

Abstract

This thesis aims to investigate the potential role of Codelco, Chile's state-owned mining company, in the country's lithium sector, which has experienced a surge in demand due to the growing popularity of electric vehicles and the global shift towards green energy. At the same time, the boom has also raised concerns about the environmental and sociocultural impacts of lithium mining in Chile's salt flats.

Using a strategy tripod framework and evidence obtained from nine expert interviews and secondary data sources, we conclude that Codelco does not have the necessary firm resources or institutional advantages to compete effectively against established private firms in the Chilean lithium industry. The competitive dynamics of the industry and Codelco's sub-par corporate social responsibility practices further compound the challenge.

However, we suggest that Codelco could still have a role to play in Chile's lithium industry by partnering with private firms through public-private partnerships. These partnerships could take the form of an advisory panel in which Codelco serves as a stakeholder for the Chilean people in relation to private lithium mining interests. Overall, our thesis contributes to the ongoing discussion on developing sustainable and socially responsible lithium mining practices in Chile, a critical exporter of the mineral that can help reduce our dependence on fossil fuels.

Keywords: Codelco, lithium, Chile, green energy transition, environment, development, CSR.

Resumen

El objetivo de esta tesis es investigar el rol potencial de Codelco, la empresa minera estatal chilena, en el sector del litio del país, que ha experimentado un fuerte aumento de la demanda debido a la creciente popularidad de los vehículos eléctricos y al cambio global hacia la energía verde. Al mismo tiempo, este auge ha suscitado preocupación por el impacto medioambiental y sociocultural de la extracción de litio en los salares chilenos.

Utilizando un marco de estrategia trípode y datos obtenidos a partir de nueve entrevistas a expertos y fuentes de datos secundarias, esta tesis concluye que Codelco no dispone de los recursos necesarios ni de las ventajas institucionales para competir eficazmente con empresas privadas establecidas en la industria chilena del litio. La dinámica competitiva de la industria y las deficientes prácticas de responsabilidad social corporativa de Codelco complican aún más la situación.

Sin embargo, sugerimos que Codelco aún podría desempeñar un papel en la industria chilena del litio asociándose con empresas privadas a través de asociaciones público-privadas. Estas asociaciones podrían adoptar la forma de un panel asesor en el que Codelco actuara como parte interesada del pueblo chileno en relación con los intereses privados de la minería del litio. En general, nuestra tesis contribuye al debate en curso sobre el desarrollo de prácticas de extracción de litio sostenibles y socialmente responsables en Chile, un exportador crítico del mineral que puede ayudar a reducir nuestra dependencia de los combustibles fósiles.

Palabras clave: Codelco, litio, Chile, transición energética verde, medio ambiente, desarrollo, RSE.

Acknowledgments

We wish to express our deep gratitude to our supervisor, Jacobo Ramirez, for his exceptional guidance, expertise, and mentorship during the entire duration of our thesis. His constructive criticism, insightful feedback, and constant support have been invaluable in shaping the direction and scope of our research. We have learned immensely from his knowledge, and his passion for our field of study has been truly inspiring. We feel fortunate to have had him as our supervisor, and we are grateful for his unwavering dedication to our academic success.

We are also indebted to Gerrit Fuelling, Jorge Valenzuela, Mauricio Lorca, Cristina Dorador, Daniel Jimenez, Iris Wunderlich, Manuel Andrade, Andreé Henríquez, and Claudia Zilla, who participated in our study as interview partners. Their willingness to share their valuable time, expertise, and experiences with us has been crucial to the success of our research. Their insights, perspectives, and contributions have enriched our work and have provided us with an in-depth understanding of Chilean lithium mining.

In addition, we would like to acknowledge the immense support and encouragement we received from our families and friends throughout our academic journey. Their unwavering support, love, and understanding have been the cornerstone of our success. We are grateful for their constant belief in us, their encouragement, and their sacrifices to make our academic pursuits possible. Their unwavering support has inspired and motivated us to achieve our goals.

Finally, we would like to thank the many other individuals who have provided their assistance, encouragement, and guidance in various ways, including our classmates, colleagues, and university staff members. We recognize that completing this thesis would not have been possible without all these people's support, guidance, and encouragement. Thank you all for your invaluable contributions and for making this journey an enriching and fulfilling experience.

Leonard Benedikt Kruschel & John Francis Lafranchise Copenhagen, 15th May 2023

Table of Contents

Abstract	2
Resumen	3
List of Abbreviations	
1. Introduction	8
1.1. Lithium and the Quest for Decarbonization	9
1.2. Country Introduction: Chile	
1.3. Objective	
1.4. Research Question & Motivation	
1.5. Overview of Thesis Structure	
2. Theoretical Framework	
2.1. The Resource-Based View	
2.1.1. Key Concepts in the Resource-Based View	
2.1.2. Valuable Resources	
2.1.4. Imperfectly Imitable Resources	
2.1.5. Organization	
2.1.6. Limitations of the Resource-Based View	
2.2. Industry Based View	19
2.2.1. Porter's Five Forces	
2.2.2. Threat of New Entrants	
2.2.3. Power of Buyers/Customers	
2.2.4. Power of Suppliers	
2.2.5. Threat of Substitute Products	
2.2.6. Jockeying for Position	
2.2.7. Strategy Formulation	
2.2.8. Limitations of the Industry-Based View	
2.3. Institution-Based View	
2.3.1. Definition of Institutions	_
2.3.2. Formal and informal institutions	
2.3.4. Limitations of Institutional Theory	
2.4. CSR and Business Strategy	28
2.4.1. From Costs to Benefits	28
2.4.2. From Cosmetic to Strategic	
2.4.3. Alternative Views of CSR	
3. Literature review	
3.1. Nationalizing of Extractive Industries in Latin America	
3.2. Peng's Tripod in Academic Publications	
4. Methodology	40
4.1. Research Philosophy	40

	4.2. Research Approach	42
	4.3. Research Design	43
	4.4. Research Strategy	45
	4.5. Data Collection	45
	4.5.1. Primary Data	
	4.5.2. Secondary Data	
	4.5.3. Data Analysis & Coding	
	4.6. Research Ethics	51
	4.7. Limitations	51
5.	. Research Context	52
	5.1. A Brief History of Chile's Political Economy	52
	5.2. Company Introduction: Codelco	54
	5.3. Chile's Role in the Global Lithium Market	57
	5.3.1. Lithium Extraction Process	58
	5.4. Socio-environmental Dimension of Chilean Lithium Mining	58
	5.4.1. The Environmental Dimension	58
	5.4.2. The Environmental Impacts on Water in Lithium Mining	60
	5.5. Impact on Indigenous Peoples: The Consequences of Lithium Mining on Native Lands	61
	5.6. Chile in Times of Political Change	
	5.6.1. Chronicle of the 2019 Protests in Chile	63
	5.6.2. The Constitutional Reform	64
	5.6.3. The Legal Framework for Water Use	
	5.6.4. The Legal Framework for Lithium Mining	66
	5.6.5. Managing Chilean Lithium	67
6.	. Analysis	68
	6.1. Data Analysis	
	6.1.1. Global Lithium Market	71
	6.1.2. Chilean Political Discourse	75
	6.1.3. Regulatory Framework	77
	6.1.4. Chilean Mining Companies: Comparing Private Firms to Codelco	79
	6.1.5. Mining Externalities: Consequences of Lithium Mining	81
7.	. Discussion	86
	7.1. The Resource-Based View of Codelco	87
	7.1.1. Tangible Resources	88
	7.1.2. Intangible Resources	91
	7.2. The Industry-Based View of Chilean Lithium	
	7.2.1. Five-Forces	95
	7.3. Institution-Based View: Chile & Codelco	
	7.3.1. Formal Institutional Framework	
	7.3.2. The Role of Informal Institutions	
	7.3.3. Product Market Voids	
	7.3.4. Labor Market Voids	
	7.3.5. Capital Market Voids	110

7.3.6. Institutional Voids and Beyond	110
7.4. Corporate Social Responsibility – The Sweet-Spot for Codelco's Lithium Ambitions? 7.4.1. The Relationship between Chilean CSR and Mining	
8. Limitations	
9. Future Research Directions	119
10. Recommendations	120
11. Conclusion	122
12. References	124
Appendix A General Information	138
Appendix B Interview Guide for Expert Interviews	141
Appendix C Interview Transcript, Coding Stripes & Codebook	144
Appendix D Overview Interviewees & Webinars	149
Appendix E Overview Literature	150

List of Abbreviations

Abbreviation Definition

Codelco	Corporación Nacional del Cobre de Chile (National Copper Corporation of Chile)
CORFO	Corporación de Fomento de la Producción (Chilean Economic Development Agency)
FDI	Foreign Direct Investment
SOE	State-owned enterprise
OECD	Organization for Economic Co-operation and Development
DLE	Direct lithium extraction
AHT	Autonomous Haul Trucks
VRIO	Valuable, Rare, Inimitable, Organized to Exploit
RBV	Resource Based View
IBV	Industry Based View
CSR	Corporate Social Responsibility
SQM	Sociedad Química y Minera de Chile

1. Introduction

In March of 2023, Antonio Guterres, Secretary General of the United Nations, warned that "the climate time bomb is ticking" (Stanway, 2023) and that dramatic action was needed to avert a cascading series of global crises caused by climate change. Such crises include irreversible sea-level rise, increased storm and weather intensity, and vast numbers of climate refugees. The worldwide fear of climate change has spurred much action, including the signing of the landmark Paris Climate Accord in 2015 and the UN High Seas Treaty of 2023. Unfortunately, much more needs to be done to avert climate disaster for millions around the world. A key focal point for climate activists, governments, and business leaders has been the reduction of carbon emissions, and rightly so. According to the Center for Climate and Energy Solutions, three-quarters of the global greenhouse emissions come from carbon sources, with the rest coming from methane and other less impactful emissions (2022). Decarbonization has, therefore, become a crucial goal for those seeking to avert climate catastrophe. The challenge facing decarbonization efforts is the sheer number of sources of carbon emissions. According to the U.S. Environmental Protection Agency, global greenhouse gas emissions can be divided into the following segments (see Figure 1):

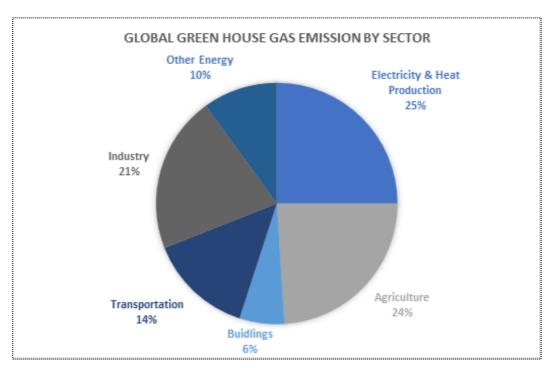


Figure 1: *Note.* Adapted from "Global Greenhouse Gas Emissions Data", by U.S. EPA (2023), Sources of Global Greenhouse Gas Emissions. https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

It is clear from the data that the transportation sector is one of the largest sources of climate-altering emissions. In the United States, the country with one of the world's largest carbon footprints, transportation is the single biggest source of greenhouse gas emissions at 28% (U.S. EPA, 2023). Transportation emissions can be subdivided into various sources, including cars, maritime vessels, trains, and planes. Owing to its sizable contribution to carbon emissions, the transportation sector has been a primary concern of decarbonization proponents. Perhaps the most promising tool for achieving transportation decarbonization is the lithium-ion battery. Lithium battery technology has received the most attention because of its use in electric vehicles (EVs), and consumers have certainly bought into the hype. In 2021 alone, global EV sales reached nearly 7 million cars, a more than two-fold increase from the previous year (Paoli & Gül, 2022), as illustrated in Figure 2.

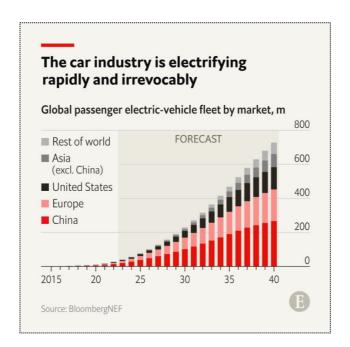


Figure 2: *Note*. From "The Future Lies with Electric Vehicles", by The Economist (2023). https://www.economist.com/special-report/2023/04/14/an-electric-shock. © The Economist

1.1. Lithium and the Quest for Decarbonization

Lithium has long been used in a variety of commercial and medical applications. For example, lithium is widely used to manufacture heat-resistant glass/ceramics and used in aircraft construction. Medical professionals also use lithium to treat various mood disorders. More recently, lithium has found its way into our everyday lives thanks to its use in mobile phones, laptop batteries, and other consumer electronics. It is estimated that "over 60% of mobile phones and 90% of laptops" feature lithium-ion batteries (Schade, 2022, para. 8). These three broad segments of industrial, medical, and

consumer lithium use have characterized the lithium industry for much of its existence. By the early 2010s, however, the major sources of lithium demand began to change, as shown in Figure 3.

End-Use	Lithium Consumption 2010 (%)	Lithium Consumption 2021 (%)
Batteries	23%	74%
Ceramics and Glass	31%	14%
Lubricating Greases	10%	3%
Air Treatment	5%	1%
Continuous Casting	4%	2%
Other	27%	6%
Total	100%	100%

Figure 3: *Note*. Adapted from "This chart shows which countries produce the most lithium", by World Economic Forum (2023). https://www.weforum.org/agenda/2023/01/chart-countries-produce-lithium-world/. © World Economic Forum

Lithium is increasingly considered one of humanity's best tools for decarbonizing many of our polluting economic and transportation sectors. The rise of lithium was not inevitable, however. Many other minerals, such as magnesium or hydrogen, are considered suitable for transportation energy storage. What makes lithium so attractive relative to these other materials is its lightweight and relatively high energy storage capacity. In fact, lithium is the lightest metal on earth (Schade, 2022). Lithium's light weight is desirable to the automobile industry since cars are constrained in size and weight. Lithium, therefore, allows cars and trucks equipped with lithium-ion batteries to travel farther on a single charge (SQM, 2022). Tesla, an American EV manufacturer, and its CEO, Elon Musk, have been particularly bullish on lithium, investing heavily in lithium refining capacity worldwide (Root, 2023). Tesla is also rumored to be considering a move into the lithium mining space via the potential acquisition of Brazilian mining company Sigma Lithium (Lambert, 2023).

Tesla's preoccupation with lithium is revealing. Despite its numerous applications and benefits, lithium is thus far not the panacea for climate change that many hoped it would be. Many hurdles have appeared in the pursuit of a lithium-based green energy transition. One such hurdle relates to the supply of lithium. The International Energy Agency (IEA) estimates that unless significant investments in lithium production are made in the short term, the world could face a lithium

shortage this decade (Paoli & Gül, 2022). Such a shortage briefly occurred in 2021, sending lithium carbonate prices soaring by 150% (Paoli & Gül, 2022). Significant investments in lithium mining and processing readiness are required to avoid further lithium supply bottlenecks. Most of these investments have been and will continue to be channeled toward the major lithium mining regions like the so-called *Lithium Triangle* countries of Chile, Bolivia, and Argentina but also Australia and China.

Unfortunately, supply bottlenecks due to geographic concentration are not the only issues that could stunt the growth of lithium. The IEA notes four other market weaknesses: 1) long project development timelines, 2) declining lithium quality, 3) growing corporate social responsibility (CSR) scrutiny, and 4) high exposure to climate risks (IEA, n.d.). Regarding this final weakness, lithium mining is particularly susceptible to water stress (IEA, n.d.), and few areas are more water stressed than South America's *Lithium Triangle*. The issue is further complicated by the region's Indigenous¹ communities, who have long felt ignored by the central governments in their respective countries.

1.2. Country Introduction: Chile

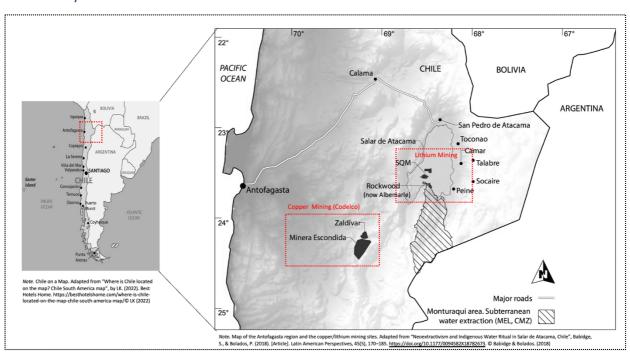


Figure 4: Map of Chile and Atacama Desert region

¹ We understand Indigenous peoples and communities as heterogeneous and acknowledge diversity among and within the groups, including but not limited to socio-cultural practices and origins.

The geographic focus of this thesis is Chile. Chile is a South American nation bordered by Argentina, Bolivia, Peru, and the Pacific Ocean, as shown in Figure 4. It is considered one of the most stable and prosperous countries in a region long plagued by economic and political stagnation. Chile is a solid economic force with a population of nearly 19 million and a GDP per capita of roughly 25,000 USD. Its GDP per capita is well within the range of upper-middle-income nations, on par with Taiwan or Bulgaria (CIA World Factbook, 2023). By all metrics, Chile is an export-oriented market economy. The country has a heavy reliance on commodities exports, in particular copper. Much of this copper is extracted by Codelco, the state-owned mining firm. Since 2010, Chile has been a fully participating member of the Organization for Economic Cooperation & Development (OECD), an intergovernmental organization of mostly rich countries. Politically, Chile has undergone numerous transitions ranging from colonial rule to military dictatorship and finally to a fully-fledged democracy. Chile's track record of stability, solid regulatory frameworks, and strong rule of law have made it a magnet for foreign direct investment (FDI). This FDI has, in turn, propelled ever more socioeconomic development for the country and its people. Since the 1980s, the Chilean poverty rate has declined by half, and life expectancy has risen to levels equal that of highly developed European and North American countries (CIA World Factbook, 2023). One lingering problem facing Chile is economic inequality. The OECD estimates that roughly "53% of households are classed as economically vulnerable, meaning they have no financial cushion to protect against a sudden drop in income, compared to an OECD average of 39%" (OECD, 2021, para. 3). The multi-year crises of the COVID-19 pandemic and the subsequent economic downturn have not helped the situation.

1.3. Objective

The objective of this thesis is to examine the business strategy of the Chilean state-owned copper company, *Corporación Nacional del Cobre de Chile* or Codelco, and to understand to what extent the company should enter the booming lithium sector. We aim to explore the macroeconomic, political, social, and environmental factors which will influence Codelco's future strategy. We aim to propose a strategy path that, in our view, produces the best possible outcome for all the company's stakeholders. We plan to reach this objective by applying relevant theories from our master's degree in Business & Development Studies at Copenhagen Business School. In particular, we have drawn heavily from courses like *Managing Foreign Direct Investment in Developing*

Countries, Governance and Development, International Business and Economic Development, and Business Strategies in Latin America and the Caribbean.

1.4. Research Question & Motivation

The main research question for our thesis is as follows:

Should Codelco, Chile's state-owned copper giant, attempt to enter the fast-growing lithium mining industry?

We will answer the main research question by addressing the following sub-questions:

- 1) Does Codelco possess the proper resources and capabilities to enter the lithium market?
- 2) How could Codelco's position vis-à-vis its competitors help or hinder entry into lithium?
- 3) What effects might Chilean formal and informal institutions have on Codelco's lithium entry?
- 4) Can Codelco leverage CSR initiatives to strengthen an entry into lithium?

The motivation behind choosing this topic for our master's thesis stems from the highly relevant nature of the lithium industry. As the green transition has accelerated, the discussion around lithium has grown exponentially. Countries worldwide, especially developing and middle-income countries, are clamoring to secure their place in this lucrative industry. As international development students, we are interested in studying these countries and the potential socioeconomic development that could accompany a booming lithium industry. However, we are also cognizant of the risks of a commodity boom. The so-called *Dutch Disease* is an all-too-common occurrence for developing countries and emerging markets that derive most of their wealth from commodities exports. Therefore, we must examine the booming lithium trade with a nuanced view, highlighting the apparent benefits and hidden costs. Furthermore, this topic allows us to apply the knowledge we have gained over the past two years of our master's program to the real-world case of the Chilean lithium mining industry.

1.5. Overview of Thesis Structure

Now that we have introduced the topic of this thesis and its central research question, we will outline the plan for the remainder of the paper. In the subsequent section, we will introduce the theoretical framework, which serves as the analytical foundation of this thesis. Next, we will present our key takeaways from the literature review. We will touch upon a few key subjects in our thematic literature review, such as resource nationalization in Latin America. Following the literature review, we will explain the methodology we utilized during our research and writing process. Subsequently, our thesis will introduce the Chilean context, its political economy, and some pertinent issues facing its lithium sector. Here, we will also present the case company, Codelco. The final sections of our thesis are devoted to an analysis and discussion of the collected data. It is within the discussion phase that we will utilize our theoretical framework. After our discussion, we will summarize the findings, identify potential limitations, and present our recommendations before concluding the thesis.

2. Theoretical Framework

The following section will be devoted to the theories and frameworks guiding this thesis' analysis of our research question. To reiterate, we seek to determine if Codelco, Chile's state-owned copper company, should enter the Chilean lithium market.

With this guiding question in mind, we chose Peng et al.'s (2009) Strategy Tripod as the guiding framework for our thesis. However, we also chose to add a fourth "leg" to Peng et al.'s framework by including CSR as a strategic consideration of our framework (see Figure 5). As such, we possess four key tools for analyzing Codelco and the Chilean lithium market: 1) the resource-based view, 2) the industry-based view, 3) the institution-based view, and 4) the CSR viewpoint. The following sections discuss these pillars of our analytical framework in greater detail.

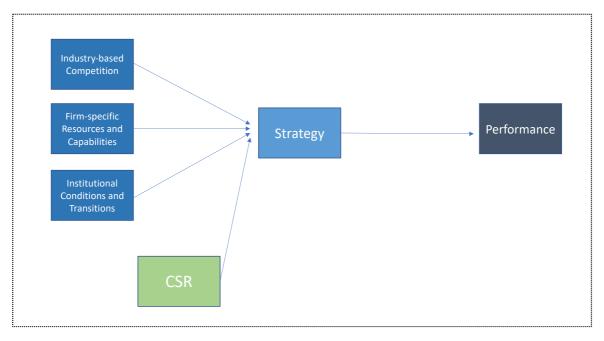


Figure 5: *Note*. The Quadro-Pod Strategy: Our Theoretical Framework, authors' own work.

2.1. The Resource-Based View

As previously stated, a firm's resources and internal capabilities are one of the three legs of Peng et al.'s (2009) Strategy Tripod. The study of a firm's resources and capabilities is the foundation of the resource-based view (RBV). The RBV has its roots in the well-known work of Edith Penrose, whose research "was the first to propose conceptualizing the firm as a coordinated bundle of resources to address and tackle how it can achieve its goals and strategic behavior" (Utami & Alamanos, 2022, para. 1).

While it may now seem obvious to business scholars that a firm's internal resources are essential parameters of analysis, early business management scholars in the 1950s spent relatively little time studying the internal workings of firms. Instead, most of the business literature "tended to focus primarily on analyzing a firm's opportunities and threats in its competitive environment" (Barney, 1991, p. 100). This focus on the competitive environment is best exemplified in Michael Porter's (1979) Five Forces model (Barney, 1991). Edith Penrose's work pushed scholars to think beyond Porter, but it was not until Jay Barney published his work entitled *Firm Resources and Sustained Competitive Advantage* (1991) that the resource-based view of the firm truly took shape.

Barney (1991) asserts that the academic focus on a firm's external environment is built upon two faulty assumptions: 1) that firms in the same industry possess the same resources, and 2) that any change in resources will quickly be adopted by all firms in an industry. By challenging these two assumptions, Barney laid the foundation for the emergence of the resource-based view.

2.1.1. Key Concepts in the Resource-Based View

Before describing the particularities of the RBV, a few key concepts must be defined. According to Barney (1991), the broad category of firm resources "includes all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc." (p. 101). Each of these categories can be split into tangible and intangible firm resources, with tangible resources encompassing physical capital resources, financial capital resources, and raw material access. Intangible assets would include a firm's organizational structure, brand name, company reputation, and the shared values and beliefs within a firm's culture (Kamasak, 2017).

Since all firms possess some combination of tangible and intangible firm resources and capabilities, Barney (1991) asserts that a competitive advantage can only be created by having resources and capabilities which are valuable (V), rare (R), imperfectly imitable (I), and organizationally superior (O). This framework for assessing the usefulness of a firm's resources and capabilities is known as the VRIO model, as shown in Figure 6.

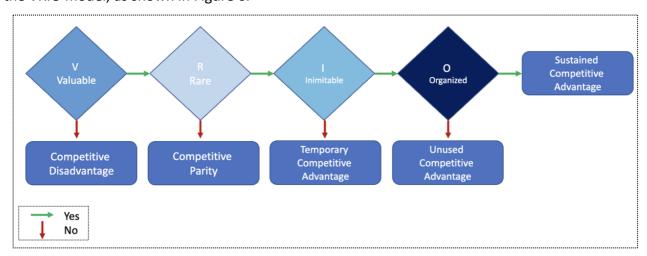


Figure 6: *Note*. Adapted from "VRIO: From Firm Resources to Competitive Advantage," by de Bruin, L. (2016). © Business-to-You.com.

In the discussion section of this thesis, we will begin by identifying the tangible and intangible resources Codelco possesses. We will then use the above VRIO framework to analyze whether Codelco's resources and capabilities are valuable, rare, inimitable, or organizationally exploitable to produce a lasting competitive advantage in the Chilean lithium sector vis-à-vis private competitors.

2.1.2. Valuable Resources

The first factor in Barney's VRIO framework concerns the question of value. Specifically, Barney & Delwyn (2007) assert that only valuable resources can be sources of competitive advantage. By having a valuable resource, a firm can "increase the economic value it creates by increasing the willingness of customers to pay, decreasing its costs, or both" (Barney & Delwyn, 2007, p. 58). In other words, valuable firm resources allow said firm to increase efficiency and effectively implement competitive strategies. A firm's valuable resources are not examined in a vacuum, however. The external context of the industry is still essential since the external context determines which firm resources are valuable in the first place.

2.1.3. Rare Resources

The second parameter of the VRIO framework focuses on the question of rareness. Put simply, if a firm possesses a resource that its competitors also possess, no competitive advantage can be gained. A rare resource allows a firm to exploit opportunities unavailable to competitors. Nevertheless, not all resources need to be rare. It is often the case that all firms in an industry must hold the same critical resources to enter the market (e.g., all firms need managers). Additionally, resources can still be considered rare if only a few firms possess a resource. These few firms can then leverage this resource to oust the competition that lacks access to the resource (Barney & Delwyn, 2007).

2.1.4. Imperfectly Imitable Resources

According to Barney's VRIO framework, the third important parameter concerns imitability. Firms that possess a valuable and rare resource are in an advantageous position, but if competitors can easily adopt or duplicate said resource, the firm's competitive advantage will be short-lived. Thus, rare and valuable resources must also be difficult to imitate for a firm to achieve "sustained competitive advantage" (Barney & Delwyn, 2007, p. 59). Barney outlines three specific ways by

which a firm can retain an imperfectly imitable resource: 1) favorable historical conditions, 2) causal ambiguity, and 3) social complexity (Barney & Delwyn, 2007).

Favorable historical conditions are relatively self-explanatory. For example, suppose a firm, early in its history, employed a scientist who discovered a patentable scientific breakthrough. In that case, that breakthrough is a rare and valuable resource that can continually be exploited to the present day. Causal ambiguity occurs when it is unclear to competitors which resources or capabilities enable the firm to achieve an advantage. Finally, socially complex firms with unique organizational or managerial cultures are also difficult to imitate.

2.1.5. Organization

The final parameter for determining a firm's source of competitive advantage relates to its organizational structure and processes. Examples of these essential organizational dimensions include a firm's "formal reporting structure, its explicit management control systems, and its compensation policies" (Barney & Delwyn, 2007, p. 67). Arguably, the organizational parameter is the most important of the RBV framework. A firm may have a valuable, rare, and imperfectly imitable resource or capability, but if the firm cannot effectively implement and exploit the resource, no competitive advantage can be gained.

2.1.6. Limitations of the Resource-Based View

Like all academic frameworks, the RBV has received its share of criticism. Critics primarily point to the rigidity of the RBV and the potential for the framework to be tautological (Kozlenkova et al., 2014). Regarding the first criticism, supporters of the RBV note the numerous reformulations and adaptations the theory has undergone throughout its existence. For example, the firm's organizational structure was largely ignored in the theory's first iteration. It was not until the late 1990s and early 2000s that Barney and other academics emphasized the importance of organizational processes and their effects on resource implementation (Kozlenkova et al., 2014). When critics speak of the rigidity of the RBV, they are also referring to the seeming inability of the theory to capture the evolution of firm resources and capabilities over time. This criticism inspired the addition of dynamic capabilities. Helfat et al. (2007) define dynamic capabilities as "the capacity of an organization to purposefully create, extend, and modify its resources base" (p. 4).

Regarding the second criticism, that the RBV is inherently tautological and thus "self-verifying" (Kozlenkova et al., 2014, p. 5), proponents of the RBV do, in fact, agree that this is a possibility. They also argue, however, that this tautological fallacy can be remedied through high-quality analysis, which "separates independent and dependent variables (...) contextualiz[ing] confidence in the causal ordering of effects" (Kozlenkova et al., 2014, p. 5).

2.2. Industry Based View

The industry-based view is the second leg of Peng et al.'s (2009) Strategy Tripod. The industry view is rooted in the work of Michael Porter, the legendary economist and business strategist. Of the three strategies within the Strategy Tripod, the industry-based view is the oldest and likely the most well-known. The crux of the industry-based view hinges on Porter's (1979) argument that "the essence of strategy formulation is coping with competition" (p. 137). This competition can take many forms and is not limited to direct competitor firms within an industry. In fact, it is the "customers, suppliers, potential entrants, and substitute products [which] are all competitors that may be more or less prominent or active depending on the industry" (Porter, 1979, p. 137). These various competitors form the basis of Porter's (1979) Five Forces model, and the combined power of these various forces can determine the degree of success available to a specific firm within the industry. Porter's (1979) Five Forces, which are the foundation of the industry-based view, will now be examined in greater detail.

2.2.1. Porter's Five Forces

The forces that determine the competitive landscape of an industry are as follows: the threat of new entrants, the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products, and the "jockeying for position" (Porter, 1979, p. 137) of the current competitors within an industry. Each of these determinants is presented below.

2.2.2. Threat of New Entrants

A new entrant entering an industry can have varying effects. If, for example, an industry is characterized by large, powerful incumbent firms, the entry of a small start-up might not pose much of a threat. If, however, the new entrant is a well-capitalized, highly successful firm entering from a

different industry, the threat could be existential. According to Porter, threats of new entrants can be minimized if sufficiently strong entry barriers are in place (1979). Porter has identified six entry barriers that will now be elaborated upon in greater detail.

2.2.2.1. Economies of Scale

Economies of scale are "the cost advantages companies experience when production becomes efficient, as costs are spread over a larger amount of goods" (Kenton, 2022, para. 2). Existing firms in an industry already possess economies of scale in terms of production, R&D, marketing, to name a few. For a new entrant, a choice must be made: either massively invest in this new industry to achieve a comparable cost structure or "accept a cost disadvantage" (Porter, 1979, p. 138) vis-à-vis competitors.

2.2.2.2. Product Differentiation

The significance of product differentiation as an entry barrier depends mainly on the type of industry. Product differentiation can be extremely important for firms within the fast-moving consumer goods industry (FMCG). As Porter (1979) notes, "brand identification creates a barrier by forcing entrants to spend heavily to overcome customer loyalty" (p. 138). For other industries, like the mining or commodities industries, brand identification may be less important (or non-existent) as customers care less about branding and more about the product's quality. Product quality itself could then become a differentiating factor to consider.

2.2.2.3. Capital Requirements

One of the most prominent barriers to entry relates to capital requirements. Depending on the industry, the capital requirements needed to enter can be massive. A firm entering a new market has to invest significant sums in fixed capital, production sites, and other facilities. The new entrant also has to factor in initial losses incurred while ramping up production. Certain industries, such as mining or other extractive industries, require substantial upfront costs, which can limit the threat of new entrants (Porter, 1979).

2.2.2.4. Cost Disadvantages Independent of Size

Porter notes that certain cost advantages are available to incumbent firms that might not be available to new entrants. For example, entrenched firms benefit from previously acquired learnings and experience within the industry. The new entrant does not possess such advantages. Similarly, Porter notes that incumbents may also enjoy access to "proprietary technology, access to the best raw materials sources, assets purchased at pre-inflation prices, government subsidies, or favorable locations" (1979, p. 139). Such advantages appear particularly relevant in the extractives sector.

2.2.2.5. Access to Distribution Channels

The next entry barrier Porter identifies relates to distribution channels. Incumbent firms already have extensive relationships and networks with potential buyers. New entrants likely do not possess the same relationships. If we take the extractives industry as an example, an incumbent firm may already have a relationship with the largest purchaser of the commodity in question. The new entrant would need to find viable alternative customers or find a way to convince the large customer to switch from the incumbent firm to the new entrant. More generally, "the more that existing competitors have these tied up, obviously the tougher that entry into the industry will be" (Porter, 1979, p. 139).

2.2.2.6. Government Policy

Porter considers government policy as the final type of barrier for industry entrants. He notes that governments can, directly and indirectly, affect the ease of entry for firms. For example, a government could mandate that all new firms purchase and apply for operating licenses. Similarly, governments could place strict limits on firms' access to natural resources, or the government could give privileged access to state-owned enterprises and other national champions. Finally, Porter argues that government decisions concerning environmental and safety standards also present possible entry barriers (1979).

2.2.3. Power of Buyers/Customers

The second of Porter's (1979) Five Forces relates to the bargaining power of buyers/customers within an industry. Porter notes that there are a few key characteristics of powerful buyers. For example, a buyer can be considered powerful if they buy the product in large quantities. This power

is magnified further in industries with high fixed costs, as in mining and the extractives sector. Buyers can also be considered powerful if the product is standardized and undifferentiated, meaning buyers can always find other suppliers with equally acceptable products. An additional factor that determines a buyer's power is price sensitivity. If a large portion of a buyer's cost structure is due to the product in question, the buyer will be more likely to negotiate to find the lowest price. Similarly, if a buyer is concerned about quality, they will also be more likely to shop around in search of the best product for their budget (Porter, 1979).

2.2.4. Power of Suppliers

The third piece of Porter's (1979) Five Forces relates to the bargaining power of suppliers within an industry. As with powerful buyers, Porter notes that there are a few crucial characteristics of powerful suppliers. An industry supplied by only a few companies is classified as having powerful suppliers. Second, if the industry in question is not a crucial customer of the supplier, the supplier will have less incentive to cooperate with the buyer. Therefore, the supplier is considered powerful. Next, if the product the supplier is selling is difficult to imitate or has high switching costs, the supplier can be considered powerful. Finally, if the supplier "poses a credible threat of integrating forward into the industry's business [this] provides a check against the industry's ability to improve the terms on which it purchases" (Porter, 1979, p. 140).

2.2.5. Threat of Substitute Products

The fourth of Porter's (1979) Five Forces is the threat of substitute products. As the name suggests, if customers can find and purchase a similar product, this threatens the firms selling the original product. In the words of Porter (1979), "substitute products or services limit the potential of an industry (...) [and] the industry will suffer in earnings and in possibility of growth" (p. 142). Firms can attempt to counteract the power of substitutes by, for example, raising the quality of their product or by differentiating the product from the substitutes (Porter, 1979). The challenge in dealing with the threat of substitute products comes from the speed with which substitutes can appear on the market. Technological advances can happen unexpectedly, and these advances can rapidly turn a once-solid market upside down (Kaartemo & Nyström, 2021).

2.2.6. Jockeying for Position

Porter's (1979) fifth force, "jockeying for position," refers to the competition between existing firms in an industry to achieve a dominant market position. This competition can occur in many domains, such as price differentiation, innovation, and advertising. Porter describes multiple factors which influence the degree of rivalry within an industry (1979): 1) numerous competitors, or competitors which have relatively similar market share and power; 2) slow industry growth; 3) products and services within the industry lack differentiation, or products can easily be substituted for a competitor's products (i.e., low switching costs); 4) high fixed costs; 5) high barriers to exit for struggling firms, thus leading to oversupply across the industry.

The presence of any one of these factors can make an industry particularly competitive, thus requiring firms to jockey for position. Figure 7 illustrates the relationship between the different forces.

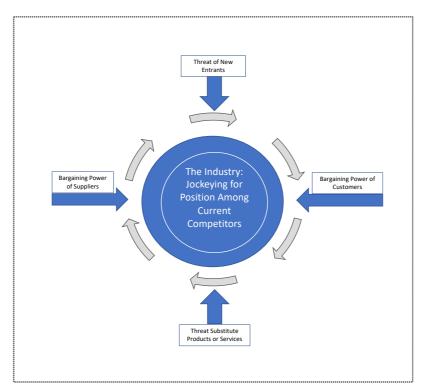


Figure 7: Note. A Visual Guide to Porter's (1979) Five Forces Model. Adapted from "How Competitive Forces Shape Strategy." Porter, M. (1979), Harvard Business Review, pp. 137-145. ©Porter 1979

2.2.7. Strategy Formulation

Once a firm adequately assesses the dynamics in its particular industry using Porter's (1979) Five Forces, it can formulate a strategy. Porter provides three specific courses of action; however, these

are not the only options for firms. First, managers can position the company "so that its capabilities provide the best defense against" (Porter, 1979, p. 143) competitive forces. Second, by taking decisive, strategic action, firms can improve their position vis-à-vis competitors. Finally, firms can anticipate "the shifts in the factors underlying the [five] forces" and respond accordingly, thus achieving a stronger position in the industry (Porter, 1979, p. 143).

2.2.8. Limitations of the Industry-Based View

Porter's (1979) Five Forces model and the broader industry-based view are not without their critics. Grundy (2006) provides a few key criticisms that this thesis will examine. On a general level, Grundy takes issue with the fact that Porter's (1979) Five Forces model has "become, as it were, frozen in time" (2006, p. 213). In contrast, other theories, like the resource-based view, have been widely adopted and adapted by scholars. More specifically, Grundy argues that Porter's industry view is too static since modern, globalized industries tend to be fluid. Second, the author argues that Porter's model ignores important external factors, such as political and socioeconomic factors. Finally, Grundy argues that Porter's (1979) Five Forces are less relevant for SMEs with less ability to shape industry dynamics (2006).

2.3. Institution-Based View

The institution-based view is the third and final leg of the Strategy Tripod developed by Peng et al. (2009). By adding this institutional viewpoint to the long-standing resource-based and industry-based views, the Strategy Tripod adds a layer of external and environmental analysis that was previously missing in a lot of business literature. In fact, much of the early strategic management literature tended to view a country's institutions as mere "background conditions" (Peng et al., 2009, p. 63) that had little effect on a firm's decision-making. Ingram & Silverman (2002) repudiated this view by stating that "institutions directly determine what arrow a firm has in its quiver as it struggles to formulate and implement strategy" (p. 20). While seemingly obvious now, this view that institutions matter was novel, and Ingram & Silverman's argument launched the more comprehensive institution-based view. The inclusion of the institutional-based view as the third dimension is demonstrated in Figure 8.

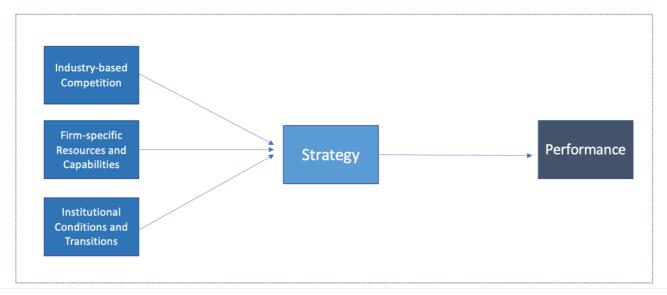


Figure 8: *Note*. Peng et al.'s Strategy Tripod. Adapted from "The Institution-Based View as the Third Leg of the Strategy Tripod," Peng et al., (2009). © Peng et al.

2.3.1. Definition of Institutions

According to Douglas North (1991), "institutions are the humanly devised constraints that structure political, economic and social interaction" (p. 97). These institutions produce reliable, predictable structures for all kinds of human interactions, whether social, political, or commercial. This is not to say that all institutions are efficient; they are not. However, when institutions operate effectively and efficiently, the constraints they establish can produce beneficial outcomes for people, organizations, and firms by raising "the benefits of cooperative solutions" (North, 1991, p. 98). It is important to note that institutions are not static but are constantly evolving as the societies within which institutions are embedded also evolve (North, 1991).

