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The Impact of Global Factors on China's Nickel Chain



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November 2022



1 Introduction

2 Purpose of the Study

3 Literature Review

4 Theoretical Framework

**5 Conceptual Framework
& Hypotheses**

6 Methodology

7 Results

8 Conclusion & Implication

9 Future Research



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01 Introduction

Nickel

Nickel is mainly used in steel, nickel alloy products, and new energy batteries, and has been highly valued by various countries in recent years (Wang et al., 2022).



Steel

Between 2022 and 2025, electric vehicles will be adopted on a large scale, and it is estimated that by 2030, electric vehicles will account for 30% of global vehicle usage (Nguyen et al., 2021).



Battery

Nickel

With the growing awareness of environmental protection and the **Paris Agreement**, which establishes a consensus for countries to work together to **reduce carbon emissions**, electric vehicles have an advantage over conventional vehicles in **reducing their carbon footprint**.

In the future, **electric cars will become the first choice for more people** (Marcos et al., 2021).



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Nickel



Currently, the main future exchanges whose inventory changes have more influence on the market is London Metal Exchange (LME).

Nickel is usually **traded as futures**.

Futures are very different from spot goods, which is a tradable commodity, whereas most futures are a kind of tradable contract with specific commodities such as cotton, soybeans, oil, etc. As a result, nickel is usually delivered at a specified time and place in the future in specified quantities.



Nickel

As nickel is an important non-ferrous metal, **inventory changes are an essential reference indicator** for observing changes in nickel supply and demand.





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02 Purpose of the Study

02 | Purpose of the Study



The main purpose of this study is to **analyze several main factors affecting the nickel supply chain from a global perspective**. The research will focus on the following objectives:

1. **The importance of nickel** and its effects in other fields such as batteries and electronic vehicles are studied through the properties of nickel itself.
2. Study the impact of the nickel supply chain from the perspective of **supply and demand, epidemic, war, geopolitics**, etc.





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03 Literature Review

03 | Literature Review



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Khoshalan et al.,(2021) Stepan John,(2015)	Nickel Price	<p>Forecasting metal prices has been a popular item for more than a decade. As a kind of futures and an indispensable energy resource, the price changes of metals can exert an influence on macroeconomics as well as microeconomics.</p> <p>For those companies involved in the metals industry, especially those with mining and refining operations, changes in metals prices will have a serious impact on their layout and strategic direction</p>
Spieske & Birkel,(2021d) Akcil, (2020d) Giese, (2022d)	Severity of the Epidemic	<p>To better interrupt the spread of the virus, places such as entertainment venues and schools were closed, people were asked to wear masks in public places, international flights were canceled, and people began working from home (Spieske & Birkel, 2021d). The outbreak was contained under these policies, but created one of the worst supply chain disruptions in history, revealing the vulnerability of the supply chain.</p>

03 | Literature Review



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Ozdemir et al., (2022c)
Jones et al., (2020d)

Electric Vehicle Desire

With the national emphasis on greenhouse gases, greener and more convenient mobility, electric vehicles are now the choice of most people. Energy saving and emission reduction is a long-term goal, The demand for electric vehicles will progressively rise, driven primarily by regulatory incentives, income growth, and technology advancements.

Calvo et al., (2019b)
Funakoshi et al.,(2022)
Lo et al., (2022c)
Wang et al., (2022c)

Severity of the War

Today's lives are increasingly dependent on metal resources, which are also critical in electronics, household necessities and clean energy. Whenever war breaks out, the export of strategic resources such as metals can easily be banned, thus affecting the global supply chain.

03 | Literature Review



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Tsingshan Holding Group

Tsingshan Holding Group is a company from China and **one of the largest producers of nickel and stainless steel in the world**. Among its activities are nickel mining, nickel refining, logistics and transportation as well as trading (WITA, 2022). And according to the unique characteristics of nickel as a commodity, it also started to short the price of nickel in the financial trade market, so that it could profit from it when the price of nickel fell. However, with the outbreak of the Russian-Ukrainian war, the world situation quickly changed and most commodity prices rose, and nickel prices soared even more, as both Ukraine and Russia are major producers and exporters of commodities. On March 8, 2022, nickel prices had reached \$100,000 per ton, for which the London Metals Exchange (LME) suspended nickel trading.



