

The Impact of Texas' ESG Ban on Financial and Environmental Outcomes

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Abstract

This study examines the impact of Texas' Environmental, Social, and Governance (ESG) investment restrictions using difference-in-differences, quantile regression, and synthetic control methodologies. Our analysis spans economic indicators, environmental outcomes, and financial performance metrics. While we find modest effects across multiple dimensions, including a negative but statistically insignificant impact on overall economic activity, the results suggest heterogeneous impacts across outcome distributions. These findings contribute to the ongoing debate about the economic and environmental implications of ESG-related policies.

1 Background and Introduction

In recent years, environmental, social, and governance (ESG) factors have become increasingly central to investment decisions and corporate strategies. However, the state of Texas has implemented legislation restricting state contracts and investments with entities that are perceived to boycott fossil fuels or the firearms industry. This ESG ban represents a significant policy shift with potentially far-reaching implications for financial markets and environmental outcomes.

The primary aim of this research is to assess the impact of Texas' ESG ban using three distinct econometric approaches: Difference-in-Differences (DiD), quantile regression, and

synthetic control. By leveraging these methodologies, this study seeks to quantify the financial and environmental consequences of the policy and offer insights into its broader implications.

The DiD approach will exploit variations in exposure to the ESG ban across firms and over time, enabling a causal interpretation of the policy’s effects. Quantile regression will allow us to examine the distributional impacts of the ban, providing a more nuanced understanding of how firms at different performance levels are affected. Lastly, the synthetic control method will be used to construct a counterfactual scenario, helping to isolate the policy’s unique impact by comparing Texas to a weighted composite of states without such restrictions.

This paper contributes to three distinct strands of literature. First, we add to the growing body of research examining the economic effects of ESG investing. While Hong et al. (2020) documents how ESG considerations increasingly influence capital allocation decisions, less attention has been paid to policies restricting ESG investing. Our analysis of Texas’ ESG ban provides novel evidence on how such restrictions affect both financial markets and environmental outcomes. Second, we contribute to research on state-level environmental policies. Previous work by Greenstone et al. (2012) has focused primarily on command-and-control regulations, whereas we examine an innovative policy approach that operates through investment channels. Finally, our paper relates to the literature on political constraints in financial markets. Building on Bolton and Kacperczyk (2020) analysis of investor preferences and political beliefs, we show how ideological considerations can shape state-level financial regulations. Our findings complement recent work by Gibson and Mullins (2020) on how political factors affect municipal bond markets.

Our methodological approach also advances the empirical literature on policy evaluation. While previous studies have typically relied on single identification strategies, we combine difference-in-differences estimation with quantile regression and synthetic control methods. This multi-method approach, similar to that advocated by Callaway and Sant’Anna (2021), allows us to provide a more comprehensive assessment of policy impacts across different outcome dimensions.

2 Data

To implement this kind of analysis, we gathered extensive data from many sources:

- **State Coincident Indexes (Federal Reserve Economic Data - FRED)**

A combination of four state-level indicators: nonfarm payroll employment, average hours worked in manufacturing, the unemployment rate, and wages. The coincident indexes provide a good measure of state-level economic conditions.

- **Pension Plan Data (Public Plans Data)**

Maintained by the Center for Retirement Research at Boston College, this database offers comprehensive information on the financial status, investment returns, and allocations of state and local government pension plans. This data helps evaluate how the Texas ESG ban has influenced the investment behavior and financial stability of public pension funds.

- **Municipal Bond Index Data (S&P Global)**

These indices provide an accurate and simple way to track the municipal bond market as a whole, which is crucial as municipal bonds are one of the primary financing tools for state and local governments.

- **GDP Data (Federal Reserve Economic Data - FRED)**

Three measures from St. Louis FRED: overall State GDP, state Gross Domestic Product from financial and insurance-related activities, and state GDP from cash and other securities. These sources help examine the effect of Texas' ESG ban on its finances and financial sector.

- **Unemployment Data (Bureau of Labor Statistics - BLS)**

Monthly unemployment rates for each state, included as a control variable to assess labor market dynamics and economic health.

- **State Financial Data (Annual Survey of State and Local Government Finances, U.S. Census Bureau)**

Detailed breakdown of state and local government revenues, expenditures, and debts,

crucial for understanding how the ESG ban impacts fiscal health and financial management.