2.3.2. Formal and Informal Institutions

Institutions come in many forms, both formal and informal. Formal institutions create a society's "laws, rules, and regulations" (Peng et al., 2009, p. 67). A government creating a constitution is an example of a formal institution creating formal constraints. Informal institutions, on the other hand, relate to the more nebulous ideas of cultural norms and values (Peng et al., 2009). For example, in some countries, offering gifts may be perfectly acceptable to secure business contracts. While formal and informal institutions are essential to analyze, Peng et al. argue that "informal constraints will play a larger role in reducing uncertainty" (2009, p. 68) when formal institutional constraints are

inadequate. Circumstances in which formal institutions cannot assert influence are termed institutional voids.

2.3.3. Institutional Voids

Developing a country's institutions is a long, complex process "shaped by a country's history, political and social systems, and culture" (Khanna & Palepu, 2010, p. 13). Once particular institutional practices exist, they can be hard to change due to institutional inertia and a desire for institutional self-preservation by a country's elite. The challenge of stagnant institutional development became apparent to researchers in the late 20th century, at the height of globalization. As post-soviet states joined the international trading system alongside less-developed nations, these countries' highly diverse institutional structures posed challenges to firms seeking to expand into emerging markets. One particularly challenging feature of many developing countries (and also developed countries) is institutional voids. Khanna & Palepu (2010) devised a series of questions firms must ask to detect institutional voids. These questions relate to 1) product markets, 2) labor markets, 3) capital markets, and 4) macro context.

2.3.3.1. Product Market Voids

Product market voids take many forms. For more consumer-facing industries, product market voids could relate to a firm's inability to reach a wide range of customers because, for example, insufficient retail stores exist to sell a product. Other product market voids relate to the ability of firms to secure access to raw materials (Khanna & Palepu, 2010).

2.3.3.2. Labor Market Voids

Labor market voids can also take many forms. If, for example, a country has an inadequate education system, a firm may struggle to hire sufficiently skilled labor for its operations. A lack of adequate labor protections can also represent a void, as can the opposite issue, i.e., overzealous labor market protections (Khanna & Palepu, 2010).

2.3.3.3. Capital Market Voids

According to Khanna & Palepu, capital market voids arise when a country's financial plumbing is ill-equipped to manage the economy. Financial institutions that are prone to corruption/fraud or that

lack financial heft can create capital market voids, as can inadequate or strict financial regulators (2010).

2.3.3.4. Macro Context Voids

The fourth area prone to institutional voids relates to what Khanna & Palepu (2010) term the macro context. When examining the macro context, firms should ask the following non-exhaustive questions: Is there a tolerance for corrupt business practices? Are politicians accountable to voters? What restrictions do governments place on foreign firms? Are there adequate and expansive property rights protections? Answering such questions will help firms spot macro-level voids (Khanna & Palepu, 2010).

2.3.3.5. Alternate Interpretation of Institutional Voids

Whereas Khanna & Palepu analyze institutional voids on specific market conditions for internationally active companies, other social scientists view institutional voids more broadly. This broader approach characterizes institutional voids as "conditions of limited government support, especially for social programs" (Stephan et al., 2015, p. 311). These social programs might relate to poverty alleviation or pollution reduction initiatives. In cases of institutional voids, these poverty and pollution programs would be non-existent or severely underfunded. In situations where institutions are well functioning, in contrast, actively "engaged governments lead to fewer societal problems" (Stephan et al., 2015, p. 311).

2.3.4. Limitations of Institutional Theory

Despite the widespread adoption and use of the institutional perspective throughout academia, the theory is not without its critics. Cai & Mehari (2015), in their review of 95 academic papers written about institutionalism, identify some broad criticisms of the theory. First, critics argue that institutional theory lacks adequate consideration of actors' agency within institutions. That is to say, institutions should not be considered monoliths. Instead, researchers must consider individual human decision-making within institutions. A second common criticism argues that institutional theory does not account for institutions' access to resources. The presence or absence of specific resources can expand or limit the power of an institution, and therefore institutional access to resources must be considered (Cai & Mehari, 2015). A final criticism comes from Peters (2000), who

argues that "the greatest challenge" (p. 1) to using institutional theory comes from the highly subjective, varied measurement and categorization of institutions.

2.4. CSR and Business Strategy

We have chosen to add a CSR viewpoint to the original Strategy Tripod by Peng et al. (2009), thus creating what we refer to as our 'Strategy Quadro-Pod.' We believe this additional angle is vital since more and more companies are beginning to view Corporate Social Responsibility (CSR) as an integral part of their business strategies. This newfound willingness to incorporate CSR into firm strategy has arisen as consumers, governments, and civil society have pressured businesses to move beyond simple shareholder capitalism. The belief that the sole responsibility of a business is to increase its profits (Friedman, 1970) is no longer viable. Instead, firms must now view their societal role more holistically, examining the costs and benefits of their actions for society.

2.4.1. From Costs to Benefits

Jhunjhunwala (2014) argues that as the study of CSR has advanced, more companies view CSR's benefits as outweighing its costs. Jhunjhunwala highlights some examples of the benefits CSR initiatives can provide to companies, including "strengthened public relations, improved reputation, reduced risks, license to operate and an opportunity for cause marketing" (Jhunjhunwala, 2014, p. 212). Jhunjhunwala introduces his idea of "reputational capital" (2014, p. 212), an aggregate measure of a company's relationships with its external stakeholders such as communities or a government. According to the author, "it is well accepted that a strong reputational capital is what distinguishes winning companies from the rest" (Jhunjhunwala, 2014, p. 212).

Jhunjhunwala (2014) goes on to argue that when a firm positively impacts the communities with which it interacts, the firm creates a win-win situation. For example, a company needs a healthy and well-qualified workforce to achieve commercial success. This fact necessitates communities with adequate schools and health services — public services which corporate CSR initiatives can bolster. These communities also need a clean, well-managed environment to live and thrive. Again, corporations can work with communities to achieve these environmental ideals by using cleaner, more efficient production processes, which could lower energy costs for the firm.

2.4.2. From Cosmetic to Strategic

Whereas firms used to view CSR as little more than an appeal for good publicity, corporations now view CSR as a crucial pillar of their corporate strategy. As Jhunjhunwala (2014) puts it, CSR "has mostly been cosmetic, [but] organizations need to appreciate that (...) CSR can be integrated into the companies' strategy (...) to create winning models" (p. 214). To help companies achieve their goal of integrating CSR into strategy, Jhunjhunwala outlines a few fundamental best practices. First, companies must identify areas where the firm's activities "directly or indirectly affect stakeholders" (2014, p. 215) — identifying areas of shared interest. Second, firms must consider their competitive advantage since the chosen CSR activities must complement this advantage. Third, firms select their desired CSR activities and integrate them into the business model. Finally, according to Jhunjhunwala, firms must "make it a corporate social agenda" (2014, p. 215), that is, firms must strive to embody the CSR activities they promote fully. This embodiment can be achieved by, for example, adding CSR priorities to the company vision and mission statement (Jhunjhunwala, 2014).

2.4.3. Alternative Views of CSR

The preceding interpretations of CSR that companies should either engage in CSR to produce reputational benefits or engage in CSR purely as a business strategy are only two views of many regarding CSR. Three other viewpoints are termed "moral obligation, sustainability, [and] license to operate" (Porter & Kramer, 2006, p. 81). CSR as a moral obligation is a relatively straightforward concept. This view argues that companies have a moral obligation to society to reduce harm and provide benefits (Porter & Kramer, 2006). The sustainability view, a relatively narrow interpretation, asserts that company CSR initiatives should focus on environmental sustainability and "community stewardship" (Porter & Kramer, 2006, p. 81). Finally, firms can engage in CSR to receive a so-called license to operate. In the words of Porter & Kramer, "the notion of license to operate derives from the fact that every company needs tacit or explicit permission from governments, communities, and numerous other stakeholders to do business" (2006, p. 81).

3. Literature review

Having established the theoretical foundation for our investigation, we will now proceed to systematically present the relevant existing knowledge on the topic.

The literature review we present here is a crucial component of our master thesis. Its primary goal is to provide an overview of the existing empirical literature on our research topic around Codelco's potential entry into the lithium industry. Additionally, we identify gaps within the existing literature that our study aims to fill. By carefully analyzing relevant literature in relation to our research angle, we can further emphasize the significance of our investigation. To achieve this, we have divided the chapter into two parts, investigating the two most prevalent streams of literature for our inquiry. The first part will scrutinize academic publications related to Latin American nationalizations in extractive industries, while the second part will examine how Peng et al.'s (2009) Strategy Tripod has been utilized in 25 carefully selected academic papers. Our literature review will form the foundation that will guide the direction of our thesis going forward.

3.1. Nationalizing of Extractive Industries in Latin America

As indicated above, our literature review will only deliver a snapshot of what has been written and studied in the vast nexus of state-led resource nationalizations. Moreover, it will focus on Latin America, as our case will also be based in the region, namely Chile. The following section will provide an account of relevant publications and discuss their arguments vis-à-vis our research trajectories.

In their book *The taxation of petroleum and minerals: Principles, problems and practice*, Daniel et al. (2010) comprehensively analyze state involvement in extractive industries. The authors examine why governments participate in these industries, discussing the advantages and disadvantages of state intervention. They explain how state involvement has developed over the years, with geopolitical shifts such as the independence of developing countries, the fall of the Soviet Union, and extractive boom and bust cycles shaping the nature of state participation. The authors differentiate between various nationalization or state involvement forms, ranging from full equity participation to mere production sharing. Moreover, a country's interest in resource extraction can be driven by non-economic factors such as national pride or financial objectives. In the latter case,

the state aims to maximize its revenue from resource extraction through direct payments like dividends or royalties.

However, Daniel et al. (2010) also identify potential shortcomings of state participation in extractive industries. State involvement can result in governance or macroeconomic management issues, and the ventures can be underfunded if profits are diverted for other purposes. Additionally, the state may face conflicts of interest when legislators are commercially involved. The authors cite Chile's state-owned copper company, Codelco, as an example, highlighting that "(...) core issues of state participation are ever-present – demands on funds, tensions between commercial and social functions, efficiency" (Daniel et al., 2010, p. 285). While Daniel et al. (2010) offer valuable insights into state-owned enterprises (SOEs) and their role in mining, their analysis can only be viewed as a general introduction due to their broad nature. However, their recommendations on promoting transparency, accountability, and stakeholder engagement remain relevant even though 13 years have passed since their book's publication.

Arsel et al. add a different angle to the literature introducing the idea of the "(...) extractive imperative' [in which] natural resource extraction came to be seen simultaneously as sources of income and employment generation and financing for increased social policy expenditure" (2016, p. 880). The authors continue to explain that the 'extractive imperative' goes beyond what (neo)-extractivism proclaims as an appropriation of the resources windfalls to support development trajectories: it entails the political zeitgeist, thus shaping societal expectations and governmental policies. In addition, it aims to leverage natural resource rents to enhance value chains. In the Chilean case of lithium mining, which will be our main point of interest, this could be moving up the value chain from mining lithium to producing electric vehicles (EVs). It prioritizes addressing poverty and inequality as pressing concerns rather than the ultimate goal, as extractivism suggests. However, Arsel et al. (2016) emphasize that the extraction of resources has a cost often borne by socially marginalized groups, particularly Indigenous communities. In Latin America, some states have prioritized the national interest of development through primary resource extraction, overlooking the negative impact on affected communities. The authors suggest that structural transformation is necessary, prioritizing it over short-term resource profits. However, "the challenge

is not simply to diversify the economy but to do so in a manner that enhances the overall sustainability and inclusiveness of economic growth" (Arsel et al., 2016, p. 886). Examining Arsel et al.'s concept of the 'extractive imperative' in the context of Chilean lithium mining would be intriguing to determine whether this political discourse translates into Codelco's entry into the lithium industry. This move would exemplify the Boric administration's desire to limit neoliberal policies and take a more assertive stance on this valuable mineral. Arsel et al. put forward interesting points, however, looking at most Latin American nations in 2023, which is seven years after the study was published, it becomes apparent that not much has changed and that the profit-generating function of extractive industries is still primarily used to fill state coffers — with little to no attention on the long-term effects, as we will show in the forthcoming sections of our thesis.

Gustavo Lagos (2018) complements the previously discussed views by adding a relevant and interesting case study of the nationalizations in Peru and Chile in the late 1960s and the beginning 1970s. In the author's opinion, reviewing the past mining nationalization helps understand current policies and sentiments toward the mining wealth of Latin American nations. If we take Chile as an example, Lagos paints a picture beginning in the late 19th century, where US-American interests already dominated the mining sector in Chile. The foreign 'domination' frustrated many Chileans as "a crucial portion of the Chilean economy was decided in the secrecy of foreign corporate boards, with no public explanation, leaving little room for the elaboration and implementation of national policies" (Lagos, 2018, p. 134). Subsequently, a process of 'Chileanization' took slow but steady advances, finally leading to President Allende's nationalization of the copper mines in 1971. Lagos continues to explain that taking state control of Chilean copper did not only mean more resource rents, maybe even more so, it was "a struggle to recover sovereignty and dignity, which was perceived to be breached by these powerful [foreign] companies (...). [T]he country would demonstrate that its engineers and technicians could successfully manage the mines" (2018, p. 134). Significantly, over the ensuing decades, the approach to mining in Chile shifted to a model where certain mining aspects were state-owned through Codelco, while others permitted private investment. Lagos highlights that this combination of public and private ownership has fostered the development of technology clusters and networks, healthy competition to attract workers, and continuous benchmarking, among other advantages. Overall, one can say that "[t]he success of Codelco throughout its 41-year history is so extraordinary that it has [led] people to ask more of it [state participation]" (Lagos, 2018, p.137). Lagos brings up an intriguing point about discussions on the nationalization of the lithium Industry, which was still a novel concept six years ago. He cautions against complete nationalization without compensation as it may not be viable, and private investment may still be necessary. Moreover, the author introduces the case study of Codelco and other SOEs in Latin America, thereby putting practical context into Daniel et al.'s 2010 publication. In addition, they provide historical reasons for what Arsel et al. (2016) term the 'extractive imperative.' While looking to the past for guidance is sensible, it is essential to recognize that circumstances change over time, and the 2023 potential lithium nationalization cannot be fully compared to Allende's copper nationalization over five decades ago. Nevertheless, considering past experiences is crucial for developing meaningful policies today. Our thesis aims to build on this by incorporating insights from the 2019 social crisis and President Boric's recently announced *Lithium Strategy* to provide new perspectives and thus build on Lagos's arguments.

Gudynas (2016) provides an account of Latin America's new, progressive left. In his chapter *Natural* resource nationalisms and the compensatory state in progressive South America, Gudynas explores how these administrations, as diverse as they might be, relate to natural resources. The concept of resource nationalism, which refers to a country's desire to maintain control over its natural resources and their exploitation, is introduced by the authors. The compensatory state is closely linked to this concept, and according to Gudynas (2016), one of the hallmarks of progressive governments in Latin America is their commitment to providing for those negatively impacted by resource extraction, including social and environmental externalities. However, balancing the competing goals of resource nationalism and the compensatory state presents a challenge, and the author emphasizes the importance of finding a middle ground. This can be achieved by promoting sustainable development and policies that benefit all citizens equally. For us, it would be relevant to build up on Gudynas's idea and see if the notions of resource nationalism and the compensatory state hold in the case of Chile and Codelco's expected move into lithium mining.

The chapter on Latin American state-owned enterprises in *The Routledge handbook of state-owned enterprises* provides exciting insights, although it is not exclusively focused on mining. The authors note that even after the 1990s wave of privatization, SOEs continue to exist in new forms of state

capitalism. They also highlight that "a bidding process for lithium was halted and a state takeover of lithium processing was seriously considered" in Chile, a country that underwent widespread privatization between the 1970s and the 1990s (Bernier et al., 2020, p. 164). As this thesis will explore, the debate over this issue continues in Chile, where there is a "permanent tension between pure profit maximization (...) and an industrial policy that connects with the private sector by developing production clusters" (Bernier et al., 2020, p. 166). SOEs are typically responsible for a country's development, so evaluating their ability to promote social and economic growth and efficiency is crucial. Bernier et al. (2020) offer an intriguing case study of Codelco, the state-owned Chilean copper giant and our case company. The authors note that Chile's reliance on Codelco's profits is so significant that the national budget is adjusted according to international copper prices. This reliance is unsurprising, given that Codelco contributes roughly 12% of the country's GDP and around 60% of all exports during periods of high copper demand. However, the authors highlight that there are no official rules regarding the reinvestment of profits at Codelco, as all profits are funneled directly into state coffers. Codelco cannot rely on self-financing and must receive government capital injections to sustain long-term investments. According to Bernier et al. (2020), it is crucial to examine Latin American SOEs within the specific economic, political, and socioenvironmental contexts in which they operate.

Additionally, the authors argue that guidelines for developing countries' SOEs should differ from those proposed by the OECD for developed countries. Ultimately, SOEs must be understood in the context of realpolitik specific to each situation (Bernier et al., 2020). With the help of our own primary data collection, understanding Chile and the case of lithium mining specifically will be our motive. We acknowledge that academic publications might sometimes shift their focus on describing the big picture rather than zooming in on a specific issue. In the Chilean case, this is what our thesis will try to bring to the table.

Having examined some pertinent academic publications in our field of study, it is evident that specific themes recur. These include the historical factors behind Latin America's adoption of neoliberal policies, the desire to nationalize natural resources to spur development, and the

shortcomings of neo-extractivism, which is often promoted as the 'magic bullet' for poverty and inequality but has not always been advantageous for society as a whole.

The academic contributions of Kingsbury (2021), Svampa (2019), and Brand et al. (2017) on extractivism in Latin America will be the final additions to the first part of our literature review. As a political scientist, Kingsbury examines the intricate relationship between leftist governments and the extractive industry in the region. The paper argues that despite the leftist governments' initial promises of social and environmental justice, they failed to address the negative consequences of extractivism. While the left's emphasis on poverty reduction and redistribution was a positive contrast to previous neoliberal policies, the paper argues that their dependence on extractive industries as a source of revenue led to conflicts with Indigenous communities and environmental activists. The industry's environmental degradation and community displacement had a negative impact. As the disillusionment with the left's inability to address social and environmental issues increased, the paper contends that it contributed to the emergence of right-wing governments in the region, such as Brazil's Bolsonaro. Ultimately, the author emphasizes the importance of a more nuanced approach to extractivism in Latin America that balances social and environmental concerns to create a more sustainable and equitable future for the region. Marisella Svampa, a scholar from Argentina, offers some noteworthy insights in her 2019 work. She points out the emergence of the 'eco-territorial turn,' which represents a confluence of various worldviews that reject the neoextractivist approach of extracting natural resources at any cost. This development has been driven by the opposition against the detrimental effects of the extractive industries that have long characterized many Latin American nations.

Furthermore, Svampa introduces the Idea of post-extractivism. Nonetheless, she notes that the rise of right-wing forces in Latin America creates uncertainty about whether neo-extractivism, despite its negative consequences, will continue to dominate the region, which adds to the idea that Kingsbury (2021) introduced. For their part, Brand et al. (2017) associated the Latin American discourse on post-extractivism with the degrowth concepts gaining ground in developed nations. Their research combined both concepts, advocating for adopting an all-encompassing development framework. This framework would encourage the reevaluation of current development paradigms

in developed and developing countries, ultimately paving the way for a more equitable, democratic, and fair developmental trajectory – the inclusive development framework (Brand et al., 2017).

Returning to Kingsbury, his short paper review ends with a somber tone:

Extractivism is not a problem of a particular political orientation but a civilizational disposition; (...) It depends on and reproduces a state-society-nature dynamic of order and command, of sacrificing the environment in the name of an ever elusive progress. (...) and it remains the terrain on which politics and the relationship between state, society, and nature will be contested" (2021, p. 987).

The examination of nationalizations in extractive industries in Latin America through this brief literature review has demonstrated that:

- 1) Careful consideration is required when weighing the advantages and disadvantages of state intervention in the Latin American extractive industry, given the complex and multifaceted role of the state in extraction and the sociocultural context.
- 2) State involvement in extractive industries can lead to potential conflicts of interest, governance issues, and macroeconomic management problems, primarily when the state relies on natural resource rents while making managerial decisions in the SOE.
- 3) Nationalization or state involvement in extractive industries can significantly shape societal expectations and governmental policies, especially in developing countries, as they strive to combat inequality and poverty via resource windfalls.

Likewise, our thematic literature review has shown a general scarcity of academic research investigating Chile's plans to partially nationalize its lithium exploration through Codelco, particularly in the context of Gabriel Boric's progressive government and the increasing demand for lithium to support the transition to green energy. We acknowledge that this subject is presently topical, which may partly account for the dearth of literature on the topic. Nonetheless, we contend

that there is a general paucity of papers that interconnect the concepts of Latin American resource nationalism, extractivism, and state-owned enterprises (SOEs) exploring the (Chilean) lithium industry. This literature should combine the broader development agenda with an examination of a company's internal capabilities, the extractive industry, and the institutional landscape. The following sub-chapter will delve into this topic in greater depth.

3.2. Peng's Tripod in Academic Publications

As explained in the preceding theoretical framework section, this thesis will utilize Peng et al.'s (2009) Strategy Tripod to analyze the viability of Codelco's entry into the Chilean lithium market. This part of the literature review will present how the framework was used in previous academic studies. It aims to show that we are using the Strategy Tripod in a novel way by examining a single, export-oriented, state-owned enterprise (SOE) based in the Chilean extractive industry. We reviewed the available literature in Copenhagen Business School's (CBS) online library database to accomplish our goal.

We began this theory-oriented literature review by searching the CBS library database for all academic papers referencing the Strategy Tripod by Peng et al. (2009). We used search terms and phrases such as "Peng's Strategy Tripod" and "Strategy Tripod." We then narrowed this search to include only those studies published in academic journals, ensuring the publication's quality. The final result of our investigation returned 25 relevant academic papers which utilize Peng et al.'s (2009) Strategy Tripod as their theoretical framework. We then examined all of these papers in detail to determine the level of similarity to our theoretical approach. The chart in Appendix E Figure 1 presents each of these papers and the degree to which they match our thesis' theoretical approach. A sample of some of the papers is included in Figure 9.

Author and Year of Publication	Journal	Single or Multiple Firms	Type(s) of Firm(s) Studied	Industry	Firm Origin & Market	Study Region
Del Vecchio Ponte et al., 2022	Business Strategy and the Environment	Multiple	Private	Agriculture	Local Firms Exporting Internationally	Latin America
Sassi et al., 2019	Journal of Arts Management, Law, and Society	Multiple	Private & SOEs	Cultural & Creative Industry	Local Firms Selling Locally	Europe
Gao et al., 2019	Chinese Management Studies	Multiple	Private MNEs	Multi-Industry	Foreign Firms Entering Host Country	Multi-Region
Barin Cruz et al., 2015	Business & Society	Multiple	Private	Multi-Industry	Local Firms Exporting Internationally	Latin America
Ju et al., 2014	Journal of International Marketing	Multiple	Private	Manufacturing	Local Firms Exporting Internationally	Asia

Figure 9: *Note*. Systematic Literature Review for Peng et al.'s (2009) Strategy Tripod (green indicates a match with our thesis' approach, and red indicates no match with our use of the strategy tripod), authors' own elaboration.

We analyzed 25 papers according to a few key categories. First, we noted whether these papers followed a single-case study approach (i.e., the approach of our thesis) or whether they examined multiple firms. Appendix E Figure 1 shows that 24 of the 25 studies used a multi-case approach. For example, the study by Gao et al. (2019) examined six Chinese multinational enterprises (MNEs) and their approaches to internationalization. However, a far more frequent practice among these 25 papers was to study hundreds of firms at a time and compare their experiences with the help of questionnaires. This was the approach taken by authors such as Wei et al. (2014), who sent questionnaires to over 800 randomly selected Chinese firms considering expanding internationally. Only one academic paper, written by Thomé et al. (2016), followed our research approach of examining a single firm in a case-study approach.

A second characteristic we assessed relates to the types of firms these academic papers studied. This characteristic was also heavily weighted toward one style: studying private firms, albeit of varying sizes. The paper by Lahiri et al. (2020), for example, focused strictly on family-owned small-and-medium enterprises (SMEs), whereas the report by Xie et al. (2011) looked at private MNEs. Only three papers included state-owned enterprises (SOEs) in their analysis, and each of these studies investigated private firms too. For example, Sassi et al. (2019) surveyed Estonian private and state-funded cultural & creative industry firms to understand their HR practices. In short, none of the 25 academic papers followed our thesis' research approach of examining only state-owned firms.

A third factor we considered during our review relates to the industry under investigation. There was considerable diversity in the types of industries that the papers studied. Wang et al. (2021) focused on the Chinese manufacturing sector, whereas Krull et al. (2012) looked at the engineering consulting industry. Once again, none of the 25 papers matched our thesis' approach of focusing on the extractives sector.

Next, we chose to examine the market orientation of the firms studied in the literature. Specifically, we looked at whether the firms in question were either 1) local firms selling locally, 2) local firms

exporting internationally, or 3) foreign firms entering a host country. For example, the paper by Zhu et al. (2019) focused exclusively on small Chinese firms selling to their local market. In contrast, Gao et al.'s (2019) paper studied Chinese firms that had built operations and manufacturing capabilities in foreign host countries. Only 9 of 25 academic papers researched firms whose market orientation matches Codelco's (i.e., a local firm exporting internationally). The paper by Barin-Cruz et al. (2015) is a notable example because it analyzed local firms exporting globally and specifically studied Latin American export-oriented firms. Moreover, Barin-Cruz et al. (2015) even add a CSR perspective to their analysis, similar to this thesis' approach.

The final characteristic lens through which we analyzed the 25 academic papers relates to the studies' geographic scope. Only three papers focused on Latin America and only one paper by Heredia et al. (2020) examined Chilean companies. The majority, 16 of the 25 papers, centered their analyses on Asia, usually China.

In summation, based on a systematic literature review of academic studies which employ Peng et al.'s (2009) Strategy Tripod, we can confidently say that this thesis' approach is novel. Not only have we chosen to follow a single case study approach, a technique that only one other paper used, but we have also opted to focus on a state-owned firm in the Chilean extractive-industry context.

It can be inferred that exploring the feasibility of Codelco, which is Chile's government-owned copper company, venturing into the lithium industry and applying Peng et al.'s (2009) Strategy Tripod would address an existing research gap. The investigation into Codelco's potential entry into the lithium industry using this framework can help fill the gap in current knowledge regarding the strategic considerations and potential socioenvironmental and economic outcomes of such a move. This research provides valuable insights into the opportunities and challenges associated with diversifying Codelco's operations and expanding into a new vertical. Ultimately, our study aims to inform decision-making regarding Codelco's future business strategy and contribute to the broader understanding of the interplay between corporate strategy, industry dynamics, and resource-led national economic development.

4. Methodology

Having introduced the nature of our scientific inquiries and presented the current trends within relevant scholarly research, we now turn to the methodological cornerstones that will guide this thesis's data collection and analysis. The chapter will explain the research philosophy and design before discussing our adopted research approach. The description of how the data was analyzed, in addition to potential limitations, concludes the methodology chapter. The purpose of Figure 10 is to assist in comprehending the methodological decisions made for this thesis vis-à-vis other potential choices.

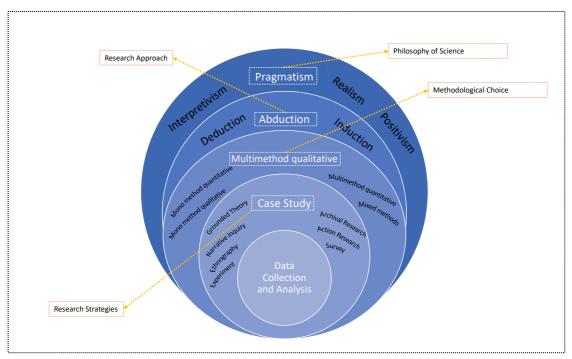


Figure 10. *Note*. Own creation of a research onion to inform the selection of research methods, Adapted from "The research 'onion'", by Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* [Book]. Pearson. © Saunders et al. (2012)

4.1. Research Philosophy

The research philosophy or philosophy of science is integral to any scientific investigation. It aims to describe the role of the researcher vis-à-vis the meaning of reality, nature, and science. Within this dimension, many different approaches can be differentiated. Depending on what the study should analyze, some philosophical paradigms will be more applicable than others. Having said that, it is essential to underscore that there is no golden rule when choosing an adequate philosophical approach, and it will always be context-dependent to find the pertinent approach. As researchers,

we will endorse pragmatism while acknowledging that divergent philosophies might be applied to answer our guiding research questions.

The two fundamental concepts that will inform the choice of each research philosophy are ontology and epistemology. The former is described as "the science of being" (Egholm, 2014, p. 25) and is directed at exploring the individual perspective on nature and the social world. Ontological positions can be found within the continuum of realism and constructivism. Realism assumes that characteristics, objects, or relationships exist without them being the subject of our understanding. In other words, they have an inherent, observable existence. Constructionists, however, believe that whatever we see or experience in the world is always influenced by individual perception. Thus, a study can only showcase a personalized understanding of a situation and is not generalizable. The researcher, therefore, will attribute meaning to them (Egholm, 2014; Easterby-Smith, 2018). As ontology establishes a general understanding of nature's reality, epistemology concerns how we can study said nature. Put differently, epistemology seeks to study knowledge and how this knowledge is constructed (Easterby-Smith, 2018). Epistemological considerations also entail whether there is an objective truth or if the truth is eminently subjective. Following German philosopher Immanuel Kant, many academics think that complete objectivity when inquiring about the nature of reality is unattainable. Intersubjectivity offers ways to address the frequently noted unacademic shortcomings of subjectivity. It makes it possible for other scholars to replicate a given study and arrive at the same or a similar conclusion as the primary research (Egholm, 2014).

After laying out the two fundamental levels of research philosophy, it is time to identify the one fitting this study's interests. As mentioned earlier, the pragmatist approach was identified as best suited to answer our main research question:

Should Codelco, Chile's state-owned copper giant, attempt to enter the fast-growing lithium mining industry?

Pragmatism focuses on how individuals behave in an actual situation and might provide recommended actions. Hence, it is not about generalizing the situations but rather about why they occur in the first place. The pragmatist notion, mainly influenced by the philosophers Peirce, James,

and Mead, is, consequently, about practical action (Egholm, 2014). As "knowledge and understanding should be derived from direct experience" (Easterby-Smith, 2018, p. 82), this approach is predominantly characterized by human action. They actively participate in their social context and shape it by means of their behavior. Pragmatism also ascribes attention to past experiences and how they continue to influence the present. From an ontological vantage point, this approach finds itself amid realism and constructivism: phenomena are investigated as part of a process, and their impact defines their importance. Connected to that, the epistemology of pragmatism sees knowledge as making sense of unique phenomena. The actual analysis is carried out afterward by employing abduction, a central aspect of pragmatism, and will be discussed in more detail in the subsequent section. Notably, the researcher's elucidations and embeddedness in the situation make it impossible for pragmatism to be completely value-free. Above all, the pragmatic truth theory is based on relationships between statements, institutions, and people. Knowledge is not required to be objectively 'true' as long as it is a helpful tool to understand the truth within the specific situation studied (Egholm, 2014). To sum up, "pragmatists recognize that there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there maybe multiple realities" (Saunders et al., 2012, p. 130).

Regarding this study's research question, pragmatism is thus suitable as the aim is to investigate this real-world circumstance and provide practical recommendations and appropriate strategies for Codelco. Hence, throughout this process, the emphasis will lie on the actions taken toward entering the lithium mining sector and the outcomes of Codelco's move. These goals resonate well with the overarching assumptions of pragmatism besides its ontology and epistemology and are in line with a consideration of multiple realities.

4.2. Research Approach

Contrasting notions can be differentiated when choosing the appropriate theory development approach for answering the research question. The research, therefore, could follow an inductive, deductive, or abductive logic. Induction is directed towards generating theory from data and thus moves from specific observations to general principles. If researchers are generating or building

theories, they follow an inductive rationale. Deduction, on the other hand, moves from general principles to specific situations. The purpose of studying a given situation is not to develop new theories but to test existing ones. Following this, deduction aims at verifying or falsifying theory (Saunders et al., 2012; Saetre & van de Ven, 2021). Put differently, deductive approaches are "concerned with developing propositions from current theory and making them testable in the real world" (Dubois & Gadde, 2002, p. 559). The third research approach, abduction, can be categorized as a mix of inductive and deductive attributes. As Saunders et al. (2012) summarize, abduction is "[g]eneralizing from the interactions between the specific and the general" (p. 144).

Thereupon, theories are subject to generation or modification to find the most reasonable explanation for a phenomenon. Abduction is about finding creative reasons, developing hypotheses, and coming upon new insights. It is not just about finding out if something is true but rather inferring something about a previously undiscovered incident. Egholm explains that the 'qualified guess' is crucial in abductive reasoning. While 'qualified' underscores the researcher's previous experiences and insights to derive meaningful hypotheses, the 'guess' is directed toward the generation of new knowledge without a predefined logic (2014). Egholm's arguments conclude that abduction is well suited to work with a pragmatist philosophy of science and will inform the research approach of this thesis on account of its holistic view, flexibility, and ability to analyze and describe new and emerging knowledge areas.

4.3. Research Design

Our study will use qualitative data sources to study the phenomenon of lithium mining in Chile and its development perspectives for the country. The qualitative data will be grouped into secondary data derived from existing sources such as company reports, policy briefings, and webinars, as well as primary data comprised of nine expert interviews to increase the robustness of this study's findings. For that reason, the investigation follows a multimethod approach incorporating two different qualitative data collection techniques (Saunders et al., 2012). Thus, the selected qualitative research design is characterized by the philosophical confederations and the approach to theory development as "inductive inferences are developed, and deductive ones are tested iteratively throughout the research" (Saunders et al., 2012, p. 163) laid out in the preceding section.

The research design will also inform the research strategy. The context of the Chilean lithium endowments and its country-specific industry dynamics, institutional framework, and development perspectives make using a case study design worthwhile. Here the definition of Yin (2002) will be applied as it "investigates a contemporary phenomenon within its real-life context, when the boundaries between the phenomenon and the context are not evident, and in which multiple sources of evidence are used" (as cited in Eriksson, 2008, p. 118). Lithium mining in Chile represents a unique and complex case, and not much scholarly attention has been devoted to developing a holistic understanding of the situation on the ground. Whereas multiple case studies might have yielded a broader perspective (Eisenhardt & Graebner, 2007), e.g., by including other lithium exporting countries, this investigation aims to deep-dive into the Chilean context and that of a specific Chilean company to identify particular circumstances and patterns, and undertake a rich analysis of the resource-endowed nation (Saunders et al., 2012). We endorse Flyvbjerg's argument that you can, in fact, use a carefully selected case study to generalize from a single case (2006). Exploring every lithium operation in Chile, notwithstanding, is out of the scope of this research project. Instead, the objective is to develop a general understanding of the situation, analyze it, and present recommendations.

The link between the chosen case study and the theoretical angle of this thesis is explained in detail by Welch et al. (2011). This thesis will emphasize two of the discussed approaches, interpretative sensemaking and contextualized explanation. While the former will be helpful to shed light on subjective action and past experiences, the latter will be paramount to grasping the interconnectedness and root-causal relationship of distinct structures embedded within the case. Besides, Welch et al. underscore that "contextualization and rigorous explanation can be complementary rather than contradictory outcomes" and overcome "the limited role to which it has traditionally been assigned" (2011, p. 757).

Finally, to further increase the validity of the research, the multimethod approach makes it possible to triangulate the findings and thus make it possible to verify and clarify obtained data or information. In addition, it allows for the detection and discovery of new dimensions (Dubois & Gadde, 2002; Eriksson, 2008).

4.4. Research Strategy

When systematically investigating specific research angles, the limited available secondary information and academic data points were reason enough to amplify the single-method approach to one that would include primary data collection via expert interviews. Contrary to our initial assumptions, many stakeholders from different disciplines and backgrounds agreed to be interviewed for this thesis. The interviews facilitated solid triangulation and broadened the perspective to incorporate up-to-date material. Given the volatility and continuous development of the situation in Chile, the selected strategy is feasible and relevant. While conducting on-site interviews would have produced interesting data, public access to pertinent interview partners could also be obtained using online tools. Unfortunately, all attempts from our side to get in touch with Codelco, our case company, were unsuccessful. Contact with an insider revealed that interviewing Codelco would likely be impossible due to stringent internal guidelines.

4.5. Data Collection

The following section concerns the data collection that informs the analysis of this thesis. As indicated, the investigation relies on primary and secondary data sources.

4.5.1. Primary Data

Whereas different primary data collection techniques can be used, we decided to use semi-structured expert interviews, which resonates well with the qualitative nature of the present case study. When opting for (expert) interviews, three types can be differentiated: structured, semi-structured, and unstructured conversations. Following Gioia et al. (2013), semi-structured interviews make it possible "to obtain both retrospective and real-time accounts by those people experiencing the phenomenon of theoretical interest" (p. 19). In addition, this approach allows for a certain flexibility while conducting the interview, as the order of the questions can be changed or adapted to match the situation or interviewee (Eriksson, 2008). Adopting a semi-structured approach can "ensure that the areas you think are important are covered, but you also provide the interviewees with opportunities to bring up their own ideas and thoughts" (Desai & Potter, 2006, p.145). There are, however, downsides to engaging with this research method. An issue could be to go native: in this circumstance, the researchers are too close to the informant. They thus might take views or information for granted, thus threatening the high-level ability to objectively theorize from

gathered data (Gioia et al., 2013). To mitigate the risk, the two of us conducted the interviews. One would take the leading role, and the other would observe and control the situation, potentially redirecting the conversation and avoiding biased behavior. Besides, other issues might influence the quality of the collected data, including reliability, interviewer bias, response bias, and participation bias (Saunders et al., 2012).

Moreover, issues arising about the generalizability and validity of this research method need to be considered. Considering the potential pitfalls, this study will rigorously follow academic conventions to reduce negative influence by meticulously documenting the entire data-gathering process, carefully preparing and conducting the interviews per established measures, and contextualizing findings with existing theory, among others (Saunders et al., 2012). The question of how many experts should be interviewed is not easy to answer, as it is subject to many considerations, explained in detail by Sovacool et al. (2018). For this thesis, the sample size was subject to a positive response from experts, acknowledging inherent data saturation points and which aligns with what Saunders et al. (2012) propose as a sample size of five to 25 semi-structured interviews.

4.5.1.1. Expert Interviews

According to Dubois & Gadde (2002), the selection process of interview partners is vital to ensure that a given reality is represented in the theoretical approach selected to study a particular situation. In other words, "you need to think carefully about what kind of sample your research questions require" (Willis, 2006, p. 147). Moreover, we opted for non-probability sampling, as our research objective did not require statistical inferences about a population. In contrast to probability sampling, this method does not permit making deductions about the probability of selecting this case over other cases in a population, as noted by Saunders et al. (2012).

Moreover, we chose a purposive approach, seeking a heterogeneous sample that would "choose participants with sufficiently diverse characteristics to provide the maximum variation possible in the data collected" (Saunders et al., 2012, p. 287). In some instances, we employed 'snowball sampling' by relying on potential interviewees or contacts to connect us with other interviewees. This sampling method falls under the category of voluntary sampling (Saunders et al., 2012).

At the beginning of February, we contacted potential interviewees by utilizing two of our supervisor's contacts and conducting extensive research via LinkedIn, academic journal databases, and news reports. After identifying 20 experts from various backgrounds in the Chilean lithium mining industry, we sent introductory emails explaining our master's program, research inquiry, and timeframe. Approximately half of the interview requests received responses, and some even facilitated connections with other relevant experts, expanding our pool of potential interviewees. As Saunders et al. (2012) noted, this approach falls under self-selection sampling, where the experts we contacted agreed to participate in the study.

