US-China Competition in the Lithium Triangle: Geopolitical Risks and the Impact on Lithium Investment Flows

Executive Summary

This paper examines the influence of US-China geopolitical tensions of foreign direct investment (FDI) in Argentina's lithium sector, a critical component of the energy transition. Argentina, as part of the "Lithium Triangle," holds 21% of global lithium reserves, making it a focal point for international competition between the US and China. The study uses the Geopolitical Risk Index (GPR) and foreign investment data to analyze how heightened tensions between these superpowers drive strategic investments. The findings indicate that spikes in US-China tensions lead to a statistically significant increase in FDI in Argentina's mining sector. Through a difference in differences model with the 2020 Trade War as a cutoff, the study identifies a 59.78% relative increase in FDI post-2020, attributing this surge to geopolitical rivalry and Argentina's liberalized foreign investments policy.

Leveraging the results of this study, this paper suggests that Argentina create a strategic investment monitoring unit to track FDI trends and mitigate volatility. With the introduction of targeted tax incentives for value-added lithium projects such as battery manufacturing, Argentina can attract long-term investments and reduce dependency on raw material exports. By fostering greater vertical integration and value creation, Argentina could enhance its economic resilience while leveraging geopolitical dynamics to its advantage. This paper fills a clear gap in the study of the impact of US-China tensions on strategic investments in Latin America and highlights the need for further cross-country study to better understand the determinants of strategic mining FDI.

Introduction

The Lithium Triangle, comprising Argentina, Bolivia, and Chile, holds over half of the world's proven lithium reserves, with Argentina alone possessing about 21% of global

reserves[1]. As a crucial resource for the global energy transition, especially in electric vehicle (EV) batteries and energy storage systems, lithium has become a focal point of international interest and geopolitical competition. Between 2020 and 2040, demand for lithium is expected to increase 40x, so the entire Lithium Triangle has been attracting strong international attention, especially from the United States and China. The surge of interest reflects both economic incentives and geopolitical strategies, as both superpowers vie for control over resources critical for the clean energy transition. This paper explores how US-China geopolitical tensions shape investment patterns in the Lithium Triangle.

The Election of Argentina's President Javier Milei introduces a new dimension to this dynamic. Throughout his campaign, Milei touted libertarian economic policies in an attempt to pull Argentina out of its chronic state of hyperinflation. He has outlined plans to deregulate and reduce government intervention in the lithium sector, while easing capital controls, which could make it easier for foreign companies to invest in and profit from lithium projects in Argentina [2]. This change raises important questions about whether Argentina's policy under Milei will attract increased US investment in lithium as the nation repositions itself internationally.

My research investigates the question: *How does measured US-China Geopolitical Risk impact foreign investment patterns in the Lithium Triangle.* I hypothesize that heightened US-China tensions will lead to an increase in foreign investment in Latin America's lithium sector due to its strategic importance of resource security and the geopolitical rivalry between the US and China.

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[1] Feliba, D. (2024, June 20). *Lithium tug of war: The US-China rivalry for Argentina's White Gold*. Clean Energy Frontier.

[2] Masiero, F., & Writer, F. M. (2024, May 8). *Argentina's lithium industry: Reforms and radical rhetoric*. The New Global Order. https://thenewglobalorder.com/world-news/argentinas-lithium-industry-reforms-and-radical-rhetoric/

This research offers broader insight into how geopolitical rivalry and domestic policy influence resource allocation crucial to the energy transition. As nations strive toward carbon neutrality, securing access to critical minerals such as lithium becomes essential. Given its weakened position against China in the race for global lithium supplies, the United States needs to leverage the currently favorable environment in Argentina to build its portfolio. Policymakers in Argentina can use these results to develop a responsive investment unit to monitor tensions and adapt tax policies to leverage the impact of changes in geopolitical tensions. They may also consider attracting large investors aside from China and the US to mitigate risk of tension fluctuations.

Literature Review

The literature surrounding geopolitical risk and resource markets highlights the intersection of political tensions and resource availability, especially strategic sectors such as lithium. Since Argentina, Bolivia, and Chile all have widely contrasting mineral extraction policies, much of the literature focuses on comparing the efficacy of state owned vs private approaches. The literature suggests that Argentina has the most liberalized and fluctuating lithium sector, making it an interesting case study to analyze the impact of geopolitical changes on FDI. Several authors have also explored the relationship between US-China tensions and oil prices, lithium prices, and renewable investments; however, there is a clear gap when it comes to studying the impact of geopolitical tensions on lithium investments in Latin America. Overall, the literature has helped me develop my hypothesis that FDI into strategic minerals will be impacted positively by increased US-China Argentina due to what it suggests about political history, the US-China rivalry, and strategic resource markets.

Geopolitical Risk and Resource Markets: Extractive vs Local-Use

Recent research has highlighted the complex relationship between geopolitical risks and resource markets. Mignon (2024) investigates the impact of US-China political relationships on oil prices. The authors used monthly data from 2000-2009 for a structural vector autoregression to examine the response of oil prices to Political Risk

Insurance (PRI) and Geopolitical Risk Index (GPR). The analysis found that positive PRI shocks (lower US-China risk) increase oil prices after 13 months, lasting about 10 months, while positive GPR shocks (higher risk) increase oil prices after 8 months, lasting about 18 months. The results were robust to alternative measures of oil demand and political risk as well [3]. This increase in oil prices, another strategic resource, may increase global interest to explore and extract, which is what my paper will explore for lithium.

