The Politics of Bank Lending: Empirical Evidence from Brown Borrowers

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Abstract

This study examines the interplay between banks' political connection and lending to brown borrowers. A bank's political connection is captured based on whether a bank is headquartered in the state with a member from the U.S. Senate Banking, Housing and Urban Affairs Committee. Using data from DealScan from 1995-2020, we show that banks headquartered in states with a Banking Committee senator provide cheaper loans to brown borrowers than banks without a Banking Committee senator in their headquarters state. In addition, our results also suggest that the effect of a bank's political connection on the cost of lending to brown borrowers is more pronounced when the senator is liberal rather than conservative or when borrowers, lenders and banking committee senators are in the same states.

Keywords: Syndicated Lending, Politicians, Bank Lending, Green Finance, Climate Change

EFM codes: 150, 550

1. Introduction

Banks have been facing growing calls to scale back their lending to carbon-intensive sectors to tackle global warming. However, banks' engagement in green transitions can be influenced by politicians (Beyoud and Nguyen, 2022; Gelles, 2022). A group of Democratic senators recently sent a letter to the SEC chair asking for all banks to disclose a suite of data on emissions generated by their customers. Also, Republican officials do not support green transitions by warning major financial institutions that they would be prohibited from doing business with the state due to their cessation of lending to coal industries. At the same time, Banks play an essential role in the green transition by extending loans to sustainable and brown businesses. Houston and Shan (2022) find that banks are more inclined to provide loans to borrowers with similar environmental, social, and governance (ESG) profiles, positively impacting the borrowers' subsequent ESG performance. In contrast, Degryse et al. (2022) argue that the banking sector can pose barriers to the green economy as banks are highly exposed to climate-related transitional risks and hold an illiquid position. In this paper, we examine how banks' political capital, i.e., political connections, can influence their lending to firms with climate risk, ultimately influencing green transition.

From the bank's perspective, lending to firms with high climate risk exposure is risky. A recent article in the Financial Times argues that more than 80% of banks agree that climate risks would have a material impact on their risk profiles and strategies (Arnoid, 2022). Climate risks could be categorized into two distinct components: physical risk (flood, sea levels, and extreme temperature) and transitional risk (behavioural or societal changes, technological innovations, shifts in policies and regulations) (Nguyen *et al.*, 2022, 2023; Jung, Santos and Seltzer, 2023). Banks incur financial losses due to climate change in terms of write-downs of asset values caused by shifts in regulatory policies and technological innovations. Hence, climate-related risks materially impact the banks' stability and performance, posing concerns

to banks' lending to brown firms. However, the question of whether banks with political connections can mitigate these concerns remains an unexamined area.

Prior studies document that banks with political connections can receive favourable treatment. For example, in the allocation of government funds, Paletta and Enrich (2009) show that powerful politicians support banks in financial crises by directing millions of federal funds toward their home states. Kostovetsky (2015) shows that banks with political connections take more risks, with anticipation of being bailed out when they face financial difficulties. Surprisingly, the current literature has paid little attention to how political connections influence banks' lending to brown firms. This study fills this gap by examining the impact of banks' political connections on firms with poor environmental performance. In this paper, we argue that banks with political connections (or political capital) can take more risk by lending to brown firms or firms with poor environmental performance as they would expect to be saved or bailed out.

We measure the political connections regarding whether banks are headquartered in states with the U.S. Senate Committee on Banking, Housing and Urban Affairs (BC hereafter). The BC senators can play a vital role in regulating financial institutions (Weingast and Morgan, 1983; McCubbins and Schwartz, 1984; Yue, Zhang and Zhong, 2022). They have the authority to supervise and review the actions of banking regulators by offering suggestions and approving the requests from these bank regulators (Kostovetsky, 2015; Short, 2021; Chu and Zhang, 2022). Faccio, Masulis and McConnell (2006) also show that distressed firms benefit from political connections and receive government bailouts. Similarly, Yue, Zhang and Zhong (2022) find that banks in states with senators on the Senate Banking Committee exhibit higher abnormal loan loss provisions than banks without BC senators. As banks with political connections are taking more risks, we expect that banks headquartered in states with a BC

senator will provide cheaper loans to brown borrowers compared to banks without a BC senator in their headquarters state.

We measure borrowers' climate risk (or environmental performance) using the environmental component of MSCI ESG STATS, formerly known as Kinder, Lydenberg, and Domini (KLD). The MSCI ESG ratings come from one of the preeminent ESG rating providers globally. Prior researchers have commonly used these ratings (Hong and Liskovich, 2016; Flammer, 2015a, 2015b; Cronqvist and Yu, 2017; and Lins et al., 2017). The MSCI ESG STATS database incorporates a comprehensive set of indicators assessing the strengths and concerns of each firm's ESG performance and management. Within the environmental category, these indicators help to identify if the company has the necessary management capabilities to address key ESG risks ("Concern"), such as water stress, toxic emissions, and water management.Additionally, they assess opportunities ("Strength") related to clean technology, renewable energy, and efficient environmental management systems. Here in our study, we focus on the "Concern" of the environmental category. Some researchers previously used the raw number of strengths or concerns within individual categories, but this approach might be problematic as Manescu (2011) mentions that the raw score may not provide a meaningful comparison of firm's ESG performance over the years as the total number or the maximum number of strengths or concerns for a category varies over time. To address this issue, we follow Servaes and Tamayo (2013), Lins et al. (2017) and Cao et al. (2019) to divide the number of concerns within the environmental category for each firm-year by the maximum possible number of concerns in the environmental category for that year to provide consistent comparisons.