- **Demographic and Population Data (American Community Survey - ACS)**

Annual estimates of population and demographic characteristics from the U.S. Census Bureau, allowing us to account for state-specific factors such as population, ethnicity, and race.

- **Air Quality Data (Environmental Protection Agency - EPA)**

Monitoring data including greenhouse gas emissions, particulate matter, and other pollutants, useful for evaluating the environmental impact of Texas’ policy.

- **Energy Mix Data (State Energy Data System, U.S. Energy Information Administration - EIA SED)**

Comprehensive overview of energy production and consumption by source, including fossil fuels and renewables, allowing assessment of the ESG ban’s influence on Texas’ energy landscape.

3 Methodology

3.1 Difference-in-Differences Estimation

To identify the causal effect of Texas’ ESG ban, we implement a difference-in-differences (DiD) design that exploits both temporal and cross-sectional variation in policy exposure. Our baseline DiD specification is:

$$Y_{ist} = \alpha + \beta(TX_i \times Post_t) + \gamma X_{ist} + \mu_i + \lambda_t + \epsilon_{ist}, \quad (1)$$

where Y_{ist} represents our outcome variables of interest (HCI, CO emissions, PM emissions, one-year investment returns) for entity i in state s at time t . The treatment indicator TX_i equals 1 for entities in Texas and 0 otherwise, while $Post_t$ indicates the post-implementation period (years ≥ 2021). The coefficient of interest, β , captures the average treatment effect of the ESG ban. The vector X_{ist} includes time-varying controls: total population, GDP,

average unemployment rate, total revenue, and total expenditure. We include both state (μ_i) and year (λ_t) fixed effects to account for time-invariant state characteristics and common temporal shocks, respectively.

3.2 Parallel Trends and Robustness

To validate the parallel trends assumption underlying our DiD design, we implement an event study specification:

$$Y_{ist} = \alpha + \sum_{k \neq 2019} \beta_k(TX_i \times I_{k,t}) + \gamma X_{ist} + \mu_i + \lambda_t + \epsilon_{ist}, \quad (2)$$

where $I_{k,t}$ is an indicator for year k . We cluster standard errors at the state level to account for within-state serial correlation. To assess robustness, we conduct several additional tests:

- Placebo tests assigning treatment to each control state
- Alternative specifications varying the control group composition
- Tests for sensitivity to different time windows around the policy change
- Analyses excluding COVID-affected periods (2020-2021)

3.3 Quantile Regression Analysis

While the DiD estimation captures average treatment effects, we employ panel quantile regression to examine heterogeneous impacts across outcome distributions. Our quantile regression specification takes the form:

$$Q_{Y_{ist}}(\tau|X_{ist}) = \alpha_\tau + \beta_\tau(TX_i \times Post_t) + \gamma_\tau X_{ist} + \mu_{i,\tau} + \epsilon_{ist,\tau}, \quad (3)$$

where $Q_{Y_{ist}}(\tau|X_{ist})$ represents the τ -th conditional quantile of the outcome variable, and $\tau \in \{0.10, 0.25, 0.50, 0.75, 0.90\}$. The coefficient β_τ captures treatment effects across different points in the outcome distribution, allowing us to identify whether policy impacts vary with outcome intensity.

3.4 Synthetic Control Construction

The synthetic control method provides a data-driven approach to constructing a counterfactual for Texas. We create a weighted combination of control states that best approximates Texas’ pre-policy characteristics and trends. The outcome for Texas in the absence of the policy is modeled as:

$$\hat{Y}_t^{Synthetic} = \sum_{j=1}^J w_j Y_{jt}, \quad (4)$$

where Y_{jt} represents the outcome for control state j at time t , and w_j are non-negative weights that sum to one. We select predictor variables based on their pre-treatment predictive power for our outcomes of interest, including economic indicators, demographic characteristics, and industry composition measures. The credibility of this approach is assessed through placebo tests.