Jung (2024) uses a dynamic compositional approach to analyze data on firm-level greenfield foreign direct investment. The author argues that increased US-China trade tensions cause U.S. companies to strengthen their supply chains and capitalize on market share growth throughout the world, especially in manufacturing and strategic resources. They find that the shock resulting from US-China trade disputes results in a statistically significant increase of 12% in US firms' market share in manufacturing sectors of Southeast Asia, persisting in the long run as well. Furthermore, these gains do not come at the cost of Chinese market share in the region, further suggesting that increased tensions cause an increase in strategic FDI. With the strategic importance of lithium for the energy transition, I expect to find similar results for strategic metals FDI in Argentina[4].

Flouros (2022) focuses on the role of geopolitical risk as a determinant of renewable energy investments. The author used an autoregressive distributed lag model with heterogeneous effects across economies to suggest that geopolitical risk has a significantly measurable impact on green investments in both the short and long run. Fluoros uses panel data for 171 countries from 1980-2018 for energy investments and the Caldera and Iacovello GPR index to measure geopolitical risk. The research revealed that GPR has a negative and statistically significant effect on renewable energy investment. The effect appears to be stronger for countries with higher levels of

[3] Mignon, V., & Saadaoui, J. (2024). How do political tensions and geopolitical risks impact oil prices? Energy Economics, 129, 106799. https://doi.org/10.1016/j.eneco.2023.106799
[4] Jung, Y. (2024) Winners and losers in the U.S.-China trade disputes: A dynamic compositional analysis of foreign direct investment. Social Science Quarterly, vol. 105, Iss. 4, 980-995.

renewable energy investment. Overall, the existing literature on geopolitical risk and resource markets suggests that heightened tensions or perceived risk leads to a decrease in capital flow [5]. Since renewable energy is not an extractive resource that will be exported to foreign countries for strategic purposes, these results contrast well with my hypothesis that strategic resource investment patterns have other uniquely influential factors.

Resource Nationalism and Institutional History: Why Argentina?

Institutional analysis of mineral extraction policy and nationalism in the lithium triangle reveals how historical and political contexts shape current lithium policies. Johnson (2024) uses a comparative case study approach to show how Chile, Argentina, and Bolivia have pursued resource nationalism in their lithium sectors. Johnson discusses how Chile's national lithium strategy introduced in 2023 gives state-owned firm CODELCO and ENAMI greater rights to lithium projects. He argues that an institutional legacy from the Pinochet era protected certain state interests over time, leading to a corporatist model of export-led development that is especially sensitive to social mobilization within Chile. Argentina's policy is characterized by a liberal orientation with minimal state intervention. Johnson notes that the institutional legacy of the 1990s neoliberal reforms fragmented control between federal and provincial levels, with current president Milei planning to further liberalize the industry.

The most ambitious nationalization attempt occurred in Bolivia with its formation of the state-owned YLB created in 2017. Bolivia's approach reflects its history of social mobilization and resistance to privatization in the late 20th century. YLB has faced intense challenges in implementation and lags far behind the more developed industries of Argentina and Chile. Overall, Johnson highlights the importance of understanding historical and institutional contexts, displaying the widely differing investing landscapes throughout the Lithium Triangle [6]. Contrasting the industries and political institutions

[5] Flouros, F., Pistikou, V., & Plakandaras, V. (2022). Geopolitical risk as a determinant of renewable energy investments. Energies, 15(4), 1498. https://doi.org/10.3390/en15041498

[6] Mignon, V., & Saadaoui, J. (2024). How do political tensions and geopolitical risks impact oil prices? Energy Economics, 129, 106799.

between countries in the Lithium Triangle allows me to narrow my scope to Argentina since it has the most liberalized mining policy that may drive fluctuations in FDI as geopolitical tensions change.

China's Strategic Approach to Critical Minerals

Pitron (2022) highlights China's dominance in rare and critical metals needed for green technologies. In his Washington Quarterly paper titled *The Geopolitics of the Rare-Metals Race*, Pitron argues that China has leveraged its production advantage to dominate manufacturing of green technologies like solar panels, wind turbines, and EV batteries. He explains how western countries abandoned production due to environmental concerns, relocating polluting industries to China. This context is critical to lay the foundation for the strategic importance of Argentina's lithium reserves and the motivations behind US and Chinese investment patterns [7].

China's approach to securing lithium resources in Argentina has been characterized by significant investments and a long-term strategic outlook. Between 2020 and 2023, Chinese Companies invested $3.2 billion in mining projects in Argentina, including seven lithium projects – almost double the investment from US companies. Chinese firms like Ganfeng Lithium and Tsingshan Holding Group have made substantial investments in Argentina's lithium industry, demonstrating China's commitment to securing a stable supply of the critical resource [8].