Overall, nine expert interviews were conducted between mid of March and mid of April. The interviewees belong to academia, the public, or the private sector. Figure 11 provides a short overview of the interview partners and information for each conversation. Following the semi-structured approach above, a comprehensive interview guide (Appendix B) was prepared and continuously revised. Depending on each interview partner's specific experience and knowledge areas, the researchers emphasized individual aspects of the guide, such as the industry dynamics, Chile's institutional framework, and environmental factors, to name a few. About half of the interviews were conducted in Spanish – the native language of most of our interview partners – and the other half in English. In this case, the benefits of conducting interviews in Spanish, e.g., making it easier for the interviewees to express their points of view, outweighed the risks of misinterpretation by us as non-native researchers. Given the geographical distance, only one interview was conducted over *Zoom* or *Microsoft Teams*. With the interviewee's permission, eight conversations, which lasted around one hour, were recorded using the voice memo function of the computer. One interview partner did not want to be recorded; therefore, we resorted to taking notes during the interview.

Name	Occupation	Background (Company or Institution)	Interview Date	Interview Location	Interview Duration (approx./h)
Gerrit Fuelling	Industry Expert & Consultant	Ex President Rockwood Lithium Asia	13 March 2023	Microsoft Teams	01:10
Jorge Valenzuela	Advisor	Chilean Embassy Copenhagen	15 March 2023	Chilean Embassy Copenhagen	01:10
Mauricio Lorca	Researcher	Universidad de Atacama (Chile)	15 March 2023	Zoom	00:59
Cristina Dorador	Microbiologist, Politician & Researcher	Universidad de Antofagasta (Chile)	20 March 2023	Microsoft Teams	01:09
Daniel Jimenez	Industry Expert	External Consultant & Ex-SQM Senior VP	22 March 2023	Microsoft Teams	00:38
Iris Wunderlich	Project Leader	Mining & Sustainibility at AHK (Chile)	22 March 2023	Microsoft Teams	01:03
Manuel Andrade	Researcher	Universidad Mayor de San Andres (Bolivia)	23 March 2023	Microsoft Teams	00:48
Andreé Henríquez	Industry Expert	Centre for the Circular Economy (Chile)	4 April 2023	Zoom	01:14
Claudia Zilla	Researcher	Senior Fellow at SWP (Berlin)	14 April 2023	Microsoft Teams	01:00

Figure 11: Note. Overview of Interview Participants, authors' own elaboration.

4.5.1.2. Transcription

The transcripts were composed using software tools, namely *Microsoft Word's* integrated transcription function and *Trint*, to speed up the process; however, due to the quality of the audio files and accents, the transcripts had to be thoroughly revised by us. The transcripts capture exact words spoken without phonetic interpretation or summarization, thus following the verbatim approach. It aims to reflect the written language by refining speech and incorporating punctuation. Non-verbal utterances are excluded from transcription, and each speaker change is indicated by a blank line to enhance readability (Kuckartz, 2010). All Spanish transcripts were translated into English and, afterward, along with the English original transcripts, coded utilizing the software *Nvivo*. Lastly, we acknowledge that translating the original Spanish transcripts into English might produce misunderstandings. To mitigate that risk during the coding process, we cross-checked the original work against the translation.

4.5.2. Secondary Data

Besides the data collected via nine expert interviews, existing data made up a significant amount of material to direct this study and broaden the scope of this inquiry. Additionally, it permits considering different vantage points concerning lithium mining in Chile.

4.5.2.1. Academic publications

Most of this thesis' secondary data can be clustered as academic publications, most of which fall under the category of scientific journal articles. At times academic books or book chapters were used. To find the pertinent academic literature, we primarily used the online search function of the CBS Library, Google Scholar, and JSTOR. Another convenient approach to locating apt publications was to review the reference section of peer-reviewed papers. This made it possible to find publications unavailable in the previously mentioned catalogs.

4.5.2.2. Company Reports

As the focal point of this thesis revolves around a set of different mining operations in Chile, namely conducted by SQM, Albemarle, and Codelco, the company's annual reports provided valuable information for the analysis. The reports included basic figures regarding extracted materials along with CSR and sustainability strategies. Nonetheless, it is essential to emphasize that we recognize the biased nature of company reports. The provided data was, therefore, triangulated with other data sources to minimize the risk of partisan reporting.

4.5.2.3. Webinars

Webinars were an excellent source to gain input besides the previously mentioned sources. Most interestingly, this format combined a selection of myriad speakers ranging from multinational corporations to NGOs and scholars. Nonetheless, finding relevant webinars was the main challenge. Fortunately, one of the interview partners recommended a webinar series called *Ciclo de conferencias online* which was thought-provoking. We found another webinar through a LinkedIn search on the global lithium industry. The webinars were recorded, and relevant highlights were added to *Nvivo* for subsequent coding. As the opinions of the webinar's participants are subjective, they were triangulated to minimize potential biases.

4.5.2.4. Online newspapers

On top of that, we used various international news outlets such as *The Financial Times* or *The New York Times* together with local newspapers like the Chilean *El Mercurio*. Following the developments of lithium mining both nationally and internationally was valuable to get a sense of the dynamics of the debate. It became apparent that the type of coverage and what is being reported varies

significantly depending on the newspaper's location. For instance, whereas international newspapers write about the importance of lithium for the green energy transition, local ones are, rationally, more engaged with the impacts of mining operations in Chile itself.

4.5.2.5. Podcasts

In terms of the diversification of secondary data sources, this study also incorporated information obtained through podcasts. Thanks to the intelligent search function on Spotify, the researchers found niche podcasts dealing with different aspects of lithium mining. Two fascinating examples were *Chile – Lithium Nation* by *The Global List* and *Joe Lowry's The Global Lithium Podcast*.

4.5.2.6. Documentaries

Via YouTube, it was possible to find and watch documentaries about Chile's mining industry and lithium, more specifically, such as *Copper and the dark side of the energy transition* by *Deutsche Welle Documentary* or *The battle for Chile's critical minerals* from *Sky News*. In the latter, microbiologist Cristina Dorador was interviewed. Similarly, we conducted an interview with Dorador for our current research.

4.5.3. Data Analysis & Coding

To scrutinize the data, we apply the thematic analysis put forward by Braun & Clarke (2012). It "is a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set" (Braun & Clarke, 2012, p.57). Moreover, thematic analysis makes the data accessible and permits a certain amount of flexibility. The proposed six steps ranging from making oneself familiar with the data to the actual production of the report, will be taken as a general guideline (Braun & Clarke, 2012). One of the steps will now be examined, namely coding.

Coding allows "collected data to be assembled, categorized, and thematically sorted, providing an organized platform for the construction of meaning" (Williams & Moser, 2019, p. 45). Generally, the coding process must follow rigorous procedures to ensure the reliability and validity of qualitative data. The coding process is divided into distinct steps: open, axial, and selective coding. In each step, the data is further grouped and consolidated to end up with high-level topics or conclusions. The process is, however, cyclical and requires continuous re-reading and analyzing of the data. Open

coding is concerned with the initial organization and clustering of similarities and differences in the data. After that, axial coding is about finding connections and relationships among the previously determined codes. The final step, selective coding, provides core categories for the data: the researcher's task is to merge categories and subcategories into explanations for the studied phenomena (Williams & Moser, 2019). Gioia et al. (2013) provide another reasonable explanation for data coding, denominating the steps as first and second-order concepts leading to an aggregated dimension of codes. The authors recommended drawing up a data structure to visualize the process, which will be put forward in the analysis section of our thesis. In short, this coding approach allows this research to find explanations for the studied phenomena in the collected data and link them to the theory.

4.6. Research Ethics

Altogether our study associates itself with the ethical considerations described by Saunders et al. (2012). The interviewed experts were asked if they would consent to be recorded and use the information gathered as part of this thesis. Moreover, all experts waived their communicated right to anonymity and allowed their names and background to be used in the study. All data was collected and stored exclusively on the secure CBS OneDrive server to minimize the risk of data misuse. Furthermore, we declare no conflict of interest that could influence the analysis or findings.

4.7. Limitations

Altogether, we want to underscore that the collected primary and secondary data might be emotionally tainted, as the whole discussion of lithium mining in Chile can be characterized as highly polarized. It was sometimes challenging to differentiate factual information from the interviewees' or authors' feelings or subjective impressions. To live up to the academic expectations of a master thesis, we triangulated all the data whenever possible and always maintained a critical distance toward individual opinions and standpoints. Additionally, the employed primary and secondary data collection methods might result in limited generalizability regarding the sample size and scope of secondary material. Also, we recognize potential biases among the consulted experts and researcher bias because of abductive reasoning. Writing this thesis takes place in a limited time frame of one semester, thus restraining the time for researching and analyzing to arrive at a feasible conclusion. On top of that, we investigated the situation at a given time, limiting the understanding

of past and future patterns in a longitudinal sense. Considering these fundamental limitations, it is paramount to review the entirety of the present work. Before concluding our thesis, we will provide a more detailed account of the limitations we encountered in this study.

5. Research Context

In the following section, we will provide an overview of our research context to aid the understanding of the following sections. First, we will examine Chile and its political economy in broad terms. Next, we will explore the case of Codelco, its history, and its current operations in Chile. In addition, we will examine Chile's place in the global lithium market, which has become increasingly significant in recent years due to the country's abundance of lithium reserves. We will also explore the socio-environmental dimension of Chilean lithium mining, including its impact on local communities and the environment. Finally, we consider the current political tensions in Chile, particularly those related to the new constitution and the mining industry.

5.1. A Brief History of Chile's Political Economy

Since the earliest days of Spanish rule in The Americas, the colonial extractives industry, which searched for precious metals like gold and silver, was central to the Latin American economy. However, despite Chile's current importance in the global extractives industry, colonial Chile offered minimal deposits of precious metals. Neighboring countries such as Peru and Bolivia contained significantly greater deposits of precious metals that the Spanish colonists could easily extract. Thus, Chile remained economically underdeveloped vis-à-vis its neighbors, at least regarding the extractive sector. Spanish settlers to the Chilean region instead focused their efforts on agriculture, growing "a wide variety of cereals, vegetables, and fruits; raised livestock; and consumed nearly all of their production locally" (Johnson et al., 2023, para. 1). The Chilean colonial economy was so insignificant that the Spanish crown was often forced to subsidize the colony to keep administrative and security operations going. This economic inferiority also meant that many practices, such as slavery and indentured servitude, were less common in Chile, though they did exist to a limited extent (Johnson et al., 2023).

The economic outlook for Chile started to change for the better following its independence from Spain in the early 19th century. Thanks to booming European demand for silver, copper, and

especially nitrate, used for fertilizer, Chile's extractives industry expanded rapidly. Chilean trade patterns sent most of these commodities to Britain, France, and Germany, and these European countries soon set up commercial operations in Chile too. One particularly important economic event was the discovery of a massive silver mine in Chañarcillo in Northern Chile. This discovery led to massive migration toward the sparsely populated northern regions (Atienza et al., 2021).

The latter half of the 19th century proved a complicated time for Chile economically and politically. Waves of political crises struck Chile, as did territorial conflict with its neighbors. One such conflict was the War of the Pacific (1879-1883), in which Chile gained control of the Atacama Desert from Bolivia and Peru. The conquest of the Atacama proved fateful for the Chilean economy. Rich in natural resources, especially nitrate, the Atacama Desert soon became the jewel in Chile's economic crown. The sheer volume of nitrate deposits in the Atacama ensured Chile a near-monopoly in the global nitrate market. The nitrate monopoly was not without its drawbacks, however. Vicious boom and bust cycles characterized the Chilean economy in the late 19th and early 20th century due mainly to wildly fluctuating nitrate prices (Brown, 1963). Eventually, Chile's so-called Nitrate Age ended abruptly following the invention of a process to extract nitrogen from the atmosphere. This new form of nitrate production eviscerated the once-booming Chilean nitrate industry, and the country took decades to recover economically. The crisis was so bad that the League of Nations estimated that the Chilean economy was the national economy most severely impacted by the Great Depression (Biblioteca Nacional de Chile, n.d.).

Unfortunately for Chile, the political and economic turbulence of the 19th century continued well into the 20th century. Elected officials and military leaders often vied for power, and coups and coup plots were an all-too-common experience in Chile from the 1930s to the 1970s. The tension between left-wing and right-wing politics was at the core of this political turmoil, and perhaps no Chilean politician better encapsulates this than Salvador Allende. Elected in 1970 with roughly 37% of the popular vote, Allende was Latin America's first democratically elected Marxist politician (Loveman, 2020). Unsurprisingly, the United States, locked in a Cold War with the Soviet Union, was displeased with the idea of a left-wing government in their backyard. The US backed several attempted coups d'état against the leftist government. Allende won few friends in Washington or among Chilean elites in his push for widespread nationalization of key industries, including the

copper industry. Eventually, in 1973, Allende was indeed ousted by a military junta led by Augusto Pinochet (Loveman, 2020).

5.1.1. The Pinochet Years (1973-1990)

Swept to power in a coup, Augusto Pinochet created much of the foundation upon which modern Chile still operates. A clear example can be seen in Pinochet's 1980 Constitution, a document that still governs Chilean society to this day. Political persecution was common in the Pinochet era, and the regime had a particular passion for targeting left-wing politicians and activists. Thousands of civilians were killed in this repression. Economically, the dictatorship was deeply influenced by a group of neoliberal economists, the Chicago Boys.

Pinochet and the Chicago Boys set out to tackle Chile's rampant hyperinflation and to open Chile to global markets. Government spending was slashed, state-owned enterprises were sold off (often to Pinochet loyalists), and import duties were drastically lowered. A particularly egregious example of Pinochet's crony capitalism can be seen in SQM, the largest private mining company in Chile and a significant lithium extractor. SQM was sold to Pinochet's son-in-law, who still owns the company today and has a net worth estimated in the billions of dollars (Matamala, 2021). This example clearly represents one of Pinochet's lasting legacies in Chile: widespread economic inequality. The situation today is so uneven that, according to the World Inequality Database, in 2021, Chile's richest 1% owned 49.4% of all wealth in the country, making Chile the 27th most unequal country in the world (WID, n.d.).

5.2. Company Introduction: Codelco

Another of Pinochet's lasting legacies is Codelco. The National Copper Corporation of Chile, known simply as Codelco, is the state-owned mining company of Chile and the world's second-largest copper company by production output (Pistilli, 2023). Established in 1976 in a decree by the Pinochet government, Codelco was created in tandem with the Chilean Copper Commission, a mining advisory agency. Being 100% owned by the Republic of Chile, Codelco is required to send most of its profits to government coffers. Pinochet was particularly fond of using these mining funds for military expenditures, going so far as to pass a law requiring that 10% of all Codelco's profits go directly to the military (The Editors of Encyclopedia Britannica, 2016). Amazingly, this military

funding arrangement was only discontinued in 2019 following a law change by the Chilean legislature (Sherwood, 2019a).

Codelco's current operations produce various copper-related products, including "grade A copper cathodes, copper concentrates, and blister copper, among other products and by-products" (Araneda, 2020, p.1). According to 2019 figures, Codelco's production amounted to roughly 8% of global copper output and 27% of Chilean copper output that year (Araneda, 2020). Codelco's lifetime contribution to Chile's economy is even more impressive. In its over five decades of production, Codelco has contributed nearly 20% of Chile's export mix (Araneda, 2020). Most of Codelco's copper products go to Asia, most notably China, whose vast demand since entering the World Trade Organization in 2001 has pushed copper prices to new heights (see Figure 12).



Figure 12: *Note*. Copper Prices in USD Per Pound, adapted from Copper Prices – 45 Year Historical Chart, (n.d.). [Dataset], https://www.macrotrends.net/1476/copper-prices-historical-chart-data. © macrotrends

Regarding Codelco's management structure, the Chilean government also plays a central role. It is the duty of the Chilean President to appoint the seven-member board of the company. The board is led by the Minister of Mines, appointed by the President. Finally, employee representatives are present in all management decision-making (EMIS, 2023).

In recent years, one of Codelco's major challenges has been maintaining production levels amid declining copper ore grades and increasing extraction costs. The company has implemented several strategies to address these challenges, including investments in technology and automation, cost-cutting measures, and the development of new mining projects (GBR Reports, n.d.). Additionally, Codelco has faced challenges related to labor disputes. These issues have affected the company's production levels, often leading to significant financial losses. Codelco has worked to improve its labor relations by negotiating with labor unions and implementing measures to improve employee satisfaction and retention (MercoPress, 2022).

Faced with these numerous challenges, Codelco, in tandem with the Chilean government, has sought out new paths for growth. It emerged in February 2022 that one such path Codelco was considering was lithium. Specifically, the company announced that it had received a permit for lithium exploration in the Salar de Maricunga in Chile's north (Figure 13).

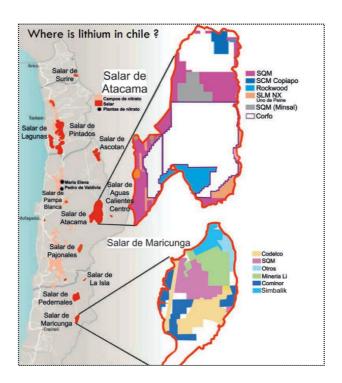


Figure 13: *Note*. Chilean Lithium Deposits, from Embassy of India, Santiago, Chile. (2019), Survey of Lithium Market – Chile [Slide show]. © Embassy of India (2019)

Codelco's explorations in the Salar de Maricunga were a critical first step in a potential move into the lithium market. According to a statement released by Codelco: "Depending on the results of the

campaign, specifically the concentrations of lithium dissolved in the brines of mining properties, the company will define whether it is environmentally and economically viable to continue with the development" (Pulice, 2022, para. 4)

As of 2023, it seems the lithium bet in Maricunga has produced positive results, further increasing the likelihood of a full Codelco entrance into the lithium sector. According to BNAmericas, a consultancy, the exploration into the Salar de Maricunga was important since "it verified that Maricunga is the second-best salt flat in Chile in terms of lithium concentration, after the Salar de Atacama" (BNAmericas, 2023a, para. 4).

5.3. Chile's Role in the Global Lithium Market

Global demand for lithium is expected to increase for the foreseeable future as the green transition picks up pace and electric vehicles (EVs) become more common. Chile is well-placed to take advantage of this skyrocketing lithium demand thanks to the Latin American country controlling half of the known global lithium deposits (Maxwell & Mora, 2020). While demand for lithium is currently at an all-time high, Chile has been involved in smaller-scale lithium extraction since the 1980s. Chilean lithium output was valued at roughly 90 million USD in the early 1990s, but by 2018 its value had risen dramatically to an astounding 1 billion USD (Maxwell & Mora, 2020). A year later, in 2019, it was estimated that Chile supplied 23% of the world's lithium (Cabello, 2021).

Several factors beyond the sheer scale of its deposits make Chile's lithium sought after. These factors include the high quality of the lithium brine, the proximity of the deposits to good rail, road, and maritime shipping infrastructure, and the low cost of extraction/processing vis-à-vis other lithium-producing countries (Maxwell & Mora, 2020). Analysts from Bloomberg have crunched the numbers on various lithium mining countries' cost structures. They found that the extraction costs in Chile ranged from around 2,000 USD to 3,800 USD per ton, whereas competitor nations like Australia faced extraction costs ranging from 4,000 USD to 6,000 USD per ton (Millan & Gilbert, 2017). Such discrepancies in cost go a long way in explaining Chile's enviable position in the global lithium market.

5.3.1. Lithium Extraction Process

Most of Chile's lithium deposits are found in the Salar de Atacama, a desert region in Chile's arid North. "But there are also about 60 other lithium" (Maxwell & Mora, 2020, p. 58) sites throughout Chile, including the previously mentioned Salar de Maricunga. A Salar, the Spanish word for salt flat, is common throughout the *Lithium Triangle* (Bolivia, Chile, and Argentina). Beneath these salt flats, mineral-rich water aquifers can be found. The first step of the lithium mining process involves drilling through a salar's crust and pumping the salty water to the surface, where it is left in evaporation pools for several months. This results in a mixture of minerals, including manganese, potassium, and lithium salts, eventually becoming a muddy pool. The muddy mixture is then moved to another open-air evaporation pool, where it is further distilled for 12-18 months until the desired level of lithium carbonate, the primary ingredient in lithium-ion batteries, is achieved (see Appendix A, Figure 2). The final step involves drying the lithium carbonate. At this point, the product is ready to be shipped to buyers around the world (Bauer, 2020). The fact that this process relies heavily on solar radiation to facilitate the evaporation process means that the carbon footprint of lithium extraction is relatively low. This fact "is a major selling point for electric automakers keen on eliminating emissions from supply chains" (Leiss & Yeluri, 2021).

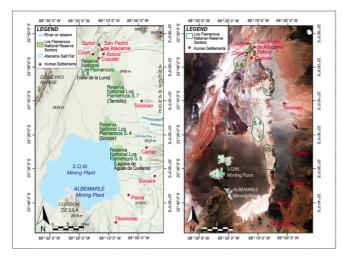
5.4. Socio-environmental Dimension of Chilean Lithium Mining

The successive chapter will provide an overview of the socio-environmental impact of lithium mining operations in Chile. It will shed some light on frequently discussed topics, such as lithium mining's connection to water usage and its implication for biodiversity and communities living in the lithium mining geographies, namely in proximity to the Salar de Atacama.

5.4.1. The Environmental Dimension

"With so much pressure from the world to produce more lithium (...) the price is going to be paid by Chile's environment" (Otis, 2022, para. 18), notes the microbiologist Cristina Dorador with regards to the soaring global demand for lithium, an essential mineral to power the green energy transition. Many scientists, including Dorador, continue to raise questions about the adverse environmental impacts of SQM's and Albemarle's lithium mining operations in Chile. A detailed investigation by Liu et al. using, among other things, satellite images from the Atacama Desert captured through the

past two decades uncovers "(1) vegetation decline, (2) elevating daytime temperatures, (3) decreasing trend of soil moisture, and (4) increasing drought condition in national reserve areas" (2019, p. 145) in the studied region. However, even if the researchers highlight a correlation between lithium mining activities in the Atacama salt flats, they acknowledge that climate change might contribute to the observed changes, thereby fueling the controversy about the root cause of changes in the Salar de Atacama (Liu et al., 2019). Figure 14 depicts some of the changes observed by the scholars using satellite images.



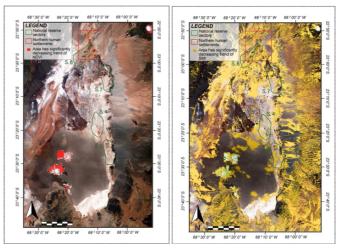


Figure 14. *Note*. Map of the study area in the Atacama Salt Flats including rural settlements, mining companies, and four sectors of the Los Flamencos National Reserve. Adapted from "Spatiotemporal patterns of lithium mining and environmental degradation in the Atacama Salt Flat, Chile", by Liu, W., Agusdinata, D. B., & Myint, S. W. (2019). [Article]. ITC Journal, 80, 145–156. © Liu et al. (2019)

On top of that, there is concern about unintended spillovers or leakages in the systems pumping the brine from the underground deposits to the giant evaporation pools, potentially contaminating the habitat (Kaunda, 2020). Moreover, lithium extraction from brines produces vast amounts of waste products as part of the evaporation process. Currently, the byproducts are piled up at the borders of the salt flats. Even if the waste is non-toxic, the sheer figures call for waste management: if 20.000t of lithium carbonate is mined for ten consecutive years and piled up at 1m, the waste will fill an area of 11.5 km² – around 1.5x the Central Park in New York. In general, environmentalists voice concerns about insufficient data to assess the long-term effects of brine water mining on the interconnected ecosystem. The Salar de Atacama, despite being one of the driest places in the world due to unrivaled solar radiation levels, is characterized by unique flora and fauna. About 80% of all species found in the salt flat are endemic, of which another 30% are endangered (Greenfield, 2022).

Moreover, the extreme conditions in the salt flats are priceless archives of the past and allow for predictions about future climate trends (Sengupta, 2022). The Mars-like conditions are vital to investigating species that live and survive in extreme conditions. The study of living organisms in the Salar de Atacama can help us understand adaptation strategies for global warming and extreme weather conditions and inform the development of new medicines (Greenfield, 2022). Overall, Graham et al. find that there is a crucial trade-off "as with most mineral resources, technically and economically recovering the reserve portion of the resource without inflicting ecological and social harm is a complex challenge" (2021, p. 4).

5.4.2. The Environmental Impacts on Water in Lithium Mining

According to Danwatch, a Copenhagen-based investigative media outlet, lithium extraction in the Atacama salt flats used approximately 63 billion liters of brine water in 2019 alone, equal to 1.6 million Danish households or 2.2 million liters of water per ton of lithium (Campbell, 2022). The figure, however, must be put into perspective, as the water that evaporates as part of lithium mining is not fresh water apt for human consumption or irrigation due to its salinity being around nine times higher than seawater (Obbekær, 2019; Flexer et al., 2018). Nevertheless, estimates are that 95% of brine water pumped to the surface is permanently lost in the evaporation process and that the amount of water pumped out of the underground deposits in the Salar de Atacama has increased by 21% from 2000 to 2015 (Kaunda, 2020), that is before the global demand for lithium skyrocketed, as explained earlier. The water distress is intensified by the location in one of the driest places on earth with low precipitation levels. Flexer et al. (2018) thoroughly describe two other concerns regarding water in lithium mining. First, fresh water is pumped from company-owned wells to purify the lithium-rich brine or the lithium carbonate. Secondly, there is the issue of the interrelatedness of underground brines and freshwater deposits. As a result of missing data and studies, little is known about the impact of underground water flows. However, some studies suggest fresh water can move or flow into brine deposits if water levels decrease. That would be the case if there were no static borders between underground deposits.

Consequently, the lithium brine will become more diluted, but most importantly, fresh water will be lost in the subsequent evaporation process. However, even if mining companies do not acknowledge the interconnection of below-ground water sources or an overall negative impact on the ecosystem, the authors stress that more studies are needed to comprehend the implications for the water resources in the lithium mining zones. That is further complicated by miners holding back on internal data and the heterogeneous nature of every salt flat, chemical composition, and hydrological characteristics (Flexer et al., 2018). Flexer et al. conclude that "the water issue is an open question, and neither the mining fundamentalists, nor the hardcore environmentalists have yet shown conclusive evidence that either continuous brine pumping and evaporation is safe, nor that it is unsafe" (2018, p. 1195). On top of that, other factors, such as increased numbers of tourists and mining workers in the regions, contribute to water scarcity (Liu et al., 2019). Consequently, even if the exact correlation between lithium mining and water scarcity in the Chilean Atacama Desert is not fully understood, the available evidence suggests an interdependence. Mining operators should, thus, keep potential negative externalities in mind.

5.5. Impact on Indigenous Peoples: The Consequences of Lithium Mining on Native Lands

As depicted earlier, the push for the transition to clean and green energy comes at a cost: less air pollution in the Global North means detrimental effects in other parts of the world – like the Salar de Atacama in Northern Chile. As one environmental activist puts it, mining companies and governments "think they are doing the right thing, and that green globalization is correct, but there is more than energy here; we are fighting for our life" (Greenwood, 2020, as cited in Lorca et al., 2022). This sentiment exemplifies the ambiguity about intercontinental lithium demand and the actual impact on the ground for the life of Indigenous communities. However, Indigenous peoples' actions in the realm of Chilean lithium mining operations go way beyond mere protest or obstruction. Communities negotiate to agree on compensation schemes, engage in monitoring activities, or are themselves employed by lithium extractors. These factors, among others, have inherently intertwined the Atacameño communities with mining operators and made them an essential stakeholder in the nexus of resource extraction across Latin America (Lorca et al., 2022). Notably, this has fueled conflict with mining companies and within and among different communities. This is exemplified by the Council of Atacameño People (CAP), founded in 1992. Its

goal is to unify the voices of Indigenous peoples and make them more powerful vis-à-vis multinational corporations like SQM or Albemarle. Notably, the council has promoted an agenda towards "identity construction, organization and increasing political mobilization" (Lorca et al., 2022, p. 7) of Indigenous communities in the Atacama salt flats. Nerveless, as the CAP has been able to negotiate financial agreements with private companies, the membership within the organization has been contested, and so has the affiliation with Indigenous peoples in general. It comes down to who receives compensatory payments and who does not. Communities who felt left behind have thus engaged in individual negotiations with mining companies. Generally, Indigenous positions are characterized by dualism: an understanding that sees compensation and monitoring as a fair way to participate in Chilean extractivism and an opposing notion condemning co-optation and division of communities and jeopardizing traditional ways of living in harmony with the environment. Communities like the Colla exemplify the latter following the idea of Pachamama, that is to "coexists with the mountains, the water, and the wildlife" (...) and to "perform [...] seasonal ceremonies" (Greenfield, 2022, para. 8). Lastly, the absence of the national government in the remote areas more than 1,000 kilometers away from Santiago de Chile has benefited private company interventions and left the Indigenous communities to deal with institutional voids (Lorca et al., 2022). Gentes & Policzer's (2022) account of neoliberal policies in Chile further accentuates the historically enshrined power asymmetries between local communities and corporations, especially concerning access to highly privatized water. The observed imbalance stems from dissimilar access to financial resources, inadequate consultation processes, and socioenvironmental impact assessment procedures conducted by private firms. The Chilean neoliberal framework favors extractive industries and private interests over Indigenous ones. Therefore, the authors advocate rethinking the neoliberal consensus that has shaped the nation for many decades, where the sum of public interests is equal to private ones. A final reminder is put forward by Lorca et al.:

(...) rais[ing] questions about how and why particular ways of life in one part of the globe can be put at risk or even sacrificed for the benefit of saving – not 'the planet' – but a particular, privileged way of life in another part of the globe (2022, p. 9).

5.6. Chile in Times of Political Change

The succeeding passage will provide background information on the mass protests that erupted in 2019 and the process surrounding Chile's attempt to create a new constitution. Moreover, the Water and Mining Code will be scrutinized as it is imperative to understand the legal frameworks governing lithium mining in Chile for the subsequent analysis and discussion section.

5.6.1. Chronicle of the 2019 Protests in Chile

The 18th of October 2019 marked the beginning of the most significant wave of protest in Chilean history. Previously regarded as a haven of political stability, the Latin American country erupted in chaos. Whereas demonstrations remained peaceful for most parts, some protestors continuously resorted to violence like arson of public transport infrastructure and looting. While the *estallido social* (social outburst) was sparked by a price increase in the capital's metro tickets, the root causes can be traced back to decades of social division and unequal access to education and healthcare, among many others. *Chile despertó* (Chile woke up) was chanted by dissatisfied Chileans who took to the streets throughout the nation, challenging neoliberal consensus and privatization, legacies of the Pinochet era. Due to ongoing mobilizations, then president Sebastián Piñera restructured his cabinet and announced increased support for low-income households and higher taxation of wealthy Chileans. Nonetheless, protests continued to mobilize, reaching figures of 1.2 million people (Sasse, 2021).

Soon after, the process of writing a new constitution was initiated. In October 2020, one year after the social outbursts had started, around 7.5 million Chileans cast their vote at the ballot box, approving the mandate to write a new constitution by an overwhelming 80%. The electorate also decided on a constitutional assembly comprising 155 directly appointed members (BBC, 2020; Chappell, 2020). Eventually, the protests stopped, mainly because of the COVID-19 pandemic and the imposed restrictions on public life (Sasse, 2021). It is essential to consider the 2019 protests when analyzing the Boric government's current political climate and policies. These policies are a response to the dissatisfaction among Chileans with the existing political and institutional systems, which will be explored further in subsequent parts of our thesis. The protests have left a significant

impact on the country's recent history and will have implications for the future direction of the lithium mining industry, as we will discuss.

5.6.2. The Constitutional Reform

In December 2019, the former student activist and law school graduate Gabriel Boric was elected President of Chile. The leftist Boric represents a new type of moderate politician, challenging the established bipolar party system that has ruled the nation since the return to democracy in 1990. Around 56% had voted for the 36-year-old Boric, who set off to bridge the social divide and inequality that has fueled the 2019 protests. The new President welcomed the constitutional reforms as he had advocated changing the constitutional framework for many years (Zilla, 2022). Half a year later, in August 2021, the constitutional convention started to write Chile's new constitution. However, one year after the process had started, the support for the draft deteriorated, triggering concern about its content among the population. Consequently, as it has turned out, rewriting a constitution is a challenging task: in September 2022, the draft was rejected by 62% of Chileans in the mandatory election process (Nolte, 2022).

Even though the constitutional draft was innovative and embraced values like inclusiveness, it was described as exemplifying an "excess of vanguardism, post-modernism, and academia (...) [thus] alienating large sectors of the population" (Nolte, 2022, p. 5), among others. Furthermore, fake news and media polarization cemented the opposition against the proposal of the constituent assembly. Interestingly, newspapers such as *The Washington Post* highlighted the connection between the referendum, international implications, and lithium mining as "Chile sits atop the world's largest lithium reserves (...) reason enough to pay attention to Chile's (...) referendum on a proposed new constitution: It could recast the legal framework for mining in the South American nation" (Nolte, 2022, p. 6). Four months after the non-acceptance, the Chilean Congress approved a new process leading up to yet another plebiscite in December 2023: firstly, an expert assembly of 24, appointed by Congress rather than popular vote, will write a new draft. Secondly, a popularly elected body of 50 people will review the draft. Finally, all Chileans will have the chance to vote in favor or against the plan. As the Chilean people do not elect the expert commission, which reflects governmental majorities, some fear that right-wing views and conservativism will command,

unlikely reproducing another progressive charta (Schneider & Williamson-García, 2023). Altogether one might say that

(...) both constitutional processes have lacked mechanisms for connecting local communities to political leadership. The first championed the grassroots in opposition to political leaders, while the current one reifies current political leaders and their "experts" to enforce order on the grassroots (Schneider & Williamson-García, 2023, para. 18).

While this process must overcome challenges like ensuring legitimacy through equitable public participation and questions about the technicalities remain (García Pino et al., 2023), Chile will now venture on to create another constitution, potentially overcoming a bill of rights designed by a dictator more than four decades ago.

5.6.3. The Legal Framework for Water Use

As discussed, the institutional framework in Chile is characterized by neoliberal policies à la Washington Consensus. Today, it is one of the few countries where water resources remain almost wholly privatized. The so-called Water Codex, still in force, was enacted by former dictator Pinochet in 1981. Correspondingly, water rights are a commoditized merchandise subject to the market's power dynamics. Budds (2020) underscores that water privatization has not incentivized investments or improved efficiency but rather capital accumulation as the status of water was changed from public good to a privately-owned commodity. In Northern Chile, especially the Atacama region, Indigenous communities struggle to secure access to water vis-à-vis capital-rich mining companies like SQM and Albemarle (Budds, 2020).

Moreover, the Indigenous Law enacted in 1993 often takes a backseat by the superseding laws of private property rights in the guise of the Water and Mining Code. This is typically the case when the mining operations are supposed to be of national interest and work for the nation's common good (Gentes & Policzer, 2022). Several issues arise from what Gentes & Policzer call "a weakness by design" in the Chilean state (2022, p.1): the system is characterized by a lack of information about the available water resources and the in and outflows of water. Thus, monitoring by public institutions is weak and insufficient to capture the implications of water discharge in socio-

environmental terms (Gentes & Policzer, 2022). For Indigenous peoples, this system is an additional burden as they "engage with water from a traditional 'hydro-cosmological' standpoint (...) associating it with agropastoral practices and cultural and religious rituals (...) [where] water is a non-dissociable and sacred element that acts as a mechanism for social cohesion (Lorca et al., 2022, p. 6). Camacho's account of the water conflict between the Chiu Chiu community and national copper champion Codelco in the Atacama altiplano exemplifies the clashing cosmologies: while the latter aims at maximizing profits, the Indigenous Chiu Chui want to "uphold a socionatural rationality based on an integrative, long-term and culturally embedded relationship with nature" (2012, p. 103). The scholar further explains that the very structure of the Water Code "clearly promotes certain hydrosocial conditions over others (...) to the benefit of mining companies, and at the cost of place-based indigenous communities" (p. 103). However, for more than ten years, lawmakers have debated revising the Water Code; the revised regulation aims to put more weight on human consumption of water and environmental protection. Even though Congress enacted the law in April 2022, it remains to be seen if water will become a human right enshrined in the next constitutional draft to be presented later this year (Cardemil, 2022; Sherwood, 2021). Conforming to the legislated bill number 21.425, though, the "use of miner's water shall not affect the sustainability of the aguifer and its exercise may be limited if the relevant aguifer or third parties' rights are affected" (Cardemil, 2022, para. 13). Therefore, Indigenous communities might finally be able to overcome the challenges the Water Code posed for many decades. As we move ahead, it will become evident that the water problem is a crucial topic to consider when discussing the growth of the Chilean lithium industry, particularly with the entry of mining companies like Codelco.

5.6.4. The Legal Framework for Lithium Mining

In 1979, the Pinochet administration classified lithium as a strategic resource due to its importance for nuclear power generation. Said categorization of lithium makes obtaining exploration and exploitation concessions highly bureaucratic and opaque. In any case, mining companies who wish to extract Chilean lithium must either obtain a special permit called CEOL (*Contrato Especial de Operación de Litio*) or team up with the Chilean state. Since 2014, due to untransparent guidelines, only one company has obtained a CEOL permit (Graham et al., 2021). Additionally, over an extended period, the state has only granted licenses to SQM and Albemarle, whose extraction output is subject to quotas. In 2012, a tender for a new mining license was awarded to SQM but shortly

afterward revoked due to public concern about the legality of the process. This came at a time when the Chilean lithium mining firm was caught paying off politicians and issuing fictitious bills to reduce the taxes burden (Barandiaran, 2019; Lunde Seefeldt, 2020). Recently, the concessions for SQM and Albemarle have been extended until 2030 and 2044, including increased extraction quotas. The extensions can be regarded as a show of good faith from the Chilean government to smooth the process for more lithium extraction regarding the cumbersome application processes.

5.6.5. Managing Chilean Lithium

During the rule of Pinochet, lithium was classified as a strategic resource due to its use in nuclear fusion. This classification, enacted in 1979, gave exclusive control of lithium resources to the state, and the law is still in place to this day. To date, mining companies still have to collaborate with the national development agency CORFO and secure approval from the Chilean Nuclear Energy Commission and the Ministry of Mining. The latter has not granted any new permits for more than 20 years. The ambiguities within Chile's policy framework for national and international companies aiming to venture into Chilean lithium extraction can be problematic (Lunde Seefeldt, 2020). Expressed differently, a Canadian businessman was quoted as declaring, "[w]e still don't understand the rules of the game" (Sherwood 2019a, as cited in Lunde Seefeldt, 2020, p. 740). Nonetheless, Chilean property rights protection is highly favorable for mining companies, and mining policies, apart from the challenging application process, are described as convenient by mining operators. However, as stated above, the Boric government and the new constitution could challenge the status of mining companies versus other societal actors (Lunde Seefeldt, 2020). A Chilean protestor argues that the Chilean state "make[s] deals made for the copper, the water, the lithium, the ocean—everything is up for sale and flogged off for a pittance to other countries—and none of the cash comes down to us" (Lunde Seefeldt, 2020, p. 742). As Lagos's (2018) detailed account of Chile's mining history cautions, the current Chilean government needs to ensure that the resource rents not only favor a small domestic or multinational elite, but that future windfalls are used for the benefit of Chilean society as a whole.

6. Analysis

The subsequent analysis section will objectively present and analyze the empirical material of the data collection process. Moreover, it provides a systematic presentation of the data in contemplation of this paper's guiding research question:

Should Codelco, Chile's state-owned copper giant, attempt to enter the fast-growing lithium mining industry?

To provide a comprehensive analysis, key topics, and emerging themes will be elucidated and backed up by data excerpts from the expert interviews.

6.1. Data Analysis

To analyze the data and deduct key findings from the nine expert interviews we conducted for this thesis, each interview was transcribed according to the conventions mentioned earlier. Next, the interview transcripts were uploaded to *Nvivo*, a software that helps researchers to explore and scrutinize vast amounts of data, in this case, many pages of verbatim interview transcriptions. Upon uploading the data, we started to continuously (re)-read all the transcripts and derived codes from the information provided by the interviewees, thereby applying what Williams & Moser (2019) describe as an iterative process. Figure 15 provides a schematic overview of our coding funnel. It is essential to mention that we followed the previously discussed idea of open, axial, and selective coding recommended by Williams & Moser (2019). However, we decided not to code information such as sociodemographic data or the current location of our interview partners, thus conducting a more focused type of open coding.