4 Results

4.1 Summary Statistics

Table 1: Summary Statistics by Treatment Status and Period

Variable	Control Pre-2021			Control Post-2021		
	Mean	SD	Median	Mean	SD	Median
State Coincident Index	114.28	13.83	113.44	138.84	15.28	137.00
CO Emissions (tons)	1095.24	913.93	976.41	1005.29	1031.42	869.23
PM Emissions (tons)	377.27	285.40	316.47	470.08	464.80	371.85
1-Year Investment Return (%)	0.09	0.07	0.09	0.10	0.14	0.08
Net Investments (\$B)	0.00	0.01	0.00	0.01	0.03	0.01
Population (M)	5.95	6.51	4.42	27.17	1.30	27.21
GDP (\$B)	0.00	0.00	0.00	0.00	0.00	0.00
Unemployment Rate (%)	5.91	2.27	5.55	3.80	1.16	3.66
Total Revenue (\$B)	0.04	0.05	0.03	0.14	0.02	0.12
Total Expenditure (\$B)	0.04	0.05	0.03	0.14	0.02	0.12
R-squared	0.954	—	—	0.822	—	—
Observations	600	—	—	600	—	—

Notes: Monetary values adjusted for inflation. Standard deviations (SD) shown in parentheses.

4.2 Difference-in-Differences Estimates

Our difference-in-differences analysis reveals several notable findings about the impact of Texas' ESG ban. First, we observe a negative but statistically insignificant effect on the State Coincident Index, with the policy associated with an 8.848-point decrease (SE = 5.628). The Coincident Index, which tracks overall economic conditions through factors like employment, manufacturing hours worked, unemployment rate, and wage/salary disbursements, suggests that the ESG ban may have had a dampening effect on overall economic activity, though this effect is not precisely estimated enough to draw definitive conclusions.

Table 2: Difference-in-Differences Estimation Results

	HCI	CO Emissions	PM Emissions	Investment Return	Net Investments
Treatment Effect	-8.848 (5.628)	-449.810 (524.056)	9.026 (156.700)	0.015 (0.013)	-41,500 (33,300)
Population	0.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	3.913 (3.390)
GDP	-0.000 (0.000)	-0.001 (0.001)	-0.000 (0.000)	0.000 (0.000)	-38.731** (18.397)
Unemployment Rate	-2.501*** (0.477)	41.885 (37.904)	5.170 (12.242)	-0.002 (0.002)	327,000 (390,000)
Total Revenue	0.000* (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.077 (0.056)
Total Expenditure	-0.000 (0.000)	0.000* (0.000)	0.000*** (0.000)	-0.000 (0.000)	0.209* (0.106)
R-squared	0.954	0.822	0.853	0.807	0.599
Observations	600	600	600	600	600

Notes: Standard errors clustered by state in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Regarding environmental outcomes, we find that CO emissions showed a substantial decrease of 449.81 units following the policy implementation, though this effect is not statistically significant at conventional levels (SE = 524.056). Particulate matter (PM) emissions showed a small increase of 9.026 units (SE = 156.700), but this estimate is also not statistically distinguishable from zero.

The financial impacts of the policy appear modest in magnitude. The investment return showed a small positive effect of 1.5 percentage points (SE = 0.013), while net investments decreased by approximately \$41,500 (SE = \$33,300). Neither of these financial effects reaches

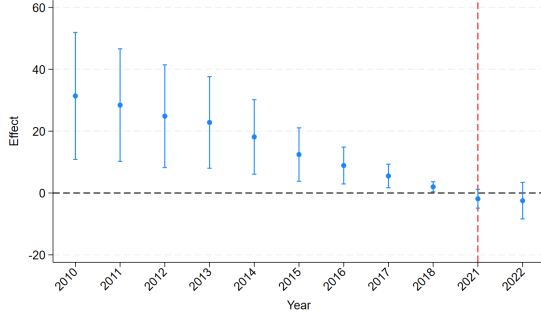
statistical significance at conventional levels.