US Strategy and Market Dynamics

The global lithium market has experienced significant volatility, with prices dropping by more than 80% in 2023. This price volatility has led to divergent responses from the United States and China. In a 2024 article for the Institute for Security & Development Policy, Gustavo Cardozo argues that Milei's libertarian policies of deregulation and privatization align Argentina more closely with the United States. The US has intensified

[7] Pitron, G. (2022). The Geopolitics of the Rare Metals Race Orbis. The Washington Quarterly. 35, 136-150.
[8] Barrera, P. (2024, February 7). Milei's RIGI program provides big incentives for Argentine mining. S&P Global Market Intelligence.

its efforts to secure access to Argentina's lithium resources in response to China's growing influence. Nevertheless, Chinese firms are less sensitive to price fluctuations due to their longer-term strategic approach. He claims that US firms such as Albemarle discount future cash flow at a greater rate compared to Chinese companies like Ganfeng since the Chinese firms tend to operate across the entire lithium production chain. The lack of vertical integration makes US companies more vulnerable to volatile markets, potentially causing them to pass on potential investments at a higher rate [9]. The current US disadvantage explored by these papers leads me further to believe that as tensions rise, demand for strategic investment from the US will rise.

This Project's Addition to the Field

President Milei's proposed Large Investment Incentive Regime (RIGI) could significantly accelerate the future of lithium investments in Argentina. The program offers substantial tax benefits and regulatory stability for large-scale mining projects, which could attract more foreign investment. However, given Argentina's tendency to fall back on populist Peronist policies, the long-term stability of Milei's reforms remains uncertain. Therefore, the evolving dynamics of US-China competition in Argentina's lithium sector have broader implications for global resource markets and energy transition strategies.

Given the current literature discussed, my research will help fill several gaps. Most notably, I hope to provide the first quantitative analysis of the impact of geopolitical risk on lithium investment flows. While many studies discuss how geopolitical tensions impact overall investment in renewable energy or commodities such as oil, no research exists that attempts to analyze the impact of geopolitical relations on the lithium industry in Latin America. Some studies provide qualitative evidence of how geopolitical tensions impact investment flows, but this paper will be the first to contribute quantitative evidence. This will contribute to a more robust understanding of the relationship

[9] Cardozo, G. (2024). The geopolitics of lithium in South America: Argentina's role in the global energy transition. Institute for Security and Development Policy

between geopolitical risk and resource investments. Furthermore, while much of the existing literature focuses on the broader “Lithium Triangle” or global trends, my study specifically examines Argentina. This targeted approach will provide valuable insights into the unique dynamics of Argentina’s lithium sector and how its recent liberalization of the industry has impacted investments and exports. By addressing these gaps, my research will provide valuable insights for policymakers in Argentina and other resource-rich countries, as well as for investors and firms in the lithium supply chain.

Data Description

Data Availability

I have selected to use the Geopolitical Risk Index (GPR) between the US and China developed by John Rogers and published through S&P Global Market Intelligence. The metric tracks related coverage in leading US and Chinese newspapers. The index is constructed by computing the share of articles discussing rising US-China tensions, declining bilateral relationships, and phrases indicating tension. The data is calculated monthly from 1995-2024.

I use data from the Gerencia de Estadisticas del Sector Externo (Argentina’s Central Bank Data) to track foreign direct investment into strategic metals in Argentina. The key variables are total capital participation, total capital participation in strategic mining, total M&A transactions strategic mining, and total M&A transaction. I also leverage data from the Energy Information Administration on electric vehicle sales and commodity prices to properly control for outside effects.