For our empirical analysis, we collect loan-level information from the DealScan database that provides loan information such as loan price, size, maturity, type, and purpose,

as well as detailed information related to borrowers and lenders. The accounting information for borrowers comes from the Compustat database[1]. After merging accounting information, BC senator data, and MSCI data to DealScan database, we have 17,985 observations with non-missing information required in our analysis.

As a first step in our empirical investigation, we conduct a preliminary test and examine whether political connections have an impact on the cost of bank debt for our sample of U.S. firms over the period 1995-2020. Our results indicate that politically connected lenders charge lower interest rates for US firms.

Next, we merge our sample of lender-borrower-loan data over the period 1995 to 2020 with available MSCI scores, which yields 17,985 observations, accounting for 9,491 loan tranches for 2,014 borrowers and 326 lenders[2] from 37 states across the U.S. When there is a senator present at bank's headquarter, an average loan of $807 million- and four-years' maturity could receive a 1.57-bps to 3.03-bps decrease in loan spread, which is translated to about $0.51 to $0.98 million reduction of interest expenses. The results are robust for controlling lender-state, time and industry fixed effects, various time-varying firm and loan characteristics, and macroeconomic factors.

Political connections and their impact on firm performance have been extensively studied in the finance literature (Kostovetsky, 2015). Previous research has shown that firms with political connections can benefit from advantages that enhance their value (Fisman, 2001; Faccio, 2006; Faccio, Masulis and Mcconnell, 2006). However, a change in political leadership could weaken established political connections or result in a loss of BC senators, causing

[1] We merge DealScan data to Compustat using the Compustat-DealScan link provided by Chava and Roberts (2008). As this link is only updated to facilities up to 2017, we manually find those new borrowers' gvkey identifiers from Compustat.

[2] Here, lenders refer to the lead lenders in the DealScan loan system. These 326 lenders account for 61 bank-holding companies (BHC). Our untabulated results remain robust when replicating our models on the BHC level.

potential uncertainties. By conducting a stacked event study analysis, this paper exploits the exogenous event of senator turnovers as an external shock to causally examine the potential impact of a bank's political connection on lending to brown firms when the political connection is lost. During the sample period between 1995 and 2020, 49 senator turnovers occurred. For each turnover, we refer to Charles Stewart's website[3] and Google Search to examine the reasons for each turnover case. By following Mehta and Zhao (2020) and Mehta, Srinivasan and Zhao (2020), we identified that out of these turnovers, only 21 cases are considered exogenous, including senators who transferred to other Senate committees or resigned from Congress (Yue, Zhang and Zhong, 2022). Turnover cases, which involve senators from the same state taking the same position, re-election failures, or retirements, are not considered exogenous. By conducting this event study, we found that when a senator is departing at the bank's headquarters, banks charge 2.49-bps higher to brown borrowers. In this case, a loan of $807 million with a four-year maturity would have to pay $0.80 million more in interest expenses.

To conduct a robustness check, we choose an alternative approach, Sautner, Van Lent and Vilkov (2020) climate risk measures that are derived from earning call transcripts via a machine learning algorithm and textual analysis, which is used in Deng et al. (2022) to explore how stocks with different climate risks in response to the Russian-Ukraine War. Also, this measure uses earning calls, which are considered vital corporate events that provide 'soft' information from management to financial analysts regarding material current and future developments (Sautner et al., 2023). This analysis identifies and quantifies climate risk factors associated with opportunity, physical, and regulatory shocks. In our study, we found that politically connected lenders lower the cost of borrowing for companies with higher exposures to physical and regulatory shocks. Our results are further supported by using another alternative

[3] See https://web.mit.edu/17.251/www/data_page.html.

measure of firms' direct greenhouse gas emission data (scope one), as downloaded from Trucost[4]. These measures enhance the reliability and comprehensiveness of analysing the relationship between political connections, climate risks, and lending behaviours.

Next, we explore potential channels that can explain our findings that a relatively lower loan spread is extended to brown borrowers when banks headquartered at states with BC senators. We first discuss if the political ideology of BC senators drives the results and find that the banks that are connected to liberal BC senators tend to charge a lower spread to brown borrowers but the banks that are connected to conservative BC senators do not have this tendency. This result aligns with the risk attitudes observed among people with liberal ideologies that they tend to be riskier (Jiang, Kumar and Law, 2016; Yue, Zhang and Zhong, 2022).