青山控股集团
TSINGSHAN HOLDING GROUP



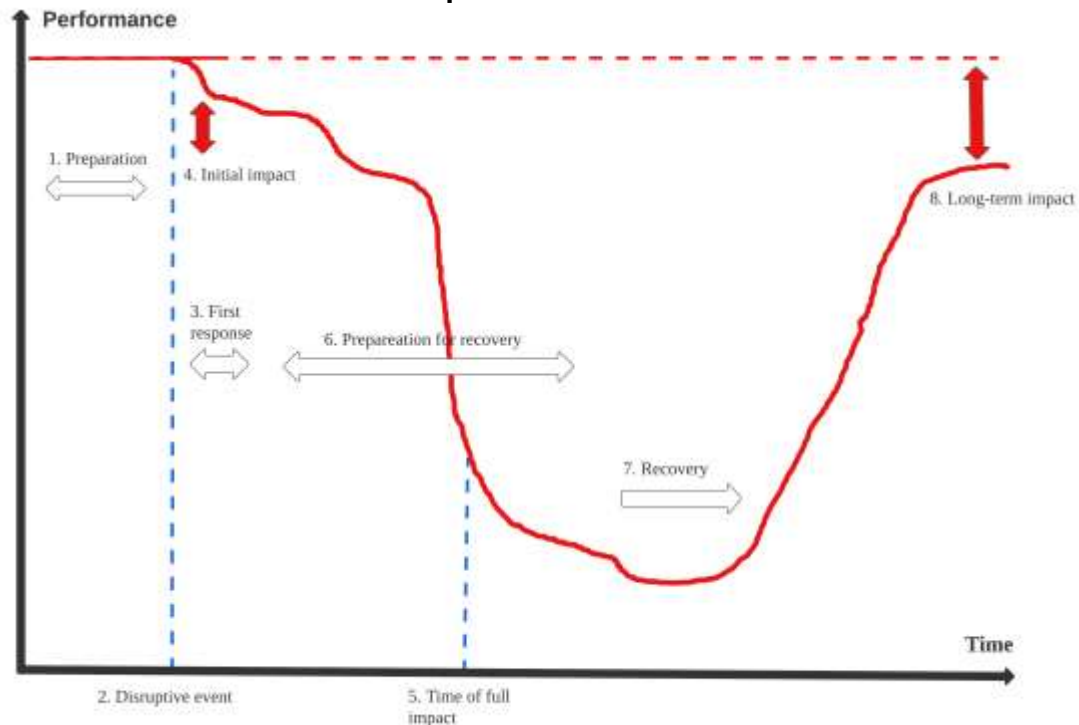
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04 Theoretical Framework

04 | Theoretical Framework

The Supply Chain Resilience Model is the ability to maintain continuous supply and quickly return to normal supply in the event of a partial failure of the supply chain. This graph approach could best reflect the performance and the degree of disruption which has eight stages as shown in Figure 1. The first stage is the preparation which is a straight line as it hasn't met the unexpected events. Stage two is the disruptive event. The first response of the enterprise or system is the third stage and the initial impact would be the fourth stage as the disruptive event occurred.



After some time, the impact gradually drops to 0 which would be the fifth stage. In the process, the preparation for recovery from falling is the sixth stage. Then, a gradually increasing process is the recovery of the company which is also the seventh stage. At last, the company is back on its track, and the performance is a straight line. The final performance could be higher or lower than the original one as it depends on the company's SCRes.