Descriptive Data

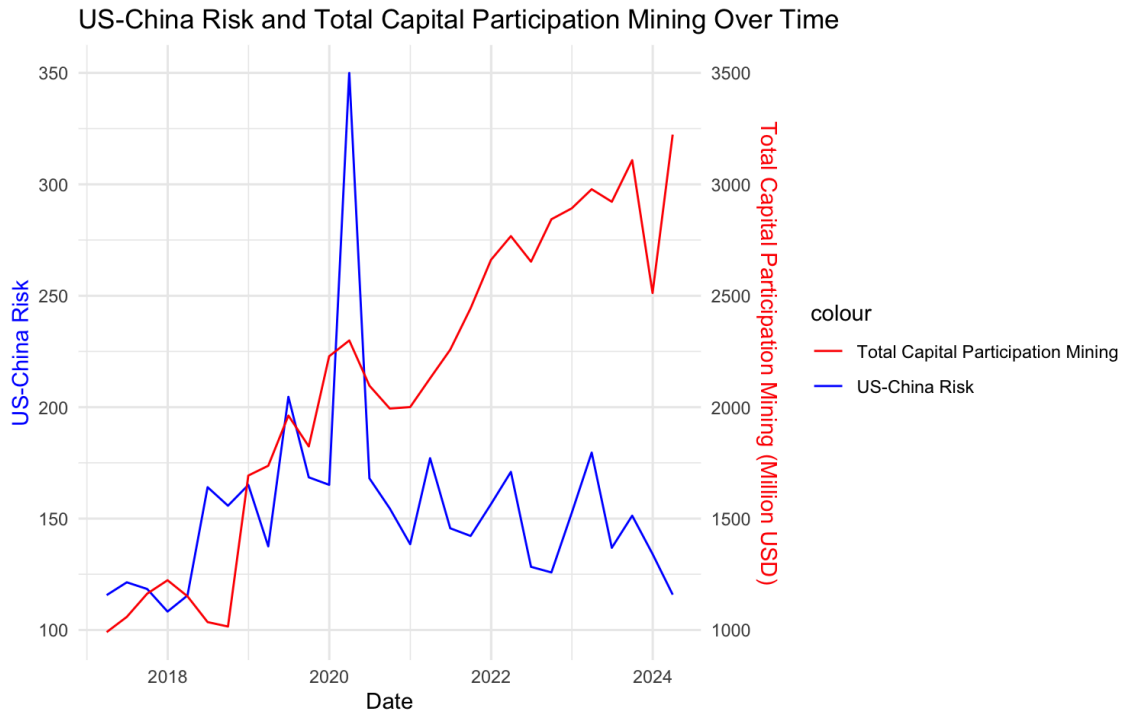

Figure 1 – US-China Risks and Total FDI in Mining

Figure 1 shows the general trend between US-China Risk and Foreign Capital Participation in strategic minerals in Argentina. From 2017-2020 there appears to be a positive correlation, but the major spike (US-China trade tensions due to Trump's 2020 trade war with China), seems to decrease investment in the short run, but followed by steady increases in the long run. This leads me to question whether the impact of US-China trade tensions on FDI might be delayed, especially considering that investment decisions are made several months or even years in advance.

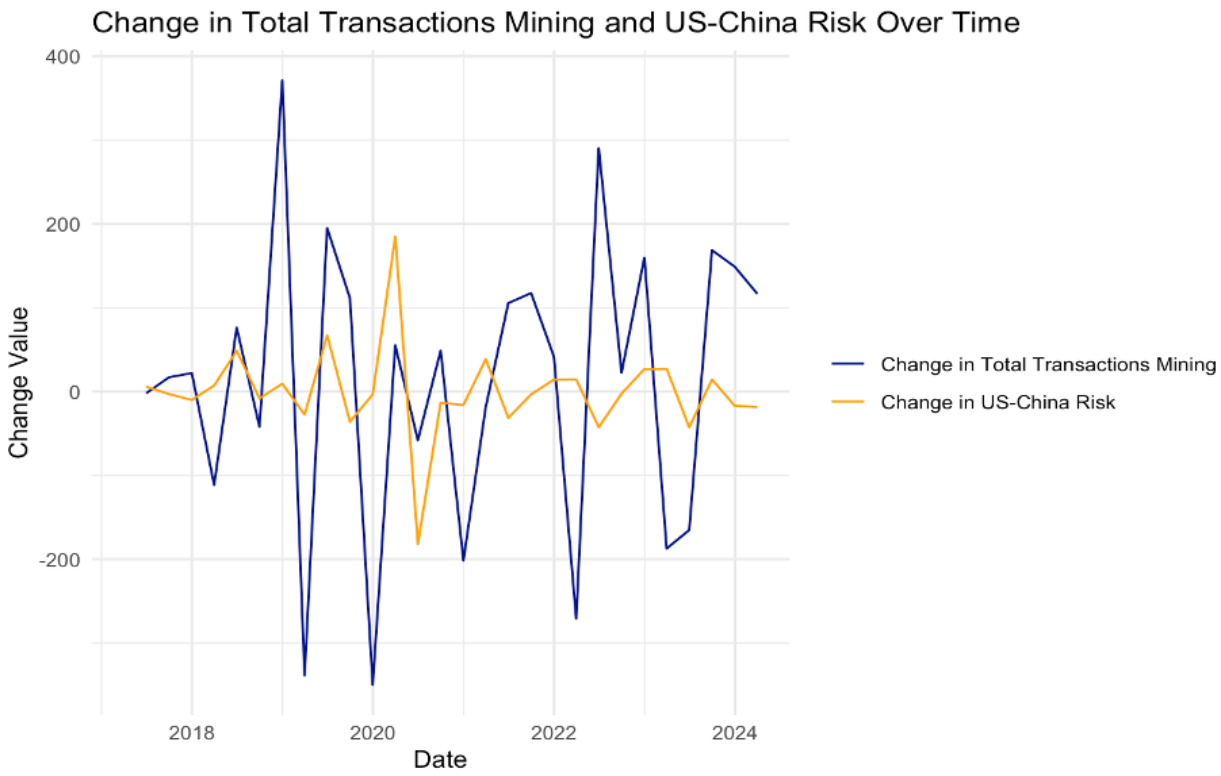

Figure 2 – ΔTotal M&A Mining and ΔUS-China Risk over time

Figure 2 compares the change in US-China risk with the change in Total Mining Transactions from the previous corner. Both variables fluctuate heavily throughout the time period with no clear correlation between the two. In my analysis, I explore any correlation between the two while also including the lag from investment decisions.