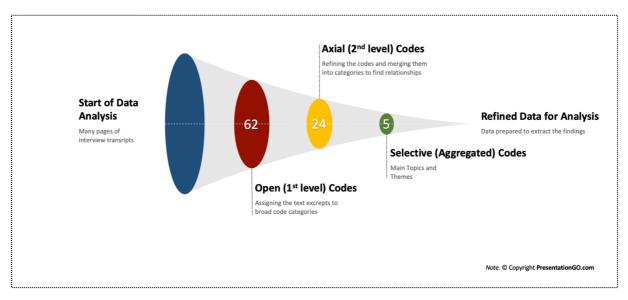


Figure 15. Note. Data Analysis Funnel, authors' own elaboration

While coding all nine interviews, 62 open or first-level codes were created. Code names were assigned by us following the content of the coded interview passages. In addition, the names frequently followed a nomenclature that made it easier to find the corresponding code category in the coding process. Appendix C, Figure 2 provides an overview of all initial codes for further reference. Besides this, Appendix C, Figure 3 depicts the hierarchy chart for our data extracted from Nvivo: the most used code *Future_Lithum Chile* versus the less used codes *Politics_Populism* and *Companies_PR&Media*. While the former categorization was used in eight expert interviews with 33 different references, the latter were only found once each.

The subsequent axial coding phase "refines, aligns, and categorizes the themes" (Williams & Moser, 2019, p. 50) to explore potential relationships between different codes. Thus, the 62 open codes were clustered into 24 primary codes, summarizing and categorizing the codes under common topics or ideas. This process involved a continuous adaptation and rigorous regrouping of codes within the primary code categories. It was advantageous that we could weigh and debate the arrangement of codes in our team to avoid biases and inconsiderate grouping for the duration of the coding process. Once the 62 open codes were reduced to 24 primary codes, we created selective (or aggregated) code sets. This third step allows the researchers to 'translate' the collected raw data into a storyline and ultimately fill the research process with meaningful and presentable results (Williams & Moser, 2019; Gioia et al., 2013). Lastly, we were able to further synthesize and group

the data into five main themes, namely *Global Lithium Market, Chilean Political Discourse, Regulatory Framework, Chilean Mining Companies: Comparing Private Firms to Codelco, and Mining Externalities: Consequences of Lithium Mining.* Figure 4 (in Appendix A) gives a schematic snapshot to aid the understanding of the employed coding process for selected codes. According to Gioia et al. (2013), modeling a data structure is a significant step to substantiate academic due diligence in qualitative research since "[n]o data structure; know nothing" (p. 21). Before the next chapter will present the findings in greater detail, a short description of our main themes will conclude this section:

The *Global Lithium Market* will make up our first category. As the name suggests, this bucket deals with the international landscape of lithium and is strongly connected to the green energy transition described in the preceding parts of the thesis. In addition, it considers the ambiguous relationship between sustainability trends in the Global North and mining countries in the Global South powering clean energy. Furthermore, Global Lithium Market describes the global value chain dynamics of lithium mining and scrutinizes Chile's position, respectively.

Chilean Political Discourse, containing about one-third of all open codes, is the largest of our sets. It contains topics about the ongoing Constitutional process in Chile, lithium nationalization ideas of the Boric administration, a historical account of Chile's extractivist history, and future development trajectories of mining, in conjunction with other subject matters.

Regulatory Framework encompasses all codes connected to Chile's institutions in general and more specific mining regulations like concessions and licensing. Moreover, the category will detail Chile's neoliberal governance model and its centralist characteristics, among others.

Our next category is *Chilean Mining Companies: Comparing Private Firms to Codelco. Here* we decided to include information from our interviewees about mining companies in Chile like Codelco, SQM, or Albemarle. The codes were, for example, about mining companies' relationship with their environment and CSR initiatives or emerging mining technologies.

The final category, *Mining Externalities: Consequences of Lithium Mining,* concerns the socioenvironmental externalities of mining activities in Northern Chile. Here we decided to include all codes related to Indigenous people's relationship with mining and aspects of flora and fauna in mining geographies such as water or salt flats.

After having laid out the coding process as well as the initial steps of the data analysis procedure, the following parts will now comprehensively present our findings as per the five main themes.

6.1.1. Global Lithium Market

As stated by Mauricio Lorca and Manuel Andrade, the importance of lithium has increased steadily, with significant growth since the 2010s and another surge in demand since Russia invaded Ukraine. Furthermore, according to Mauricio Lorca:

Lithium is of great importance in the process of decarbonization of the global energy matrix. (...) Lithium acquires a gigantic role because it is strategic for the storage of non-conventional renewable energies (...) therefore, the lithium resource becomes a critical strategic resource for the whole world (...) (M. Lorca, personal communication, March 15, 2023).

Despite the importance of lithium, according to our interview partners, there is an imbalance between the lithium demand, mainly from the Global North, to enable a clean energy transition and the impact this transition has on the Global South or mining-dependent countries like Chile. During a webinar on the global supply chain of battery components, Scoville-Simonds & Laterza (2023) pointed out that the countries involved in extracting lithium are burdened with the negative externalities and costs associated with the mining process. Meanwhile, more affluent nations reap the benefits of clean energy technologies such as, for example, EVs, reducing pollution in cities. Mauricio Lorca highlights that when discussing the green transition, we must consider this power asymmetry.

Claudia Zilla is of a similar opinion, underscoring the need for supranational collaboration to facilitate a 'just transition.' She mentions that Europe and other developed countries must refrain from imposing their way of thinking on less developed countries. Cristina Dorador believes it is

paramount to curb fossil fuel use. However, she challenges the assumption that renewable energy will solve all the world's environmental problems. For the microbiologist, a drastic change in consumption habits needs to materialize, as, for example, EV production itself also has a carbon footprint, and changing propulsion technology in a car will not be enough to reach our climate targets. She proposes making the environmental and social impacts of lithium mining more visible to the end consumers and thereby creating a 'chain of consciousness.' Furthermore, Dorador is surprised by how little global attention is devoted to the topic of lithium mining:

And again, where [are] the world intellectuals? But if something happened with the whales, or something happened with Antarctica, or forest or polar bears. Any kind of these big organization of environmentalist Greenpeace (...). They have never come here, they don't care. Because it also produces contradictions with their own speech [as] everyone is looking to advance in electromobility (C. Dorador, personal communication, March 20, 2023).

Eventually, Jorge Valenzuela says that one needs to keep in mind the entire lifecycle of lithium-ion batteries, including recycling options that need to receive more attention. Daniel Jimenez agrees and sees recycling as a significant contributor to a reduction in incremental demand for lithium, thus permanently lowering the prices. For Chile, this could mean that when lithium production is ramped up in a couple of years, the opportunity to participate in the super-cycle of high prices might have already passed. Overall, our interviewees call attention to the fact that a global impact assessment of green energy technologies and their supply chain is needed.

The experts interviewed for this thesis also discussed the competition among lithium mining nations such as Australia, Bolivia, Argentina, and Chile to be among the top exporters of the material. The industry expert Daniel Jimenz mentioned that Argentina benefits from vast Chinese investment, while many other countries are refraining from investing due to political instability. Iris Wunderlich agrees by saying that Argentina's regulatory framework makes foreign investments easier compared to other mining countries. However, there are risks associated with Argentinian investments, as it is hard to get the money out of the country because of intense capital restrictions. Nevertheless, the country will likely be able to take market share from its neighbor Chile. Australia, even though employing hard rock mining, which emits more CO₂, took over the global lithium market as its

regulatory framework and political circumstances were favorable: "Australia just did it. They had the concessions, they had the possibility, they had the framework. Okay just go" (I. Wunderlich, personal communication, March 22, 2023)². Jorge Valenzuela agrees and highlights that the Chilean state has not invested enough in its lithium mining sector to secure its position as the most significant exporting country. In his view, the political system of Chile has influenced Chile being ousted from first place as "we [Chile] are a socialist country with a socialist government. And the socialist always said, 'you have to take it into your hands and keep it.' The value kept in the hands of the state" (J. Valenzuela, personal communication, March 15, 2023). According to Manuel Andrade, however, Chile has an advantage over its competitors in the Lithium Triangle: they have highly trained and specialized professionals and technicians. Chile's human capital makes it powerful visà-vis direct competitors.

Regarding the broader topic of foreign direct investment, Claudia Zilla and Iris Wunderlich mentioned that the insecurity surrounding Chiles's constitutional processes continues to obstruct expenditures, as most investors require stable rules to do business. In addition, Gerrit Fuelling indicated that the capital markets, needed to bankroll many investments, are not providing the investments either. Right now, many investors are waiting for the new constitution and a potentially new set of rules for mining in light of lithium nationalization ideas. Mauricio Lorca provides some numbers to illustrate the argument:

(...) we have to take into account that in the country during the last three years, there has been a capital flight of around 10 billion dollars per year. In other words, 30 billion dollars have escaped from the country from investors who will not return. And if they do return, it will be in five years, maybe ten years. So the situation is complex, it is delicate, and it is at a standstill (M. Lorca, personal communication, March 15, 2023).

Despite this, Manuel Andrade mentions that besides the uncertainty, overall, Chile has advanced to provide more security to investors. What is more, Daniel Jimenez is confident that Chile has a vast potential with 20-30 unexplored and unexploited salt lakes: "You need to free the lithium there (...)

_

² Direct in-text quotations from our interviewees will be italicized for better readability.

We need to allow companies to take risk and an investment in exploration. Risk to lose it all" (D. Jimenez, personal communication, March 22, 2023). Nevertheless, Jimenez acknowledges that long project development times of 10 up to 20 years complicate private companies' willingness to invest in Chilean lithium mining activities.

On a different note, Iris Wunderlich, Project Leader of Mining and Sustainability of the German Chamber of Commerce in Chile, elaborates on the relationship between both countries, who have pledged to collaborate on mining topics. Given Germany's aim of renewable energy independence, Chile is a crucial partner. Wunderlich highlights the importance of co-funded projects and facilitating connections between German and Chilean companies. She notes that while Germany is looking to buy resources, it also seeks to help Chile develop a value-added industry concerning mining. She believes the exchange of skills and technology between Germany and Chile is critical.

Another factor in the industry is the consolidation of mining companies, as explained by Manuel Andrade. This consolidation, moreover, will result in many players leaving the lithium mining business. Reduced prices will intensify the trend: "Last year it was almost 80,000 USD per ton. So no, we are not going to have that anymore. It is going to drop radically, probably down to 10,000 USD" (M. Andrade, personal communication, March 23, 2023). Notwithstanding, the price drop could be beneficial for Chilean lithium as its extraction is cheaper compared to, for example, Australian lithium.

Cristina Dorador and Jorge Valenzuela talk about Chile's position within the global value chains of lithium. While Dorador sees sustainability problems along the supply chain from the mine to the final consumer, Valenzuela highlights the country's competitive advantage because of its water access through the port of Antofagasta. From there, the lithium can be directly shipped to China, the biggest importer of lithium carbonate. In comparison, Argentinian and Bolivian mines cannot rely on ocean proximity, thus making transportation more cost intensive.

Gerrit Fuelling is pessimistic regarding the Chilean lithium value chain upgrading. He sees hurdles because of missing input materials. For copper production, it would be more likely, however. Claudia Zilla agrees with this sentiment and sees potential for Chile to move up the value chain through

technology and investment in processing. Iris Wunderlich supports that by saying that she sees a strong possibility for Chile to move up the value chain to a 'certain point.' Andreé Henríquez sees a general cultural constraint for higher value-added activities: "the people avoid the risk in Chile (...) avoid a risk. It's not good" (A. Henríquez, personal communication, April 4, 2023). Mauricio Lorca is also skeptical about Chile's upgrading potential and supports his argumentation by looking back at Chile's history of extractivism:

(...) to extract the lithium and that the country itself produces the batteries, this is not possible (....) Chile (...) during the whole 20th century, was the first copper producer (...) and its exporting copper sheets, Chile has not even exported wire. So, with this background, it is a bit I, irresponsible to suggest that the country (...) is capable of producing batteries, they do not have enough technology, (...) they do not have the capacity to do it (M. Lorca, personal communication, March 15, 2023).

6.1.2. Chilean Political Discourse

Another theme we identified while analyzing the transcripts of our expert interviews addresses the highly charged Chilean political landscape and political discourse. As we first highlighted in our Research Context section, Chile has undergone a seismic political shift after the 2019 protest movement. A central target of the social uprisings, the Pinochet-era constitution, was eventually scrapped. Since then, the country's political and grass-roots factions have vied for influence over the new, not-yet-approved constitution. Naturally, since this issue of the constitution is so central to Chilean social life, many of our expert interviewees weighed in on the topic.

According to Jorge Valenzuela, the new leftist politicians who were swept to power with a mandate from the Chilean people to draft a new constitution "took the job very seriously but at the same time very ideologically" (J. Valenzuela, personal communication, March 15, 2023). Andreé Henríquez echoed Jorge Valenzuela's sentiment stating that this first constitutional draft "lacked a good understanding about the needs and preoccupations of society, of the simple person" (A. Henríquez, personal communication, April 4, 2023). Both Henríquez and Valenzuela provided examples of the ideological, out-of-touch ideas that were placed in this first draft of the constitution. For example, the first draft included "more than a hundred rights," including the controversial "right to be happy"

(J. Valenzuela, personal communication, March 15, 2023). Additionally, the new constitution attempted to "transform the relationship that the state has (...) with the Indigenous peoples" (M. Lorca, personal communication, March 15, 2023) by creating "two different kinds of people, the aboriginal and the Chilean national. The aboriginal has the right to his own law, plus the law that [is applied] to nationals" (J. Valenzuela, personal communication, March 15, 2023). Perhaps the overall sentiment of most of the country toward the first constitutional draft is best summed up by Iris Wunderlich: "I think it was too progressive for society. There were some good things, but there were (...) mistakes" (I. Wunderlich, personal communication, March 22, 2023). In the end, the rightleaning political parties, with their "brilliant communication strategy" (J. Valenzuela, personal communication, March 15, 2023), had an easy time convincing a majority of Chileans to reject this controversial first draft. Right-wing parties tapped into widespread, if unfounded, fear of communism in Chile or the rise of a "Chile-zuela" (J. Valenzuela, personal communication, March 15, 2023), which would resemble the failed Venezuelan petrostate.

As noted in our Research Context section, a new constitutional process was created after the first constitutional draft's defeat. This new process is much more structured along the well-established political battle lines. Politicians selected a "panel of 150 constitutionalists with a very good background in law" (J. Valenzuela, personal communication, March 15, 2023). That politicians are leading this new process has its own drawbacks. According to Claudia Zilla, the new constitutional convention will not be receptive to the demands of the common people since so much of the entrenched elite retain power in the mainstream political parties. Zilla argues that most Chileans are simply not involved in politics; they have no party affiliation. Her concern, therefore, is that traditional, conservative, neoliberal views will dominate the constitutional convention. In her opinion, these views do not match ordinary citizens' views. Mauricio Lorca echoed Zilla's sentiment. He stated that this new constitution would likely be better than the current one, "but I do not have the opinion that it is so revolutionary, or revolutionary at all" (M. Lorca, personal communication, March 15, 2023). That this second draft of the constitution is less revolutionary and transformative will come as a disappointment to people like Cristina Dorador, who genuinely believed in the promise of the first draft: "we really tried to bring the ideas from the people (...) bottom-up ideas (...) we cannot wait, this is urgent" (C. Dorador, personal communication, March 20, 2023). Nevertheless, most interviewees agreed that Chileans are tired of this process.

Chile's citizens are not the only ones tired of the long-running constitutional crisis. The business community within Chile and worldwide has waited for a clarification of what the Chilean business landscape will look like going forward. "Without clear rules, investment is not going to come into the country (...) if we do not know (...) what the new constitution is going to be, investors are not going to bet on Chile" (M. Lorca, personal communication, March 15, 2023). To what extent the state retains final authority over mineral deposits remains to be seen with the upcoming draft of the constitution.

6.1.3. Regulatory Framework

The future regulatory framework for the Chilean extractives sector is intricately linked with the preceding discussion regarding the new Chilean Constitution. As noted in this thesis numerous times, the degree to which the state will participate in the lithium industry is still undecided. Daniel Jimenez expressed a lack of confidence in the Chilean authorities:

This country is doomed (...) we have authorities which are really (...) not helping to promote or develop mining projects. They're putting hurdles in the way. Completely different to what you would see in Argentina, what you would see in Australia, what you would see in Canada, where you really see support. But in this country (...) we passed three stations from where we should have stopped (D. Jimenez, personal communication, March 22, 2023).

Iris Wunderlich expressed a similar sentiment when she stated that "the conditions and the alignments just failed (...) Chile was not able to find the right regulations or frameworks" (I. Wunderlich, personal communication, March 22, 2023). As a result, while still strong, Chile's predominance in the global lithium industry has slipped vis-à-vis other mining nations like Australia and Argentina.

Not all interviewees were as critical as Wunderlich, however. Gerrit Fuelling, for example, argued that "Chile has a good system here (...) dynamic taxation. It's benefits to the country." He argues that the concern about Chile's declining market share is not a problem. "You look at Argentina; they may have a larger market share. So what? As long as Chile makes more money for their government or

for their country with this system, it's a much better system" (G. Fuelling, personal communication, March 13, 2023). Interestingly, Manuel Andrade argues that the Chilean government needs to do even more to ensure that higher tax revenues reach state coffers:

There is also a need to make tax reforms or institutional reforms to increase (...) Chile's benefit in relation to the rent. There have already been 38 years of lithium exploitation, and there are several analyses that indicate that a large part of the lithium and potassium mining income has remained in private hands (...) in the hands of international corporations (M. Andrade, personal communication, March 23, 2023).

Whether they opposed more state intervention or not, most interview partners believed that environmental permitting in Chile, while necessary, is too slow. According to Daniel Jimenez:

We can speed up [the process]. You need to come with your environmental report. They take ten months to review it, and then they send you 500 questions which you answer in two months (...) the rules are never 100% clear (D. Jimenez, personal communication, March 22, 2023).

One final regulatory concern raised by our interview subjects relates to the government's designation of lithium as a 'strategic resource.' Under the Pinochet-era constitution, lithium is a strategic resource placing it on an equal footing as copper. Lithium and copper are thus the sole prerogatives of the state, and as such, the state can choose to whom to give mining concessions. "Since the military dictatorship, lithium has been a strategic resource for the country. It is the Chilean nuclear commission that has to give permission to external companies to exploit it" (M. Lorca, personal communication, March 15, 2023). Chilean society, the global lithium industry, and EV manufacturers are all waiting to see if this system will continue. Yet despite the uncertainty, Chile remains attractive: "there are many countries [that] have lithium, but (...) these countries [do not] have political stability, technology, workers and the cost for the structural lithium in the same way [as] Chile" (A. Henríquez, personal communication, April 4, 2023).

6.1.4. Chilean Mining Companies: Comparing Private Firms to Codelco

Another central theme we identified in our interview conversations centers on Chilean mining companies. Throughout the course of our interviews, we often asked questions relating to both Codelco and the private actors in the lithium market, SQM and Albemarle. We identified a few key topics in the interviewees' responses, which we will now present.

First, interviewees often mentioned the mounting political pressure in favor of Codelco's involvement in lithium despite the copper companies' lack of experience in the sector: "Politicians say now we need to (...) put this responsibility on Codelco, which is (...) completely out of the scope, the expertise, the know-how [of Codelco]" (D. Jimenez, personal communication, March 22, 2023). Mauricio Lorca agreed with this assessment of Codelco's expertise: "Codelco [is] a copper specialist. It is a bit naïve to think that it can also take charge of a type of mining that is totally different. One is crustal mining, large earthworks, and the other is water mining" (M. Lorca, personal communication, March 15, 2023). In addition to these arguments that Codelco lacks some capabilities regarding lithium mining, Mauricio Lorca also pointed out the issue of timing: "to produce lithium, it takes about 7 to 10 years of knowledge of the place to produce it" (M. Lorca, personal communication, March 15, 2023). So even if Codelco decides to enter the lithium market, nearly a decade will have passed before profitable operations can occur. This decade-long timeline, however, is not sufficient. There is a "sense of urgency [that] this is a cycle which is going to last only a limited amount of time" (D. Jimenez, personal communication, March 22, 2023). Awareness of the limited nature of commodities booms is deeply ingrained in the psyche of Chile because of the devastating effects of the nitrate crash in the early 1900s. No one wants to repeat such a collapse after a lithium boom.

Whereas these initial comments highlight the limitations of Codelco's capabilities, other interviewees criticized Codelco's image and sustainability agenda. For example, Cristina Dorador said, "as a matter of fact, Codelco is very polluting as a company" (C. Dorador, personal communication, March 20, 2023). Gerrit Fuelling echoed Dorador's view when he stated, "the biggest users of fresh water is the copper mines" run by Codelco (G. Fuelling, personal communication, March 13, 2023). As outlined in the Research Context section of this thesis, freshwater usage has been a contentious issue in Chile's arid northern regions.

Other sources noted the financial and managerial problems that have long plagued Codelco. Gerrit Fuelling, for example, stated that Codelco currently has a backlog of investments amounting to nearly 80 billion USD (Gerrit Fuelling, personal communication, March 13, 2023). Andreé Henríquez stated that "Codelco's board is a political group (...) so it is more complicated to (...) align this company" (A. Henríquez, personal communication, April 4, 2023). This deeply entrenched political bureaucracy has some benefits since Codelco has "the mission to contribute to the state" (A. Henríquez, personal communication, April 4, 2023). Still, it also dramatically decreases Codelco's strategic agility.

With all these criticisms of Codelco, it was not surprising that numerous interviewees shared Iris Wunderlich's view that "Chile will not be able to do [lithium mining] without private investment, private knowledge of technology" (I. Wunderlich, personal communication, March 22, 2023). Most interviewees could still imagine some role for the state and Codelco. Another quote from Wunderlich best exemplifies this sentiment: "I think they should find a solution where Chile can have its own state-owned company (...) and also allow the private [companies]" (I. Wunderlich, personal communication, March 22, 2023).

Private companies such as SQM, a Chilean firm, or Albemarle, an American firm, were commonly referenced in our interviews. Manuel Andrade indicated that SQM and Albemarle have superior technical expertise in the extraction and processing of lithium. These private firms also have "the connections in the market" (M. Andrade, personal communication, March 23, 2023), which Codelco lacks. However, as in the case of Codelco, interviewees offered nuanced views of SQM, particularly those that sought to balance the private firm's superior lithium mining capabilities with their less stellar reputations. For example, SQM was once complicit in a massive corruption scandal. According to Iris Wunderlich, "SQM especially has a very bad reputation in Chile because of the whole corruption case" (I. Wunderlich, personal communication, March 22, 2023). In this case, SQM had been paying off politicians on both sides of the political spectrum to secure their support. SQM's image is further complicated by the fact that "the owner of SQM was the son-in-law of the former dictator [Pinochet]" (J. Valenzuela, personal communication, March 15, 2023). Albemarle, in contrast, drew very little condemnation for any of our sources: "Albemarle has been operating for

30 years in Atacama (...) with the high extraction rates, and yet you have not seen any environmental damage" (D. Jimenez, personal communication, March 22, 2023). Our interview subjects were similarly approving of Albemarle's treatment of employees and Indigenous communities: "the people who work for (...) Albemarle have always been treated well, so they never really oppose" Albemarle's continued mining operations (G. Fuelling, personal communication, March 13, 2023).

6.1.5. Mining Externalities: Consequences of Lithium Mining

The final pertinent subject matter we identified is *Mining Externalities: Consequences of Lithium Mining*. In this category, we have condensed our interviewee's arguments on how different mining operations impact the environment and the people in Northern Chile. While some experts see mining activities as destroying fragile ecosystems and having adverse implications for Indigenous communities, others are less concerned with the externalities of Chilean mining activities.

Cristina Dorador, the microbiologist, explains that the subterranean brines in the Andes region originate from old lakes that have been isolated and thereby formed closed-off water deposits. The scientist also explains that the Atacama salt flats are a unique place on Earth with extreme forms of life and high levels of solar radiation, but that protection of the ecosystem is still lacking:

(...) we have almost the whole periodic table here (...). But meanwhile, we haven't protected the desert. We don't have any, any part of the desert protected (...) I mean these places where usually people from NASA come to (...) try their instruments and then they send it to Mars. So, this area that's so important because it's an archive of knowledge past, present and future (C. Dorador, personal communication, March 20, 2023).

This is also because Chilean salares are legally seen as mines rather than ecosystems. According to Dorador, once the ecosystems are destroyed, there is no chance of recovery. Daniel Jimenez adds that the lithium found in the Atacama flats is of outstanding quality, and at some point in the past, 70% of all mined lithium was sourced there.

Mauricio Lorca explains that lithium has been extracted from the Atacama Desert for the past four decades. The extraction technique, however:

(...) involves pumping and evaporating large quantities of water, which basically means that to obtain 1 ton of lithium you have to evaporate around 2 million liters of water. Whether we call it brine or whether we call it water itself, brine ultimately means that it is water plus salts (M. Lorca, personal communication, March 15, 2023).

Manuel Andrade accentuates Lorca's argument. In his view, the main challenge is the below-surface interconnectedness of water basins or aquifers. If one extracts water from the brine (not apt for human consumption), fresh water from other basins could flow into the brine and thereby be subject to evaporation in the lithium mining process.

In Jorge Valenzuela's opinion, the water use of mining activities poses a big problem for local communities relying on water. Manuel Andrade adds that this region is experiencing high levels of hydrological water distress: the natural evaporation of water is 200 times higher than the yearly precipitation of just 15-20 milliliters. This imbalance is reinforced if water is now pumped from the underground and artificially evaporated in big evaporation ponds to mine lithium. He continues to elaborate that the ancient Circumpuna communities have lived in the *Lithium Triangle* regions for about 10.000 years. Nowadays, they engage in farming and livestock, and tourism. However, the Indigenous Peoples also coexisted "with mining for a long time, they coexist with copper mining, and now they coexist with lithium" (M. Andrade, personal communication, March 23, 2023).

Returning to the lithium industry expert Daniel Jimenez, he does not acknowledge the claim that lithium mines are destroying the ecosystem. From his vantage point, the whole discussion around the 'environmental disaster' is a "dogmatic thing, religious thing and of course (...) financial interest of the Indigenous communities, of the NGOs who get a lot of financing for complaining. Science behind this attack, zero." (D. Jimenez, personal communication, March 22, 2023). He consents that extraction mining operators have to be mindful of certain extraction limits. However, as long as this hydro-geological equilibrium is maintained, Jimenez thinks that sustainable lithium mining is, in fact, possible. SQM and Albemarle, who have been sustainably operating their mines for more than 30 years, have not experienced any issues related to their water extraction. He concludes that some underground lakes have even increased in size and that recent rainfall in the Andes is already recharging the subterranean deposits. Finally, the lithium companies would undermine their

business if they destroyed the salt flats. As indicated before, Gerrit Fuelling mentions that, in reality, copper mines use vast amounts of fresh water, and 'the lithium guys' are being blamed. Manuel Andrade counters that at least 10% of the water loss can be attributed to lithium mining. Lorca adds that one has to keep in mind the effects of climate change, further intensifying the impacts. According to Iris Wunderlich, "you cannot do mining and not [think] about the impact. And mining is not sustainable. Mining will never be 100% sustainable because you never give back things to the Earth you extract" (I. Wunderlich, personal communication, March 22, 2023).

Nevertheless, Iris Wunderlich believes that mining has some impact on the ecosystem but that mining should rather minimize the impact than stop altogether. She underscores projects that have supported Indigenous communities, like installing solar irrigation systems. Furthermore, Andreé Henríquez accentuates the possibilities of synergies between new mining technologies and their use for local communities. He mentions the idea of using desalination plants in lithium mining and that the water could also be provided to the communities for agricultural purposes and human consumption. However, right now, this process still lacks broad support. This point is underscored by Gerrit Fuelling, who says that SQM plans to build a desalination plant for a direct lithium (DLE) extraction process, which entails bringing the brine to the surface and extracting lithium without requiring lengthy evaporation methods. Cristina Dorador is skeptical of DLE, as the ecological implications of using this technique are generally unknown.

A different argument among our Interview partners is the need for more scientific data to prove socioenvironmental relationships beyond a reasonable doubt. Mauricio Lorca is of the option that even after 40 years of studying the Atacama Desert, people have yet to learn how the salt flats work and what impacts mining activities produce. Daniel Jimenez, advocating in favor of the mining companies, says that environmental activists are not showing evidence of environmental degradation:

No data. But it was already a dogma. And then I showed him the water levels because you can see them online today. So, and again, that's why I say this has become a religion, a religious debate, a political debate. Ideological debate. More than science. (D. Jimenez, personal communication, March 22, 2023).

Manuel Andrade and Mauricio Lorca shed light on a different topic: the relationship between Indigenous Peoples and mining activities in Northern Chile. There is a strong mobilization of the affected communities, engaging in direct negotiations with mining companies. Mobilizations have become increasingly organized, using social media and political campaigns to create awareness. Lorca's references to a "diachronic view, the mining trajectory of Chile, finally, the mining companies inserted themselves in this territory and dispossessed the natural resources of those who lived there, basically the Atacameño Indigenous communities" (M. Lorca, personal communication, March 15, 2023). The local communities, moreover, experience changes in the ecosystem they have inhabited for centuries and believe that the salt flats are drying up. Iris Wunderlich touches upon the distribution of financial compensations to Indigenous communities and how this creates tensions about how the money should be used. Mauricio Lorca explains that the vertical relationship between local communities and the miners has created migration from their traditional settlements to mining enclaves:

This means that the Atacameño communities must now be understood as Indigenous communities that are intrinsically linked to the mining world, that is to say, as (...) Indigenous mining people, because they have been involved in mining work for 150 years (M. Lorca, personal communication, March 15, 2023).

Since 2010, Lorca continues, there has been a shift in how companies relate to the communities, transferring extensive sums of money. In some cases, a group of 40 community members received up to 150,000 USD. Nevertheless, this has resulted in horizontal conflict within the same and among different Indigenous communities to secure payments. Still, the negotiations are characterized by power and information asymmetries of the negotiating parties. The general conflict is now internalized within the community nexus, benefiting the companies. Manuel Andrade adds that individual settlements have further fueled rivalry among communities and representative entities like the previously mentioned *Council of Atacameño Peoples (CAP)*. It has allowed the companies to continue 'working quietly.'

Daniel Jimenez, who was part of said negotiations when he worked at SQM, says everything comes down to money. He thinks that many Indigenous claims about ancestorial land and practices can be resolved by adequate compensation. Jimenez also mentions the importance of a social license to operate, which encourages many mining companies to engage in voluntary CSR initiatives. Moreover, many local people are employed by mining companies and are offered professional education systems. For Gerrit Fuelling, one cannot generalize that all communities oppose mining, as it always depends on how the companies treat them. He says that Albemarle treated the *Peine* community well, which is why there was no opposition. SQM has also improved its relations with the communities, according to Fuelling.

Cristina Dorador additionally discusses mining's impact on human health in Northern Chile. She notes that the region has a long mining history, with tap water likely enriched with lithium. Dorador highlights high rates of cancer and autism in Antofagasta, which she believes are related to mining's environmental factors. She calls for increased research and attention to the health impacts of mining.

For Andreé Henríquez, the externalities of mining need more attention from the federal government. The industry expert sees potential and advocates to "put more pressure to this industry to resolve the problem about sustainability" and "create pressure for the industry to collaborate (...) in terms of the ecological agenda, social agenda and economic agenda in the North" (A. Henríquez, personal communication, April 4, 2023).

Cristina Dorador and Manuel Andrade summarize this thematic block by looking into the future of lithium mining in Chile. Across the Altiplano in the Andes region, there are 60 different salt flats, 20 of which are currently being explored. However, she calls for attention when applying the same extraction techniques employed in the Atacama Desert: "in [the] in Altiplano it's different because the salares are active, they receive water during summer, (...) they have the highest biodiversity. And the salt composition is different. So the process (...) will take a lot of time to be, you know, optimized." (C. Dorador, personal communication, March 20, 2023). Furthermore, as per Manuel Andrade, there is a need to:

(...) generate greater environmental justice, water justice in the region (...) if we do not generate some institutional regulatory mechanisms to implement a true water justice in the North of Chile, we are going to have a social and ecological collapse (...) that will have an effect on the whole economy in Chile (M. Andrade, personal communication, March 23, 2023).

7. Discussion

In the forthcoming discussion section of this thesis, we will delve into a comprehensive interpretation of our previously considered main findings. Through this interpretive analysis, we aim to draw insightful conclusions that highlight the implications of our data analysis process. In addition, we will also reflect on the guiding research question:

Should Codelco, Chile's state-owned copper giant, attempt to enter the fast-growing lithium mining industry?

Moreover, the organization of this section is informed by Peng et al.'s Strategy Tripod (2009), the theoretical underpinning of this thesis, and will thus link the theory to our findings. A reflection on how well our research objectives were met will also be included. Figure 5 (Appendix A) illustrates the process of transitioning from data analysis and coding toward the integration of our theoretical framework.

Additionally, we will evaluate this thesis's practical information and relevance, focusing on how our research findings can contribute to the field in terms of addressing practical problems and providing potential solutions for an entry of the Chilean copper company Codelco into lithium mining. We will explore how our research results can be translated into practice and contribute to developing policies, guidelines, and best practices for other mining firms operating in the Chilean lithium space. Additionally, we will propose future research agendas that can build on our findings and expand on our research objectives.

Finally, we will conclude this chapter by considering the limitations and shortcomings of our research process. This self-reflection will help us identify potential biases and shortcomings of our

study, which can inform future research and improve the overall quality of our scientific endeavor.

A graphical summary of the elements of the discussion is presented in Figure 16.

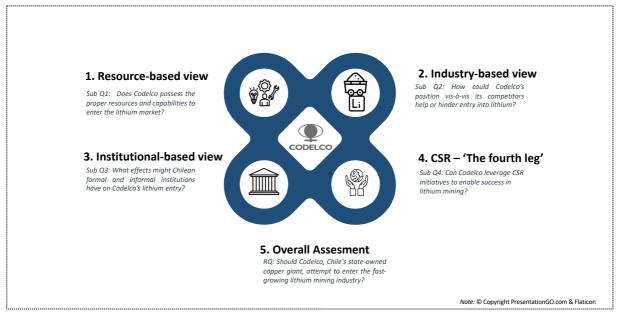


Figure 16. Note. Discussion Strategy, authors' own elaboration

7.1. The Resource-Based View of Codelco

As outlined in our theoretical framework section, the resource-based view (RBV) analyzes firms through the lens of internal capabilities and resources. To reiterate, Barney (1991) defines firm resources broadly — encompassing "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc." (p. 101). A firm's resources can be divided into two categories: tangible and intangible resources. Examples of tangible resources are financial capital resources, physical capital resources, and raw material stockpiles. Intangible assets include a firm's organizational structure, brand name, company reputation, and shared values and beliefs within a firm's culture (Kamasak, 2017).

In the following paragraphs, we will identify Codelco's specific tangible and intangible resources and capabilities. We will then analyze these resources through Barney's (1991) VRIO framework, which states that a competitive advantage can only be created by having resources and capabilities which are valuable (V), rare (R), imperfectly imitable (I), and organizationally exploitable (O).

To conclude this RBV section, we will give a concrete answer to our sub-research question:

Does Codelco possess the proper resources and capabilities to enter the lithium market?

7.1.1. Tangible Resources

7.1.1.1. Financial Resources

Codelco's most recent financial report, *Half Year Results 2022*, released in July 2022, paints a relatively neutral picture of the firm's financial strength. There were declines in Codelco's topline financial figures. Overall, Codelco posted 8.7 billion USD in revenue in the first half of 2022. This represents a 13.2% decrease in total revenue when compared to the same half-year period in 2021 (Codelco, 2022). Codelco's pre-tax profits also declined from 3 billion USD in 2021 to only 1.7 billion USD in 2022. The report attributes much of this profit decline to an overall decrease in Codelco's copper production, down 8.7%, and an increase in input prices for electricity and fuel (Codelco, 2022). The reduced quality of the copper extracted also accounted for some of the declines, as did overall global economic uncertainty stemming from Russia's invasion of Ukraine, post-COVID economic recovery, and rising inflation. Codelco's cash flow also declined year-on-year from 2.97 billion USD in 2022, down 13.9% compared to 2021. Despite these revenue, profit, and cash flow declines, these financial results must be viewed in context. Codelco's performance in 2021 was very good as it set record revenues and posted excellent profit figures (see Figure 17); thus, the bar was set relatively high for Codelco in 2022.

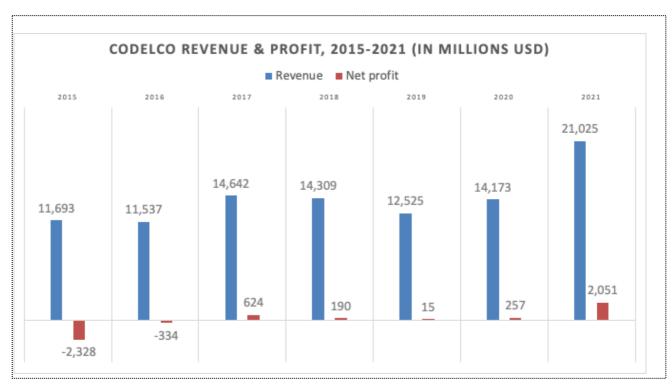


Figure 17: *Note*. Codelco Revenue & Profit, 2015-2021, Adapted from "Codelco Revenue & Profit, 2009-2021" by Statista © Statista

Due in part to Codelco's association with the Chilean government, which is regarded as a reliable borrower, Codelco has long benefitted from good credit ratings (Fitch Ratings, 2022). As of January 2023, Fitch, a ratings agency, gave Codelco an A- rating. Such a rating places Codelco in the "High Credit Quality" investment category, which signals that Codelco has a low loan default risk (Fitch Ratings, n.d.-a). A good credit rating allows Codelco to access funding and loans from national and international lenders easily.

Over the past few years, Codelco has indeed made use of its substantial credit standing. The firm has invested considerable amounts into copper production and processing capabilities. In fact, a new agreement with the Chilean government in 2021 now allows Codelco to re-invest up to 30% of its profits annually (Codelco, 2022). The benefits of this re-investment plan are manifold: "the profit re-investment plan will strengthen Codelco's financial balance sheet and reduce the need for additional financial debt" (Codelco, 2022, p. 2). This re-investment plan is undoubtedly a step in the right direction. However, we must still consider the view of Gerrit Fuelling, who stated that Codelco currently has a backlog of investments amounting to nearly 80 billion USD (Gerrit Fuelling, personal communication, March 13, 2023). Therefore, it will take many more years of intense investment into Codelco's copper production to maintain its strong position in the market.

According to McIvor et al. (2009), "resources and capabilities are considered valuable if they allow an organization to both exploit opportunities and counter threats" (p.28). Despite declines to Codelco's topline financial performance in 2022, the financial outlook for the company is relatively positive, with an overall pre-tax profit of 1.7 billion USD in 2022 (Codelco, 2022), and we, therefore, consider Codelco's financial resources valuable. Any expansion into lithium, however, would require massive investments on top of Codelco's already massive backlog of copper-related investments and debts. This fact reduces the overall value of Codelco's financial resources somewhat. In terms of rarity, we do not consider Codelco's financial resources to be rare since other mining companies in Chile, like SQM (AA rating, "Very High Credit Quality," SQM 2023) and Albemarle (BBB rating, "Good Credit Quality," Fitch Ratings, n.d.-b), have similarly strong financial results and access to credit. Overall, we consider Codelco to be at competitive parity regarding its financial resources, as shown in Figure 18.

7.1.1.2. Physical and Raw Material Resources

As the world's second-largest copper producer (Pistilli, 2023), Codelco possesses world-leading mining capabilities. Codelco currently has operations at eight mining sites across Chile. Some sites operate exclusively as open-pit copper mines; others have both open-pit and underground mining, while others operate as smelting and refining sites. Codelco also has tens of millions of dollars of high-end mining equipment at its disposal (Codelco, 2021). However, as with Codelco's previously explored financial resources, much of the firm's physical resources are geared toward copper production, not lithium. If Codelco were to move into the lithium market, most of the firm's physical resources would be useless. Codelco would need to find new extraction sites and set up entirely different processing facilities. As we learned from one of our interview subjects, Mauricio Lorca: "Codelco [is] a copper specialist. It is a bit naive to think that it can also take charge of a type of mining that is totally different. One is crustal mining, large earthworks, and the other is water mining" (M. Lorca, personal communication, March 15, 2023).

Therefore, despite Codelco possessing valuable physical and raw material resources, these resources are primarily useful only in copper mining, not lithium extraction. Though smaller, competitors like SQM and Albemarle have significant access to equipment and raw materials specifically designed for lithium. In short, Codelco has valuable but not rare physical resources.

