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UNDERGRADUATE PROGRAM IN ECONOMICS – 1st semester 2022

COURSE: Principles of Corporate Finance for Utilities

PROFESSOR: Edson Daniel Lopes Gonçalves

CONTACT HOURS: 60h

PREREQUISITES (RECOMMENDED): basic knowledge in Financial Mathematics, Investment Analysis and Microeconomics

OFFICE HOURS: Thursday, 05:00 pm

OFFICE: Barão de Itambi, 60, room 201, 2<sup>nd</sup> floor – CERI/FGV

## SYLLABUS

### 1. Description

This course focuses on corporate finance as it pertains to regulated utilities – energy, water, transportation, telecommunication and other infrastructure firms. Corporate finance comprises the decisions and operations made by firms; perhaps the most important of these are the investment decisions firms make and the financing of such investments. Capital-intensive, regulated utilities are different from unregulated firms in that they cannot make such decisions with abandon. Rather, many of their decisions must be vetted and approved by utility regulators, considering that they do not operate in competitive markets. Thus, the main goal of this course is to provide an understanding of the economic, financial, and accounting concepts that are most relevant to regulated utilities. The classes will cover four big themes:

Part I – Key concepts of corporate finance, especially those related to regulated utilities

Part II – Issues of risk, which regulated firms and regulators alike must address, including business, financial and regulatory risks

Part III – Some fundamental issues that affect regulated utility investment decisions – in particular we discuss options and derivatives and capital budgeting decisions

Part IV – Issues related to the financial operations of regulated utilities, including accounting standards that regulated utilities must use and the accounting rules needed to separate regulated from unregulated activities when a firm performs both.

**Prerequisites (recommended):** basic level of knowledge in Financial Mathematics, Investment Analysis and Microeconomics

- FGV Undergrad in Economics: Investments course
- FGV Undergrad in Business Administration: Financial Management I course

## 2. Course Goals

The main goal of the course is to introduce students to the applications of Corporate Finance for regulated firms (Energy, Water, Telecomm etc), providing a wide range of tools that combine knowledge from Finance, Accounting, Law, Public Policy and Economics.

## 3. Main Learning Goals

At the end of the course it is expected that student understands the use of Modern Finance Theory in setting public tariffs, rates of return for infrastructure investments and other related topics concerning to utilities firms.

## 4. Relationship with the contemporary debate

Brazil faces a chronic deficit in the provision of infrastructure services and utilities and part of the problem stems from difficulties in financing projects due the high risks involved.

## 5. Teaching Procedures

The classes will consist of brief theoretical presentations and real case studies.

## 6. Outline

	<b>Class #</b>	<b>Topics to be covered</b>	<b>Textbook chapters</b>
<u>1</u>	<u>Feb 09</u>	<i>Why Utility Corporate Finance?</i>	<u>GL, 1</u>
<u>2</u>	<u>Feb 11</u>	<i>Regulatory Concepts</i>	<u>GL, 2</u>
<u>3</u>	<u>Feb 16</u>	<i>Review of Mathematical and Financial Concepts</i>	<u>GL, 3</u>
<u>4</u>	<u>Feb 18</u>	<i>Financing Regulated Utilities</i>	<u>GL, 4</u>

<u>5</u>	<u>Feb 23</u>	<i>Key Concepts of Regulatory Accounting Measures of Financial Performance and Risk</i>	<u>GL, 5</u>
<u>6</u>	<u>Feb 25</u>	<i>Measures of Financial Performance and Risk</i>	<u>GL, 6</u>
<u>7</u>	<u>Mar 09</u>	<i>Measures of Costs and their Application</i>	<u>GL, 7</u>
<u>8</u>	<u>Mar 11</u>	<i>A primer on Setting Regulated Utility prices</i>	<u>GL, 8</u>
<u>9</u>	<u>Mar 16</u>	<i>Comparable Risk</i>	<u>GL, 9</u>
<u>10</u>	<u>Mar 18</u>	<i>Defining and Measuring Risk</i>	<u>GL, 10</u>
<u>11</u>	<u>Mar 23</u>	<i>The Capital Asset Pricing Model</i>	<u>GL, 11</u>
<u>12</u>	<u>Mar 25</u>	<i>Discounted Cash Flow Models to Estimate Return on Equity</i>	<u>GL, 12</u>
<u>13</u>	<u>Mar 30</u>	<i>Capital Structure and WACC</i>	<u>GL, 13</u>
<u>14</u>	<u>Apr 01</u>	<i>Estimating the cost of capital in emerging markets</i>	<u>GL, 14</u>
<u>15</u>	<u>Apr 06</u>	<i>Utility Capital Budgeting</i>	<u>GL, 17</u>
<u>16</u>	<u>Apr 08</u>	<i>Asset and Business valuation</i>	<u>GL, 18</u>
<u>17</u>	<u>Apr 27</u>	<i>Valuing Energy Contracts</i>	<u>GL, 19</u>
<u>18</u>	<u>Apr 29</u>	<i>Selected Application of Valuation Techniques – Power Plants and Natural Gas Reserves</i>	<u>GL, 20</u>
<u>19</u>	<u>May 04</u>	<i>Accounting for utilities I</i>	<u>GL, 21 &amp; WB</u>
<u>20</u>	<u>May 06</u>	<i>Accounting for utilities II</i>	<u>GL, 22 &amp; WB</u>
<u>21</u>	<u>May 11</u>	<i>Depreciation</i>	<u>GL, 23 &amp; WB</u>