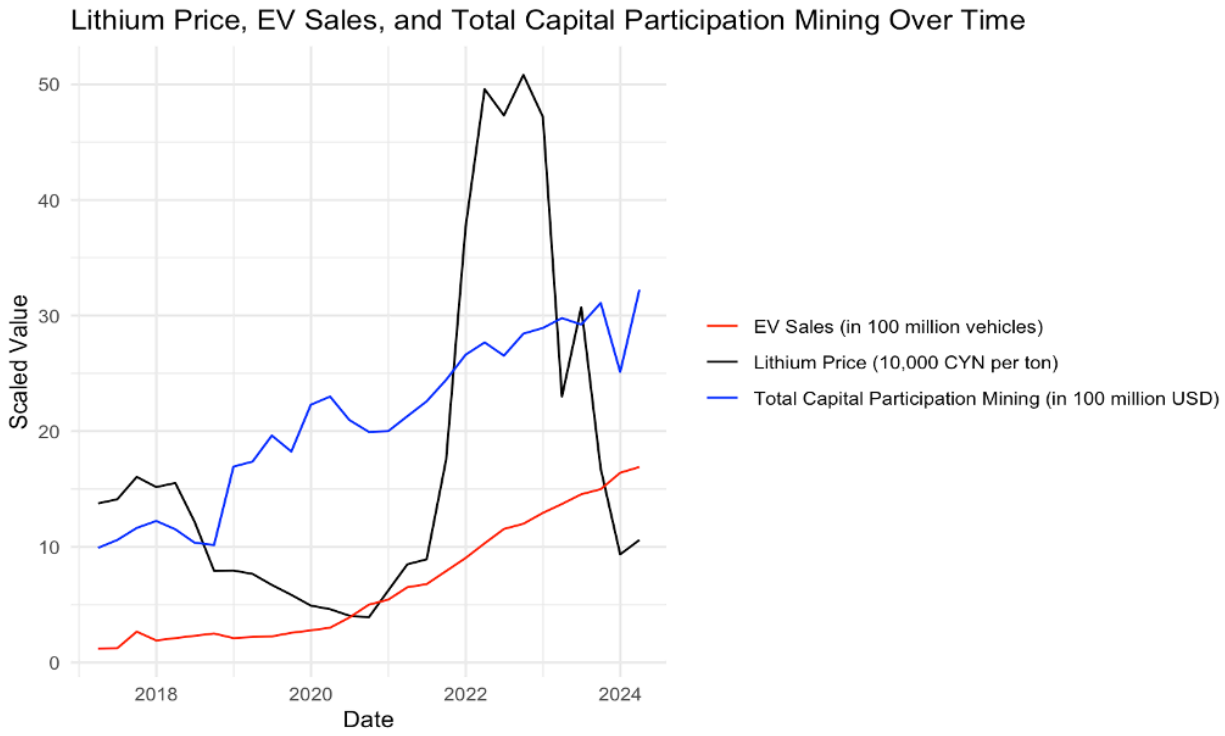

Figure 3 – Controls and Total FDI over time

Finally, I compare the trends between Total Capital Participation in mining to my major controls in Figure 3, Electric Vehicle Sales and Lithium prices. While EV Sales appear to be positively correlated with Capital Participation, Lithium Price seems to have no obvious effect. Since much of the demand for lithium is driven by expected demand for electric vehicles, it's vital to control for this in my analysis.

Empirical Findings: Regressions

Simple Regression Results for Mining FDI

$$Percent\ Change\ Total\ Capital\ Participation\ Mining = \beta 0 + \beta 1 \cdot Percent\ Change\ USChina\ Risk + \beta 2 \cdot Percent\ Change\ Lithium\ Price + \beta 3 \cdot Percent\ Change\ EV\ Sales + \beta 4 \cdot Percent\ Change\ Total\ Transactions + \epsilon$$

The first model analyzes the relationship between various independent variables and the percent change in total capital participation in mining. The results indicate that none of these factors have a statistically significant effect, meaning that geopolitical tensions and market dynamics do not directly drive short-term shifts in mining investments. Although percent change in US-China risk has a positive relationship with the change in

mining FDI, the results are far from conclusive (p = .663). Full results are shown in figure 4 below.

```
lm(formula = `Percent Change Total Capital Participation Mining` ~
    `Percent Change US-China Risk` + `Percent Change Lithium Price` +
        `Percent Change EV Sales` + `Percent Change Total Transactions`,
    data = FinalData)

Residuals:
    Min      1Q  Median      3Q     Max
-20.705  -7.855  -3.297   0.606  58.030

Coefficients:
                                  Estimate Std. Error t value Pr(>|t|)
(Intercept)                       6.428982   3.448781   1.864   0.0751 .
`Percent Change US-China Risk`    0.046003   0.104191   0.442   0.6630
`Percent Change Lithium Price`    0.072401   0.082095   0.882   0.3869
`Percent Change EV Sales`        -0.121381   0.133928  -0.906   0.3742
`Percent Change Total Transactions` -0.001249   0.002631  -0.475   0.6395
```

Figure 4 – Simple Regression Results

Lagged Regression for Mining FDI

$$Percent\ Change\ Total\ Capital\ Participation\ Mining = \beta 0 + \beta 1 \cdot Percent\ Change\ USChina\ Risk\ Lag2 + \beta 2 \cdot Percent\ Change\ Lithium\ PriceLag2 + \beta 3 \cdot Percent\ Change\ EV\ SalesLag2 + \beta 4 \cdot Percent\ Change\ Total\ TransactionsLag2 + \epsilon$$