7.1.1.3. Organizational Resources

Perhaps the best quote to describe Codelco's organizational capabilities came from our interviewee, Daniel Jimenez:

I'm bringing back the discussion to this sense of urgency because this [lithium] is a cycle which is going to last only a limited amount of time, and Codelco is probably a turtle when you need to run like a rabbit (D. Jimenez, personal communication, March 22, 2023).

Even Codelco's Chairman holds a similar view: "The number one challenge we have isn't reserves, it isn't projects, it isn't our balance sheet; it is how to execute our projects." (Hotter, 2023, para. 11). Gustavo Lagos (2018) argues that some of these issues of execution relate to Codelco's "being managed by trade unions, letting politics permeate its decisions (...) for shady deals, and for many other curses" (p. 137). To make matters worse, even if Codelco decided to enter the lithium market fully, it would take many years for their production sites to be viable: "to produce lithium, it takes about 7 to 10 years of knowledge of the place to produce it" (M. Lorca, personal communication, March 15, 2023). To summarize, Codelco lacks valuable organizational resources to adequately exploit lithium in a timely manner and is considered to have a competitive disadvantage (see Figure 18).

7.1.2. Intangible Resources

7.1.1.2. Human Resources

Most scholars consider an employee an intangible asset since their knowledge and skills are valuable, not simply their physical presence (Kamasak, 2017). The most recent employment data from Codelco show that in 2021 the firm employed roughly 15,000 employees, nearly all of whom are based in Chile. Most of these employees work directly with Codelco's copper mining sites, with a smaller portion working in administrative and management positions. In recent years, Codelco has made a concerted effort to attract Chile's white-collar workers. For example, in 2021, Codelco launched a graduate scheme that saw over 400 top Chilean graduates join the firm in various departments. Beginning in 2022, Codelco launched its new *Corporate Diversity and Inclusion Policy*, which has numerous goals ranging from improving hiring practices, developing diversity and

inclusion training, and creating a positive work environment for employees (Codelco, 2021). Codelco also has a firm commitment to training and up-skilling their employees. In 2021, Codelco established UCodelco, "a training model to create an impact on our business and build the necessary skills in employees" (Codelco, 2021, p. 57). UCodelco had courses on various topics, from leadership to mining sustainability practices. Over 13,000 of Codelco's employees participated (Codelco, 2021). In summation, Codelco has significantly invested time and money into developing a valuable workforce, ranging from its graduate scheme to UCodelco. It seems fitting, therefore, that Codelco was recognized as the top Chilean company for "developing, attracting and retaining local talent," according to Merco Talent 2021, an industry monitoring group (Codelco, 2021, p. 79).

Nevertheless, despite Codelco's admirable talent attraction and retention initiatives, few of these previously mentioned statistics and initiatives can help Codelco in lithium. Operational and administrative employees, along with other support staff, could conceivably, be transferable. However, Codelco will need to compete with SQM and Albemarle to hire lithium mining specialists, consultants, and scientists. According to interviewee and former SQM VP of Exploration Daniel Jimenez, Codelco has successfully recruited some lithium experts from the private sector, but more experts will be needed. With this challenge in mind, Codelco has competitive parity in terms of human resources (see Figure 18).

7.1.1.3. Reputational Resources

Arguably Codelco's most valuable, rare, and inimitable resource is its reputation within Chile. According to Codelco's 2021 Annual Report, "for the twelfth consecutive year, [Codelco] leads the mining industry's ranking and it is the most valued state-owned company in Chile" (Codelco, 2021, p. 79). The report goes on to highlight that Codelco also ranks eighth out of 100 companies (private and state-owned) in Chile in terms of corporate reputation. Beyond rankings, Codelco also has significant reputational benefits due to its inseparability with Chilean development over the past 50 years. As we learned in our interview with Andreé Henríquez, "Codelco has been the central element to [the development] of Chile" (A. Henríquez, personal communication, April 4, 2023). As such, Codelco has contributed vast sums to the national budget of Chile for decades, a trend that continued well after Pinochet, Codelco's creator, relinquished power. Codelco's continued contributions to Chile's democratic governments have largely cleansed the company of its links to

the dictator. Rival firms within the lithium industry in Chile, like SQM, do not have such positive reputational benefits. In the 1980s, Pinochet privatized SQM, and the company was given to none other than Pinochet's son-in-law, as Jorge Valenzuela explained in the interview. He also mentioned that SQM was embroiled in a corruption scandal in the early 2010s, which involved the company bribing Chilean politicians. To sum up, Codelco possesses rare, valuable, and inimitable reputational resources that the company can readily exploit. Codelco's reputational assets, therefore, represent a sustainable competitive advantage in the lithium industry (see Figure 18).

7.1.1.4. Technology and Innovation

Codelco has made a concerted effort to overhaul its mining and organizational processes through digital transformation in recent years. The company's 2021 Annual Report highlights five main goals of their digital transformation: 1) mining automation, 2) advanced analytics of the mining process, 3) fully integrated operations centers across Chile, 4) investments in cloud computing and cybersecurity, and 5) increased automation of support functions. For some time, Codelco has led the mining industry in terms of production automation. Since 2008, Codelco has operated Chile's largest fleet of autonomous haul trucks (AHT), which, as their name suggests, operate without a driver and thus reduce the chance of injury on mining sites (Moore, 2021). Unfortunately, such advances in automation will do little to help Codelco in the lithium market. As noted throughout this thesis, lithium brine mining in Chile is done via evaporation in large ponds. Autonomous trucks would have little use in lithium mining since the lithium is brought to the surface via pumps, not drills and trucks. Therefore, we consider Codelco's technological and innovation resources valuable but not rare. Therefore, according to the VRIO Framework, competitive parity is established (see Figure 18).

Resources & Capabilities	Valuable	Rare	Difficult to Imitate	Organized to Exploit	Impact on Competitive Advantage
Financial Resources	Yes	No	-	-	Competitive Parity
Physical & Raw Material Resources	Yes	No	-	-	Competitive Parity
Organizational Resources	No	-	-	-	Competitive Disadvantage
Human Resources	Yes	Yes	No	-	Competitive Parity
Reputational Resources	Yes	Yes	Yes	Yes	Competitive Advantage
Technology and Innovation	Yes	No	-	-	Competitive Parity

Figure 18: Note. VRIO Analysis of Codelco's Resources and Capabilities, authors' own elaboration

In this chapter, we set out to answer the following sub-research question:

Does Codelco possess the proper resources and capabilities to enter the lithium market?

We utilized the resource-based view approach, specifically the VRIO framework, to answer this question. The chart displayed above shows the results of our RBV analysis based on the VRIO analysis tool presented in Figure 6 of the theoretical section. We found that Codelco only possesses a competitive advantage in terms of its reputational resources. Codelco's other resources and capabilities are deemed to be equal or disadvantageous vis-à-vis potential competitors in the Chilean lithium sector.

7.2. The Industry-Based View of Chilean Lithium

Now that we have assessed Codelco's resources and capabilities through the lens of the resource-based view, it is time to turn our attention toward the industry dynamics of the lithium mining sector in Chile. As outlined in our theoretical framework section, we will undertake this industry analysis with the help of the industry-based view, a theory whose foundations are built upon Michael Porter's (1979) Five Forces framework. To conclude this section, we will give a concrete answer to our sub-research question:

How could Codelco's position vis-à-vis its competitors help or hinder entry into lithium?

7.2.1. Five-Forces

7.2.1.1. Threat of Codelco Entry – Low

The first section of Porter's (1979) Five Forces analytical framework examines the threat of new entrants. Having completed our research, we have determined that the threat of new entrants into the Chilean lithium industry is low. We will now explain why we have reached this conclusion using six sub-segments of analysis: 1) economies of scale, 2) product differentiation, 3) capital requirements, 4) cost disadvantages independent of size, 5) access to distribution channels, and 6) government policy. In our analysis, since Codelco has only just begun the exploration phase for lithium, the firm is considered a new entrant. The subsequent analysis will show why Codelco's threat of entry is a negligible risk to incumbents like SQM and Albemarle.

7.2.1.1.1 Economies of Scale – Disadvantage Codelco

A key benefit of incumbent firms in any industry relates to economies of scale. By definition, an incumbent firm already possesses the production, R&D, and human resource capabilities to succeed in the industry. These capabilities produce economies of scale as they directly improve firm efficiency. New entrants do not have the luxury of economies of scale (Kenton, 2022). Codelco does indeed possess vast economies of scale, but only in copper production, not lithium. Competitors like SQM and Albemarle are superior in lithium economies of scale because they already have human capital, deposits, and the know-how to extract lithium. Mauricio Lorca's comment again rings true: "to produce lithium, it takes about 7 to 10 years of knowledge of the place to produce it" (M. Lorca,

personal communication, March 15, 2023). Codelco has only just started down this long path. As of May 2023, Codelco's only lithium operations include an exploration site in the Salar de Maricunga.

7.2.1.1.2. Product Differentiation – Neutral

As outlined in this thesis's industry-based view theory section, product differentiation in the mining industry relates almost entirely to resource quality. Lithium buyers do not care if the lithium is Chilean, Bolivian, or Australian. Nor do buyers care if Codelco or SQM mines the lithium. All that can differentiate mining products is quality. In the case of lithium, quality relates to ore grade. Currently, SQM and Albemarle's lithium operations are based in the Atacama region. Codelco's lithium exploration sites are also in the Atacama. According to our interviewee Daniel Jimenez, the Atacama region is known to have some of the world's largest and highest-grade lithium reserves. As such, there would be virtually no differentiation between SQM and Albemarle's lithium, and Codelco's lithium.

7.2.1.1.3. Capital Requirement – Disadvantage Codelco

We know from the writings of Porter (1979) that extractive industries like mining have some of the highest upfront capital requirements of any industry. Currently, Codelco is already at a considerable disadvantage in terms of lithium. In 2022 alone, SQM announced a 1.4 billion USD investment plan into Chilean lithium extraction, and Albemarle announced a similar 900 million USD investment (Vásquez, 2023a). Throughout this thesis, we have repeatedly emphasized that Codelco is only in the exploration phase. As such, Codelco will likely need a minimum of hundreds of millions of dollars, if not billions, to catch up to SQM and Albemarle. Codelco's potential investments in lithium would not only cost exorbitant sums but would also distract Codelco from its previously mentioned multi-billion-dollar investment backlog related to copper production, as indicated by Gerrit Fuelling.

7.2.1.1.4. Cost Disadvantages Independent of Size – Neutral

Incumbent firms benefit from the knowledge they have acquired and their overall experience in the industry (Porter, 1979). In the case of the Chilean lithium industry, as of mid-2023, SQM and Albemarle are the only firms in the country that are extracting lithium, according to Andreé Henríquez. Codelco is only exploring the possibility of lithium mining. Therefore, SQM and Albemarle possess an advantage since they have already acquired the necessary lithium knowledge

and implemented these learnings throughout their organizations. There is no doubt that Codelco, a highly-skilled, global leader in mining, can acquire this lithium knowledge too, but it will take time, resources, and, most importantly, human capital.

7.2.1.1.5. Access to Distribution Channels – Neutral

Porter (1979) identifies access to distribution channels as the fifth entry barrier for firms seeking to enter a new industry or market. SQM and Albemarle have well-established lithium distribution channels, primarily to China, Japan, South Korea, and Germany, as shown in Figure 19. In an interview with the Danish investigative newspaper, DanWatch, Albemarle's country manager based in Chile noted that their distribution partners are based on "long-term relationship strategies" (Mogensen, 2019). In our interview, we heard a similar sentiment from Manuel Andrade: "the technologies they use for extraction, processing, refining, and also the connections in the market are well consolidated in SQM and Albemarle" (M. Andrade, personal communication, March 23, 2023). Codelco, of course, has a wide range of distribution channels thanks to its over fifty years in the global copper industry. However, it is unlikely that these copper distribution channels will be as useful for lithium. If Codelco were to become a major lithium producer, the distribution channel issue could be mitigated by cooperation with the Chilean government and Codelco's extensive global connections.

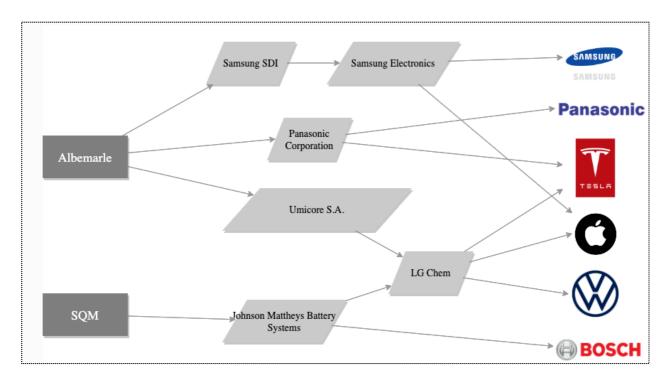


Figure 19: *Note*. Distribution Channels of SQM and Albemarle Lithium in 2019, adapted from "There's probably Chilean lithium behind the screen you're reading this on," by Mogensen, A.O. (2019). © DanWatch

7.2.1.1.6. Government Policy – Neutral

The effects of government policy on a potential Codelco entry into lithium will be discussed in much greater detail in the institution-based view section of this discussion. Briefly, Codelco can expect few advantages or preferential treatment from the Chilean government, according to interviewee Gerrit Fuelling. While the current Boric administration is pushing for some kind of state involvement in the lithium sector, neither the president nor the legislature is adamant that this state actor must be Codelco (Government of Chile, 2023). Therefore, it is likely that any Codelco entry into lithium will be met with the same institutional hurdles faced by SQM and Albemarle, notably regarding concessions and licenses for mining rights.

7.2.1.2. Power of Buyers – Medium

In our theoretical framework section, we described several factors that determine if the bargaining power of buyers is high or low. Such factors include the number of buyers — if there are few, buyers are considered powerful. The uses for lithium are numerous and constantly expanding. Lithium can now be found in products ranging from cell phone batteries and EVs. Lithium is also used in alloys

for construction, air conditioning systems, and medicine (Royal Society of Chemistry, n.d.). Thus, the number of industries and buyers is large, limiting buyers' power.

Buyer power is bolstered, however, by the standardized nature of lithium mining products. Buyers do not concern themselves with whom they buy their lithium from, as the demand is simply too large for any single mining firm to adequately supply. For example, EV manufacturer Tesla sourced from at least eight different mining firms across multiple continents in 2022/23. Contracts also tend to be relatively short, lasting only a few years (Barrera, 2023). Quality differentiation is another factor that increases buyer power. In short, buyers are likely to 'shop around' for the best price and quality, giving them significant power (Barrera, 2023). Additionally, lithium buyers such as car manufacturers are likely to diversify the number of lithium suppliers to mitigate supply chain risks, reducing buyers' dependence on any one lithium producer (Lowry, 2022). Finally, the fact that buyers are likely to buy lithium in enormous quantities means that buyers, once again, can be considered powerful (Porter, 1979).

7.2.1.3. Power of Suppliers – Low

Porter's third force in his (1979) Five Forces model relates to the power of suppliers. Since SQM, according to Andreé Henríquez, is the largest lithium mining company in Chile by a large margin, we have decided to examine their supplier relationships to determine the power of suppliers in the Chilean lithium mining market generally. According to SQM's website, as of 2023, the firm uses 3,034 unique suppliers across its lithium production chain. Over 90% of these suppliers are Chilebased (SQM, 2023). It is conceivable that if Codelco were to enter the lithium market, they would likely source from similar numbers of suppliers. Such a high number of suppliers implies low supplier power. Additionally, firms like Codelco, SQM, and Albemarle, all of whom rank within the top 25 largest mining companies in the world (Mining.com, 2023), possess significant power over their suppliers because of their world-leading status.

7.2.1.4. Threat of Substitute Products – Medium

The fourth of Porter's (1979) Five Forces is the threat of substitute products. As the name suggests, if customers can find and purchase a similar product, this represents a threat to the firms selling the original product. Surprisingly, despite not being asked about this issue directly, many of our

interview subjects discussed the threat of substitutes for lithium: "Chile has the challenge to be quick now (...) because lithium will also come to an end (...) there will be another technology" (I. Wunderlich, personal communication, March 22, 2023). Daniel Jimenez argued something similar when he stated: "(...) ten years from now (...) the reality will be completely different. [Lithium] recycling will already be an enormous contributor to supply" (D. Jimenez, personal communication, March 22, 2023). Whether due to persistent supply shortages, geopolitical tensions, or outcry over environmental damage, there are many reasons for people to search for lithium alternatives. The search has already begun for numerous researchers and companies (Campbell, 2022). This fact reduces the attractiveness of the lithium industry for Codelco.

7.2.1.5. *Jockeying for Position – Low*

We argue that the Chilean lithium industry is currently characterized by low levels of firm rivalry, also known as 'jockeying for position' in the jargon of Porter (1979). As outlined in the theoretical framework, a few key factors can determine if an industry has high levels of rivalry. First, if there are numerous competitors in an industry or they hold relatively similar market shares, the industry can be said to have a high level of rivalry. This is not the case for the Chilean lithium industry. Currently, only two companies have lithium operations, SQM and Albemarle. Codelco would be the third — hardly a lot of companies. Nor do SQM and Albemarle have a similar market share. As we learned in our interview with Andreé Henríquez: "Right now we only have two players, which is SQM and Albemarle (...) SQM is very big, and Albemarle is very small [in Chile]" (A. Henríquez, personal communication, April 4, 2023). Another factor that can cause inter-firm rivalry is a slowly growing industry. Such an industry requires firms to fight hard for every piece of market share. This is certainly not the case in the Chilean lithium industry, as we have established throughout this thesis — the Chilean lithium market is booming. One might also expect that the lack of product differentiation could cause firm rivalry in Chilean lithium, but this is not a significant factor. There is vast global demand for lithium, and the state gives all Chilean lithium miners exclusive licenses to mining deposits. There is simply no need for SQM, Albemarle, or Codelco (if it enters) to jockey for position.

Five Forces Ar	nalysis – Codelco Lithium Entry	Relevance of Threat		
	Economies of Scale	Disadvantage Codelco		
	Product Differentiation	Neutral		
Threat of Codelco	Capital Requirements	Disadvantage Codelco	Low	
Entry	Cost Disadvantages	Neutral		
	Access to Distribution Channels	Neutral		
	Government Policy	Neutral		
Power of Buyers		Medium		
Power of Suppliers		Low		
Threat of Substitute Products		Medium		
Jockeying for Position	on	Low		

Figure 20: *Note*. A Visual Guide to Our Five Forces Analysis, adapted from "How Competitive Forces Shape Strategy," by Porter, M. (1979), Harvard Business Review, pp. 137-145.

In this section, we attempted to answer the following sub-research question:

How could Codelco's position vis-à-vis its competitors help or hinder entry into lithium?

To answer this question, we utilized an industry-based view rooted in Peng et al.'s (2009) Strategy Tripod. The chart above (Figure 20) shows the results of our analysis. First, we found that the threat of Codelco's entry into the lithium market is low. This is mainly due to Codelco's lack of sufficient economies of scale and capital investment into lithium. This makes sense since the copper firm has only one lithium exploration project and no processing facilities (BNAmericas, 2023). Second, we found that buyer power in the lithium industry is medium strength. When buyer power is high in an industry, firms tend to avoid entering said industry (Porter, 1979). So, an industry with medium levels of buyer power would neither attract nor dissuade Codelco from entering. Supplier power, on the other hand, we found to be low. Low supplier power attracts potential industry newcomers (like Codelco) because new firms can better negotiate vis-à-vis weak suppliers (Porter, 1979). The threat of substitute products was the fourth aspect we considered. We assessed this force as medium strength because persistent supply-chain bottlenecks and lithium shortages have already pushed scientists and car manufacturers to explore alternatives to lithium (Campbell, 2022). This fact should give pause to any company considering entering the lithium market. Finally, we examined Porter's fifth force related to industry rivalry. We assessed this as a weak force, a fact that

would make lithium entry attractive (Porter, 1979). In summation, we assess the current characteristics of the Chilean industry, based on a Five Forces (Porter, 1979) analysis, as presenting neutral signals for Codelco. Some aspects of the industry are encouraging signs for the firm, while other industry signals should dissuade Codelco's entry.

7.3. Institution-Based View: Chile & Codelco

Since a company's strategy is not only influenced by its resources and the industry dynamics outlined in the previous chapters, it is paramount to discuss the institutional 'rules of the game' in a given context or geography. Therefore, exploring Codelco's move into lithium requires us to evaluate the Chilean institutional framework and highlight opportunities and threats the copper company might face. Similar to the previous sections, this chapter's discussion will use our primary data extensively and include secondary sources whenever relevant. It is worth mentioning that addressing all aspects of the substantial institutional theory would go beyond the scope of this thesis. We will thus focus on institutional facets relevant to Codelco and its lithium ambitions in Chile to answer our third sub-research question:

What effects might Chilean formal and informal institutions have on Codelco's lithium entry?

7.3.1. Formal Institutional Framework

As discussed in the theory section of our thesis, formal institutions relate to explicit rules and regulations that govern societies. Usually, governmental bodies set up these rules, for example, a country's constitution or other legally binding rights and obligations.

In the case of Chile, one can speak of a well-functioning and highly organized country. It features a professional, merit-based bureaucratic system and generally exhibits low levels of corruption. Chile ranks 27th out of 180 countries in Transparency International's Corruption Perception Index (CPI), only two spots behind the United States (2023). In addition to that:

(...) [the] tax service is modern and highly efficient, street-level policemen are mostly trusted by the public, and the public health care system, though resource-strained, has been highly

effective in covering the entire territory and in improving health outcomes even in poor, rural and indigenous areas (Bertelsmann Stiftung, 2022, p. 8).

The country's constitution establishes a universal rule of law and institutional checks and balances via reciprocal monitoring of the bodies. Moreover, it enshrines the president's strong position and an independent and powerful judiciary. According to the Bertelsmann Foundation, various other indicators position Chile as a model democracy (2022) in a region exposed to authoritarian regimes. Figure 3 in Appendix A provides a good overview of different institutional indicators taken into consideration for Chile. Furthermore, as noted in our previous analysis, Claudia Zilla, our interviewee from the esteemed German think tank SWP, emphasizes that Chile's constitution, commonly referred to as the 'Pinochet-Constitution,' has undergone significant revisions over time, with increasingly democratic principles being incorporated. Since the re-democratization, Chile has been seen as a country of genuine stability in a volatile region. Zilla also explains that Chile has a structured party system and is overall very institutionalized. According to her, the country's stability, which lasted until the 2019 protests, was maintained by an elite consensus and the unique institutional features making Chile a particularly centralist state. The 'elite consensus,' however, is problematic, as "the same elite are the people that have the economical power, the political power and also the academic [power]. They're all kind of relatives" leading to a "big disconnection of the authority and the people" (C. Dorador, personal communication, March 20, 2023). For Dorador, this was the main reason for the social crisis and protests four years ago. She emphasizes that Chilean centralism has a significant financial dimension. Most resource rents flow from Northern Chile to the capital Santiago, resulting in an imbalance of benefits for mining regions that must bear the externalities discussed earlier. Andreé Henríquez calls this a contradiction between "high performance in terms of production and exportation, low performance in terms of (...) sustainable development" (A. Henríquez, personal communication, April 4, 2023). Many of our interviewees, like Zilla and Dorador, underscored that Chileans, especially 'normal' people, feel a lack of representation in the political agenda. As we explain above, whereas the first constitutional process called into question traditional patterns and included a bottom-up approach, the second run will most likely fall short of universal representation. Nevertheless, as Iris Wunderlich discusses, "you can trust the institutions (...) [a]nd I think the Chilean institutions work quite well, in general" (I. Wunderlich, personal communication, March 22, 2023).

7.3.1.1. Chile's Unique Mining Regulations

Returning to this thesis' crucial matter of mining, any corporation seeking to explore lithium reserves in Chile must remit royalties to CORFO, the Chilean Economic Development Agency. As explained by Daniel Jimenez, mining operators must consider additional expenses besides the relatively high royalties, such as general corporate and mining taxes. Despite the high royalties, Gerrit Fuelling acknowledges the capable system of dynamic taxation in Chile, yielding more benefits to the treasury if lithium prices skyrocket. As per an official statement, the current royalty scheme is linked to global lithium prices. At a lithium price of approximately 5,000 USD/mt, SQM and Albemarle must pay 6.8% in royalties. However, if the prices exceed 12,000 USD/mt, the maximum tax rate is capped at 40% (García Bernal, 2021).

Iris Wunderlich agrees that this system has benefited state coffers and notes that due to the recent price hike, SQM had to pay royalties equivalent to what was initially projected to be paid over six years. As a result, SQM's tax contribution of 5 billion USD was the largest made by any corporation in 2022 (Dube, 2023). However, alternative viewpoints exist among our interviewees: Manuel Andrade is suspicious of the current system and sees room for improvement:

[There is] a need to make tax reforms or institutional reforms to increase (...) Chile's benefit in relation to the rent. (...) 38 years of lithium exploitation, and there are several analyses that indicate that a large part of the lithium and potassium mining income has remained in private hands and (...) in the hands of international corporations (M. Andrade, personal communication, March 23, 2023).

Regardless, it is necessary to expedite processes and increase their comprehensibility, as "the rules are never 100% clear on the criteria" (D. Jimenez, personal communication, March 22, 2023). Gerrit Fuelling thinks "there should be more focus on and on consistent legislation for all mining in general" (G. Fuelling, personal communication, March 13, 2023). For Jimenez, "[the current] legislation has been very detrimental for the development of the lithium industry in Chile, and it's holding it back" (D. Jimenez, personal communication, March 22, 2023). The fundamental uncertainty is whether

Codelco will possess a greater capacity to navigate the complex landscape of the mining industry in Chile as opposed to its private counterparts.

Even though being an SOE, Codelco cannot expect preferential treatment, according to Fuelling. They will likely struggle with the same institutional hurdles that have slowed down the Chilean lithium industry for decades and resulted in a shrinking global market share. Daniel Jimenez voiced a similar sentiment when asked if Codelco can expect to have easier access to licenses and concessions: "In theory [yes]. But this country is doomed. If we have authorities which are really, I mean, they're not helping to promote or develop mining projects. They're putting hurdles on the way" (D. Jimenez, personal communication, March 22, 2023). We have put forward that Codelco's mission is to contribute to the state, yet they must follow the rules like all the other companies in the industry. Any preferential treatment would likely be an adverse sign to private companies in the lithium industry, further reinforcing insecurity and potentially capital flight. Another issue put forward by Andreé Henríquez is that "Codelco's board is a political group (...), so it is more complicated to (...) align this company" (A. Henríquez, personal communication, April 4, 2023). Jimenez sums up that:

Codelco, (...) being state-owned, [has] a lot of restrictions and bureaucracy to get things done. (...) Codelco needs to do everything by the book. Every step they make. (...) I'm bringing back the discussion to this sense of urgency because this is a cycle which is going to last only a limited amount of time, and Codelco is probably a turtle when you need to run like a rabbit (D. Jimenez, personal communication, March 22, 2023).

We can conclude that the design of Codelco within the network of institutional actors is not likely to result in any competitive advantages vis-à-vis private competitors. As it happens, we argue that the features of an SOE significantly reduce their ability to take swift action, potentially infringing Codelco's overall success in lithium mining, as has been noted by many of the interviewed experts.

7.3.2. The Role of Informal Institutions

Unlike formal institutions, informal institutions are understood as unofficial and unwritten norms and values that sway societal interactions. Per their definition, they are not enforced by officials but rather inform customary habits and traditions within informal networks.

Having said that, one can argue that for our specific research question, the institutional focus will lie on the formal 'rules of the game' rather than informal factors. We argue that for a state-owned commodities company like Codelco, the societal interactions and implications are somewhat limited and will most likely not have substantial influence in informing the decision to diversify into lithium.

Nevertheless, we have found some evidence of values and norms that display Chileans' general discomfort in taking risks: "Chileans [do] not assume risk. Chilean people prefer the security of dayby-day" (A. Henríquez, personal communication, April 4, 2023). This could signal a sentiment of continuity for Codelco, to keep doing what they are doing best, and refrain from venturing into the new vertical of lithium mining. Mauricio Lorca calls this "pastelero a tus pasteles," (M. Lorca, personal communication, March 15, 2023), equivalent to the English version 'shoemaker to your last'. On the other hand, throughout our interviews, we got the sentiment that Chileans are generally proud of their copper champion Codelco, which is generating significant revenue and wealth for the country's development trajectories. A societal sentiment to push for lithium nationalization could enable Codelco to ride on this wave, as indicated by our interviewee Daniel Jimenez. It could, however, also be the other way around, as a Chilean mining expert is cited in The Wall Street Journal: "People in general do not want the state to be in charge of business in Chile, but to effectively manage the wealth created by private companies (...)" (Dube, 2023, para. 23). Another interesting point is mentioned in a Deutsche Welle documentary where Codelco is described as operating as a quasi-state entity, with its own set of rights and regulations (DW Documentary, 2023). In other words, it is difficult for external parties to obtain information regarding Codelco's internal operations as it functions like a 'Blackbox.' However, it must be stressed that Codelco provides meticulous annual reports addressing subjects such as Transparency Initiatives or Corporate Governance Systems (Codelco, 2021). Nevertheless, through our expert interviews and other data collection processes, it became apparent that obtaining 'insider information' along with an in-depth account of the informal rules that influence Codelco's operations beyond what is publicly available was complicated and out of the scope of this thesis. Thus, we could not delve deeper into these informal regulations since our request for an interview with Codelco was declined, as mentioned earlier.

7.3.2.1. Institutional Voids in an OECD country?

In cases where a country's formal institutions are incapable or unwilling to exercise their authority and control throughout all regions of the country, this is referred to as institutional voids. The subsequent discussion will follow, broadly speaking, the types of institutional voids described by Khanna & Palepu (2010). Nevertheless, we opted to adjust the weight assigned to each category to align with the research question of this paper.

Overall, Chile exhibits high degrees of stateness, as "the Chilean state has the unquestioned monopoly of the use of force throughout the entire territory" (Bertelsmann Stiftung, 2022, p.6). There are, however, conflicts between the Indigenous *Mapuche* and the Chilean state, Claudia Zilla points out. The *Mapuche* have a deeply rooted mistrust of the Chilean state and feel a lack of representation. This conflict, even though posing important questions for the Boric administration, is less important for our case of Codelco entering the lithium industry: we have not found signs of territorial contestation or violent disputes of Indigenous communities in Northern Chile, where the lithium salt flats are located. Notwithstanding, the topic of institutional voids does not only relate to the territorial integrity of a country. As outlined in the theory section, the following discussion will also incorporate 1) *Product Markets*, 2) *Labor Markets*, and 3) *Capital Markets* voids. For this study, we will not assess the *Macro Contextual* voids on their own because they are, to a large extent, included in the other three categories.

7.3.3. Product Market Voids

Regarding Product Market Voids, Khanna & Palepu (2010) propose that some firms might be unable to secure, e.g., access to critical raw materials. The question of whether a company is allowed to mine lithium in Chile is subject to the previously introduced governmental restrictions. Codelco would have to get a concession and mining license from CORFO, just as any other mining company. Nevertheless, we reckon that their expertise and track record in copper mining will help them to

obtain the mandatory permits. On top of that, as underscored by various interviewees, the Boric administration is pushing for a more dominant role of the state; the lithium industry as the new 'golden goose' for Chile's state coffers is no exception to that. Once again, the possibility of farreaching nationalization endeavors is looming across Latin America. Notwithstanding, there is an ambiguous relationship between "governments' hunger for control of coveted commodities and future profits versus their ongoing need for private sector capital and know-how" (Alire Garcia, 2023, para. 3).

On April 21st, 2023, Chile's 37-year-old President, Gabriel Boric, spoke to his fellow citizens and proclaimed the *Estrategia Nacional del Lito* (National Lithium Strategy). He has embraced the notion that private entities should no longer have exclusive rights to extract lithium in Chile. Therefore, he proposes that private firms partner with an SOE for further exploration projects. The idea entails a majority share for the public, national entity. Boric's party still needs to secure the bill's passage in Congress, where they lack a majority. Thus, there is a high likelihood of intense political deliberation in the latter half of the year concerning the provisions outlined in this proposal (Stott & Bryan, 2023).

What is more, in a recent newspaper article, several foreign lithium mining companies were asked about the nationalization ideas of Chile's President Boric. The cited firms, from the US, Canada, Australia, and Singapore, unilaterally declared that state participation would need to be just and equitable, reflecting the capital and risk positions of the involved exploration and exploitation partners (González, 2023). Based on the insights of the experts we interviewed, it is our opinion that Chile will need to engage in substantial negotiations to attract foreign capital to increase its lithium production while also retaining a controlling interest over its international partners, who will likely contribute most of the capital as well as the lithium-specific industry knowledge.

For Codelco, Boric's latest push for a lithium nationalization is, nonetheless, a two-edged sword: even if the general direction agenda will include national participation, it is unclear if Codelco will be that party or if a new state-run company will be created to steer the process. In his speech, Boric indicated that Codelco will coordinate the process and be the liaison between the private sector and the public interests, namely CORFO. For the time being, the practical implications of this are still uncertain. As a consequence of this uncertainty, SQM, whose license will expire in seven years, and

Albemarle, which still has 20 years of lithium mining, have witnessed a sharp decline in their stock prices of 18% and 9%, respectively (Villegas & Scheyder, 2023). Moreover, a recent analysis indicates that "[the] regulatory uncertainties in Chile, Bolivia and Mexico will mean that about 63% of the global supply of lithium will come from rocks and not from brines by 2030" (BNamericas, 2023b, para. 12), consequently cementing Australia's dominant role in the provision of the battery material.

7.3.4. Labor Market Voids

Labor market voids denote situations where the absence of human capital hinders the effective functioning of a market (Khanna & Palepu, 2010). Regarding Chilean lithium mining, specifically under the envisioned management of the state-owned copper company Codelco, the pertinent question is whether they can obtain sufficient skilled labor to establish a competent workforce capable of extracting white gold from Chile's salares. As we have argued with regards to their internal resources, our interviewees noted that copper mining is a very difficult kind of mining compared to lithium mining and that it is "completely out of the scope, the expertise, the know-how [of Codelco]" (D. Jimenez, personal communication, March 22, 2023). However, according to industry expert Daniel Jimenez, Codelco has already recruited lithium experts who were formerly employed by SQM. Generally speaking, Chilean lithium expertise is highly concentrated in the private sector. Manuel Andrade underlines the qualifications of the workforce and envisions a possibility for public actors to capture the human capital: "[Chile has] a level of professionals and technicians that have been trained in the [private] companies (...) and that could be captured by the public companies and be able [to] generate faster results" (M. Andrade, personal communication, March 23, 2023). The pressing question is, however, if Codelco can quickly build up a knowledge base to sustain the lithium ambitions and if they can compete or at least keep pace with the private actors in the search for qualified personnel. Mauricio Lorca, moreover, comments on the 40 years of experience of SQM in lithium mining and says that "it is also naïve of the Chilean State to think that a company is going to give this knowledge to the State for free" (M. Lorca, personal communication, March 15, 2023). Should Codelco fail to access the pool of lithium experts established by SQM and Albemarle, it would significantly curtail their prospects of success in lithium mining.

7.3.5. Capital Market Voids

We have outlined that a robust legal and administrative system characterizes Chile. This also holds for the capital markets, as an OECD report indicates: "Chile's financial system is (...) well-developed by emerging market standards, and even by the standards of many OECD members" (OECD, 2011, p. 10.). The report was published shortly after Chile became a member of the OECD in May 2010. Moreover, the International Monetary Fund concluded in a report from 2021 that "[t]he financial system in Chile functions well overall within a sound regulatory framework. (...) The twin shocks of social unrest in late 2019 and COVID-19 were adeptly managed thanks to massive and well-coordinated supervisory and fiscal policy responses" (IMF, p.1).

Based on the above, it seems likely that Codelco will not face any adverse consequences or limitations imposed by the wider Chilean capital markets.

7.3.6. Institutional Voids and Beyond

As per Stephan et al. (2015), we believe that evaluating institutional voids based solely on Khanna & Palepu's (2010) definition may lead to an excessively limited focus in the context of a relatively well-developed country like Chile. Thus, it is essential to consider additional factors when evaluating the occurrence of institutional voids. In the case of Chile, the problem stems from the constrained capacity to offer services to far-flung regions of the country, situated hundreds of kilometers away from the economic and political hub of Santiago de Chile. Our interviewee Cristina Dorador expressed her sense of being neglected and ignored by the centralist leaders of the state. During a webinar on diverse interpretations of justice in global lithium supply chains, a participant, identifying herself as Atacameña, voiced a similar sentiment, criticizing the lack of emphasis on local communities in Chilean (and global) politics. According to her, private companies are taking over some of the state's responsibilities of public goods provision (Scoville-Simonds & Laterza, 2023). However, as Manuel Andrade and Mauricio Lorca mentioned in the interviews, this itself creates a dependence of local communities on the mining operators. Therefore, in some areas of the Chilean territory, the explained "conditions of limited government support, especially for social programs" (Stephan et al., 2015, p. 311) lead to institutional voids. The following chapter about Codelco's CSR will provide a further basis for this argumentation.

In this chapter, we set out to answer the third sub-research question:

What effects might Chilean formal and informal institutions have on Codelco's lithium entry?

We have seen that Chile can, for the most part, be characterized as a strong state with a sound institutional framework. When it comes to Chilean mining, our data imply that the regulations have hindered the expansion of the lithium sector. Many interview partners, like Daniel Jimenez, Gerrit Fuelling, and Manuel Andrade, have expressed the need for changing legislation. This should lead, among others, to clearer guidelines for mining companies. As explained by Claudia Zilla, Chile is built up on neoliberal policies inspired by the *Chicago Boys*. That is to say that "Chile is very pro-market, pro-private sector" (J. Valenzuela, personal communication, March 15, 2023), and the "only role of the state is support for the private sector to create economic value" (A. Henríquez, personal communication, April 4, 2023). This creates an ambiguity about how a partial nationalization of Chile's lithium industry can be incorporated into the neoliberal setup supported by Chile's elites. According to Andrade, changing the institutional specifications might not be easy as "there are a series of bottlenecks of strong institutional barriers in Chile" (M. Andrade, personal communication, March 23, 2023).

The foremost concerns revolve around the uncertainty of the future of Chilean lithium. Despite the President's expressed intention to partially nationalize the industry, the specifics of such a plan remain unclear. Thus, the intersection of formal and informal institutions in Chile regarding lithium mining is giving rise to considerable institutional voids, impeding the industry's growth and expansion. As we have previously noted, the absence of definitive regulations is casting doubt on major foreign investments in the short term.

For Codelco, the institutional framework represents neither a disadvantage nor an advantage. The state-owned company operates under the same regulatory environment as its private competitors and is subject to the same set of rules and obligations. Although we had initially speculated that Codelco might hold a competitive edge over its private counterparts, our interviews and secondary data did not corroborate this view. The forthcoming month will reveal how Codelco will align with

Boric's lithium strategy. At the time of concluding our thesis, the exact consequences and Codelco's role remain uncertain, as we will elaborate on in the final sections of our thesis.

7.4. Corporate Social Responsibility – The Sweet-Spot for Codelco's Lithium Ambitions?

Peng et al. (2009) advocated complementing the two-part, previously dominant view of analyzing a firm's resources and industry dynamics with a third perspective: the institutional-based view. His incorporation of the 'third leg,' thereby inventing the Strategy Tripod, helps contextualize a firm's institutional embeddedness. We argue, however, that if a company is to develop a future-proof strategy, there is a need to add another 'leg.' The outcome will be a Quadro-Pod strategy, but the complex phrasing should not divert attention from the importance of integrating corporate social responsibility (CSR) initiatives into business practices. Jhunjhunwala (2014), Porter and Kramer (2006), and numerous other scholars have advanced the notion that firms are increasingly embracing business strategies that extend beyond the confines of shareholder capitalism and that seek to mitigate the negative externalities of their operations while providing benefits to affected communities.

Hence, the next and final chapter of the discussion will examine Codelco's CSR position and accentuate the need for a holistic and socioenvironmental sound approach to lithium mining in Chile. To achieve this, we will examine the effects of mining operations, as partially presented in the analysis, and discuss potential measures to alleviate their impacts.

7.4.1. The Relationship between Chilean CSR and Mining

As we have seen in the anterior analysis section of our thesis, the view of CSR initiatives and the socioenvironmental impact of mining companies like SQM, Albemarle, and Codelco is highly contested. While Gerrit Fuelling and Daniel Jimenez believed that the negative externalities are primarily overstated, the other seven expert interviewees expressed that both copper and lithium mining has adverse effects on the local flora and fauna and the Indigenous communities inhabiting the mining areas.