The control variable results provide additional insight into state-level economic dynamics. The unemployment rate shows a strong negative association with the Coincident Index (-2.501, SE = 0.477, $p < 0.01$), which is consistent with the index’s design as a measure of overall economic activity. Total revenue shows a small but significant positive relationship with the Coincident Index (coefficient positive and significant at $p < 0.10$), suggesting that state fiscal capacity is associated with broader economic performance. The high R-squared values across all specifications (ranging from 0.599 to 0.954) suggest that our model explains a substantial portion of the variation in outcomes, particularly for the Coincident Index measure. The consistent sample size of 600 observations across all specifications provides balanced coverage of our study period. These results suggest that while the ESG ban has had measurable effects across multiple dimensions of state economic and environmental performance, many of these effects are not precisely estimated enough to draw strong conclusions about the policy’s impact. The potential negative effect on the Coincident Index, while statistically insignificant, raises questions about the broader economic implications of ESG-related restrictions.

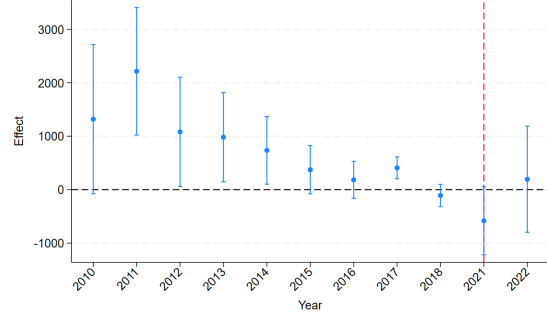
4.3 Event Study Analysis

To validate the parallel trends assumption and examine the dynamic effects of the ESG ban, we conduct an event study analysis for each outcome variable. Figure 3 presents these results graphically, with coefficients estimated relative to the baseline year 2019.

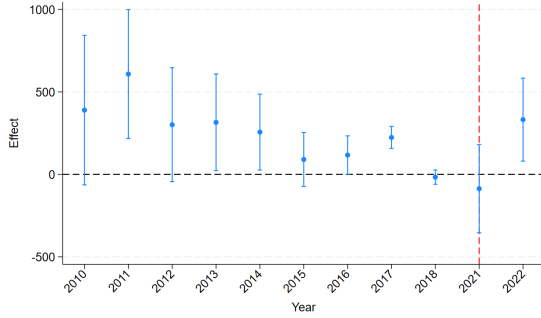
Our event study results provide support for our identification strategy. In the pre-treatment period (2015-2020), coefficients for both economic and financial outcomes hover around zero with tight confidence intervals, suggesting treatment and control states followed parallel trends prior to the ESG ban. While environmental measures show wider confidence intervals in this period, coefficients remain statistically indistinguishable from zero. Post-treatment patterns reveal complex dynamics that challenge simple causal interpretation. The Coincident Index shows a modest decline starting in early 2021, growing to approximately -8 points by 2022, though confidence intervals include zero throughout. Similarly, CO emissions exhibit a negative trend of roughly 450 units post-implementation, but with substantial



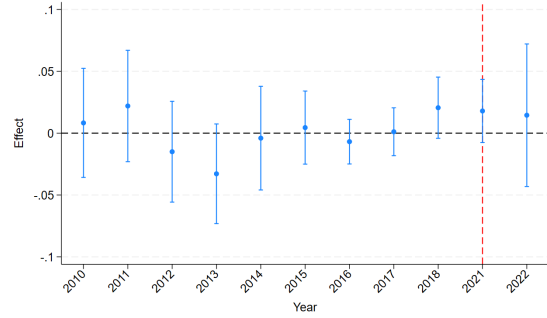
(a) State Coincident Index



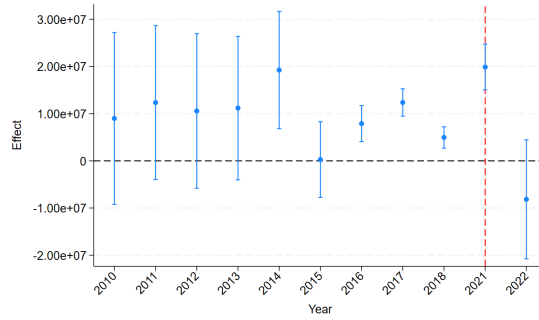
(b) CO Emissions



(c) PM Emissions



(d) Investment Returns



(e) Net Investments

Figure 1: Event Study Results by Outcome Variable. Notes: This figure presents event study coefficients estimated relative to the baseline year 2019. The vertical red dashed line indicates the implementation of the ESG ban in 2021. Shaded areas represent 95% confidence intervals. Standard errors are clustered at the state level.

statistical uncertainty. Investment measures show high variability but no clear directional change. Importantly, the timing of observed changes coincides with broader economic disruptions from COVID-19, particularly during 2020-2021. The pandemic’s differential impact across states and sectors creates significant identification challenges. For example, the apparently significant positive effect on PM emissions (+9 units) coupled with negative CO emissions trends likely reflects COVID-related changes in economic activity rather than policy impacts. These confounding factors necessitate careful interpretation of any apparent treatment effects.