The second model introduces lagged variables (6 month lag) to account for the delayed effect of geopolitical risk and market conditions on mining investment divisions. The estimate for Lagged Percent Change in US-China Risk increases to 0.149 and is close to statistical significance, reflecting that tensions between the US and China might lead to increased mining FDI with some delay. While not yet significant, this positive trend is meaningful in the context of long-term investment strategies where geopolitical tensions can shape investor behavior between two competing nations. The lagged Lithium Price coefficient becomes negative (-0.095) with a p-value of 0.280, suggesting that price decreases might lower mining FDI in the short run. This reflects that falling lithium prices reduce profit margins, particularly for less vertically integrated firms, deterring

immediate investment. The full results are shown below in figure 5.

```
Call:
lm(formula = `Percent Change Total Capital Participation Mining` ~
    `Percent Change US-China Risk Lag2` + `Percent Change Lithium Price Lag2` +
        `Percent Change EV Sales Lag2` + `Percent Change Total Transactions Lag2`,
    data = FinalData)

Residuals:
    Min      1Q  Median      3Q     Max
-27.085  -7.181   0.035   5.808  53.545

Coefficients:
                                        Estimate Std. Error t value Pr(>|t|)
(Intercept)                            5.1840091  3.6394622   1.424    0.169
`Percent Change US-China Risk Lag2`    0.1490203  0.1062633   1.402    0.175
`Percent Change Lithium Price Lag2`   -0.0947876  0.0855625  -1.108    0.280
`Percent Change EV Sales Lag2`        -0.0331548  0.1350129  -0.246    0.808
`Percent Change Total Transactions Lag2`  0.0003758  0.0026498   0.142    0.889
```

Figure 5 – Lagged regression results

Empirical Findings: Difference-in-Differences (DiD)

$$Mining\_Indexi = \beta 0 + \beta 1 \cdot Treatmenti + \beta 2 \cdot Postt + \beta 3 \cdot (Treatmenti \times Postt) + \beta 4 \cdot Lithium\_Pricet + \beta 5 \cdot EV\_Salest + \epsilon i, t$$

Context

As shown in figure 6 below escalating trade tensions between the US and China led to a major spike in the Geopolitical Risk Index. Increased trade barriers and tariffs prompted both nations to seek alternative sources for essential resources, such as lithium. Argentina became a focal point for such investments, which is why I choose 2020 as the cutoff and Argentina as the nation to analyze. The DiD method allows us to estimate the causal effect of the spike in US-China tensions on FDI in Argentina's lithium mining sector by comparing changes over time between a treatment group (the strategic metals sector) and a control group (non-strategic sectors not directly impacted by the trade war).

Parallel Trends Assumption

Before starting the analysis, I first test the parallel trends assumption, a critical component of DiD. This assumption holds that, in absence of the trade war, the treatment group (mining sector) and control group (other FDI) would have followed similar trends in foreign capital participation.

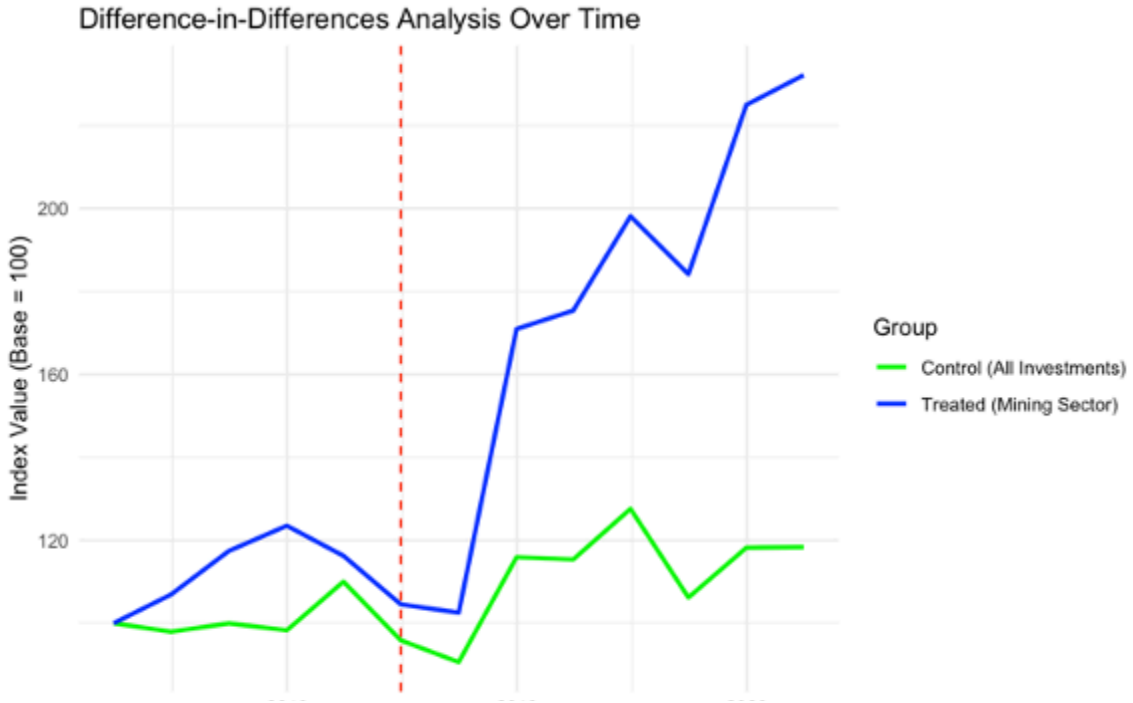

Figure 6 – Parallel trends assumption (2018-2024)

From the graph in pre-2020, both groups show similar patterns, with no sharp divergences in their trajectories. Post-2020, a noticeable divergence emerges, where FDI in the mining sector sharply increases, aligning with the onset of the US-China trade tensions during the trade war. This divergence supports the hypothesis that heightened US-China tensions had a causal impact on strategic mining FDI.