The subsequent chapter will recap our main findings about the crucial discussion of negative externalities in Chilean mining and link them to the overarching topic of CSR. After that, we will

discuss the relationship between Indigenous communities and mining projects and conclude our discussion section by providing an answer to our final sub-research question.

7.4.1.1. Mining Externalities & Local Communities

In Chile, as mentioned in the Research Context, water is privatized. Even if that seems beneficial for mining corporations, the extensive use of water in the evaporation and refinement processes has broad implications for the local communities near the mining sites. This is not only the case for the lithium operations of SQM and Albemarle but also for the copper mining activities of our case company Codelco. As a matter of fact, most of our interview partners mentioned that Codelco's copper mining operations are using vast amounts of water "the biggest users of freshwater [are] the copper mines" (G. Fuelling, personal communication, March 13, 2023) and that the national champion "as a matter of fact, (...) [is] very polluting as a company" (C. Dorador, personal communication, March 20, 2023). Sky News reporter Ed Conway, who has visited Codelco's Chuquicamata mine, adds to that perspective. Chuquicamata, representing the largest man-made hole on the planet, with a depth of 1km, has caused negative externalities for residents. According to locals interviewed, high levels of arsenic in the air resulting from the copper mining process have caused an unprecedented increase in cancer cases. As a result, the once-thriving mining community has become a ghost town, with all former residents relocating to the nearby village of Calama (Conway, 2022).

On the plus side, Codelco has resorted to using desalination plants to reduce the need for fresh water in their copper mining process. As emphasized in the company's *Half Year Results 2022*, one of its five sustainability initiatives addresses the water issue:

Codelco will reduce inland water use per ton of treated ore by 60%. We will reduce makeup water (freshwater resources utilized by operations) through process efficiency, Codelco will incorporate a desalination plant in the Northern District and, through innovative solutions, we will recycle water (...) (Codelco, 2022, p. 8).

We must remember, though, that copper mining is very different from brine water extraction when it comes to water use. Whereas lithium mining evaporates the lithium-rich brine, copper miners use

fresh water "during the concentration steps of copper ores, (...) [and] approximately 90 cubic meters of water is needed to produce one ton of copper" (Lubuzh et al., 2023, para. 7).

In a scenario of entry into the lithium market, Codelco could also use desalinated water to reduce the water distress in the affected communities, as Andreé Henríquez mentioned, and provide fresh water to Indigenous communities. The copper champion could also pioneer large-scale pilot projects of less water-intensive direct lithium extraction methods, like the previously mentioned direct lithium extraction (DLE), as currently "(...) [DLE has] not been proven in real industrial situations" (C. Dorador, personal communication, March 20, 2023).

According to the interviewee Mauricio Lorca, all-encompassing consequences of mining companies' water usage are inadequately studied. Therefore, we advocate for the need to investigate further the socioenvironmental consequences of water discharge in Chilean mining. Moreover, it is essential that independent and non-partisan investigators perform the studies. Codelco could take a leading role and spearhead better environmental protection initiatives for water-stressed geographies, further reinforcing the "very good and very strict environmental impact procedures [in Chile]" (I. Wunderlich, personal communication, March 22, 2023).

The matter of water usage is undeniably pertinent and critical in relation to Codelco's CSR endeavors. Despite complying with the current pro-industry and neoliberal water laws, we maintain that the company should play a proactive role in alleviating, studying, and reducing the consequences of water usage in lithium mining. Not only is it a moral responsibility, but it could also enhance Codelco's sustainability goals and validate their social license to operate, aligning with Porter and Kramer's (2006) holistic CSR approach. Meanwhile, the largest producer of Chilean lithium, SQM, has announced a 1.5b billion USD investment to counteract the miner's water impact via a desalination plant to compensate for water loss. This is said to lead to a "totally neutral long-term water balance' and bring its net freshwater usage 'to zero'" (Cambero, 2022, para. 7). Albemarle has also declared plans to decrease the use of freshwater in the refining process by 30%, according to a press release (Albemarle, 2022). Whether Codelco can outpace SQM and Albemarle in terms of positive CSR externalities related to water usage is yet to be determined.

7.4.1.2. Indigenous Peoples and Mining

Codelco's suitability initiative includes a final point, as announced in the company's *Half Year Results* 2022, which states that:

(...) will increase by 60% the goods and services sourced from local suppliers and increase employment of local workforce (...) [and] implement a new strategy for territorial integration focused on creating social value, by (...) strengthening mining education and increasing sustainability within the territory (Codelco, 2022, p. 8).

The 2019 company sustainability report also highlights how Codelco recognizes the local communities: "In this context, we recognize the intrinsic value of indigenous peoples, in their identity and form of self-organization, their rights, culture, rites and customs, together with their ties to the land, territory and its resources" (Codelco, 2019, p. 105).

In fact, in the report, Codelco's professed dedication to the well-being of local communities appears to be a prime illustration of the company's corporate social responsibility endeavors. As per their claims, in 2019, Codelco entered into nine accords with 21 Indigenous communities, disbursing approximately 270,000 USD for undertakings, including purchasing farming machinery and establishing renewable energy systems (Codelco, 2019). However, even if Codelco claims to be using various monitoring systems and appears transparent about their CSR initiatives, parts of our interviewed experts seemed rather doubtful of these claims, as we have extensively shown in the preceding analysis.

Nevertheless, Codelco could potentially try to limit the effects of what Mauricio Lorca calls a vertical relationship between communities and mining companies through proper consultation, participation, and compensation for damages. Currently, the CSR initiative of lithium companies is not living up to these expectations, as described by Lorca. Codelco could positively differentiate itself from its lithium competitors SQM and Albemarle by emphasizing proper negotiations with Indigenous communities, as stated in their company publications. Right now, as explained by Mauricio Lorca and Manuel Andrade, the relationships between the affected communities and

mining companies often play off the different social parties against each other, as elaborated in the analysis section.

However, as previously noted regarding institutional voids and the Chilean state's limited oversight of mining activities and potential violations, the data collected does not indicate that a company like Codelco will suddenly alter its CSR objectives and serve as a role model for other mining companies. On the contrary, Codelco's copper mining operations have inflicted significant environmental harm and impacted Chileans living near the vast mining pits (DW Documentary, 2023). We acknowledge that Codelco is addressing adverse operational impacts in its sustainability and annual reports. Nevertheless, our interviewees, like the microbiologist Cristina Dorador, did not corroborate that corporate ambitions translate into urgently needed action on the ground in Chile.

We champion what Andreé Henríquez describes as a necessity to "put more pressure to this industry to resolve the problem about sustainability" (A. Henríquez, personal communication, April 4, 2023) as well as collaborating with affected communities but also the regional and federal governments to create policies that create a just distribution of Chilean mineral wealth. This would help to eradicate the current situation where "a large part of the (...) mining income has remained in private hands and (...) in the hands of international corporations" (M. Andrade, personal communication, March 23, 2023), without providing substantial advantages to the adjacent communities. We believe that Codelco, an influential industry player, could exert such pressure, but it remains to be seen if it aligns with their interests and incentivizes them to do so.

Jorge Valenzuela calls the Chilean lithium boom "a golden opportunity to take money (...) for social programs and for (...) the government (...) [as] they want to [leave] a mark" (J. Valenzuela, personal communication, March 15, 2023). Correspondingly, Codelco can take this opportunity to leave a positive mark for Chile as a whole, thereby embracing their primary "mission to contribute to the state" (A. Henríquez, personal communication, April 4, 2023) and foster development for the Chilean state. However, Henríquez underscores the challenges that Codelco faces: "It's not easy to try to combine your role to contribute to the national budget, the political equilibrium [and] balance at the same time a good relation with the workers (...) [and] with the [Indigenous] territories (...)" (A.

Henríquez, personal communication, April 4, 2023). In addition, as we learned in a webinar, it is unclear if lithium will contribute more than copper to Chile's development, as overall problems of the resource-led development ideas infused with neoliberal policies persist and cannot hide the negative externalities of Chilean mining operations (Hufty, 2023).

In conclusion, our study aligns with the viewpoint proposed by Scoville-Simonds and Laterza (2023) that there is a need to prioritize distributive and procedural justice in the context of Chilean (lithium) mining. Consequently, achieving equitable distribution of impacts, benefits, and costs, and implementing transparent decision-making procedures that facilitate the participation and consultation of affected stakeholders is a critical undertaking.

Codelco has the potential to either promote a fairer approach to resource extraction or maintain its current practices, which could result in negative externalities of copper mining being translated to its lithium endeavors. Vis-à-vis the posed sub-research question and our analysis:

Can Codelco leverage CSR initiatives to enable success in lithium mining

we can assert that Codelco has the capacity to establish an adequate CSR plan for its foray into the lithium mining sector. However, the critical issue at hand is whether Codelco will choose to undertake this task voluntarily. It also depends on whether the Chilean government can and will enforce regulations to mitigate negative externalities or if the current situation will persist. The latter scenario would entail no significant changes to the existing business practices, and consequently, there would be no improvement in the well-being of the affected communities and the Chilean ecosystem, as extensively discussed in this thesis.

8. Limitations

It is important to acknowledge the limitations of this study to give a truthful representation of our accomplishments and identify any shortcomings that may affect the overall validity of this thesis, as explained in detail by LeCompte & Goetz (1982). Being transparent about the limitations is therefore crucial to enhance credibility. It also points toward areas where future research can build up on our investigation and set off to complement the thesis.

In general, the limitations built up on what we have described as methodological limitations earlier in the thesis. Firstly, we recognize that our nine expert interviews offer a limited snapshot of potential interpretations and may not represent a complete view of Chile's lithium endeavors and how they are perceived in Chilean society and the global lithium industry. To address this limitation, we sought to interview experts from diverse backgrounds and contexts to capture a range of opinions on the topic. Furthermore, we were unable to establish direct contact with Codelco. In an effort to obtain an official perspective on Codelco's role, we reached out to the Chilean Ministry of Mining and, specifically, its sub-secretary, Willy Kracht, through various communication channels. Unfortunately, we received no response or comment before the thesis deadline. Nonetheless, we addressed this limitation by utilizing official publications from Codelco and communications from government bodies regarding the lithium agenda in Chile.

Another shortcoming of this thesis is that we aimed to analyze a dynamic situation that is associated with uncertainties for both the government and industry. It was only in late April that President Boric announced the highly anticipated new lithium strategy. However, as we have explained, due to the makeup of the legislative institution, it remains unclear whether this strategy will be translated into a binding law. As a result, our contributions are based on the information we could gather and are speculative in nature. As of May 2023, no one knows precisely how the nationalization of Chilean lithium will take shape, whether Codelco will play a role, or if a completely new state-owned enterprise (SOE) will take charge of the public exploration site. While our assumptions may become less relevant by the end of this year, we have proposed the best way forward based on the information we had at the time of writing this thesis.

Regrettably, due to time and financial constraints, we were unable to travel to Chile for our research. As a result, we had to rely entirely on data collected from Denmark, which is thousands of kilometers away from the setting of our case. Our data sources included expert interviews and secondary data, and we acknowledge that remotely obtained information may be biased and potentially less reliable than on-the-ground data. However, we endorse Unwin's (2006) argument that there are benefits to conducting development research in one's home setting. Unwin contends that being familiar with the local context and constraints of time can be advantageous, as well as offering a unique perspective on a particular topic from an outside standpoint (Unwin, 2006).

We focused our thesis on a single case study of Codelco in Chile, which may limit the transferability and generalizability of our findings to other contexts, such as lithium-exporting nations like Australia or Argentina. However, this focus was deliberate as we aimed to gain a comprehensive understanding of the specific factors that shape the lithium mining industry in a country that is at a critical crossroads, not only in terms of deciding on a new mining scheme but also in democratically rewriting its constitution. Furthermore, as detailed in the methodological chapter, we align with Flybjerg's (2006) argument that even a single case study can provide valuable insights.

As researchers, we recognize that our own experiences, preferences, and worldviews may have influenced our study and findings. In accordance with our pragmatist philosophy of science, this study adopts a truth paradigm that emphasizes the usefulness of knowledge for studying a specific situation rather than its objective truthfulness (Egholm, 2014). We have applied this paradigm throughout our investigation of Chilean lithium mining.

Despite the potential shortcomings, we have taken all necessary precautions to minimize them, including adhering to standardized procedures such as the prescribed coding conventions by Williams & Moser (2019). Additionally, we have maintained rigorous research ethics and complied with academic conventions as outlined in the methodology section of this thesis, which has helped us to further mitigate any adverse effects. Finally, as explained, the gathered data was constantly triangulated (Dubois & Gadde, 2002).

9. Future Research Directions

Having highlighted our study's possible limitations, we will present potential future research directions. We recognize that upcoming research may utilize our data as a starting point and conduct further examinations on Codelco in the Chilean lithium industry in the upcoming months and years. It would be especially intriguing to investigate the potential positive impacts of Codelco's entry into the mining regions, particularly with respect to societal stakeholders, once a Chilean lithium strategy is enacted. As previously discussed, we believe that Codelco could play a pioneering role in establishing a more sustainable and eco-friendly lithium industry. Future research could delve deeper into the corporate social responsibility aspect.

Additionally, alternative research methods, such as quantitative investigations, could be utilized to study the Chilean lithium industry and the state's asserted participation before and after state intervention. A longitudinal analysis could provide valuable insights into Latin American countries' nationalization policies. Furthermore, a cross-country study employing the same methodology could provide valuable lessons from other lithium-rich countries in the area, such as Argentina and Bolivia. Lastly, with regard to our theoretical foundation, Peng et al.'s (2009) Strategy Tripod, it would be fascinating to translate the framework to other nationalization efforts in Latin America and beyond.

Lastly, research that offers a viewpoint from a developing country is essential to comprehend the complexities that are often overlooked in the polarized debate surrounding the worldwide green transition. Such studies could help resolve the tension between the need for minerals to drive the green transition, as emphasized by Alejandra Wood, Codelco's Director, during a webinar, and the global community's aversion to unsustainable mining practices (Wood et al., 2023).

10. Recommendations

At the beginning of this thesis, we outlined our main research question:

Should Codelco, Chile's state-owned copper giant, attempt to enter the fast-growing lithium mining industry?

To facilitate answering this primary question, we established four sub-research questions which closely matched our thesis' theoretical framework. We presented our answers to these sub-research questions in the preceding section. Now, we can offer a concrete answer to our overarching research question.

It is our opinion, based on the analysis and findings presented throughout this thesis, that Codelco should not enter the Chilean lithium sector as a significant player. Codelco does not possess the appropriate internal resources or capabilities to quickly and successfully extract lithium, especially compared to competitors like SQM and Albemarle. Notably lacking are Codelco's organizational resources, specifically its slow, bureaucratic, politicized decision-making process. According to Mauricio Lorca, this organizational weakness could exacerbate the already long 7–10-year timeline

that accompanies any new lithium project. At this point, the booming lithium market could slow, leaving Chile's government without the massive resource rents it hopes to earn. Codelco's huge copper-related debts and investment backlogs also caution against a full-scale lithium entry.

At the start of this thesis, we assumed that Codelco's status as a state-owned enterprise might give the firm the requisite institutional advantages to overcome any resource or organizational deficits. However, as we repeatedly saw from our interviews and secondary data, Codelco possesses no such institutional advantage regarding lithium deposit access or access to capital. All firms, whether state-owned or private, are subject to the same rules of the game in Chile's extractives sector. Finally, we also assumed that adding a CSR lens to our theoretical framework might reveal a secondary way Codelco could overcome its shortcomings and create a competitive advantage in the Chilean lithium sector. Once again, no such advantage could be found. Codelco certainly engages in CSR practices, but so do the private sector players, and Codelco is still viewed by many people, such as Iris Wunderlich and Cristina Dorador, as highly polluting. Therefore, Codelco's CSR initiatives cannot be the silver bullet to solve all the company's resource, industry, and institutional competitive disadvantages.

Nevertheless, despite our view that Codelco should not enter the lithium industry at scale, we do believe that Codelco has a part to play in Chile's future lithium story. We subscribe to the view held by many of our interviewees: that Codelco should partner with SQM, Albemarle, and any prospective private firms through public-private partnerships (PPPs). These PPPs could take the form of an advisory panel in which Codelco is a stakeholder for the Chilean people vis-à-vis private lithium mining interests. In such a role, Codelco could ensure greater respect for Indigenous communities' water and land resources while also encouraging private firms to engage in CSR practices, as we have outlined in the preceding sections. Codelco's role in a PPP would also alleviate some of the fears held by foreign investors as it would signal buy-in from the Chilean state and reduce uncertainty or fear of expropriation (Bassiouni, 2023). Considering Codelco's place in Chileans' collective imagination as the firm that helped develop their nation through massive financial contributions to state coffers throughout the 20th century, it seems fitting that the firm should play some role in Chile's next resource-led development push in the 21st century.

11. Conclusion

These days, the discussion surrounding the global green energy transition is hard to ignore. Governments, businesses, and consumers are increasingly aware that massive societal shifts are needed to avert the worst outcomes of climate change. One such societal transformation relates to transportation, specifically, the mass electrification of the global vehicle fleet — a daunting task made more difficult by inadequate raw material supplies, particularly for lithium. As is often the case with any resource boom, businesses, governments, and the citizenry have differing opinions over how best to reliably provide the global market with the resources it so desperately needs. Some governments champion resource nationalization, while others vehemently support pro-market, pro-private sector notions. The conflicting views over how best to extract natural resources, specifically lithium resources, was the point of departure for this thesis.

As students of international development, we were keen to explore this highly relevant debate in the Chilean context. This context is currently characterized by political instability, powerful business interests, and increasingly problematic environmental concerns. We eventually decided to pursue a precise angle within the Chilean lithium context, namely the debate surrounding Chile's state-owned copper firm, Codelco, and whether it should be involved in the lithium sector.

We began the thesis process by selecting a theoretical framework to guide our research and analysis of Codelco. Digging into our previous graduate-level coursework, we chose Peng et al.'s (2009) Strategy Tripod as our foundational theory. This theory was helpful because it enabled us to combine an analysis of Codelco's internal capabilities with an analysis of Chilean formal and informal institutions while also exploring the overall lithium industry dynamics. However, we decided to go one step further by creating a so-called strategy Quadro-Pod, which added a CSR angle to Peng et al.'s original idea. We felt this CSR angle was necessary due to the numerous environmental and social externalities accompanying brine-based lithium mining, which the original theory did not address adequately.

Having selected our theory, we moved on to collecting data from our interview subjects and analyzing their responses. We interviewed nine highly knowledgeable experts who worked in fields ranging from the mining industry, government, academia, and think tanks. These interview participants greatly expanded our understanding of the lithium debate in Chile and the potential role of Codelco. Upon completing our interviews, we integrated our primary and secondary data into our theoretical framework, allowing us to answer our sub-research and primary research questions effectively. We then used the resulting answers to inform the final recommendations, presented in the previous section.

In April 2023, just weeks before we submitted this thesis, Chilean President Gabriel Boric announced his grand vision for the Chilean lithium industry entitled *Estrategia nacional del litio: Por Chile y su gente* (National Lithium Strategy: For Chile and its People). His long-awaited announcement answered some pertinent questions relating to the future of Chilean lithium, but it also leaves other questions unanswered. What is clear is that Chile will not be fully nationalizing its lithium industry or expropriating facilities from private firms. Instead, the Boric administration is emphasizing a public-private partnership model, as we have recommended, whereby private firms will need to partner with "a new state-owned lithium company" (Vásquez, 2023b). What is unclear, however, is whether this new company will be a subsidiary of Codelco or whether it will be a separate entity. Unanswered questions such as this mean that uncertainty will continue to shape Chile's lithium sector. If the country truly wishes to capitalize on its vast lithium wealth, decisive action must be taken before the window of opportunity closes and the lithium boom ends.

12. References

- Albemarle. (2022). Plant to Double Lithium Production/ Reduce Water Consumption | Albemarle. https://www.albemarle.com/news/albemarle-inaugurates-new-plant-designed-to-double-lithium-production
- Alire Garcia, D. (2023, April 27). Chile's lithium push emerges as test for Latin American resource nationalism | Reuters. https://www.reuters.com/markets/commodities/chiles-state-lithium-push-emerges-test-latam-resource-nationalism-2023-04-27/
- Araneda, O. (2020). Codelco: present, future and excellence in projects. MassMin 2020: Proceedings of the Eighth International Conference & Amp; Exhibition on Mass Mining. https://doi.org/10.36487/acg_repo/2063_0.01
- Arsel, M., Hogenboom, B., & Pellegrini, L. (2016). The extractive imperative in Latin America. The Extractive Industries and Society, 3(4), 880–887. https://doi.org/10.1016/j.exis.2016.10.014
- Atienza, M., Fleming-Muñoz, D., & Aroca, P. (2021). Territorial development and mining. Insights and challenges from the Chilean case. Resources policy, 70, 101812. https://doi.org/10.1016/j.resourpol.2020.101812
- Babidge, S., & Bolados, P. (2018). Neoextractivism and Indigenous Water Ritual in Salar de Atacama,

 Chile. Latin American Perspectives, 45(5), 170–185.

 https://doi.org/10.1177/0094582X18782673
- Barandiaran, J. (2019). Lithium and development imaginaries in Chile, Argentina and Bolivia [Article]. *World Development*, *113*, 381–391. https://doi.org/10.1016/j.worlddev.2018.09.019
- Barin Cruz, L., Boehe, D. M., & Ogasavara, M. H. (2015). CSR-based Differentiation Strategy of Export Firms From Developing Countries: An Exploratory Study of the Strategy Tripod. Business & Society, 54(6), 723–762. https://doi.org/10.1177/0007650312473728
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108.
- Barney, J. B., and Delwyn N. C. (2007). Resource-Based Theory: Creating and Sustaining Competitive Advantage, Oxford University Press.
- Barrera, P. (2023, May 1). Where Does Tesla Get its Lithium? InvestingNews.com. https://investingnews.com/where-does-tesla-get-lithium/

- Bassiouni, D.S. (Host). (2023, March 9). Chile Lithium Nation. [Audio Podcast Episode]. In The Global List Podcast. https://thegloballist.libsyn.com/
- Bauer, S. (2020, December 2). Explainer: the opportunities and challenges of the lithium industry.

 Dialogo Chino. https://dialogochino.net/en/extractive-industries/38662-explainer-the-opportunities-and-challenges-of-the-lithium-industry/
- BBC. (2020, October 26). *Jubilation as Chile votes to rewrite constitution BBC News*. https://www.bbc.com/news/world-latin-america-54687090
- Bernier, L., Florio, M., & Bance, P. (Eds.). (2020). The Routledge Handbook of State-Owned Enterprises (1st ed.). Routledge. https://doi.org/10.4324/9781351042543
- Bertelsmann Stiftung, BTI 2022 Country Report Chile. Gütersloh: Bertelsmann Stiftung, 2022.
- Biblioteca Nacional de Chile (n.d.). El impacto de la Gran Depresión en Chile (1929-1932). Memoria Chilena: Portal. http://www.memoriachilena.cl/602/w3-article-601.html
- BNamericas. (2023a, March 15). Codelco getting serious about lithium mining. BNamericas.com. https://www.bnamericas.com/en/news/codelco-getting-serious-about-lithium-mining
- BNamericas. (2023b, April 29). Less clarity, more bureaucracy: Experts dig at Chile's new lithium policy BNamericas. https://www.bnamericas.com/en/analysis/less-clarity-more-bureaucracy-experts-dig-at-chiles-new-lithium-policy
- Brand, U., Boos, T., & Brad, A. (2017). Degrowth and post-extractivism: Two debates with suggestions for the inclusive development framework. Current Opinion in Environmental Sustainability, 24, 36–41. https://doi.org/10.1016/j.cosust.2017.01.007
- Braun, V., & Clarke, V. (2012). Thematic analysis. (pp. 57–71).
- Brown, J. S. (1963). Nitrate Crises, Combinations, and the Chilean Government in the Nitrate Age. Hahr-hispanic American Historical Review, 43(2), 230–246. https://doi.org/10.1215/00182168-43.2.230.
- Budds, J. (2020). Securing the market: Water security and the internal contradictions of Chile's Water Code [Article]. *Geoforum*, 113, 165–175. https://doi.org/10.1016/j.geoforum.2018.09.027
- Cabello, J. (2021). Lithium brine production, reserves, resources and exploration in Chile: An updated review. Ore Geology Reviews, 128, 103883. https://doi.org/10.1016/j.oregeorev.2020.103883

- Cai, Y., & Mehari, Y. (2015). The Use of Institutional Theory in Higher Education Research. In Theory and Method in Higher Education Research (Vol. 1, pp. 1–25). Emerald Group Publishing Limited. https://doi.org/10.1108/S2056-375220150000001001.
- Camacho, F. M. (2012). Competing rationalities in water conflict: Mining and the indigenous community in Chiu Chiu, El Loa Province, northern Chile [Article]. *Singapore Journal of Tropical Geography*, *33*(1), 93–107. https://doi.org/10.1111/j.1467-9493.2012.00451.x
- Cambero, F. (2022, September 14). *Chile miner SQM says brine reduction plan to cost \$1.5 billion | Reuters.*https://www.reuters.com/markets/commodities/chile-miner-sqm-says-brine-reduction-plan-cost-15-billion-2022-09-14/
- Campbell, M. (2022, February 9). We're facing a lithium battery crisis: What are the alternatives? Euronews. https://www.euronews.com/green/2022/02/09/we-re-facing-a-lithium-battery-crisis-what-are-the-alternatives
- Campbell, M. (2022, November 21). *In pictures: South America's "lithium fields" reveal the dark side of our electric future | Euronews*. https://www.euronews.com/green/2022/02/01/south-america-s-lithium-fields-reveal-the-dark-side-of-our-electric-future
- Cardemil, I. (2022, April 8). Water Code reform has been enacted to law Carey Abogados. https://www.carey.cl/en/water-code-reform-has-been-enacted-to-law/
- Center for Climate and Energy Solutions. (2022). Global Emissions Center for Climate and Energy Solutions. https://www.c2es.org/content/international-emissions/
- Chappell, B. (2020, October 26). *Chile Celebrates Voters' Decision To Scrap Constitution, Start Over :*NPR. https://www.npr.org/2020/10/26/927859270/chile-celebrates-voters-decision-to-scrap-constitution-start-over
- Chile WID, World Inequality Database. (n.d.). [Dataset]. World Inequality Database. https://wid.world/country/chile/
- Chueke, G. V., & Amatucci, M. (2015). O que é bibliometria? Uma introdução ao Fórum . InternexT Revista Eletrônica de Negócios Internacionais da ESPM, 10(2), 1-5.
- CIA World Factbook. (2023). Chile The World Factbook. https://www.cia.gov/the-world-factbook/countries/chile/#people-and-society

- Codelco. (2019). Sustainability Report 2019. *Transforming Mining for a better Future of the Country.*https://www.codelco.com/memoria2019/site/docs/20200630/20200630235341/codelco_sus
 tainability_report_2019.pdf
- Codelco. (2021). Annual Report 2021. https://www.codelco.com/annual-reports
- Codelco. (2022). Operational and Financial Report June 30, 2022. https://www.codelco.com/sites/site/docs/20221206/20221206221655/operational_and_financial_report_june 30 2022 1.pdf
- Conway, E. (2022, July 22). The battle for Chile's critical minerals Sky News [Video]. YouTube. https://www.youtube.com/watch?v=oywE0mQnWI0&ab_channel=SkyNews
- Copper Prices 45 Year Historical Chart. (n.d.). [Dataset]. MacroTrends.net. https://www.macrotrends.net/1476/copper-prices-historical-chart-data
- Daniel, P., Keen, M., & McPherson, C. (Eds.). (2010). The taxation of petroleum and minerals: Principles, problems and practice. Taylor & Francis Group.
- Davis, G. (1993). The use of life-cycle assessment in environmental labeling programs. Washington, DC: Environmental Protection Agency.
- Desai, V., & Potter, R. B. (2006). Doing development research (V. Desai & R. B. Potter, Eds.) [Book]. SAGE.
- Dube, R. (2023, April 21). Lithium Miners Slump as Chile Unveils State-Led Policy WSJ. https://www.wsj.com/articles/lithium-miners-slump-as-chile-unveils-state-led-policy-784895a8?mod=Searchresults pos1&page=1
- Dubois, A., & Gadde, L.-E. (2002). Systematic combining: an abductive approach to case research [Article]. Journal of Business Research, 55(7), 553–560.
- DW Documentary (2023, March 10). Copper and the dark side of the energy transition [Video]. YouTube.
 - https://www.youtube.com/watchv=jNUbroQ2XZ4&ab channel=DWDocumentary
- Easterby-Smith, M. (2018). Management and business research. (M. Easterby-Smith, Ed.; 6. ed.) [Book]. SAGE Publications Ltd.
- Egholm, L. (2014). Philosophy of science: perspectives on organisations and society (1. edition). Hans Reitzel.

- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory Building from Cases: Opportunities and Challenges [Article]. Academy of Management Journal, 50(1), 25–32.
- EMIS. (2023). *Chile Mining Sector Report 2022-2023*. https://interactive.emis.com/chile-mining-sector-report-2022-2023
- Eriksson, P. (2008). Qualitative methods in business research (Anne. Kovalainen, Ed.) [Book]. SAGE.
- Fitch Ratings. (2022, September 23). Fitch Affirms CODELCO's IDR at "A-"; Outlook Stable. FitchRatings.com. https://www.fitchratings.com/research/corporate-finance/fitch-affirms-codelco-idr-at-a-outlook-stable-23-09-2022
- Fitch Ratings. (n.d.- a). Rating Definitions. https://www.fitchratings.com/products/rating-definitions
- Fitch Ratings. (n.d.-b). Albemarle Corporation. FitchRatings.com. https://www.fitchratings.com/entity/albemarle-corporation-96167173
- Flexer, V., Baspineiro, C. F., & Galli, C. I. (2018). Lithium recovery from brines: A vital raw material for green energies with a potential environmental impact in its mining and processing [Article].

 The Science of the Total Environment, 639, 1188–1204. https://doi.org/10.1016/j.scitotenv.2018.05.223
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. Qualitative Inquiry, 12(2), 219–245.
- Friedman, M. (1970, September 13). A Friedman doctrine -- The Social Responsibility of Business Is to Increase Its Profits. The New York Times. https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html
- Gao, Q., Li, Z., & Huang, X. (2019). How EMNEs choose location for strategic asset seeking in internationalization?: Based on strategy tripod framework. Chinese Management Studies, 13(3), 687–705. https://doi.org/10.1108/CMS-06-2018-0573

- García Bernal, N. (2021). Ingresos fiscales por contratos de explotación del Litio. https://obtienearchivo.bcn.cl/obtienearchivo?id=repositorio/10221/32179/1/BCN__Ingreso s_fiscales_por_contratos_de_explotacion_del_litio.pdf
- García Pino, G., Henríquez Viñas, M., & Salazar Pizarro, S. (2023, February 3). *Third Time's a Charm? Chile Embarks on a New Constitution-making Process | ConstitutionNet*.

 https://constitutionnet.org/news/third-times-charm-chile-embarks-new-constitution-making-process
- GBR Reports (n.d.). Chile Mining 2021 Codelco: Going Underground. https://projects.gbreports.com/chile-mining-2021/codelco-going-underground/
- Gentes, I., & Policzer, P. (2022). Weakness by design: neoliberal governance over mining and water in Chile. *Territory, Politics, Governance,* 1–18. https://doi.org/10.1080/21622671.2022.2134196
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research [Article]. Organizational Research Methods, 16(1), 15–31.
- González, A. (2023, March 19) Cómo y cuánto: firmas globales interesadas en el litio chileno aterrizan la forma en que se asociarían con el Estado. El Mercurio, p. 16-17
- Government of Chile. (2023). National Lithium Strategy. Gob.cl. https://www.gob.cl/litioporchile/en/
- Graham, J. D., Rupp, J. A., & Brungard, E. (2021). Lithium in the Green Energy Transition: The Quest for Both Sustainability and Security. *Sustainability*, *13*(20). https://doi.org/10.3390/su132011274
- Greenfield, N. (2022, April 26). *Lithium Mining Is Leaving Chile's Indigenous Communities High and Dry (Literally)*. https://www.nrdc.org/stories/lithium-mining-leaving-chiles-indigenous-communities-high-and-dry-literally
- Grundy, T. (2006). Rethinking and reinventing Michael Porter's five forces model. Strategic Change, 15(5), 213–229. https://doi.org/10.1002/jsc.764.
- Gudynas, E. (2016). Natural resource nationalisms and the compensatory state in progressive South America. In R. Auty & K. Smith (Eds.), The political economy of natural resources and development (pp. 125-140). Routledge. https://doi.org/10.4324/9781315609391-7

- Hart, S. L. (1995). A Natural-Resource-Based View of the Firm. The Academy of Management Review, 20(4), 986–1014. https://doi.org/10.2307/258963.
- Helfat, C. E., Finkelstein, S. D., Mitchell, W., & Singh, H. (2007). Dynamic Capabilities: Understanding Strategic Change in Organizations. http://ci.nii.ac.jp/ncid/BA80148924
- Heredia, J., Yang, X., Flores, A., Rubiños, C., & Heredia, W. (2020). What drives new product innovation in China? An integrative strategy tripod approach. Thunderbird International Business Review, 62(4), 393–409. https://doi.org/10.1002/tie.22127
- Hotter, A. (2023, April 27). Codelco to focus on organic copper growth in Chile, not be 'champion' of lithium. Fastmarkets. https://www.fastmarkets.com/insights/codelco-focus-organic-copper-growth-chile-champion-lithium-andrea-hotter
- Hufty, M. (2023). La ecología política global de la cadena de litio. [Webinar]. Universidad de Atacama & Agencia Nacional de Investigación y Desarrollo.
- IEA. (n.d.). Reliable supply of minerals The Role of Critical Minerals in Clean Energy Transitions Analysis. https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/reliable-supply-of-minerals
- IMF. (2021). Chile: Financial System Stability Assessment (Report No. 2021/262). The Monetary Fund. https://www.imf.org/en/Publications/CR/Issues/2021/12/09/Chile-Financial-Systems-Stability-Assessment-510866
- Ingram, P., & Silverman, B. S. (2002). Introduction: The new institutionalism in strategic management. In The New Institutionalism in Strategic Management (Vol. 19, pp. 1–30). Emerald Group Publishing Limited. https://doi.org/10.1016/S0742-3322(02)19001-2.
- Jhunjhunwala, S. (2014). Intertwining CSR with strategy the way ahead. Corporate Governance. https://doi.org/10.1108/cg-03-2011-0021.
- Johnson, J., Caviedes, J., César, N., Drake, P.W., Carmagnani, M.A., (2023, May 9) Chile. Encyclopedia Britannica. https://www.britannica.com/place/Chile
- Kaartemo, V., & Nyström, A. (2021). Emerging technology as a platform for market shaping and innovation. Journal of Business Research, 124, 458–468. https://doi.org/10.1016/j.jbusres.2020.10.062

- Kamasak, R. (2017). The contribution of tangible and intangible resources, and capabilities to a firm's profitability and market performance. European Journal of Management and Business Economics, 26(2), 252–275. https://doi.org/10.1108/EJMBE-07-2017-015
- Kaunda, R. B. (2020). Potential environmental impacts of lithium mining. *Journal of Energy & Natural Resources Law*, 38(3), 237–244. https://doi.org/10.1080/02646811.2020.1754596
- Kenton, W. (2022, June 11). Economies of Scale: What Are They and How Are They Used? Investopedia. https://www.investopedia.com/terms/e/economiesofscale.asp.
- Khanna, T., & Palepu, K. G. (2010). Winning in Emerging Markets: A Road Map for Strategy and Execution. Harvard Business Review Press.
- Kingsbury, D. (2021). Latin American Extractivism and (or after) the Left. Latin American Research Review, 56(4), 977-987. https://doi.org/10.25222/larr.1668
- Kozlenkova, I.V., Samaha, S.A. & Palmatier, R.W. (2014). Resource-based theory in marketing. Journal of the Academy of Marketing Science, 421, 1-21.
- Krull E., Smith P. & Ge, G.L. (2012). The internationalization of engineering consulting from a strategy tripod perspective. The Service Industries Journal. 32(7), 1097-1111. DOI: 10.1080/02642069.2012.662758
- Kuckartz, U. (2010). Die Texte: Transkription, Vorbereitung und Import [The texts: transcription, preparation and importation]. In Einführung in die computergestützte Analyse qualitativer Daten. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Lagos, G. (2018). Mining nationalization and privatization in Peru and in Chile [Article]. *Mineral Economics: Raw Materials Report, 31*(1–2), 127–139. https://doi.org/10.1007/s13563-017-0124-9
- Lahiri, S., Mukherjee, D., & Peng, M. W. (2020). Behind the internationalization of family SMEs: A strategy tripod synthesis. Global Strategy Journal, 10(4), 813–838. https://doi.org/10.1002/gsj.1376
- Lambert, F. (2023, February 20). Tesla is considering buying a lithium miner, report says. Electrek. https://electrek.co/2023/02/20/tesla-buying-lithium-miner-report/
- LeCompte, M. D., & Goetz, J. P. (1982). Problems of Reliability and Validity in Ethnographic Research.

 Review of Educational Research, 52(1), 31–60. https://doi.org/10.2307/1170272

- Leiss, B., & Yeluri, S. (2021, September 14). Copper and Lithium: How Chile is Contributing to the Energy Transition | Baker Institute. Baker Institute. https://www.bakerinstitute.org/research/copper-and-lithium-how-chile-contributing-energy-transition
- Liu, W., Agusdinata, D. B., & Myint, S. W. (2019). Spatiotemporal patterns of lithium mining and environmental degradation in the Atacama Salt Flat, Chile [Article]. *ITC Journal*, *80*, 145–156. https://doi.org/10.1016/j.jag.2019.04.016
- Lorca, M., Olivera Andrade, M., Escosteguy, M., Köppel, J., Scoville-Simonds, M., & Hufty, M. (2022).

 Mining indigenous territories: Consensus, tensions and ambivalences in the Salar de Atacama
 [Article]. *The Extractive Industries and Society*, *9*, 101047.

 https://doi.org/10.1016/j.exis.2022.101047
- Loveman, B. (2020). Chile: Military and Politics in the 20th Century. Oxford Research Encyclopedias. https://doi.org/10.1093/acrefore/9780190228637.013.1804
- Lowry, J. (Host). (2022, March 10). ALB, LTHM, SQM, GM & Argentina. [Audio Podcast Episode]. In The Global Lithium Podcast. https://www.globallithium.net/podcast
- Lubuzh, P., Stella, C., Reyes Budinich, G., & Botov, I. (2023). *Water supply for mining industry: The Chile case | Arthur D. Little.* https://www.adlittle.com/en/insights/viewpoints/water-supply-mining-industry-chile-case
- Lunde Seefeldt, J. (2020). Lessons from the Lithium Triangle: Considering Policy Explanations for the Variation in Lithium Industry Development in the "Lithium Triangle" Countries of Chile, Argentina, and Bolivia [Article]. *Politics & Policy (Statesboro, Ga.), 48*(4), 727–765. https://doi.org/10.1111/polp.12365
- Matamala, D. (2021, September 12). The Complicated Legacy of the "Chicago Boys" in Chile.

 ProMarket. https://www.promarket.org/2021/09/12/chicago-boys-chile-friedmanneoliberalism/
- Maxwell, P., & Mora, M. (2020). Lithium and Chile: looking back and looking forward. Mineral Economics: Raw Materials Report, 33(1-2), 57–71. https://doi.org/10.1007/s13563-019-00181-8
- McIvor, R., Humphreys, P.K., Wall, A.P., McKittrick, A. (2009). A study of performance measurement in the outsourcing decision. CIMA.

- MercoPress (2022, June 24). Chilean miners lift strike after agreement with Codelco. https://en.mercopress.com/2022/06/24/chilean-miners-lift-strike-after-agreement-with-codelco
- Millan, L., & Gilbert, J. (2017, August 2). It's Hard to Keep Up With All That Lithium Demand. Bloomberg.com. https://www.bloomberg.com/news/articles/2017-08-21/supplying-lithium-gets-trickier-as-electric-revolution-quickens
- Mining.com. (2023, January 9). The top 50 biggest mining companies in the world. Mining.com. https://www.mining.com/top-50-biggest-mining-companies/
- Mogensen, A. O. (2019, December 1). There's probably Chilean lithium behind the screen you're reading this on Danwatch. Danwatch. https://danwatch.dk/en/undersoegelse/theres-probably-chilean-lithium-behind-the-screen-youre-reading-this-on/
- Moore, P. (2021, December 27). Codelco to run two simultaneous, comparative AHS fleet pilots on LTE networks. International Mining. https://im-mining.com/2021/12/27/codelco-run-two-simultaneous-comparative-ahs-fleet-pilots-lte-networks-four-cat-trucks-ministro-hales-four-komatsu-radomiro-tomic/
- Nolte, D. (2022). Chile's Constitutional Reform Process Rebooted. (GIGA Focus Lateinamerika, 4).