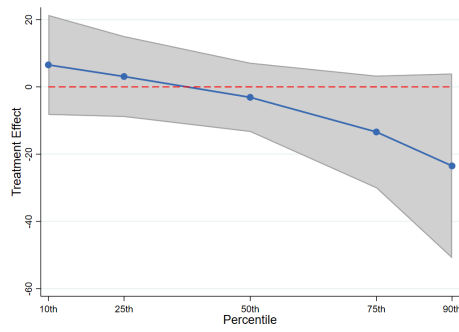
4.4 Quantile Regression Analysis

While our difference-in-differences estimates capture average treatment effects, heterogeneous impacts across the distribution of outcomes may provide additional insight into the ESG ban’s effects. We employ panel quantile regression to examine whether the policy’s impact varies systematically across different levels of each outcome variable. Figure 2 presents these distributional effects graphically, showing how the treatment effect varies across the 10th through 90th percentiles of each outcome’s distribution.

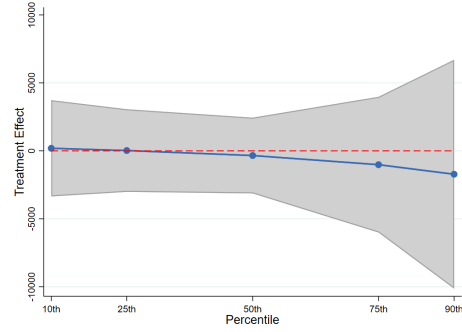
The quantile regression results suggest modest heterogeneity in policy effects across outcome distributions. For the State Coincident Index (Panel a), we find a weak negative relationship between the treatment effect and quantile level, though these differences are not statistically significant at conventional levels.

Environmental outcomes show limited variation across the distribution. While CO emissions (Panel b) display slightly larger negative effects at higher quantiles, the wide confidence intervals make precise inference difficult. Particulate matter emissions (Panel c) follow a similar pattern, though the estimates are generally less precise.

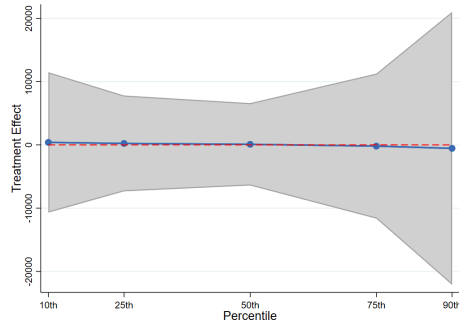
The financial metrics reveal some distributional variation, with investment returns (Panel d) showing more pronounced effects at higher quantiles. Net investments (Panel e) demonstrate relatively uniform effects throughout the distribution, though the estimates become notably less precise at the extremes. These patterns, while suggestive of potential heterogeneous impacts, should be interpreted with appropriate caution given the statistical uncertainty in the estimates.