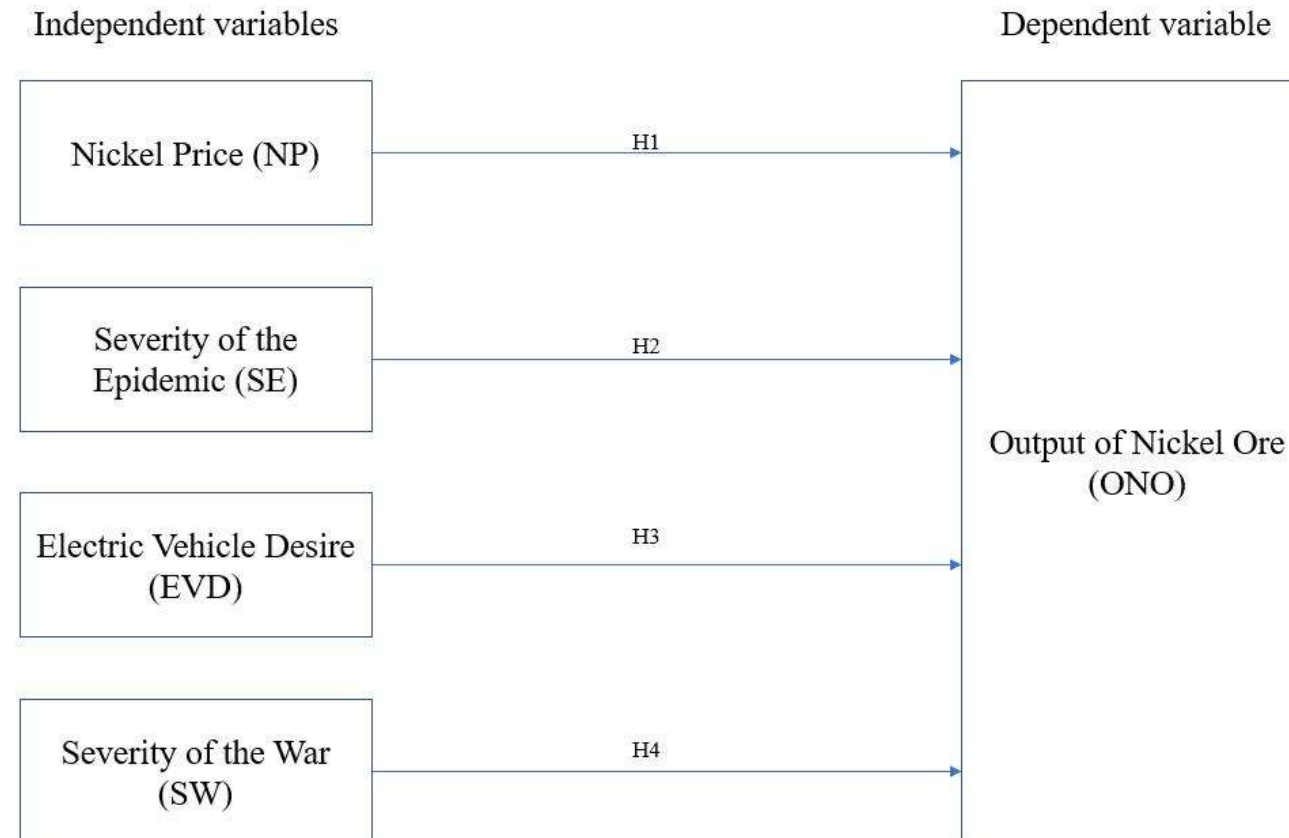


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05 Conceptual Framework & Hypotheses

05 | Conceptual Framework & Hypotheses





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06 Methodology



Desktop Research

Based on the material published in reports and similar documents that are available in public libraries, websites, data obtained from surveys already carried out

It is used collect, compare, analyze large descriptive data from the sample

Qualitative Methodology



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07 Results

Results

Challenge of Nickel Price

Therefore, nickel futures and spot prices will **directly reflect its supply and demand situation** and will directly affect its highly relevant industries such as stainless steel, aerospace, and electric vehicles areas.



Challenge of Epidemic

COVID-19 broke out in 2020, which had a **huge impact** on most of the real industry and also **caused major challenges** to the nickel supply chain. It led to a decrease in the production of goods in these countries and a consequent decline in the demand for parts produced in the Asian region (Dente and Hashimoto, 2020).