Model Description

In this model, Mining_Index is the independent variable, which measures capital participation in the mining sector for the treated group (i). Total Capital Participation Mining and Capital Participation Control were normalized to create index values such that $Normalized\,Value = (OriginalValue\,/\,Value\,at\,First\,Date) \times 100$. The purpose of

this is to compare the trends in the two series on the same scale even if the original values had different magnitudes. The *Treatment* is a binary indicator variable denoting whether the observation belongs to the treated group (mining sector) or the control group (all other FDI). *Post* is a binary indicator variable denoting the post-intervention period. *Treatment x Post* is the interaction term that we use to see the impact of the major spike in US-China tensions on strategic mineral FDI vs non-strategic FDI. The model also controls for changes in Lithium Prices and EV Sales.

Results

```
Call:
lm(formula = IndexValue ~ Treatment * Post + `Lithium Price` +
    `EV Sales`, data = FinalData_long_2020)

Residuals:
    Min      1Q  Median      3Q     Max
-73.684  -8.691   1.482  13.159  33.002

Coefficients:
                 Estimate Std. Error t value Pr(>|t|)
(Intercept)      1.653e+02  5.808e+01   2.846  0.00998 **
Treatment        1.109e+01  1.322e+01   0.839  0.41139
Post            -3.673e+01  3.025e+01  -1.214  0.23880
`Lithium Price` -5.610e-04  3.491e-04  -1.607  0.12369
`EV Sales`       8.515e+00  1.068e+01   0.797  0.43462
Treatment:Post   5.978e+01  1.801e+01   3.319  0.00343 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 22.9 on 20 degrees of freedom
Multiple R-squared:  0.7514,    Adjusted R-squared:  0.6893
F-statistic: 12.09 on 5 and 20 DF,  p-value: 1.74e-05
```

Figure 7 – Diff-in-Diff Results

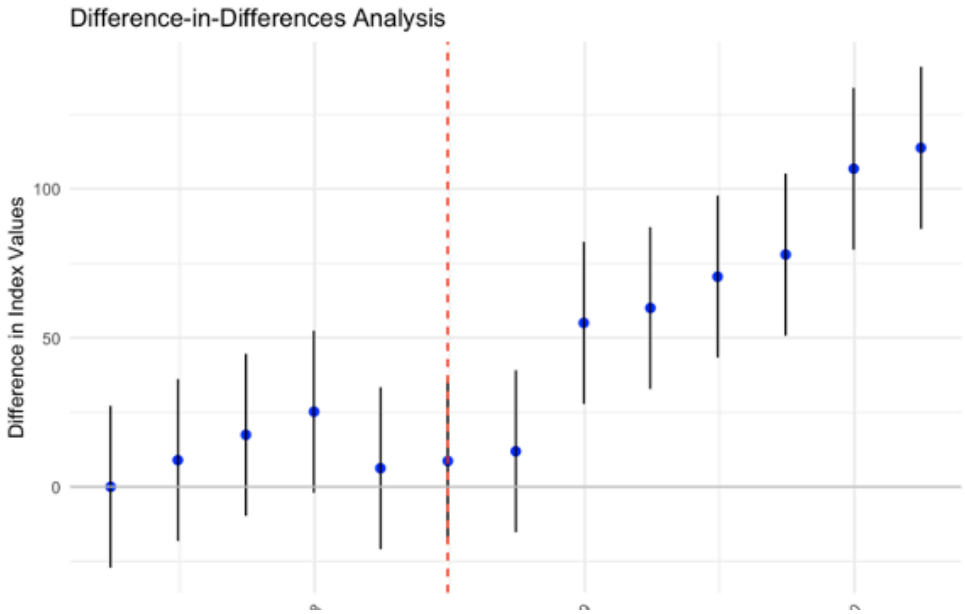

Figure 8 – Diff-in-Diff Graph (2018-2024)

My analysis finds an interaction term of 59.78 revealing that the spike in US-China tensions led to a substantial increase in FDI in the strategic mining sector. This result is highly significant ($p = 0.0034$), indicating a 59.78% relative increase in FDI in the mining sector post-2020 compared to the control group. This strongly supports the hypothesis that the trade war catalyzed investment in Argentina's lithium sector, as both the United States and China sought to secure critical resources. Lithium Price and EV both have insignificant coefficients, suggesting that broader geopolitical forces, rather than market conditions, were the primary drivers of FDI during this period.

Limitations and Weaknesses

The most prominent limitation in this study is the lack of granularity in the available data on foreign direct investment into Argentina's lithium sector. Specifically, the data does not distinguish between strategic metals investments from the US and China. While Argentina's liberalized lithium sector provides an important case study for the relationship between geopolitical risk and investment, these findings are not easily generalizable to other countries in the region such as Bolivia and Chile. Future studies should consider conducting cross-country comparisons to identify whether Argentina's investment patterns are unique or part of broader trends throughout the world.