 Hamburg: German Institute for Global and Area Studies (GIGA) Leibniz-Institut für Globale und Regionale Studien, Institut für Lateinamerika-Studien. https://doi.org/10.57671/gfla-22042
- North, D. C. (1991). Institutions. The Journal of Economic Perspectives, 5(1), 97–112. https://doi.org/10.1257/jep.5.1.97.
- Obbekær, M. (2019, December 1). *How much water is used to make the world's batteries? Danwatch.* https://danwatch.dk/en/undersoegelse/how-much-water-is-used-to-make-the-worlds-batteries/
- OECD. (2011). Chile Review of the Financial System. OECD. https://www.oecd.org/daf/fin/financial-markets/49497488.pdf
- OECD. (2021, February 4). Chile: focus on reducing inequality to strengthen social and economic recovery from COVID-19. oecd.org. https://www.oecd.org/newsroom/chile-focus-on-reducing-inequality-to-strengthen-social-and-economic-recovery-from-covid-19.htm

- Otis, J. (2022, September 24). *Lithium mining heats up in Chile's desert to quench demand for EV batteries :* NPR. https://www.npr.org/2022/09/24/1123564599/chile-lithium-mining-atacama-desert
- Paoli, L., & Gül, T. (2022, January 30). Electric cars fend off supply challenges to more than double global sales Analysis. IEA. https://www.iea.org/commentaries/electric-cars-fend-off-supply-challenges-to-more-than-double-global-sales
- Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The Institution-Based View as a Third Leg for a Strategy Tripod. Academy of Management Perspectives, 23(3), 63–81. https://doi.org/10.5465/AMP.2009.43479264.
- Peters, B. G. (2000). Institutional theory: problems and prospects. Reihe Politikwissenschaft / Institut für Höhere Studien, Abt. Politikwissenschaft, 69. Wien: Institut für Höhere Studien (IHS), Wien.
- Pistilli, M. (2023, April 18). Top 10 Copper-producing Companies (Updated 2023). Investing News. https://investingnews.com/daily/resource-investing/base-metals-investing/copper-investing/top-copper-producing-companies/
- Porter, M. E. (1979). How competitive forces shape strategy. Harvard Business Review, pp. 137-145.
- Porter, M. E. (2022). How Competitive Forces Shape Strategy. In M. E. Porter, C. M. Christensen, W. C. Kim, & R. A. Mauborgne, HBR at 100: The Most Influential and Innovative Articles from Harvard Business Review's First Century. Harvard Business Review.
- Porter, M. E., & Kramer, M. R. (2006). Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. Harvard Business Review, 84(12), 78–92.
- Pulice, C. (2022, February 16). Chile copper giant Codelco to start lithium exploration in March.

 Reuters. https://www.reuters.com/business/energy/chile-copper-giant-codelco-start-lithium-exploration-march-2022-02-16/
- Root, A. (2023, March 20). What Tesla CEO Elon Musk Gets Wrong About Lithium. Barron's. https://www.barrons.com/articles/tesla-elon-musk-lithium-6b5304f4
- Royal Society of Chemistry. (n.d.). Lithium Element information, properties and uses. rsc.org. https://www.rsc.org/periodic-table/element/3/lithium
- Saetre, A. S., & van de Ven, A. (2021). Generating Theory by Abduction [Article]. The Academy of Management Review, 46(4), 684–701.

- Sasse, L. (2021). *Chile despertó The reasons for the mass protests in Chile 2019/2020* (Issue 166/2021). https://EconPapers.repec.org/RePEc:zbw:ipewps:1662021
- Sassi, M., Jyrämä, A., & Pihlak, Ü. (2019). Using the Strategy Tripod to Understand Strategic Management in the "Evaluation-Friendly" Organizations of Cultural and Creative Industries. The Journal of Arts Management, Law, and Society, 49(5), 324–346. https://doi.org/10.1080/10632921.2019.1646177
- Saunders, M., Lewis, P., & Thornhill, A. (2012). Research methods for business students [Book].

 Pearson.
- Schade, M. (2022). Lithium Uses. Ultra Lithium Inc. ULT. https://ultralithium.com/projects/lithium/
- Schneider, C., & Williamson-García, S. (2023, February 15). *Chile's New Constitutional Process Shifts to the Right | NACLA*. https://nacla.org/chiles-new-constitutional-process-shifts-right
- Scoville-Simonds, M. & Laterza, V. (2023). De la extracción de litio a la producción de baterías: ¿Cómo estudiar la justicia y la sostenibilidad a través de lugares y escalas? [Webinar]. Universidad de Atacama & Agencia Nacional de Investigación y Desarrollo.
- Sengupta, S. (2022, December 28). *Chile Writes a New Constitution, Confronting Climate Change Head On The New York Times*. https://www.nytimes.com/2021/12/28/climate/chile-constitution-climate-change.html?searchResultPosition=3
- Sherwood, D. (2019a, July 24). Chilean lawmakers abolish law requiring Codelco to finance military.

 U.S. https://www.reuters.com/article/us-chile-copper-codelco-idUSKCN1UJ2UN
- Sherwood, D. (2019b, May 30). Chile, once the world's lithium leader, loses ground to rivals. U.S. https://www.reuters.com/article/us-chile-lithium-analysis-idUSKCN1T00DM
- Sherwood, D. (2021, August 5). *Chile's dictatorship-era water code is getting a makeover | Reuters*.

 https://www.reuters.com/world/americas/chiles-dictatorship-era-water-code-is-getting-makeover-2021-08-05/
- SQM (2023). SQM Supplier Portal. https://www.sqm.com/en/portal-proveedores/
- SQM. (2022, September 15). The importance of lithium in the transition to a carbon-free world.

 POLITICO. https://www.politico.eu/sponsored-content/the-importance-of-lithium-in-the-transition-to-a-carbon-free-world/

- Stanway, D. (2023, March 20). "Climate time bomb ticking", emissions must urgently be cut, UN chief says. Reuters. https://www.reuters.com/business/environment/un-chief-urges-faster-shift-net-zero-after-report-highlights-climate-threat-2023-03-20/
- Stephan, U., Uhlaner, L., & Stride, C. (2015). Institutions and social entrepreneurship: The role of institutional voids, institutional support, and institutional configurations. Journal of International Business Studies, 46(3), 308–331. https://doi.org/10.1057/jibs.2014.38
- Stott, M., & Bryan, K. (2023, April 21). *Chile's president moves to bring lithium under state control |*Financial Times. https://www.ft.com/content/ebd48bbc-1390-4679-99fe-682975bbdba8
- Sovacool, B. K., Axsen, J., & Sorrell, S. (2018). Promoting novelty, rigor, and style in energy social science: Towards codes of practice for appropriate methods and research design. Energy Research and Social Science, 45 (October 2018), 12–42. https://doi.org/10.1016/j.erss.2018.07.007
- Svampa, M. (2019). Neo-extractivism in Latin America: Socio-environmental Conflicts, the Territorial Turn, and New Political Narratives (Elements in Politics and Society in Latin America).

 Cambridge University Press. https://doi.org/10.1017/9781108752589
- The Editors of Encyclopedia Britannica. (2016, January 26). Codelco. Encyclopedia Britannica. https://www.britannica.com/topic/Codelco
- Thome, K. M., & Medeiros, J. J. (2016). Drivers of successful international business strategy Insights from the evolution of a trading company. International Journal of Emerging Markets, 11(1), 89–110. https://doi.org/10.1108/IJoEM-09-2012-0120
- Transparency International (2023). Corruption Perception Index 2022. https://www.transparency.org/en/cpi/2022/index/chl
- U.S. Environmental Protection Agency. (2023). Sources of Greenhouse Gas Emissions | US EPA. U.S. EPA. https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions
- Unwin, T. (Ed.) (2006). Doing development research 'at home'. SAGE Publications, Ltd, https://doi.org/10.4135/9781849208925
- Utami, H. & Alamanos, E. (2022) Resource-Based Theory: A review. In S. Papagiannidis (Ed), TheoryHub Book. http://open.ncl.ac.uk.
- Vásquez, P. (2023a, April 7). All Eyes on Chile amid Global Scramble for Lithium. Wilson Center. https://www.wilsoncenter.org/blog-post/all-eyes-chile-amid-global-scramble-lithium

- Vásquez, P. (2023b, April 28). Chile's National Lithium Strategy: A New Beginning? Wilson Center. https://www.wilsoncenter.org/blog-post/chiles-national-lithium-strategy-new-beginning
- Villegas, A., & Scheyder, E. (2023, April 22). *Chile bid to boost state control over lithium spooks investors | Reuters*. https://www.reuters.com/markets/commodities/sqm-albemarle-shares-slide-chile-lithium-nationalization-plan-2023-04-21/
- Wang, J., Liu, F., & Wu, J. (2021). A Strategy Tripod Perspective on ISO 9001 Adoption: Evidence From Chinese Manufacturing Firms. IEEE Transactions on Engineering Management, 1–15. https://doi.org/10.1109/TEM.2021.3093581
- Wei, Y., Zheng, N., Liu, X., & Lu, J. (2014). Expanding to outward foreign direct investment or not? A multi-dimensional analysis of entry mode transformation of Chinese private exporting firms. International Business Review, 23(2), 356–370. https://doi.org/10.1016/j.ibusrev.2013.06.001
- Welch, Catherine & Piekkari, Rebecca & Plakoyiannaki, Emmanuella & Paavilainen-Mäntymäki, Eriikka. (2011). Theorising from Case Studies: Towards a Pluralist Future for International Business Research. Journal of International Business Studies. 42. 10.1057/jibs.2010.55.
- Williams, M., & Moser, T. (2019). The Art of Coding and Thematic Exploration in Qualitative Research [Article]. International Management Review, 15(1), 45–72.
- Willis, K. (2006). Interviewing. In Doing Development Research (pp. 144–152). SAGE Publications, Ltd.
- Wood, A., Laparte, A.A., Smith, J., Mhopjeni, K. (2023). Critical Raw Materials in Vulnerable Geographies: Impact on Women. [Webinar]. UNECE Sustainable Energy.
- Xie, Y. H., Zhao, H. J., Xie, Q. J., & Arnold, M. (2011). On the determinants of post-entry strategic positioning of foreign firms in a host market: A "strategy tripod" perspective. International Business Review, 20(4), 477–490. https://doi.org/10.1016/j.ibusrev.2010.09.005
- Zhu, F., Wei, Z., Bao, Y., & Zou, S. (2019). Base-of-the-Pyramid (BOP) orientation and firm performance: A strategy tripod view and evidence from China. International Business Review, 28(6), 101594—. https://doi.org/10.1016/j.ibusrev.2019.101594
- Zilla, C. (2022, March 9). Gabriel Boric Assumes Office in Chile A "Hinge Presidency" Launched amidst Constitutional Process. https://www.swp-berlin.org/en/publication/gabriel-boric-assumes-office-in-chile

Appendix A | General Information

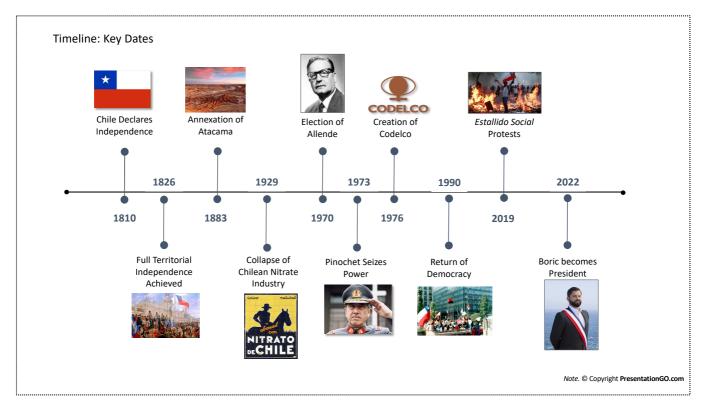


Figure 1: Note. Timeline of Key Dates in Chile's History, authors' own elaboration. Image sources:

 $[Flag\ of\ Chile].\ (n.d.).\ https://da.m.wikipedia.org/wiki/Fil:Flag_of_Chile.svg$

Ercolani, G. (n.d.). [Photograph of Atacama Desert]. National Geographic. https://www.nationalgeographic.com/travel/article/explore-chile-atacama-desert-stargazing

Subercaseaux, P. (1945). https://en.wikipedia.org/wiki/Chilean_Declaration_of_Independence#/media/File:JuraIndependencia.jpg

[Portrait of Salvador Allende]. (n.d.). https://alphahistory.com/coldwar/salvador-allende/

 $[Advertisement \ for \ Chilean \ Nitrate]. \ (n.d.). \ https://es.m. wikipedia.org/wiki/Archivo: Nitrato_de_Chile_01_by-dpc.jpg$

 $[Portrait\ of\ Augusto\ Pinochet].\ (n.d.).\ https://www.britannica.com/biography/Augusto-Pinochet$

 $[Logo\ of\ Codelco].\ (n.d.).\ https://en.wikipedia.org/wiki/Codelco\#/media/File:Codelco_logo.svg$

[Celebration of Return to Democracy]. (n.d.).

https://es.wikipedia.org/wiki/Transici%C3%B3n_a_la_democracia_en_Chile#/media/Archivo:Celebraci%C3%B3n_tras_victoria_del_No_en_plebiscito_de_1988_2.jpg

Romero, H. (n.d.) [Photograph of Chiles 2019 Protests]. Euronews. https://es.euronews.com/2019/11/19/chile-desperto-la-situacion-un-mes-despues-del-

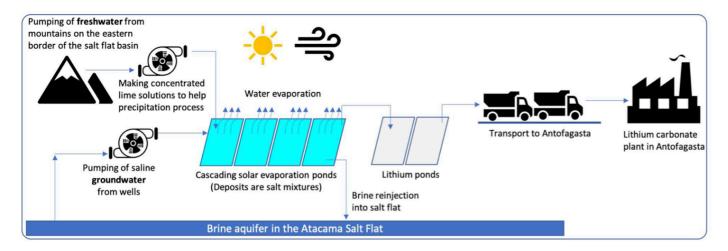


Figure 2. Note. Lithium extraction process in the Salar de Atacama. Current extraction technology concentrates the brine through chemical additives and evaporation by wind and solar energy. Lithium-concentrated salt then transported to Antofagasta for further purification and production of lithium carbonate. From "Spatiotemporal patterns of lithium mining and environmental degradation in the Atacama Salt Flat, Chile", by Liu, W., Agusdinata, D. B., & Myint, S. W. (2019). [Article]. ITC Journal, 80, 145–156. © Liu et al. (2019)

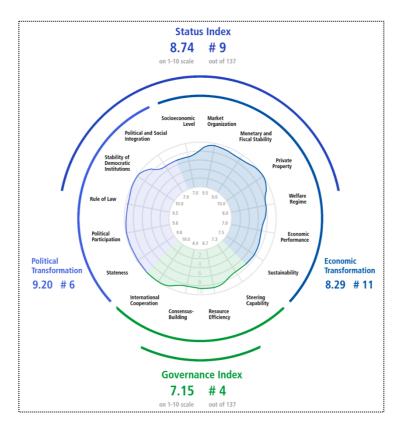


Figure 3. *Note*. Overview of Chile's country scores in different dimensions. From "Chile Country Report 2022", by Bertelsmann Stiftung (2022). Bertelsmann Stiftung, BTI 2022 Country Report — Chile.

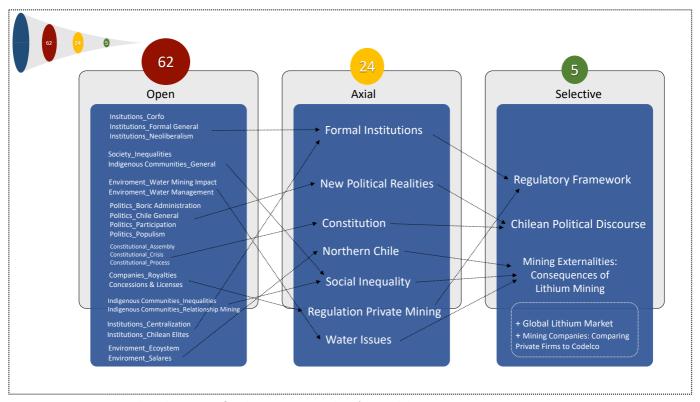


Figure 4. Note. Exemplary depiction of coding process, authors' own elaboration

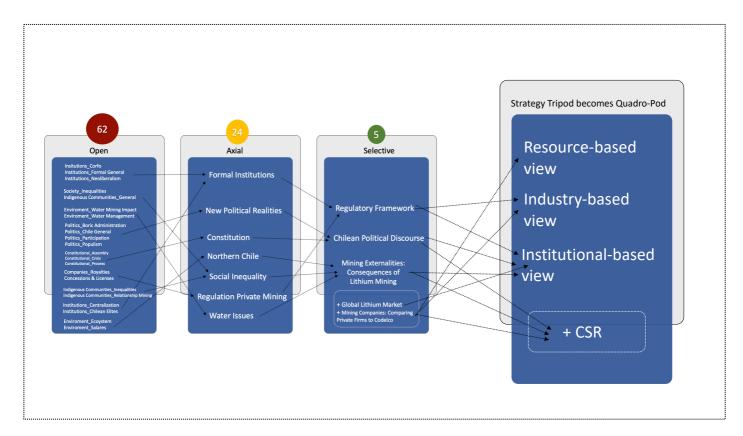


Figure 5. *Note*. Exemplary depiction of coding process and subsequent connection to Peng et al.'s (2009) Strategy Tripod framework, authors' own elaboration

Appendix B | Interview Guide for Expert Interviews

Interview Introduction

- Thank the interviewee for willingness to participate and support our research
- Setting the scene: Gathering expert opinions on the lithium industry in Chile in general and evaluate Codelco's move into lithium mining
- Personal introduction & study profile
- Ask for permission to record the interview
- Ask interviewee if he/she wishes to be anonymized

Introductory Questions

Personal background

- Could you please tell us about yourself and your background?
- Can you tell us about your career/professional life?

Information about professional role

Professional background

- Can you tell us something about your current (and/ or previous) position?
 - o Are there any specific milestones you would like to highlight?
- Tell us something about your expertise within (lithium) mining?

Questions

Lithium knowledge

- In your opinion, why do you think lithium is important?
- What is the current state of lithium mining?
 - o What factors are driving the industry's growth?
 - o What role can/will lithium play in the green energy transition?

Global lithium industry

- Can you describe the global lithium industry and its main actors?
 - o How does consolidation shape the lithium industry?

Lithium in Chile

- How would you describe Chile's role in lithium extraction?
- What are competitive advantages/disadvantages of Chile over other produces such as Argentina or Australia?

Codelco's capabilities

• Context: Chile's copper giant Codelco is set to venture into lithium exploration and is currently conducting feasibility tests; What do you think about Codelco's diversification into lithium in general?

- o What makes you arrive at this conclusion?
- How does lithium mining compare to copper mining in terms of a firm's necessary capabilities?
 - o What specific capabilities should a company have which wants to mine lithium?
 - o In your expert opinion, do you think the SOE Codelco possesses the capabilities they need to start exploiting lithium?
- Can you think of risks or challenges associated with Codelco's move?
 - o Do you think they could succeed and replicate their copper mining success with lithium?
- What are potential strategic advantages or disadvantages?

Chilean lithium industry structure

- Can you tell us about the country-specific industry dynamics of Chilean lithium mining?
 - o How do you see the strong consolidation of the industry?
 - o What are reasons for this oligopolistic structure?
- Are there apparent entry barriers for new market actors?
- How do you think the competition will evolve in the next decades?

Chilean institutional framework

- Context: Chile is currently led by a left-leaning, reformist government and in the process of writing a revised new constitution for the country; How do you evaluate the overall institutional climate right now?
- What are potential implications for the country's mining sector of the constitutional ambiguities?
- Context: Australia has overtaken Chile as largest lithium producer even though mining their lithium is roughly twice as expensive; How can that be?
 - o Do you feel like this trend can change?
- What needs to be done to ramp-up the Chilean lithium output vis-à-vis global demand?
 - o What is the role of formal institutions?
- Context: Lithium mining is very capital expensive and requires long planning phases for each deposit; From an economic point of view, does it make sense to invest now or is it "too late"?
- Do you expect a SOE like Codelco to be favored compared to private companies such as SQM or Albemarle?
- Will it be attractive for private actors to enter/stay in Chile given regulatory uncertainties and burdensome application processes for licenses?

CSR & Environmental impact

- Do you think that lithium mining is sustainable?
- Context: There have been debates about water shortages in local communities as brine water is pumped from the underground deposits; What do you make of that?
- In your opinion, should mining companies undertake CSR initiatives in the mining regions?
 - o How should these initiatives look like?
 - o Do they need a so-called "social license to operate"?

- Do local communities benefit of lithium extraction?
- It seems like Chile finds itself in a gridlock between generating rents via mining and acknowledge the rights of e.g., indigenous communities; How can that tension be solved?
- What is your take on innovation within the exploitation process e.g., pumping bine water back into the deposits or direct lithium extraction methods to reduce water use?

Outlook

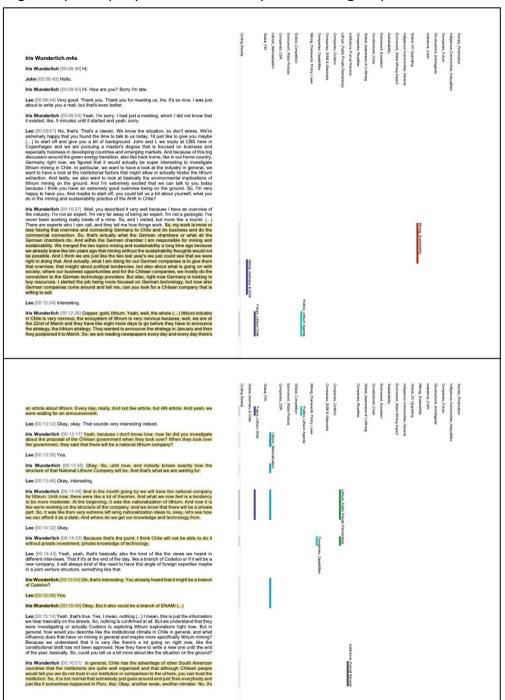
- Do you think Chile can translate their lithium wealth into development for the whole country or fall hostage of the resource curse as so many other LATAM states before?
 - o What needs to be done by whom?
- In one sentence: Would you recommend Codelco to pursue lithium mining?
 - o Why or why not?
- What is your medium to long-term outlook for lithium mining (in Chile)?
- Do you have any other comments or topics you would like to discuss?

Outro

Closing of Interview

- Thank interviewee for their time and support
- Ask interviewee if he/she has other contacts that would benefit our research
 - o Can they introduce us?
- Ask interviewee if we can contact him/her in case we have to clarifying questions etc.

Figure 1 | Exemplary Interview Transcript with Coding Stripes



a bit more organized than that And I think the Chikan institutions work quite well. In general. The problem with lithium has always been the uncertainty and the different (_,) the uncertainty for frozing investments and the complicated stancurs within has been growing throughout the time. Because there are concessions (_) I'm not a lawyer, I'm not a lawyer, the problem of the consistency of the problem of t suddenly says, yeah, you did it all for nothing and you will have not one piece of the cake.

But that was a fight that was very emotional and now it's calmed down and everybody's but that was a right mat was very emotional ainto how its canned own and everypown waiting. And we already know the state secretary, Willy Kracht, announced that (...) there will be a part for private investments. And now we'll see how this happens, I don't know if you read an article, it came out on Saturday in "The Mercurio", and if not, I will send it to you. Can you read in Spanish? Iris Wunderlich [00:19:21] Okay. And then you can read it. It's like five or six private companies that have investments and that have concessions. And they tell you in like a small article, everybody what they are expecting, what they are willing to do, what is the proposal. So, it is a very great companison of the six companies. Iris Wunderlich [00.19.42] I. will send you that. So, I think the difficult thing is to really understand what are the proposals, what is the proposal of the government and who did good lobby and two didn't, no but, |-3| All the companies are taking with the institutions, all the companies are preparing themself, at the companies have plan A, B, C. They are just waiting for the proposal so come out and than this yell do what they have the Iris Wunderlich (00:20:17) I don't know if it will be Codelco or if it will be ENAMI. Or maybe Ins wunderlich (UZZV11) I don't know in twit be Lodeloo or in with see ENAMI. Or mayore they will both of whire things and both can have a private investment and then they can choose which company. For me, but it's very, very personal and not a professional opinion. I think they should find a solution where Chile can be or can have its own state-owned company being ENAMI, Codeloo or whatever, and also allow the privates to go with their company being ENAML Codeloc or whatever, and also allow the privates to go with their mestherists. Because the privates are very very good to heap (1, or having innovations and having good technology. So this is generally what drives the market to a more sustainable ability to do pilot projects, to investigate, set, and then (1, o) policity three is a very, very very important timing. While also the society changed a let from nationalize everying to love, we need the praisant. Becliated for this road you was tartical about SOM and Albemain regular gowinest the year? So actually, SOM this year in March accusity eleased year the amount of reging they were projecting for the note is years. John [00:21:50] Yeah. Wow. Iris Wunderlich [00:21:51] Now being Chile, a state which needs investment from the state. Inst Wunderlich (0.2.1.51) Now being Chile, a state which needs investment from the state, deutacion, infrastructure, and everything, having the social coulbust like there of four years ago. What would Chile do without that amount of the being paid, it is also amount. So, the minister how as to called (_) the finance minister, financing and also institutions telling me the med important guy in the decision is the finance minister. Because he has to omange finance of the whole coultry and he knows that if the private investments go down, if the royalty goes down, if we just give it all to the state, and then the state is not competed arough to do the whole development in the next as verw, sight the state is not competed it arough to do the whole development in the next as, even, sight the state is not competed in arough to do the whole development in the next as, even, sight the state is not competed in arough to do the whole development in the next as, even, sight the state is not competed in arough to do the whole development in the next as, even, sight the state is not competed in a country to the state of the next and the next as the competed in the next as the state. Iris Wunderlich [00:23:01] And then we give away opportunity for the state to have very, very high income. Which you can use for infrastructure, for education, all the things Chile has to do: John (80:23:13) Do you know a bit more about the specifics of how that income is generated, like what are sort of the tax structures that a lot of these mining companies are facing? Or what is what are some of the mandates that they are required to fulfill from the commence. Iris Wunderlich [00:23:32] Okay, So actually, when we are talking about only lithium, they are only SQM and Albemarle. Iris Wunderlich [00:23:38] That's finished. And they have very specific contracts in the Salar Iris Wunderlich (0.023.38) That's fireihed. And fley have very specific contracts in he Salar de Alzama. The princing structure is very complicated, because fley hey were a settled price and if the price is injent then also the royally goes up. There's a whole model. I think you can investigate that in the internet. I'm very open, I did never, never understand it to the ground. So, I think you have to be a lawyer or you have to be like your whole life being in that to understand it. It's very, were complicated. Et life is fed that the prices for littlium want. up that lot made that they already reached the goal for like in six years. So, the pricing system was very good for the Chilean state. And I think when they just saw the figures, they were taking the decision. Okay, we need also like a private component. There's anothe thing, I know that SQM especially has a very bad reputation in Chile because of the whole corruption cases, the political cases. But in fact, it is a very innovative, good, structured beside the whole political thing about the corruption cases and just concentrate on how the company is structured and how the company works and how also SQM developed in the last three years about the sustainability and the innovative thing, it is not a bad company Leo [00:25:40] Okay. That's good. Talking about all the money: do you think that Chile will actually be able to use that money to generate development? And that being said for the entire country? Because we have heard a lot about Chile being a very centralist state where most of the money, business and everything is concentrated around Santiago and not a lot of the actual benefit, for example, remains in the region of Antidagaski, where they have

huge problems with regards to immigration and standards of livings, also like pollution from the copper mines. So, what is your take on that? Do you think Chile is on the right track or will there actually fall trap to the so-called like I don't know how you want to call it, but resource curse or whatever?

Iris Wunderlich (0.28.31) Centralism is a Chilean problem, yes. I think you cannot (_) they or we will not be able to manage if right from today until temorrow. It's a process, But here are zone rather with the limiting production; with Adversaria and SOAI that zone there are considered to the contralism of the contr

Leo (00:27:23) Okay.

Iris Wunderlich (0.2724) So there is an effort. I think you can't solve that in two days but there is effort that they are making. And the communities, speaking of the Salar de Alacama, where the filtham production is right rows. There are propriate also with the communities. In which the communities that the solvent is solvent to the solvent and t

Leo [00:28:25] Okay

Iris Wunderlich [00.28.26] So that's what the companies do. There will always be issues how they actually use the money they get (...) because there are some clauses also. SQM and Albernarie they have to donate money from them to the original people. So, what they are doing in their community with the money, there are also fights about that. But that happens if you get a lot of money from companies

Leo (00:28:56) Yeah, definitely,

Iris Wunderlich [00:28:56] So then they have to organize internally.

John [00:29:04] Is that money coming directly from the companies, and they give it directly to the "pueblos" and the villages or does that go through the government and then back to the "pueblos".

Iris Wunderlich [00:29:13] It goes, it goes through Corfo, it's the dew is in charge of the contracts with the lithium companies, and it goes to Corfo and Corfo then has to distribute it. I don't know if you read about the responsible lithium partnership of the German companies?

Leo [00:29:37] Yeah, we read about it. Yeah.

Iris Wunderlich [00:29:38] Well, okay, it's GIZ which is in charge of that project (...) it's a private initiative.

Leo [00:29:47] That is actually a very good (...)

Iris Wunderlich [00:29:51] Just a second.

Leo [00:30:03] Yeah, no worries at all.

Iris Wunderlich [00:30:05]. It was just my colleague. It's funny, she just took all the way around and then actually also went there.

Leo [00:30:12] Yeah. She wanted to know what you were up to. I guess.

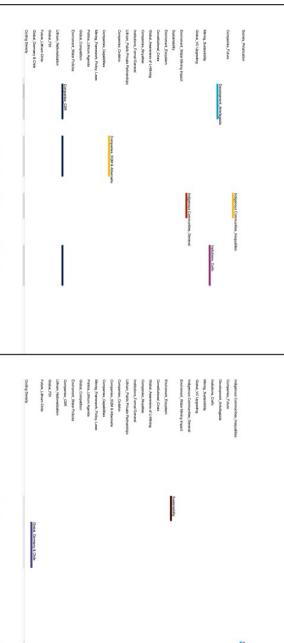
Iris Wunderlich (00:30:15) Yeah

Leo (00:30:17) I would actually be interested that, like you being part of, like, the German Foreign Ministry in that sense. I read about different inflatives that you promote, for example, on miring and resourcing projects, and via sak and fills interested in here you go about ensuring that lithium is actually sourced sustainably in a way, Decause we to be homest, for environmental activities who say that fills mining is destroying the Salar and every action you take is basically an entire destruction. And then we talk to other people with private companies who say that this is basically all not true, and nothing is based on scientific facts. So, what is your standpoint on that? And those can you make sure that, for example, I den't know, in the supply-chain that the maintains are all sustainations and

In the Wunderfield (1921) 117]. We cannot ensure that at all. We do not have any tools or any right prosets or any power to ensure that a local use we do not have a direct influence on that right prosets or any power to ensure that because we do not have a direct influence on that the control of the contr

Leo [00:32:38] Yeah, makes sense

Iris Wunderlich (00.32.39) So it's more a project which allows us to do the matchmaking, to promote German companies, their technology. Because Germany has a lot of good technology and Chile a lot of needs, but we cannot ensure. The resourcing project, it's a funded project from Horizon 2020, so from European sources. There we are only like a very, very small junior partner and responsible for Latin American actions. This is more like a project where you gather information, process the information, and then give the information towards Europe so that Europe can make the decisions and can (...) It's like more like a political assessment, look, this is going on in Africa, Asia, and Latin America. These are the challenges and now take your actions. Now we informed you and this is what might be good. But we do not have any influence that it really is (...) they are like a Chilean company extracting copper or lithium is really up with its technology and does not expect more water, as they should. I'm not able to go there and to have that evaluated. But regarding to your question, yes, I know the very, very black and white visions, the NGOs and the private companies. I think it is crucial to have a look from the middle to understand why they act, why hey have the information they have and try to get them to a more moderate communication form.



Iris Wunderfich (20:34:36) Because I also follow the communication in Germany, if is very smollored and sometimes it is very abusulo because the ecologists using their smartphone but well. If you do not want limite just all their given the ecologists using their smartphone and you will have nothing. Until there's no other sources where you can have the material from, 50, just to may and you can live in the woods. But also, you cannot do mining and not thinking about the impact. And mining is not sustainable. Mining will inser be 100% sustainable because I always was on the sustainable for the properties of the proper

Leo [00:36:29] Yeah. I saw that one.

Irie Wunderlich (00:36:31) Codelon and Aurubit?

Leo [00:36:33] Yeah, I saw it like the other day, It was very negative, yeah.

Iris Wunderlich [00:36:38] Yeah, yeah, I was just, I was standing with the president of Codelco and the President of Aurubis when the Chancelor Olaf was here in Chile signing the agreement. I printed it, actually. And I was like, Oh, my God. So personally, this destroys everything I'm working for.

Leo [00:36:58] Of course

Lee [0:36:58] Of course.

Iris Wunderlich [0:36:59] Because the intention is good. Aurubis says I know Codeloneses to Improve. We have separance. Left sand people from hare to their, then do any service of the control of the contro

complicated. And if you have water rights, which are (...) you can extract X lears by a second, but not percentages and the water and it does not rain as much as it rained like 20 years go, you have a problem. It's a very very simple calculation. So, I think there needs to be some adaptation. And the complicated thing is that it's all one acceptation. There are four the proposition of the production of th

Leo [00.41.55] Yes. Do you think that the new constitution or the political changes that are coming your way will actually have a positive impact on the mining as such for Chile? Or do not now the property of the property

Inis Wunderfich (10-42-43) [hink, well, the first attempt for the Constitution, it was very (...)

Lithrik it was too progressive for society. There were some good things, but there were just a mattakes and lag imitations in (1, 13) to 1 have a franch, but a lawyur, first a way felt-wing target and a specialist, one of the very well-around twayers for environmental issues. Soi, I save the society of the soci

Iris Wunderlich [00:44:22] Because of not very good formulated clauses about properties.

And I think in a country where property issues are not very clear, nobody will invest.

Leo [00:44:36] Yeah, exactly.

Iris Wunderlich (00:44:36) Because you need certainty to invest. And we're not talking about investment of £100,000. I mean, we're talking about investments that you can't magine. It's out of my reach to understand warks going on there. So, I think It was good that it was not approved. And I'm optimistic that the second by will be better, and they will have more an eye on these ships. And allow, I can allow the second by will be better, and they will have more an eye on these ships. And allow, I can allow the second by will be better, and they will have more an eye on these ships. And allow, I can allow the second by will be better, and they will have more an eye on these ships. And allow, I can allow the second by the s

Singlement Communities, Sensial Singlement Communities, Sensial State St

Lee [Bio4:62] What are potential synergies that you see coming from that closer cooperation? Because right now we understand that Chief is still very much involved in the like just primary resource extraction, let's say, then it's shipped to Antidegasta and them shipped to China where it actually infend and then it comes back to Europe as like an electric car or an electric bab. Do you see any possibilities of Chile actually moving up the value chain and costing value-added activities with China.

ship. The sign that the chancellor decided to come to South America, including Chile this year, like on a very short notice. I was suffering with the short notice. Because I got to know it like in the middle of December and he came here like end of January, and I was like, okay. It was sign. So, Germany and Chile need to be partners and also want to be partners and want to align. And Chile has a clear statement about some things which can go on, and want to any 7.7% Chile has a clear statement about some sings which cannot happen and Germany also. But they have a very, very good level for conversations and which I feel was not the case, for example, in Brazil. So, there were some issues between Lula and Olaf Scholz but in Chile, I think they really got connected and it. was very clear and like a friendship sensation. Which is good and it is a sign for the German

Iris Wunderlich [00:47:00] Yes. I'm very positive in this matter. I will not go that far like Bolivia once said, we will fabric our own batteries or cars, I don't think that Chile will have a car factory. But I think Chile will have value added until some point.

Leo (00:47:22) Yeah

industry and it's a sign for Chilean industry.

Iris Wunderlich (0:47:23) Because it is one of the conditions. And the conversations between Germany and Chile in mining always goes around that topic. And it was the chancelider who seek of his official speech Germany will help Chile to develop a value-added industry concerning the mining. So, Chile wants it. Germany has clear that it avoid not happen without the value added in Chile. And that sale one thing about the Shimup policy we are walling for. The state secretary Willy Krach also said this in a lot of interviews. Theref will not be any probles investments or priviled involvement will wholl be also some or willhold will not be any probles investments or priviled involvement will wholl the assumence or willhold will not be any probles investments or priviled involvement will wholl the dissumence or willhold will not be any probles investments or priviled involvement will will be the sustained or willhold will not be any provised involvement will will be a subject to the control of the cont will not be any private investments or private involvement without the assurance or without the security that we have a value added in Chile. And I think it is possible, and I think it will also happen. But it involves a lot of investment and not only investment in technology and money, but also investment in human resources, in development of skill.

Leo [00:48:33] Yeah

Iris Wunderlich [00:48:34] And the skills, this is a very, very important factor where Germany can help a lot. Because I think there is no other country in the world like Germany, where we have like the dual system and companies involved in applicated research and in "duals Bernfasusbildung" [-..] like it is the case in Germany. And we are also working for a companies involved in applicated research and in "duals Bernfasusbildung" [-..] like it is the case in Germany. And we are also working for the companies of the companies o

John [00:50:00] Could you give some more specifics about what kind of technology is being shared between Germany and Chile? What do specifically with regards to the mining sector, what do Chilean mining companies need that German companies can provide?

Iris Wunderlich [0.5:0.19] It's a very, very wide range. And f'm not an engineer like, nothing. But no. It comes from just how you say, it.,...) components that make things more secure where you need less maintenance and until trucks with e-leut of hytogen, it's a very wide range. But the most I think at lith e-nergy efficiency stuff size and water efficiency or purple arrange. But the most I think at lith e-nergy efficiency stuff size and water efficiency or purple arrange. General companies work with the transport times because you transport not only by funds, but also with those transporting lines, he nocks, and the material. And there as without the scrupping companies work and there is a lot of outs, for example, Lots, And step work on dust suspension to improve the air quality or a litter system (...) The dea also is to san from Certainty how to make everyonementally friendly measure water response.

John [00:52:00] is there competition to secure these contracts like is Germany fighting against Chinese or American companies to supply these technologies or how does that look?

Iris Wunderlich [00:52:11] Yeah, that's the fight or competitiveness, yes. But I had a very very interesting conversation like two months ago where Bosch, the German company, invited to talk about future topics. And they were just telling us it doesn't matter if it's Chinese technology. We already know the Chinese technology is not that low quality technology technicogy, we areasay know the classes etchnicogy is not mat in any armyrine. We can learn a lot of them because they have good technicogy around the corner. So, we have to be aware and a lot of them because they have good technicogy around the corner. So, we have to be aware for the contract the contract that the

Iris Wunderlich [00.53:16] So, yeah, it's difficult, but I think it's every industry that is difficult. But they are still the label made in Germany or engineered in Germany is a good selling point and especially the environmental technical protection system or security systems sensors and something like that. It's always very, very well known.