<u>22</u>	<u>May 13</u>	<i>Tariff-making – General</i>	<u>GL, 24</u>
<u>23</u>	<u>May 18</u>	<i>Tariff- making</i>	<u>Case Studies: Electricity Distribution, Water &amp; Sanitation</u>
<u>24</u>	<u>May 20</u>	<i>Tariff- making</i>	<u>Case Studies: Natural Gas Transportation, Natural Gas Distribution</u>
<u>25</u>	<u>May 25</u>	<i>Tariff- making</i>	<u>Case Studies: Toll Roads, Railways, Urban Mobility</u>
<u>26</u>	<u>May 27</u>	<i>Options, Derivatives &amp; Risk Management</i>	<u>GL, 15</u>
<u>27</u>	<u>Jun 01</u>	<i>Electricity, Natural Gas &amp; Water Trading and Risk Management</i>	<u>BGS</u>
<u>28</u>	<u>Jun 03</u>	<i>Improvements on Incentive Regulation &amp; Implications</i>	<u>Case Studies: Totex approach and RIIO Model for Networks (Ofgem &amp; Ofwat)</u>

## 7. Evaluation

A group presentation, based on a topic discussed during the course & individual problem sets /tests (to be defined).

## 8. Textbooks (Required)

- Giacchino & Lesser, “**Principles of Utility Corporate Finance**”, 1 edition, Public Utilities Reports (GL)
- Villadsen, B., Vilbert, M.J., Harris, D. & Kolbe, A.L., “**Risk and Return for Regulated Industries**”, 1 edition, Brattle Group (V)
- World Bank, “**Accounting for Infrastructure Regulation**”, The World Bank (WB)
- Burger, M., Graeber, B. & Schindlmayr, G., “**Managing Energy Risk**”, Wiley (BGS)
- Beecher, J.A. & Kihm, S.G., “**Risk Principles for Public Utility Regulators**”, MSU Press, 1 edition
- Morin, “**New Regulatory Finance**”, 1 edition, Public Utilities Reports
- Myers, Kolbe & Tye, “**Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries (Topics in Regulatory Economics and Policy)**”, 1 edition, Springer
- Alt, “**Energy Utility Rate Setting – A practical guide to the retail rate setting process for regulated electric and natural gas utilities**”, 1 edition, LuLu publishing

## 9. Textbooks (Additional)

- Berk, DeMarzo & Harford, “**Fundamentals of Corporate Finance**”, 3 edition, Pearson
- Brealey, Myers & Allen, “**Principles of Corporate Finance**”, 9 edition, McGraw-Hill/Irwin
- Laffont & Tirole, “**A Theory of Incentives in Procurement and Regulation**”, 1 edition, MIT Press
- Kahn, “**The Economics of Regulation – Principles and institutions**”, 1 edition, MIT Press
- Varian, “**Intermediate Microeconomics: A modern approach**”, 8 edition, Norton

## 10. Professor’s short bio

### Current Positions:

- ✓ **Senior Researcher** (Risk and Decision Analysis regarding infrastructure projects, Corporate Finance applied to Utilities firms and Valuation) - **FGV Center for Regulation in Infrastructure - CERI**
- ✓ **Professor** (undergrad, MA, MBA, Corporate courses in Finance and Microeconomics) - **EPGE/FGV** (Economics School)
- ✓ **Academic Coordinator** – FGV MBA – **Water & Sanitation**

### Past Positions:

- ✓ **Senior Advisor** – **Roland Berger** (Energy Economics, Utilities & Corporate Finance)
- ✓ **Associate Principal** – **Accenture Management Consulting** (Risk Management, Finance and Strategy)
- ✓ **Professor** (undergrad – Law & Economics, Corporate Governance and Financial Math) – **FGV Direito Rio** (Law School)
- ✓ **Professor** (undergrad – Corporate Finance, Investments & Microeconomics) - **EBAPE/FGV** (Business Administration School)
- ✓ **Research Manager** – **RiskControl/BBM Bank** (Risk Management and Quantitative Finance)
- ✓ **Consultant** – **Deloitte** (Corporate Finance/ Assurance)

### Education:

- ✓ **Economics (Phd & MA)** – Getulio Vargas Foundation – FGV (EPGE)
- ✓ **Mechanical Engineering (undergrad)**– University of Campinas – UNICAMP

## 11. Lattes CV link (portuguese)

<http://buscatextual.cnpq.br/buscatextual/visualizacv.do?id=K4736613Z9>