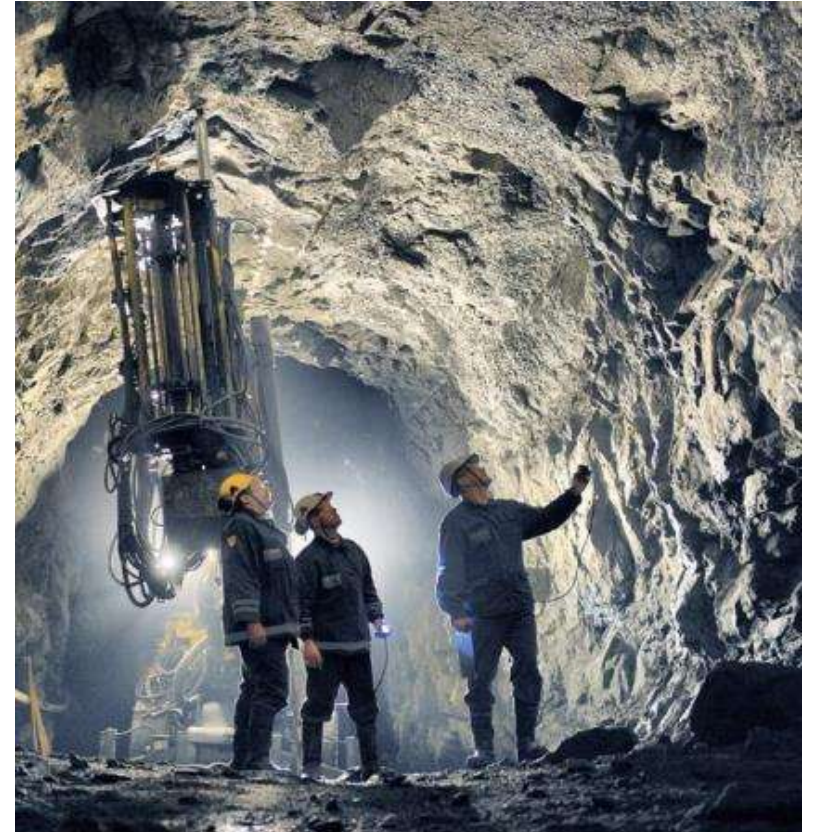
Results

Challenge of Electric Vehicle Desire

Nickel has **excellent properties and performs well** in the battery sector. The use of nickel, an important component of electric vehicle batteries, is expected to grow at an annual rate of 39% between 2017 and 2025, and the demand for nickel from battery manufacturers for electric vehicles will continue to increase (Ozdemir et al., 2022c).

Challenge of War

Russia is one of **the largest exporters of metals** in the world. Russia's nickel trade and shipments have been hampered by sanctions imposed by many countries. Therefore, fears of short supply have led to an enormous increase in the prices during the war. Nickel led the brigade with a significant price increase, thus topping the all-time high.





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08

Conclusion & Implication

08 | Conclusion



The results of this study show that **all the assumptions** established in this study are **valid**.

This study shows that nickel chain is affected by many factors. The improvement of people's awareness of low-carbon and environmental protection and the promotion of electric vehicles have led to a gradual increase in the demand for nickel. At the same time, the epidemic has also continued to affect the overall nickel industry, especially in logistics. Fluctuating nickel prices and sudden wars are unstable factors in the nickel supply chain.



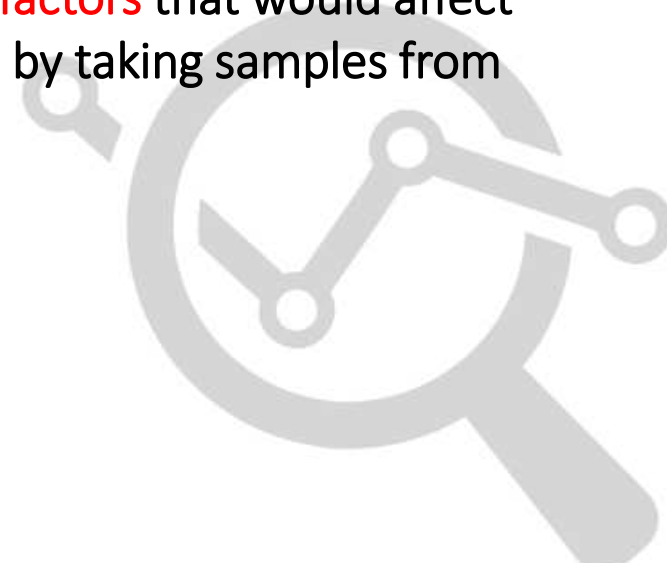
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09 Future Research

09 | Future Research

- 1 This paper **neglecting** the influence of **managers, decision-makers and investors** on the company, thus indirectly affecting the Nickel Chain
- 2 The region of this study is still **limited**, there are more **potential factors** that would affect Nickel Chain. Therefore, the scope of research can be expanded by taking samples from other countries and conducting detailed analysis.





Thank You For Listening!

