdf?vregion=la&vlang=en

3.24 Improvements and projected improvements in the economy and the level of fiscal discipline over the last four to five years as reflected in the aforementioned credit reports had a significant effect on the investors' perception of the Jamaican government's ability to meet its financial obligations and may have moderated the sovereign risk.

Measuring the Jamaican Sovereign Risk Premium

3.25 The sovereign risk was calculated using a US dollar denominated 2036 Government of Jamaica Global Bond and a comparable US Treasury Bond **(Exhibit 3)** and was estimated to be 3.13**% (this compares with an estimate of Jamaica's country risk premium by Stern of 4.05%[12] in the first quarter of 2006).**

Exhibit 3
SOVEREIGN RISK AND CURRENCY EXCHANGE PREMIUM
as of 31/12/2007

Sovereign Risk Premium and Currency Exchange Premium Calculation

364-Day Jamaican Treasury Bond Yield	1-Year US Treasury Bond Yield	Total Risk Premium
14.060%	3.810%	10.250%

Sovereign Risk Premium Calculation

Jamaican Brady Bond Yield (2036 as at 31/12/2007)	Comparable US T-Bond Yield	Sovereign Risk Premium
8.121%	4.996%	3.125%

Currency Exchange Premium Calculation

Total Premium	Sovereign Risk Premium	Currency Exchange Premium
10.250%	3.125%	7.125%

[12] http://pages.stern.nyu.edu/~adamodar/pc/datasets/ctryprem.xls.

Measure of Currency Exchange Premium for Jamaica

3.26 As at December 2007, the forward-looking expected yield spread between a US dollar denominated thirty-year Jamaican Treasury Bond and a comparable US Treasury Bond was 3.13%. As indicated above, this is an estimate of the sovereign risk. A composite of the sovereign risk and the currency exchange risk can be estimated using comparable Treasury-bill yields for Jamaica and the US (Exhibit 2). The resulting estimate using 1-year Treasury Bills is 10.25%. Therefore, the currency exchange risk is approximately (total risk[13] minus sovereign risk) 7.13%.

THE COST OF EQUITY CAPITAL FOR CABLE & WIRELESS JAMAICA

3.27 **C&WJ's cost of equity in terms of U.S. dollars** can be estimated by adding the sovereign risk premium (3.13%) to the cost of equity for the global telecommunications business (7.75%). As can be seen in Exhibit 4, the resulting nominal US dollar cost of equity is **10.88%**.

3.28 **C&WJ's cost of equity in terms of Jamaican dollars** can be estimated by adding the currency exchange spread (7.13%) to the nominal US dollar-denominated cost of equity (**10.88**%). The resulting nominal Jamaican dollar cost of equity **is approximately 18.00%.**

[13] The total risk is a composite of the exchange rate risk and the sovereign risk.

Exhibit 4
MODEL ESTIMATES OF COST OF EQUITY

Company	CAPM Cost of Equity		
	1-month Treasury Bills	30-yr Treasury Bonds	Average
AT&T	5.41%	7.08%	6.24%
BCE INC	5.77%	7.44%	6.60%
BRITISH TELECOMS	7.76%	9.43%	8.60%
NIPPON TELEGRAPH & TEL	5.50%	7.17%	6.34%
FRANCE TELECOM S.A	6.85%	8.52%	7.69%
TELEFONICA S.A.	8.19%	9.86%	9.02%
DEUTSCHE TELEKOM AG	5.97%	7.64%	6.80%
VODAFONE	5.27%	6.94%	6.10%
TELEFONOS DE MEXICO S.A.	6.04%	7.71%	6.87%
VERIZON	5.49%	7.16%	6.32%
Weighted Average	**6.08%**	**7.75%**	**6.92%**
CWJ (US$)	**9.21%**	**10.88%**	**10.04%**
CWJ (J$)	**16.33%**	**18.00%**	**17.17%**

Tax Adjustments

The after-tax cost of capital reflects the fact that interest paid to debt-holders is tax deductible (that is, corporation taxes are applicable after interest is deducted). Thus, the cost of debt is also calculated as an after-tax cost to ensure that it is comparable with the cost of equity, which is calculated after-tax. The after-tax weighted average cost of capital (ATWACC) is calculated as follows:

$$ATWACC = wd*kd*(1-T) + we*ke \quad \ldots\ldots\ldots\ldots (3)$$

where, w_d is the fraction of debt in the capital structure, k_d is the forward-looking cost of debt, w_e is the fraction of equity in the capital structure, k_e is the forward-looking cost of equity, and T is the corporate tax rate (33.33%). The pre-tax nominal cost of capital is calculated as

$$\text{Pre-Tax WACC} = ATWACC / (1 - T) \ldots\ldots\ldots\ldots (4)$$

Exhibit 5 provides the nominal ATWACC (14.01%) and the nominal Pre-Tax WACC (21.02%) calculations.