The regression models in this study also lack some variables that could provide an even more comprehensive view of the determinants of mining FDI. Although I control for EV demand as a proxy for general lithium demand and investor sentiment, factors such as an investor risk indicator may provide even more precise information. Risk perception is shaped not only by geopolitical tensions but also domestic factors such as regulation, inflation, and volatility, which are all particularly relevant in Argentina's highly fluctuating economy.

Finally, while the regression models provide valuable insights into the relationship between geopolitical risk and mining FDI, both simple and lagged regressions fail to yield statistically significant results for the key variables. The lack of significance suggests that these factors may not directly influence mining investments in the short term or that the models are unable to capture the complex relationship between geopolitical risk and strategic mining FDI. Variables such as local infrastructure development, investor confidence, or the competitive strategies of multinational corporations likely influence FDI but are not explicitly accounted for in the models. The insignificant results of the initial regressions coupled with potential model specification errors show that future studies need more sophisticated frameworks to effectively capture the determinants of strategic mining FDI.

Policy Implications

Establishing a Strategic Investment Monitoring Unit

Given my results that spikes in US-China risk causes a 59% relative increase in strategic mining compared to all other investments, Argentina could create a centralized agency tasked with monitoring and assessing foreign investments in its lithium sector, particularly those from the United States and China. The unit would integrate data from provincial governments and the private sector to create predictive models for investment trends that can help identify potential risks of sudden investment fluctuations due to changes in geopolitical tensions, lithium prices, or domestic policies. Forecasting investment flows to implement countercyclical policies that stabilize FDI would help

reduce volatility in the mining sector. The agency could also help adjust tax policies in response to geopolitical shifts. Although the agency would incur serious labor and technological costs, Argentina could improve its long term strategy to attract and minimize fluctuations in mining FDI.

Targeted Tax Incentives for Value-Added Lithium Projects

My research shows that US-China geopolitical shocks have driven increased FDI in Argentina's mining lithium sector. However, such extraction-based FDI leaves Argentina vulnerable to economic shocks if tensions ease or if global lithium demand shifts. Targeted incentives for value-added projects would encourage both US and Chinese firms to commit to longer-term investments that embed value creation in Argentina's economy, reducing any dependency on geopolitical dynamics. Argentina could offer a 10-15% reduction in corporate taxes for companies that establish processing plants or manufacturing facilities for lithium-ion batteries. They could also offer exemptions on export tariffs for processed products such as lithium carbonate to encourage the development of processing facilities in Argentina. This would move Argentina up in the global value chain, reducing dependency on raw materials exports and creating higher-value economic outputs. Although these policies may reduce government revenue in the short term or cause companies solely focused on raw material extraction to view added requirements as burdensome, this would protect the economy from volatility in lithium markets driven by changes in US-China and other factors.

Conclusion

Overall, my research explores the significance of US-China geopolitical tensions in shaping foreign direct investment patterns in Argentina's lithium sector. The findings reveal that shocks in geopolitical risks can cause drastic increases in strategic FDI, particularly as both superpowers compete for dominance over critical minerals essential for the global energy transition. However, the lack of granularity in data, the limited geographic focus, and inconclusive initial regression results for key variables highlight the complexity of predicting investment behaviors in a strategic sector. To maximize the benefits of geopolitical competition, Argentina must adopt policies that enhance its

economic resilience, encourage value-added investments, and diversify its investor base.

Future research shoulda address several critical gaps. Expanding the geographic scope to include other Lithium Triangle countries would provide comparative insights into how varying regulatory environments and institutional histories influence FDI. Additionally, distinguishing between market-driven and geopolitical motivations would enable a deeper analysis. Improved modeling techniques that incorporate a way to measure investor risk perception, infrastructure development, and corporate strategies could also refine our understanding of the determinants of mining FDI. By building on these findings, future studies can offer more comprehensive recommendations for policymakers seeking to balance economic opportunity with geopolitical.

Appendix

Data Summary

Metric	Min	Max	Median	Mean
Lithium Price	8600.0	68100.0	15000.0	28024.13793
US-China Risk	108.27	349.95	151.29	154.06172
Total Capital Participation Mining	404.610695	1938.4666	1444.5589	1328.36373
Total FDI Debts Mining	1819.463065	3006.877	2030.693	2165.11349
Total Gross Passive Investment Mining	2492.034374	4932.721	3350.9128	3493.47723
Total Capital Participation USA	12112.899904	18218.6727	14315.1424	15041.44019
Total FDI Debts	5887.558198	10462.748	7649.9987	7681.51846
Total Gross Passive investment USA	18360.658803	28256.7314	21932.2906	22722.95864
Total Capital Participation China	343.421453	2119.9398	874.3658	929.17948
Total FDI Debts China	394.980196	2015.073	938.787	968.79017
Total Gross Passive Investment China	803.491635	4135.0128	1789.596	1897.96966
Net Capital contributions Mining	4.245993	330.6277	21.8097	50.85895
Total Transaction Mining	-108.979684	453.7225	124.6823	150.30464

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