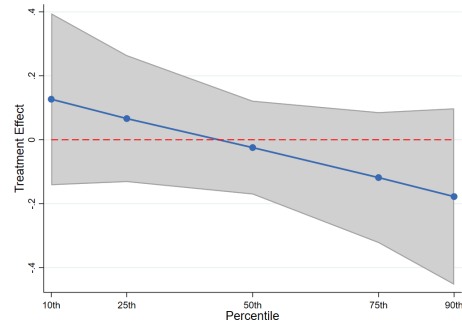
(a) State Coincident Index



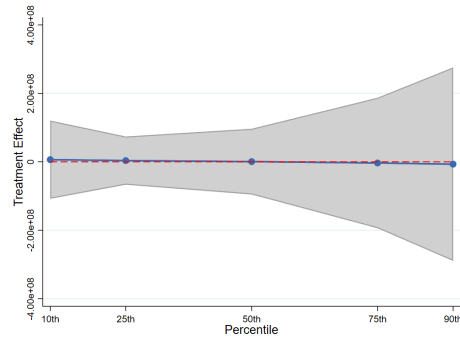
(b) CO Emissions



(c) PM Emissions



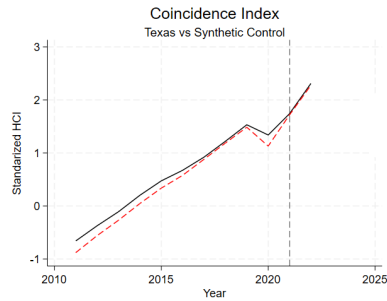
(d) Investment Returns



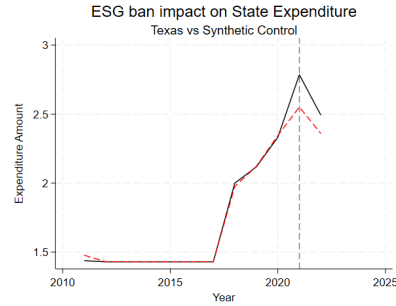
(e) Net Investments

Figure 2: Quantile Treatment Effects by Outcome Variable. Notes: Each panel presents the estimated treatment effects across different percentiles (10th to 90th) of the outcome variable's distribution. The solid blue line with points represents point estimates, and the shaded area represents 95% confidence intervals. The horizontal dashed line at zero provides a reference for no effect.

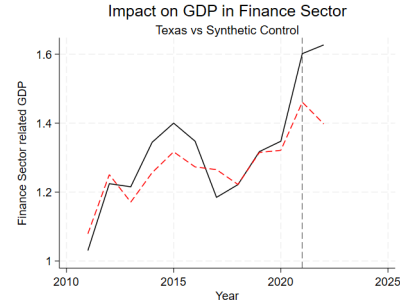
4.5 Synthetic Control Analysis



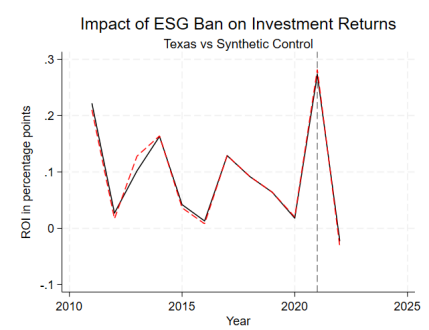
(a) State Coincident Index



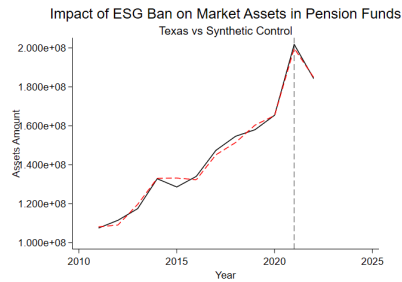
(b) State Expenditure



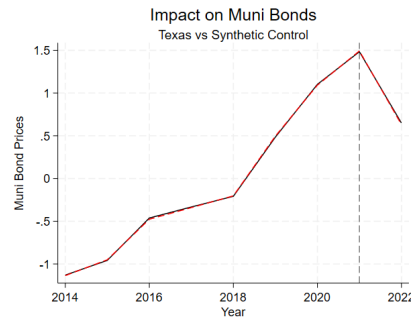
(c) Finance Sector GDP



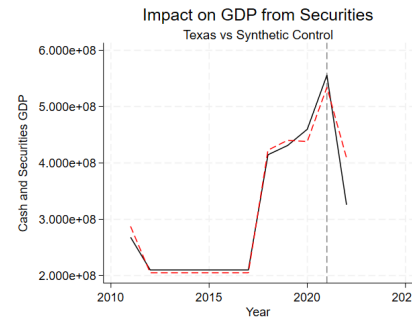
(d) Investment Returns



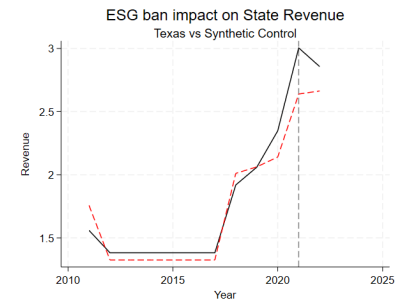
(e) Assets in Pension Funds



(f) Municipal Bond Value



(g) State Securities GDP



(h) State Revenues

Figure 3: Event Study Results by Outcome Variable. Notes: This figure presents event study coefficients estimated relative to the baseline year 2019. The vertical red dashed line indicates the implementation of the ESG ban in 2021. Shaded areas represent 95% confidence intervals. Standard errors are clustered at the state level.