Leo (30.53.49) I actually have one other question that goes a bit back (...) We have the feeting while during this research that (fills the backed) plate outlete part by wheel it is better that the property of the property of the property of the back of the backed on the property of the backed o

Iris Wunderlich (00:54:42) Chile actually was not asleep because there were like three tenders from, I think 2016, the first tender for lithium production in Chile and then another one and then like 2021 another one. But the conditions and the alignments just failed. So, Chile was not able to find the right regulations or framework to do it happen. That's I think that's a problem

Iris Wunderlich [00:55:18] And all that is very political. So, I think there was the problem. Independent from which government. Both were bad in that matter. And it was not asleep

ronert_Water Policies
parries_CSR
arr_Nationalization
al_FD1
rr_Lithium Chie
rr_Lithium Chie
rr_Lithium Chie

but not able to. So Australia took over. They have the hard rock mining and lithium; they have very high CO2 emissions and that so diffing lithium is more sustainable in CO2. Australia just did it. They had the concessions, they had the possibility, levely had the formerwise. Owny just a but it is not had been suitable and the property of the property of the concessions of the property of the concessions. They are not all the property of the concessions to describe the concessions to private investors. I just the other day I asked one of the private companies which invested here lies seven years again criticis very didn't you go to Argentina? And the was like, we are with another branch, we are also in Argentina. But you were one big profession in Argentina, or untils at lot of more, but you can be a but of more, but you go to a fine the concessions of the concession of the concession of the concessions of the concession of the concession of the concession of the concessions of the conc

Iris Wunderlich (00:56:49) No. Argentina is very open for foreign investment. But there's no way to get your money out of the country.

Leo 100:56:561 Yeah, true.

Iris Wunderlich (00:56:58) What is produced in Argentina stays in Argentina. Products go out but money keeps (...) you have Argentinal persos or dollars. But then how you get it out? You can't do that S.O., the investments stay there. Lasked the company and what do you do with the money there? We own two or three office buildings in Buenos Arras (...) but we have houses which do not lose the value. So that she other problem.

Leo [00:57:28] Yeah, that's true. And also Bolivia, right? I mean it's not just, just Argentina. But I think you're in that case, you're in a good position because, I mean, looking at the institutional environment in Argentina, I think this is like on a totally different level of being extremely screwed up. I lived there for one year and I was amazed by it, let's just say.

It is Winderfield 10:05:7511 yeah. It's another level. But yeah, your question Chills has the challenge to be quick now (...). We had like 20 years of (...) because thrum will also go to an end because here will be another kenchology; If think Co-vegents toder, not that I came up with that .5o, we airready lost like the last seven years. The companies full you, If you till but, go looky and lost list aft homorous, in seven years, law like are ready my prediction. So, if is like 30 of years to go with the environmental permission. Because Chile has a very, very good and very strick environmental permission. Because Chile has a very, very list of the companies of

Leo [00:58:56] Yeah. Especially giving that the prices are likely to fall in the future. I mean, giving recycling and as you mentioned, also other technologies that will basically take the market share. That's extremely interesting, Maybe to wrap! tup, where do you see the lithium production in Chile in two years from now. What is your outlook?

Iris Wunderlich [00:59:22] Oh I if I knew that I would just lean back

Leo [00:59:28] Or what is the best case what is like the worst case that you could envision?

Iris Wunderlich (00.58.38) Worst case that nothing is going on. We just have SOMAlbemade producing and nothing else. Nobody else, no progress. And then in some time, Illhink in 2025. SOM will finish the contracts, Contracts go so nobody. Joint know. So, I think no progress will be the worst case. In the best case, we will have a good structure for the National Company or National institute, which could be like the unbreilat for the National Company or National institute, which could be like the unbreilat for the National Company or National institute, which could be like the unbreilat for the National Company or National institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National Company or National Institute, which could be like the unbreilat for the National N

Indigenos Corruntes, Josephille Indigenos Corruntes, Josephille Compens, False Compens, False Compens, False Compens, Louis Indigenos Indigenos Corruntes Compens Compens

146

everything which regulates, which organizes in a very organized way, in a structured way. Private companies being involved. And not only one private company, companies with meetiments from them. Furners, Germany, O' at least Comman behaviory, I would be obly well to be the companies of the companies of the companies and often give a route of the wealthy to leave the money here. Because Chrimose companies and often give arrother tolely work here. So, they're just coming in I who wund does at one? Lefs put the more zeros and if a done well. So hopefully there are several private projects going on with a very, very dear and structured policy framework. And then they are producing and they for developing. They have technology progress and the value added here, that would be the best case. And if there's a little bit of German involvement being foreign investment technology (...) I would

Leo [01:01:45] That sounds really good, and we keep our fingers crossed for that, we would really like to see that happen. But I think now it is time for us to end. We have passed the one-hour mark. So, from our sides, lifts, thank you so, so much for taking the time. I think it was extremely valuable for our research. And I would say that you are an expert, in fact, even though that you don't want to admit it. So, it was extremely nice to talk to you. And yeah, thanks for having us.

Iris Wunderlich [01:02:18] Thank you for your interview, that's really nice to hear. Just let me know how you proceed, what is your final paper. I'm very, very glad to hear how these interviews involved in anything written or in good mark.

Leo [01:02:38] Yeah, definitely thinking about that. Actually, I forgot to ask at the beginning, is it okay if we use the transcription of that interview?

Iris Wunderlich [01:02:46] Yeah, no problem

Leo [01:02:46] Okay, cool. Thank you so much. That would be really nice. Thank you, Iris, all the best. We'll be in touch.

Iris Wunderlich [01:02:54] Thank you. Just tell me how you are going on.

Leo [01:02:56] We'll do that.

Iris Wunderlich [01:02:59] If you ever come to Chile just tell me.

Leo [01:02:59] We will come back to that

Iris Wunderlich [01:03:01] Okay, yes, sure Leo [01:03:04] Thank you so much.

Iris Wunderlich [01:03:04] Take care

Leo [01:03:05] Yeah, you too. Thanks. Bye Bye.

Iris Wunderlich [01:03:07] Bye.

Figure 2 | Codebook

Second Company Seco	Name	Axial Coding (Intermediate Categories)	Selective Codes (Final Categories)	Relvant Theory	Description	Files	References	
Companies Comp					·			7
Part						_		
Security	Companies_Royalties	Regulation of Private Mining	Regulatory Framework	IBV	What the private companies pay the Chilean state to be allowed to extract lithium or other minerals from		6	11
Decision of the Section of the Sec					the "state-owned" soil			
Decision of the Section of the Sec	Concessions & Licenses	Regulation of Private Mining	Regulatory Framework	IRV	Concessions and licenses granted to private companies to explore minerals in Chile		5	15
Manual Column Manual Column Majerbary remove						_		_
Institution	Development_Antoragasta	Northern Chile	Regulatory Framework	Additional Info	Antofagasta is rich (in minerals) but wealth goes to Santiago			
Inchange Communication C	Insitutions_Corfo	Formal Institutions	Regulatory Framework	Institutions	Corfo's role in mining projects		3	4
Inchange Communication C	Institutions Centralization	Formal Institutions	Regulatory Framework	Institutions	Chile as a highly centralist country: focus in Santiago		5	10
Improved productions								
Martine Part of Martine								
Part	Institutions_Formal General	Formal Institutions	Regulatory Framework	Institutions	Characteristics of Chiles (formal) institutional framework		3	10
Institution Continue Contin	Institutions Neoliberalism	Formal Institutions	Regulatory Framework	Institutions	Neoliberal policies implemented in the Pinochet era and still characterising the Chilean institutional		4	7
Mining printer from the state of the Mining point and the state of the American State of the Mining point and			,					
Distance		Term and a sur-	1- 1: - 1	Tr. car. ca		_		
Management March race	Mining_Framework, Policy, Laws	Chilean Mining Policies	Regulatory Framework	Institutions	Mining policies and laws that have shaped Chiles mining for decades		6	13
Section Sect	Lithium_Public Private Partnerships	Chilean Lithium Policies	Regulatory Framework	Institutions	Structure of lithium exploration in Chile in the future, who is going to do what		4	9
Section Sect	Environment Water Mining Impact	Water Issues	Mining Externalities	CSR	(Lithium) mining affecting water resources		8	17
Independent Commonters - Designation Security Manage Security								
International functions for plant broad plant of the pl	Enviroment_Water Management							
Control Cont	Indigenous Communities_Inequalities	Social Inequality	Mining Externalities	Additional Info	Inequalities AMONG indigenous communities like how much money they get etc.		2	2
Control Cont	Indigenous Communities Relationship Mining	Social Inequality	Mining Externalities	Additional Info			3	8
Separation Sep	- , ,				Inequalities in the Chilege society like access to education or good jobs	1		_
Accordance for the control Color Mercy Sectional to								
	Indigenous Communities_General	Social Inequality	Mining Externalities	Additional Info	Info related to indigenous communities affected by mining (lithium and others) in Chile		5	11
	Atacama Desert	Northern Chile	Mining Externalities	Additional Info	Geography, topography, climate etc		5	9
Section Color Ministry Extension Additional for the design of the Mode of Princip Andrew P								
Processing Pro								_
Inham James Processment towns More permetted towns More permetted Mediconal info Camming beginning for the market set of 1 2 3 4 1 1 1 1 1 1 1 1 1	Enviroment_Salares	Nortnern Chile	IVIINING Externalities	Additional Info	General into about other kinds of salares in the Altiplano region that might be subject to future extraction		3	4
Inham James Processment towns More permetted towns More permetted Mediconal info Camming beginning for the market set of 1 2 3 4 1 1 1 1 1 1 1 1 1								
Inham James Processment towns More permetted towns More permetted Mediconal info Camming beginning for the market set of 1 2 3 4 1 1 1 1 1 1 1 1 1	Environmental Impacts General	Environmental Issues	Mining Externalities	Additional Info	How do mining activities in Chile affect the environment		3	6
Security Environmental toxos Monte plasmatilise Additional field Security Service Security Service Security Service Security Service Security Securi	_ :							
Sustainability (Environmental tourist (Maning Decembers) (Additional fine) (Sustainability of mining operatures) (College) (Sustainability) (Suspending (Suspending Suspending Activated posts (Suspending Suspending Activated Suspend								_
Sustainability (Environmental tourist (Maning Decembers) (Additional fine) (Sustainability of mining operatures) (College) (Sustainability) (Suspending (Suspending Suspending Activated posts (Suspending Suspending Activated Suspend	Mining_Sustainibility	Environmental Issues	Mining Externalities	Additional Info	Can mining be sustainable? If so in what ways?		4	10
Committee Committee Value Channer Value Channer Committee Committee Channer	Sustainability	Environmental Issues	Mining Externalities	Additional Info	Sustainability of mining operations in Chile		1	2
Good Life Companies Continue Montain Continue	·			1				
Continues Cont			Global Lithium Market					- 6
Unbound, Auromers of Lichtung School, Sch	Global_VC Upgrading	Value Chains		Additional Info	Mining as a springboard to upgrade Chile's industry to produce value-added goods besides just primary		5	7
Usbour, Maring Process Social, Aurenance of Life Codes			Global Lithium Market		resources			
Goods Competition Google Scompetition Google S	Lithium Mining Process	Value Chains	-	Additional Info	Lithium-rich hrings, evaporation pools etc		5	7
Global Competition Geogetitics of thoman Global Ethnom Market Additional Into Countries such as Associate are Appendix and participation of the Confedence of the Conf		value chams				1		
Global Commany Colle Goognitics of Urbinum Global Lithium Moriet Goognitics of Urbinum Global Lithium Moriet Global Commany Colle Goognitics of Urbinum Global Colle Goognitics of Urbinum Global Lithium Moriet Global Lith	Global_Awareness of Li-Mining		Global Lithium Market		Greenwashing of Global North to reduce tossil fuel but still not changing the root-causes and habits		5	
Global_University Glob	Global_Competition	Geopolitics of Lithium	Global Lithium Market	Additional Info	Countries such as Australia or Argentina that are big players, potentially taking Chilean market share		4	6
Global_University Glob	Global Germany & Chile	Geopolitics of Lithium	Global Lithium Market	Additional Info	Interconnection of both nations in technology, green energy transition etc.		1	7
Global Lithium Market Glob			-					
Dishibit Importance General Global tithium Market Additional from Uniform powers out of ally life age, smartphones and EV 5 51								
Companies Section Se	Global_Lithium Market	Global Lithium Market	Global Lithium Market	Additional Info	Global demand patterns for lithium and the effects for Chile as supplier		5	13
Companies Section Se	Lithium Importance General	Global Lithium Market	Global Lithium Market	Additional Info	Lithium powers our daily life e.g., smartphones and EVs		2	3
Sustainable Development Policies Chien Political Discourse (SR Relationship or mining in Chien and the trade off between resource rents and socio- environmental impacts of mining companies and society at large of the property of the prope							5	
Companies, Society Societal Issues Chilean Political Discourse CSI Relationship of mining companies and society at large 3 5 5 Environment, Growth & Development Companies and society at large 3 5 5 Environment, Growth & Development Companies and society at large 3 5 5 Environment, Growth & Development Companies and society at large 4 5 2 2 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5		· · · · · · · · · · · · · · · · · · ·	-					
Companies, Society Societal Susses Chilean Political Discourse Sustainable Development Policies Chilean Political Discourse Institutions How to harmonists and we development raispict syn which is not a harmful for the environment, promotes 2 2 2	Politics_Lithium Agenda	Sustainable Development Policies	Chilean Political Discourse	Institutions			9	32
Environment, Growth & Development Sustainable Development Policies Chilean Political Discourse Institutions growth, scale justice and inclusion growth, scale justice and inclusion growth, scale justice and inclusion Society Development Society Development Society Development Society Development Society Development Society Society Political Discourse Institutions Discourse should think mining among different societied stakeholders 5 7 7 7 7 7 7 7 7 7					environmental impacts of Li mining			
Environment, Growth & Development Sustainable Development Policies Chilean Political Discourse Institutions growth, scale justice and inclusion growth, scale justice and inclusion growth, scale justice and inclusion Society Development Society Development Society Development Society Development Society Development Society Society Political Discourse Institutions Discourse should think mining among different societied stakeholders 5 7 7 7 7 7 7 7 7 7	Companies Society	Societal Issues	Chilean Political Discourse	CSR	Relationship of mining companies and society at large		3	5
growth, social justice and inclusions Society, Polarization Society Polarization New Polarization Ne								_
Society Mining Discourse Societal Discourse Chilan Pollitical Discourse Institutions Discourse statement societal stakeholders 5 7 7 7 7 7 7 7 7 7	Enviroment_Growth & Development	Sustainable Development Policies	Chilean Political Discourse	institutions			2	2
Society Polarization Society Discourse Society					growth, social justice and inclusion			
Society, Polarization Society Discourse Society	Society Mining Discourse	Societal Discourse	Chilean Political Discourse	Institutions	Discourse about lithium mining among different societal stakeholders		6	18
Society Discourse Society Discourse Chiesen Political Discourse Institutions Insue within the broader societal context of Chiel Referring and violence 1 2 8 Politics, Chiel General New Political Realities Chiesen Political Discourse Institutions Instit		Societal Discourse	Chiloan Bolitical Dissource	Institutions			Е .	7
Follitics_Borte Administration New Political Realities Chilean Political Discourse Institutions General statements about Chilean politics New Political Realities Chilean Political Discourse Institutions Society to play a more important role in pol. Participation and pol. forces need to be more connected to the people Follitics_Populism New Political Realities Chilean Political Discourse Chilean Political Discourse Institutions New Political Political Discourse New Political Realities Chilean Political Discourse Institutions New Political Political Discourse New Political Political Discourse New Political Political Discourse New Political Political Discourse Naming_Department of the role of the more companies do not seek the impact of mining as problematic vs. scientists highlighting A 1 10 Future_General Extractive_End Development Chilean Political Discourse Naming_Harder of the role of the						_		_
Politice, Delicement New Political Realities Chileam Political Discourse Institutions Society to piew, and present about Chileam politics Political Discourse Institutions Society to piew and present the properties of the people Political Political Discourse Institutions Political Discourse Institutions Political Discourse Political Discourse Institutions Political Discourse Political Discourse Additional Info Shows how private companies do not see the impact of mining as problematic vs. scientists highlighting 4 5 Political Discourse Political Discourse Institutions Part of Chile's efforts or owntre the constitution - assembly's draft rejected in 2022 4 7 7 7 7 7 7 7 7 7	Society_Problems	Societal Discourse	Chilean Political Discourse	Institutions	Issues within the broader societal context of Chile like crime and violence		1	
Politics, Participation New Political Realities Chiean Political Discourse Institutions Society to play a more important role in pol. Participation and pol. Forces need to be more connected to the people in the	Politics_Boric Administration	New Political Realities	Chilean Political Discourse	Institutions	Info about the current Boris government		4	8
Politics, Participation New Political Realities Chiean Political Discourse Institutions Society to play a more important role in pol. Participation and pol. Forces need to be more connected to the people in the	Politics Chile General	New Political Realities	Chilean Political Discourse	Institutions	General statements about Chilean politics		3	6
Dilitical Populism New Political Realities Chilean Political Discourse Companies vs. Society Mining Debate Chilean Political Discourse Chilean Political Discourse Additional Info Shows how private companies do not see the impact of mining as problematic vs. scientists highlighting 4 5 Mining Importance Chile Extractive-Led Development Chilean Political Discourse Mining Importance Chile Extractive-Led Development Chilean Political Discourse Institutions Mining has been an important contributor to Chile's economy for more than 200 years 4 10 Future, General Extractive-Led Development Chilean Political Discourse Institutions What needs to be done to improve current mining ops in Chile, who needs to be included in the debate etc. 4 7 Mining_Estractivism Extractive-Led Development Chilean Political Discourse Institutions Extractive-Led Development Chilean Political Discourse Institutions How Chilean Bear an important contributor to Chile's economy for more than 200 years 4 7 Constitutional Assembly Constitution Extractive-Led Development Chilean Political Discourse Institutions Institutions Extractive-Led Development Chilean Political Discourse Institutions Part of Chile's efforts to rewrite the constitution - assembly's draft rejected in 2022 A 7 Constitutional Crisis Constitutional Crisis Constitutional Crisis Constitutional Crisis Constitutions Consti					·			_
Political Political Political Political Discourse Institutions Polarisation of the society e.g. through fake news 1 1 1 1 1 1 1 1 1	FOILUS_FAITUCIPATION	New Political Realities	Cimedii Politicai Discourse	HISTITUTIONS			3	4
Discourse, Companies vs. Society Mining Debate Chilean Political Discourse Additional Info shows how private companies do not see the impact of mining as problematic vs. scientists highlighting and the provided of the pr					the people			
Discourse, Companies vs. Society Mining Debate Chilean Political Discourse Additional Info shows how private companies do not see the impact of mining as problematic vs. scientists highlighting and the provided of the pr	Politics Populism	New Political Realities	Chilean Political Discourse	Institutions	Polarisation of the society e.g. through fake news		1	1
Mining_Importance Chile Extractive-Led Development Chilean Political Discourse Institutions Mining_Importance Chile Future_General Extractive-Led Development Chilean Political Discourse Institutions What needs to be done to improve current mining ops in Chile, who needs to be included in the debate etc A 7 Mining_Extractivism Extractive-Led Development Chilean Political Discourse Institutions Extractivism in general Extractive-Led Development Chilean Political Discourse Institutions Extractivism in general Extractive-Led Development Chilean Political Discourse Institutions How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 7 Mining_Extractivism Extractive-Led Development Chilean Political Discourse Institutions How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 7 12 Constitutions Cons								-
Mining Importance Chile	Discourse_Companies vs. society	willing Depare	Cimean Fontical Discourse	Additional fillo			-	3
Extractive-Led Development Chilean Political Discourse Institutions What needs to be done to improve current mining ops in Chile, who needs to be included in the debate etc. 4 Mining_Extractivism Extractive-Led Development Chilean Political Discourse Institutions Extractivism in general 4 Mining_History Chile Extractive-Led Development Chilean Political Discourse Institutions How Chileans been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 12 Constitutional_Assembly Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 Constitutional_Process Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 Constitutional_Process Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 Lithium_Nationalization Chilean Unlimited Discourse Institutions Can lithium exploration work 8 Lithium_Nationalization Chilean Unlimited Discourse Institutions Next seps the county will take with regard to lithium mining in general, like constitution all changes, 8 33 Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of private/public emining companies 5 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Info about SQM and their mining generation in Industry Players Chilean Mining Companies IBV Info about SQM and their mining operation and mining processes overall 4 Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frametheir operations and mining processes overall 4 Companies_CRR Chilean Mining Companies CSR Relationship of except view of the constitution and the work they do 1 1 Companies_CRR Chilean Mining Companies CSR Relationship of except view was the environment 5 102								
Mining Extractivism Extractivism Extractive-Led Development Chilean Political Discourse Institutions How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 12 Constitutional_Assembly Constitution Chilean Political Discourse Institutions Part of Chile's efforts to rewrite the constitution - assembly's draft rejected in 2022 4 7 Constitutional_Crisis Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional_Process Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional Process Constitution Chilean Political Discourse Institutions Can lithium exploration be nationalized and what might be things to consider 7 2 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Can lithium exploration be nationalized and what might be things to consider 7 2 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Next steps the county will take with regard to lithium mining in general, like constitutional changes, 8 33 Section of the first draft, political Discourse Institutions Can lithium exploration be anatomal lithium firm met. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of private/public mining companies Compani	Mining_Importance Chile	Extractive-Led Development	Chilean Political Discourse	Institutions	Mining has been an important contributor to Chile's economy for more than 200 years		4	10
Mining Extractivism Extractivism Extractive-Led Development Chilean Political Discourse Institutions How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 12 Constitutional_Assembly Constitution Chilean Political Discourse Institutions Part of Chile's efforts to rewrite the constitution - assembly's draft rejected in 2022 4 7 Constitutional_Crisis Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional_Process Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional Process Constitution Chilean Political Discourse Institutions Can lithium exploration be nationalized and what might be things to consider 7 2 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Can lithium exploration be nationalized and what might be things to consider 7 2 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Next steps the county will take with regard to lithium mining in general, like constitutional changes, 8 33 Section of the first draft, political Discourse Institutions Can lithium exploration be anatomal lithium firm met. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of private/public mining companies Compani							4	
Mining_History Chile Extractive-Led Development Chilean Political Discourse Institutions How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 12 Constitutional_Assembly Constitution Chilean Political Discourse Institutions Rejection of the first draft, political and societal instability 7 15 Constitutional_Process Constitution Chilean Political Discourse Institutions Rejection of the first draft, political and societal instability 7 15 Lithium_Nationalization Chilean Political Discourse Institutions How does the rewriting of the constitution work 8 15 Lithium_Nationalization Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Next steps the country will take with regard to lithium mining in general, like constitutional changes, 8 33 Setting up a national lithium freed. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of private/public inting companies of different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operation in Chile outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operation in Chile outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile Companies_SQM and their mining operations in Chile Companies_SQM and their mining operations in Chile in Mining Companies IBV Direct Lithium Review in their operations and the work they do Companies_SQM and their mining operations and the work they do Companies_SQM and their mining operations and the work they do Companies_Environment Chilean Mining Companies CSR Mining companies SCSR Mining companies SCSR Min								
Mining_History Chile Extractive-Led Development Chilean Political Discourse Institutions How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium 4 12 Constitutional_Assembly Constitution Chilean Political Discourse Institutions Rejection of the first draft, political and societal instability 7 15 Constitutional_Process Constitution Chilean Political Discourse Institutions Rejection of the first draft, political and societal instability 7 15 Lithium_Nationalization Chilean Political Discourse Institutions How does the rewriting of the constitution work 8 15 Lithium_Nationalization Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Next steps the country will take with regard to lithium mining in general, like constitutional changes, 8 33 Setting up a national lithium freed. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of private/public inting companies of different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operation in Chile outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operation in Chile outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile Companies_SQM and their mining operations in Chile Companies_SQM and their mining operations in Chile in Mining Companies IBV Direct Lithium Review in their operations and the work they do Companies_SQM and their mining operations and the work they do Companies_SQM and their mining operations and the work they do Companies_Environment Chilean Mining Companies CSR Mining companies SCSR Mining companies SCSR Min		1	1	1			.1	
Constitutional Assembly Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional Crisis Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional Process Constitution Chilean Political Discourse Institutions How does the rewriting of the constitution work 8 15 Lithium_Nationalization Chilean Lithium Policies Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Next steps the county will take with regard to lithium mining in general, like constitutional changes, 8 33 setting up a national lithium firm etc. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of the Companies of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Industry Companies IBV Industry Players Chilean Mining Companies IBV Direct Lithium_New Mining poerations in Chile To companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Direct Lithium Extraction on the mining poerations in Chile To companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_Environent Companies Environment Chilean Mining Companies CSR Relationship of extractive companies wis-a-wist the environment of S 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies wis-a-wist the environment S	Mining_Extractivism	Extractive-Led Development	Chilean Political Discourse	Institutions	Extractivism in general		4	_
Constitutional Assembly Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional Crisis Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional Process Constitution Chilean Political Discourse Institutions How does the rewriting of the constitution work 8 15 Lithium_Nationalization Chilean Lithium Policies Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Next steps the county will take with regard to lithium mining in general, like constitutional changes, 8 33 setting up a national lithium firm etc. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of the Companies of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Industry Companies IBV Industry Players Chilean Mining Companies IBV Direct Lithium_New Mining poerations in Chile To companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Direct Lithium Extraction on the mining poerations in Chile To companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_Environent Companies Environment Chilean Mining Companies CSR Relationship of extractive companies wis-a-wist the environment of S 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies wis-a-wist the environment S	Mining_History Chile	Extractive-Led Development	Chilean Political Discourse	Institutions	How Chile has been a mining nation for many centuries with gold, silver, nitrates, copper and now lithium		4	12
Constitutional_Crisis Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional_Process Constitution Chilean Political Discourse Institutions How does the rewriting of the constitution work 8 15 Lithium_Nationalization Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Mining Course Chilean Mining Companies Next step county will take with regard to lithium mining in general, like constitutional changes, 8 33 Setting up a national lithium firm etc. Companies_Capabilities Chilean Mining Companies IBV Capabilities of private/public mining companies 5 10 Companies_Future Industry Players Chilean Mining Companies IBV How are the companies preparing themselves for the future in Chile, what are their plans regarding 4 4 different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 7 25 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR Mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies SGR Mining companies SGR Mining companies SGR Mi					, , , , , , , , , , , , , , , , , , , ,			
Constitutional_Crisis Constitution Chilean Political Discourse Institutions Rejection of the first draft, political ambiguities and societal instability 7 15 Constitutional_Process Constitution Chilean Political Discourse Institutions How does the rewriting of the constitution work 8 15 Lithium_Nationalization Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Mining Course Chilean Mining Companies Next step county will take with regard to lithium mining in general, like constitutional changes, 8 33 Setting up a national lithium firm etc. Companies_Capabilities Chilean Mining Companies IBV Capabilities of private/public mining companies 5 10 Companies_Future Industry Players Chilean Mining Companies IBV How are the companies preparing themselves for the future in Chile, what are their plans regarding 4 4 different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 7 25 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR Mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies SGR Mining companies SGR Mining companies SGR Mi	Constitutional Assembly	Constitution	Chillen Belleted Bi	La sette set a sa	Date of Children o			
Constitutional_Process Constitution Chilean Political Discourse Lithium_Nationalization Chilean Lithium Policies Chilean Political Discourse Institutions Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Mining Companies IBV Capabilities of private/public mining companies Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject o			1					_
Constitutional_Process Constitution Chilean Political Discourse Lithium_Nationalization Chilean Lithium Policies Chilean Political Discourse Institutions Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Political Discourse Institutions Can lithium exploration be nationalised and what might be things to consider 7 29 Future_Lithium Chile Chilean Mining Companies IBV Capabilities of private/public mining companies Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject of the future in Chile, what are their plans regarding Subject o	Constitutional_Crisis	Constitution	Chilean Political Discourse	Institutions	Rejection of the first draft, political ambiguities and societal instability		7	15
Lithium_Nationalization Chilean Lithium Policies Chilean Political Discourse Institutions Next teps the county will take with regard to lithium mining in general, like constitutional changes, Sexting an antional lithium from a national lithium from from a national lithium from from a national lithium from from sextit expansion from the future in Chile, what are their plans regarding a 4 different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Information SQM and their mining operations in Chile Ithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall Industry Players Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies SCR initiatives and how they are shaping society and discourse around mining ops Industry Players Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment SCR Relationship of extractive companies vis-a-vis the environment SCR Relationship of extractive companies vis-a-vis the environment SCR Relationship of extractive companies vis-a-vis the environment	Constitutional Process	Constitution	Chilean Political Discourse	Institutions	How does the rewriting of the constitution work		8	15
Future_Lithium Chile Chilean Lithium Policies Chilean Political Discourse Institutions Next steps the county will take with regard to lithium mining in general, like constitutional changes, setting up a national lithium firm etc. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of pravie/public mining companies IBV Capabilities of pravie/public mining companies IBV Capabilities of pravie/public mining companies IBV Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile IIndustry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile IIndustry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall Companies_CSR Companies_CSR Chilean Mining Companies CSR Momining companies frame their operations and the work they do 1 2 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining operations in Chile Companies_Enviroment Companies_Enviroment Companies Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment SR Relationship of extractive companies vis-a-vis the environment Companies Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment Companies Lenvironment Companies Lenvironment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment Companies Lenvironment Companies Lenvironment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment Companies Lenvironment Companies Lenvironment Chilean Mining Companies Companies Lenvironment Chilean Min		Chileen Lithium Delining	Chileen Political Discourse	Institutions			7	20
Setting up a national lithium firm etc. Companies_Capabilities Industry Players Chilean Mining Companies IBV Capabilities of private/public mining companies IBV Capabilities of private/public mining companies IBV Apabilities of private/public mining companies of the constitution, new policies etc Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall Apabilities Apabilities of private/public mining companies Apabilities of private/public mini								
Companies_Capabilities Industry Players Chilean Mining Companies Chilean Mining Companies BV Capabilities of private/public mining companies BV How are the companies preparing themselves for the future in Chile, what are their plans regarding different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 7 25 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining ops 6 19 Companies_Enviroment Companies_Enviroment Companies & Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vist are environment 5 12	Future_Lithium Chile	Chilean Lithium Policies	Chilean Political Discourse	Institutions	Next steps the county will take with regard to lithium mining in general, like constitutional changes,		8	33
Companies_Capabilities Industry Players Chilean Mining Companies Chilean Mining Companies BV Capabilities of private/public mining companies BV How are the companies preparing themselves for the future in Chile, what are their plans regarding different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 7 25 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining ops 6 19 Companies_Enviroment Companies_Enviroment Companies & Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vist are environment 5 12								
Companies_Future Industry Players Chilean Mining Companies IBV How are the companies preparing themselves for the future in Chile, what are their plans regarding 3 4 different possible outcomes of the constitution, new policie set. Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 1 5 25 1 25 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Companies Canabilities	Industry Players	Chilean Mining Companies	IRV			5	10
different possible outcomes of the constitution, new policies etc Companies_SQM & Albemarle Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc., and their importance on mining processes overall Industry Players Chilean Mining Companies CSR How mining companies frame their operations and the work they off Industry Players Industry Pl								_
Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 7 25 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining ops 6 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment 5 12	Companies_Future	Industry Players	Chilean Mining Companies	IBV			3	4
Companies_SQM & Albemarle Industry Players Chilean Mining Companies IBV Info about SQM and their mining operations in Chile 7 25 Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining ops 6 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment 5 12					different possible outcomes of the constitution, new policies etc			
Lithium_New Mining Tech Industry Players Chilean Mining Companies IBV Direct Lithium Extraction etc. and their impact on mining processes overall 4 6 Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining ops 6 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-wist are environment 5 112	Companies SOM & Albemarle	Industry Players	Chilean Mining Companies	IRV	The state of the s		7	25
Companies_PR&Media General CSR Chilean Mining Companies CSR How mining companies frame their operations and the work they do 1 1 Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining ops 6 19 Companies_Enviroment Companies_Enviroment CSR Relationship of extractive companies vis-a-vis the environment 5 12					• • • • • • • • • • • • • • • • • • • •			_
Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining opp 6 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment 5 12							4	6
Companies_CSR General CSR Chilean Mining Companies CSR Mining companies CSR initiatives and how they are shaping society and discourse around mining opp 6 19 Companies_Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment 5 12	Companies_PR&Media	General CSR	Chilean Mining Companies	CSR	How mining companies frame their operations and the work they do		1	1
Companies_Environment Companies & Environment Chilean Mining Companies CSR Relationship of extractive companies vis-a-vis the environment 5 12					, , , , , , , , , , , , , , , , , , , ,			
Companies_Codelco Codelco Chilean Mining Companies RBV All the infos about Codelco - to be divided into subcategories 8 27								
	Companies_Codelco	Codelco	Chilean Mining Companies	RBV	All the infos about Codelco - to be divided into subcategories		8	27
		·	*	·				_

Figure 3 | Hierarchy Chart of Open Codes

Future_Lithium Chile	Companies_CSR	Mining_F Glo		obal Minir		ining Global			Compan		Indige	
Politics_Lithium Agenda	Society_Mining	Global_FDI		Comp	Litt	ni	Atac	Po	olit	Indi	Env	
Lithium Nationalization	Enviroment_Wat	Companies		Society_I	Po	Futu.	Env.	-	Con	Poli	. Lit	
	Constitutional_P	Mining_Sust		Mining_E		Globa	al_Va		Dis	s		
Companies_Codelco	Constitutional	Mining_Impo	D	Lithium_I		Globa	al_C					
Companies_SQM & Albem		Institutions_		Global_V		Envir	rome		itics		Li	
	Concessions &	Institutions_		Global_G	ier		ety ution		bal	So		

Appendix D | Overview Interviewees & Webinars

Figure 1 | Interviewee Overview including Sample Quotes and Corresponding Codes

Name	Occupation	Background (Company or Institution)	Interview Date	Interview Location	Interview Duration (approx./h)	Sample Quote and Corresponding Codes
Gerrit Fuelling	Industry Expert & Consultant	Ex President Rockwood Lithium Asia	13 March 2023	Microsoft Teams	01:10	(1:05:27) "The biggest users of the water is the copper mines" (Coded as Environment_Water Mining Impacts)
Jorge Valenzuela	Advisor	Chilean Embassy Copenhagen	15 March 2023	Chilean Embassy Copenhagen	01:10	(00:13:20) "Chile is very pro-market, pro-private sector" (Coded as Institutions_Neoliberalism)
Mauricio Lorca	Researcher	Universidad de Atacama (Chile)	15 March 2023	Zoom	00:59	(00:23:54) "And from the institutional point of view, we have to consider that the current government, in the first place, wants to create a national lithium company" (Coded as Politics_Lithium Agenda)
Cristina Dorador	Microbiologist, Politician & Researcher	Universidad de Antofagasta (Chile)	20 March 2023	Microsoft Teams	01:09	(00:22:16) "So the same elite are the people that have the economical power, the political power and also the academic" (Coded as Institutions_Chilean Elite)
Daniel Jimenez	Industry Expert	External Consultant & Ex-SQM Senior VP	22 March 2023	Microsoft Teams	00:38	(00:11:41) "But this country is doomed () they're not helping to promote or develop mining projects" (Coded as Mining_Framework, Policy, Laws)
Iris Wunderlich	Project Leader	Mining & Sustainibility at AHK (Chile)	22 March 2023	Microsoft Teams	01:03	(00:23:28) "I know that SQM especially has a very bad reputation in Chile because of the whole corruption cases, the political cases" (Coded as Companies_SQM & Albemarle)
Manuel Andrade	Researcher	Universidad Mayor de San Andres (Bolivia)	23 March 2023	Microsoft Teams	00:48	(00:03:43) "There is also a need to make tax reforms or institutional reforms" (Coded as Concessions & Licenses)
Andreé Henríquez	Industry Expert	Centre for the Circular Economy (Chile)	4 April 2023	Zoom	01:14	(00:35:23) "Those critical of the role of the state, and specifically Codelco, say Codelco have no experience for this area" (Coded as Companies_Codelco)
Claudia Zilla	Researcher	Senior Fellow at SWP (Berlin)	14 April 2023	Microsoft Teams	01:00	Interviewee requested not to be recorded. Coding was done from notes taken during interview.

Figure 2 | Webinar Overview

Title	Organizor	Date	Speakers/Referees	Speakers Background
			Khombada Mhopjeni	National Program Officer (UNESCO Namibia)
			Alejandra W. Wood	Director CODELCO and CESCO
Critical Raw Materials in Vulnerable			Dr. Jessica Smith	Professor Colorado School of Mines
Geographies: Impact on Women	UNECE Sustainable Energy	23 March 2023	Alfredo Alvarez Laparte	Energy Segment Leader & Solutions Leader - EY LATAM
La ecología política global de la cadena	Universidad de Atacama			Graduate Institute of International Development Studies (IHEID,
delitio	Agencia Nacional de Investigación y Desarrollo	31 March 2023	Marc Hufty	Switzlerand)
De la extracción de litio a la producción				
de baterias: ¿Cómo estudiar la justicia y				
la sostenibilidad a través de lugares y	Universidad de Atacama		Morgan Scoville-Simonds	
escalas?	Agencia Nacional de Investigación y Desarrollo	28 April 2023	Vito Laterza	University of Agder (Norway)

Appendix E | Overview Literature

Figure 1 | Mapping Peng et al.'s (2009) Strategy Tripod in Literature

Author and Year	Journal	Single or Multiple Firms	Type(s) of Firm(s) Studied	Industry	Firm Origin & Market	Study Region
of Publication			,, ,,	•	5	, 0
Del Vecchio Ponte et al., 2022	Business Strategy and the Environment	Multiple	Private	Agriculture	Local Firms Exporting Internationally	Latin America
Sassi et al., 2019	Journal of Arts Management, Law, and Society	Multiple	Private & SOEs	Cultural & Creative Industry	Local Firms Selling Locally	Europe
Gao et al., 2019	Chinese Management Studies	Multiple	Private MNEs	Multi-Industry	Foreign Firms Entering Host Country	Multi-Region
Barin Cruz et al., 2015	Business & Society	Multiple	Private	Multi-Industry	Local Firms Exporting Internationally	Latin America
Ju et al., 2014	Journal of International Marketing	Multiple	Private	Manufacturing	Local Firms Exporting Internationally	Asia
He et al., 2021	Journal of Business Research	Multiple	Private & SOEs	Multi-Industry	Local Firms Exporting Internationally	Asia
Gao et al., 2010	Journal of International Business Studies	Multiple	Private	Multi-Industry	Local and Foreign Firms Exporting Internationally	Asia
Xie et al., 2011	International Business Review	Multiple	Private MNEs	Multi-Industry	Foreign Firms Entering Host Country	North America
Lahiri et al., 2020	Global Strategy Journal	Multiple	Private SMEs	Multi-Industry	Foreign Firms Entering Host Country	Global
Bao et al., 2021	Technovation	Multiple	Private	Manufacturing	Local Firms Exporting Internationally & Selling Locally	Asia
Wang et al., 2021	IEEE Transactions on Engineering Management	Multiple	Private	Manufacturing	Local Firms Exporting Internationally & Selling Locally	Asia
Zhu et al., 2019	International Business Review	Multiple	Private SMEs	Base-of-Pyramid	Local Firms Selling Locally	Asia
Heredia et al., 2020	Thunderbird International Business Review	Multiple	Private	Manufacturing	Local Firms Exporting Internationally & Selling Locally	Asia
Krull et al., 2012	The Service Industries Journal	Multiple	Private	Consulting	Local Firms Selling Locally	Oceania
Tajeddin et al., 2023	Journal of International Management	Multiple	Private SMEs	Multi-Industry	Local Firms Exporting Internationally	Middle East
Chen et al., 2018	Global Strategy Journal	Multiple	Private MNEs	Manufacturing	Local Firms Exporting Internationally	Asia
Tripathi & Thukral, 2018	International Journal of Emerging Markets	Multiple	Private MNEs	Multi-Industry	Foreign Firms Entering Host Country	Asia
Gaur et al., 2018	Journal of International Business Studies	Multiple	Private	Multi-Industry	Foreign Firms Entering Host Country	Asia
Thomé et al., 2016	International Journal of Emerging Markets	Single Case Study	Private	Import-Export	Local Firms Exporting Internationally	Europe
Heredia et al., 2022	European Journal of International Management	Multiple	Private	Multi-Industry	Local Firms Exporting Internationally & Selling Locally	Latin America
Lu et al., 2011	Management and Organization Review	Multiple	Private	Multi-Industry	Foreign Firms Entering Host Country	Asia
Sun et al., 2021	Journal of World Business	Multiple	Private SMEs	Manufacturing	Local Firms Exporting Internationally	Asia
Cui et al., 2011	Thunderbird International Business Review	Multiple	Private & SOEs	Multi-Industry	Foreign Firms Entering Host Country	Asia
Liu et al., 2018	Nankai Business Review International	Multiple	Private SMEs	Multi-Industry	Local Firms Selling Locally	Asia
Wei et al., 2014	International Business Review	Multiple	Private SMEs	Multi-Industry	Local Firms Exporting Internationally	Asia