Exhibit 5

ESTIMATES OF NOMINAL WEIGHTED AVERAGE COST OF CAPITAL

Nominal WACC in US$ Terms for Global Companies (30-year Treasury Bond)

Equity Ratio	Cost of Equity	Debt Ratio	Cost of Debt	**WACC**	**ATWACC**	**Pre-Tax WACC**
54.94%	7.75%	45.06%	5.99%	**6.96%**	**6.01%**	**9.27%**

Nominal WACC in US$ Terms for CWJ (30-year Treasury Bond)

Equity Ratio	Cost of Equity	Debt Ratio	Cost of Debt	**WACC**	**ATWACC**	**Pre-Tax WACC**
54.94%	10.88%	45.06%	6.60%	**8.95%**	**7.96%**	**11.94%**

Nominal WACC in J$ Terms for CWJ (30-year Treasury Bond)

Equity Ratio	Cost of Equity	Debt Ratio	Cost of Debt	**WACC**	**ATWACC**	**Pre-Tax WACC**
54.94%	18.00%	45.06%	13.73%	**16.07%**	**14.01%**	**21.02%**

Real WACC

3.29 C&WJ accounting procedures are based on current cost accounting. That is, the value of C&WJ's assets is adjusted annually, to reflect changes in inflation and technological progress. The book value of each asset is adjusted, up or down, to reflect the value of a "modern equivalent asset" at current prices. Thus, inflation is already taken into account in the current cost accounting procedures. It follows therefore that the applicable cost of capital is the real weighted average cost of capital. This avoids double counting the inflation effect.

3.30 The real cost of capital is calculated by subtracting the expected inflation rate from the calculated nominal WACC. The projected US inflation rates are for 2008 and 2009 are 3.2% and 1.5%[14], respectively. The OUR used the average of these projections (2.35%) in its model. Therefore, the real pre-tax and after-tax weighted average cost of capital (WACC) for C&WJ is estimated to be 8.94% and 5.96%, respectively. See Exhibit 6.

[14] See http://www.realtor.org/Research.nsf/files/currentforecast.pdf/$FILE/currentforecast.pdf

Exhibit 6
ESTIMATES OF REAL WEIGHTED AVERAGE COST OF CAPITAL

Real WACC for Global Companies (30-year Treasury Bond)

Equity Ratio	Cost of Equity	Debt Ratio	Cost of Debt	**WACC**	**ATWACC**	**Pre-Tax WACC**
54.94%	7.75%	45.06%	5.99%	**4.61%**	**4.03%**	**6.22%**

Real WACC for CWJ (30-year Treasury Bond)

Equity Ratio	Cost of Equity	Debt Ratio	Cost of Debt	**WACC**	**ATWACC**	**Pre-Tax WACC**
54.94%	10.88%	45.06%	6.60%	**6.60%**	**5.96%**	**8.94%**

Divisional Cost of Capital

3.32 In order to determine the divisional cost of capital for C&WJ, the OUR will make use of a heuristic (subjective) approach as developed by the Boston Consulting Group (BCG) in 1995[15]. The BCG matrix uses six criteria with each being given a rating ranging from 1 to 5, where 1 represents low risk and 5 is high risk[16]. The overall firm is assumed to have average risk and as such is assigned a score of 3 for each criteria and a total rating of 18 which corresponds to the WACC computed earlier. The cost of capital for each division is then computed using a process of linear extrapolation based on the score computed from the BCG matrix using equation 3.

Divisional Cost of equity capital = (Divisional Rating * Overall Firm WACC) / Overall Firm rating .

This is represented by the following mathematical expression

15 Source: J. Bufka, O. Kemper, and D. Schiereck (2004), "A Note on Estimating the Divisional Cost of Capital for Diversified Companies: an Empirical Evaluation of Heuristic- Based approaches", The European Journal of Finance, 10 February 2004, pp68-80.