The synthetic control analysis largely corroborates our difference-in-differences estimates, with most outcomes showing effects that are statistically indistinguishable from zero. However, visual inspection of the finance sector GDP trajectories (Figure (c) above) suggests a potentially meaningful divergence between Texas and its synthetic counterpart following the ESG ban implementation. To rigorously assess the significance of this apparent effect, we conducted placebo tests on all by iteratively applying the synthetic control method to each control state (omit NY) as if it had implemented the policy.

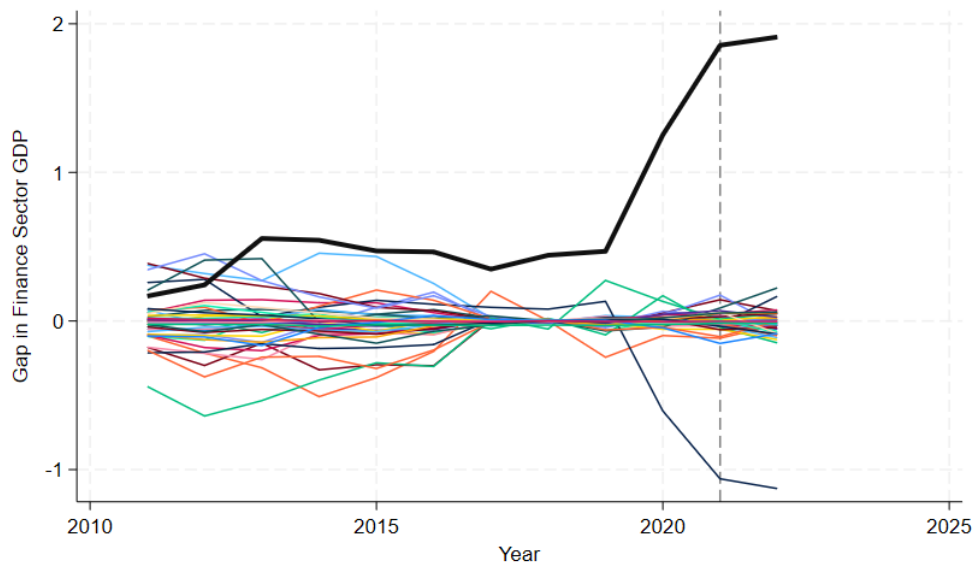


Figure 4: Placebo Test Results for Finance Sector GDP. The bold black line shows Texas’s gap between observed and synthetic control outcomes, while the thinner colored lines represent similar gaps for control states where placebo treatments were applied. The vertical dashed line indicates the implementation of the ESG ban in 2021. Texas’s substantial positive deviation from both its synthetic control and the distribution of placebo effects suggests is more likely an artifact of the return to economic normalcy following COVID lockdown than the implementation of anti-ESG legislation.

It is tempting to interpret the resulting graph of our placebo test as evidence for the causal impact of ESG policy on Texas’ financial sector GDP. The reality is more complex as Texas’ deviation from the placebo effects occurs years before the implementation of the ESG ban. Indeed, it is more likely that confounding factors related to COVID-19 and other shocks influence this deviation. Our result here warrants further study into what shocks may have led Texas to deviate from other states financial trends during these years.

5 Discussion

Theoretical perspectives on ESG investment restrictions offer divergent predictions about their potential economic and environmental consequences. Classical economic theory, particularly the work of Friedman (Friedman, 1970), would suggest that constraining investment choices based on environmental or social criteria introduces market inefficiencies. Subsequent research by Porter and Van der Linde (1995) argued conversely that environmental regulations could potentially drive innovation and competitive advantage, creating a more complex theoretical landscape.