16 http://www.vernimmen.net/ftp/memoire_Should_we_use_the_company-wide_cost_of_capital_in_investment_decisions.pdf

$R_x = [X * WACC] / 18$ …… (5)

where R_x is divisional cost of capital and X is divisional rating.

BCG Matrix

Criteria	Low Risk	*Value*					High Risk
		1	2	3	4	5	
Control	Low external influence on return						High external influence on return
Market	Stable, without cycles						Dynamic, cyclical
Competitors	Few, constant market shares						A lot, variable market share
Products/Concepts	Long life cycle, no subsidies						Short life cycle, subsidies
Barriers to Entry	High						Low
Cost Structure	Low fixed costs						High fixed costs

Source: http://www.vernimmen.net/ftp/memoire_Should_we_use_the_company-wide_cost_of_capital_in_investment_decisions.pdf

3.33 Adjustments are then made to ensure that the weighted sum of each division's cost of capital is equal to the cost of capital for the firm as a whole. Incremental adjustments may also be done to the firms WACC rather than linear extrapolation in order to arrive at the divisional cost of capital.

3.33 The divisions for which a cost of capital is calculated are the provision of network interconnection, retail telephone, and retail data services. The business of providing network interconnection is the least risky of the three divisions while, retail telephone services has the most risk. The application of the BCG matrix yields a nominal pre-tax WACC for network interconnection, retail data, and retail telephone businesses in Jamaican dollar terms of 15.72%, 21.73%, and 25.33%, respectively. The real pre-tax WACC for the network interconnection, retail data, and retail telephone businesses 6.69%, 9.24%, and 10.78%, respectively. (See Exhibits 7 and 8).

Exhibit 7
ESTIMATES OF NOMINAL DIVISIONAL WACC

Nominal WACC for Network Interconnection

	Ratings	WACC	ATWACC	Pre-Tax WACC
Global Telecoms (in US$ terms)	14	5.05%	4.36%	6.74%
CWJ (in US$ terms)	14	6.50%	5.78%	8.93%
CWJ (in J$ terms)	14	11.67%	10.18%	15.72%

Nominal WACC for Retail Telephone

	Ratings	WACC	ATWACC	Pre-Tax WACC
Global Telecoms (in US$ terms)	22	8.14%	7.03%	10.86%
CWJ (in US$ terms)	22	10.48%	9.32%	14.39%
CWJ (in J$ terms)	22	18.82%	16.40%	25.33%

Nominal WACC for Retail Data

	Ratings	WACC	ATWACC	Pre-Tax WACC
Global Telecoms (in US$ terms)	19	6.98%	6.03%	9.31%
CWJ (in US$ terms)	19	8.99%	7.99%	12.34%
CWJ (in J$ terms)	19	16.14%	14.07%	21.73%

Exhibit 8
ESTIMATES OF REAL DIVISIONAL WACC

Real WACC for Network Interconnection

	Ratings	WACC	ATWACC	Pre-Tax WACC
Global Telecoms	14	3.35%	2.93%	4.52%
CWJ	14	4.79%	4.33%	6.69%

Real WACC for Retail Telephone

	Ratings	WACC	ATWACC	Pre-Tax WACC
Global Telecoms	22	5.39%	4.72%	7.28%
CWJ	22	7.73%	6.98%	10.78%

Real WACC for Retail Data

	Ratings	WACC	ATWACC	Pre-Tax WACC
Global Telecoms	19	4.62%	4.04%	6.25%
CWJ	19	6.63%	5.98%	9.24%

CHAPTER 4: PARAMETERS AND CONCLUSION

4.0 The parameters used in this study are as follows:

Parameter Summary	
Variable and/or parameter	Determined Value
US Risk-Free Rate	4.53%
US Inflation	2.35%
Market Risk Premium	4.10%
Global Corporate Tax Rate	35.25%
Jamaican Corporate Tax Rate	33.33%
Currency Risk	7.13%
Sovereign Risk	3.13%
Sample Predicted Barra Beta	0.71

CONCLUSION

4.1 Based on the results of this analysis, Exhibit 5 provides estimates of C&WJ's nominal post-tax WACC (14.01%) and the nominal Pre-Tax WACC (21.02%) calculations in Jamaican dollar terms.

4.2 The estimates for C&WJ's real post and pre tax WACC are 5.96% and 8.94%, respectively. The real pre-tax WACC will be used to as the cost of capital estimate for the second price cap plan for C&WJ.