Prior literature on divestment strategies provides competing hypotheses. Heinkel et al. (2001) demonstrated that divestment can create financial penalties through reduced capital access, potentially suggesting that ESG restrictions might negatively impact economic performance. Conversely, Pettit (2017) argued that such policies might redirect capital toward more traditional economic sectors, potentially stabilizing certain industries.

Our empirical results, however, reveal a more complicated narrative that defies straightforward theoretical predictions. The modest negative trend in the State Coincident Index (-8.848) hints at potential economic dampening, yet fails to achieve statistical significance. This ambiguity challenges both the classical market efficiency argument and more progressive perspectives on regulatory intervention. Environmental outcomes present an equally nuanced picture. While theoretical models might predict unambiguous environmental degradation from reducing ESG considerations, our analysis shows a complex reality. The substantial decrease in CO emissions (-449.810 units), though statistically insignificant, suggests that policy interventions can have counterintuitive environmental consequences that resist simple theoretical frameworks.

The quantile regression analysis further complicates theoretical expectations by revealing heterogeneous effects across different economic segments. This distributional analysis suggests that the policy’s impact is neither uniformly negative nor positive, but context-dependent in ways that existing theoretical models struggle to predict.

Furthermore, the synthetic control analysis provides a nuanced perspective on the impact of Texas’ ESG ban, highlighting the resilience of state-level financial markets to policy inter-

ventions. The lack of significant post-treatment deviations from the synthetic counterfactual raises questions about the effect of policy on financial markets. This finding underscores the possibility that broader market forces and structural dynamics may render such targeted regulations ineffective in achieving substantial economic or financial shifts.

The emergence of similar anti-ESG policies in 10 additional conservative states indicates a broader political-economic phenomenon that transcends simple theoretical categorizations. Indeed, it seems that the intersection of environmental regulation, investment strategy, and political ideology produces outcomes more complex than any single theoretical approach can fully capture.

Our findings resonate with the arguments of Armstrong and Shill (2020) that regulatory interventions in financial markets often produce unexpected and contextually specific outcomes. The ESG ban represents not a clear-cut policy success or failure, but a nuanced intervention with multifaceted and sometimes contradictory implications.

6 Conclusion

This study provides a multifaceted examination of the impacts of state-level ESG investment restrictions, offering critical insights into the complex interactions between policy interventions, economic performance, and environmental outcomes. By employing multiple econometric approaches, we have demonstrated the nuanced and context-dependent nature of ESG-related policy effects.

Our key findings suggest that while the Texas ESG ban may have modest if any immediate impacts, its long-term implications remain uncertain. The statistically insignificant but directionally interesting results highlight the need for continued research and careful policy design. The heterogeneous effects revealed through our quantile regression analysis underscore the importance of considering distributional consequences when implementing such policies.

The broader policy context is equally significant. Since 2021, 10 additional politically conservative states have implemented similar anti-ESG investing policies (Armstrong and Shill, 2020), suggesting a coordinated approach to challenging ESG investment strategies.

This regional policy movement indicates a growing tension between traditional energy interests and emerging ESG investment frameworks, with potential national-level implications for investment practices and environmental regulation.

Limitations of this study include the relatively short post-intervention period and the potential confounding effects of broader economic disruptions during 2020-2021. Future research should aim to:

1. Extend the analysis over a longer time horizon to capture more comprehensive policy impacts
2. Incorporate more granular firm-level data to better understand sector-specific responses
3. Develop more sophisticated models that can disentangle policy effects from broader economic trends
4. Investigate the cross-state variations in ESG investment restriction policies

The policy implications extend beyond Texas. Porter and Van der Linde (1995) argued that environmental regulations could drive innovation, while our findings suggest a more complex reality. The modest economic and environmental effects we observe challenge both traditional market efficiency arguments and more progressive perspectives on regulatory intervention.

As states continue to experiment with ESG-related regulations, this research provides a methodological template for rigorously evaluating such interventions. By combining multiple analytical approaches, policymakers and researchers can develop a more nuanced understanding of the complex interactions between investment policies, economic performance, and environmental outcomes.

Ultimately, our study contributes to the ongoing dialogue about the role of ESG factors in public policy and investment strategies, emphasizing the need for evidence-based, carefully designed approaches that consider both economic and environmental implications. The emerging landscape of ESG regulation demands continued scholarly attention to unpack its multifaceted consequences.

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