Furthermore, an alternative explanation could be the political connection of borrowers. Previous studies have found that politically connected borrowers obtain cheaper loan rates as banks recognize the borrowers' superior creditworthiness from their connection (Houston et al., 2014; Zhou, 2023). However, this is not the case regarding banks' lending with support from BC senators to brown and politically connected firms.

Next, we consider the proximity of lenders, senators, and borrowers. When the distance between the lender and borrower decreases (Hauswald and Marquez, 2006), the lender's ability to gather information about a borrower is less constrained, hence reducing information asymmetry. Being closer to borrowers, lenders charge a lower loan spread (Knyazeva and Knyazeva, 2012) and loosen covenants (Hollander and Verriest, 2016) on initial contracts to ensure more contingent controls (Murfin, 2012). Our analysis supports the idea that when

[4] Trucost is a commercial entity providing corporate carbon emission data. Bolton and Kacperczyk (2021) and Cohen, Kadach, and Ormazabal (2023) also use this measure.

borrowers and lenders are located in the same states, lenders with political connections charge a relatively lower spread to brown firms than lenders without political connections.

We also consider whether the impact of BC senators could vary depending on their political clout. Levitt and Poterba (1999) state that states with more experienced congresspersons exhibit superior economic growth rates to those with less senior representatives. Other papers also suggest that the seniority of politicians affects enforcement actions for financial misconduct (Mehta et al., 2020) and bank's opacity in financial reporting (Yue, Zhang and Zhong, 2022). In untabulated results, we found no significant result when the BC senator holds the chair position of the US Senate Banking Committee or is a senior chair person.

This study makes several significant contributions to the existing literature that examines the impact of political connections on risk exposure of financial institutions (Kostoevtsky, 2015), regulatory enforcement actions (Lambert, 2018; Mehta and Zhao, 2020; Papadimitri et al., 2021), antitrust review outcomes (Mehta et al., 2020), and financial reporting opacity (Yue, Zhang and Zhong, 2022). Prior studies focus on campaign donations and corporate lobbying efforts (Stratmann, 2005; Claessens et al., 2008; Borisov et al., 2016) or on the outcome of state gubernatorial elections (Delatte et al., 2020; Huang and Thakor, 2022). In this paper, we follow Mehta et al. (2020), Mehta and Zhao (2020), and Yue, Zhang and Zhong (2022) to focus on banks' political connections with politicians at the U.S. congressional committees.

Next, although most of these studies focus on nonfinancial firms (Houston et al., 2014; Zhou, 2023), some recent studies also investigate the impact of political connections on banks' decision-making or performance (Kostoevtsky, 2015; Lambert, 2018; Yue, Zhang and Zhong, 2022). Hence, our findings add to the limited evidence regarding the role of banking committee

senators in influencing banks' decision-making. Previous studies find that banks with political connections are more prone to have more loan-loss provisions (Yue, Zhang and Zhong, 2022), more likely to receive bailouts during difficult times (Paletta and Enrich, 2009), and subject to less regulation and enforcement actions (Gropper et al., 2013; Papadimitri et al., 2021). Unlike prior studies, we focus on the impact of banking committee senators on banks' lending to borrowers with climate risks. We show that politically connected banks charge a lower spread to borrowers with greater climate risks. The politics of bank lending can create challenges for the green transition.

The evidence provided in this paper has policy implications. Politically connected banks charge a lower spread to borrowers with greater climate risks. The evidence about the banks' political influences on their lending to brown firms indicates that current restrictions or supervision placed on local politicians' behaviours are unlikely to be sufficient. Therefore, it warrants more attention to ensure a gradual transition to a greener economy.

2. Literature Review

In this section, we first review the political powers of banks' risk-taking and the importance of borrowers' climate risks in banks' lending practices.

2.1 Politics and Bank's Risk-Taking

Political connections affect risk-taking behaviours by financial institutions in different ways (Kostoevtsky, 2015; Lambert, 2018; Yue, Zhang and Zhong, 2022). Previous research has concentrated on areas such as campaign contributions and corporate lobbying activities (Stratmann, 2005; Claessens et al., 2008; and Borisov et al., 2016), as well as the results of state gubernatorial elections (Delatte et al., 2020 Huang and Thakor, 2022). This paper uses

banking committee membership to measure political connections (Mehta et al., 2020; Mehta and Zhao, 2020; Yue, Zhang and Zhong, 2022).

Banking committee senators in the bank's home state are incentivised to prevent bank failures that could bring negative externalities to the state economy. Liu and Ngo (2014) suggest that the state where the failed bank is likely to suffer the most from the costs associated with bank failures. As such, the BC Senators are incentivised to reduce the chance of bank failure in their home states. Such bank failures could pose severe consequences, including financial losses experienced by uninsured depositors and shareholders, the loss of jobs, and the potential decrease in economic activity. These would affect mainly the state where the failed banks are located and where senators want to avoid them due to career concerns (Barke and Riker, 1982; Costello et al., 2019).

Also, banking committee senators practice forbearance to neglect financial institutions' risk-taking behaviours forbearance when the banks are in trouble or during financial distress. There are several reasons behind regulators' forbearance (Gallemore, 2022). Firstly, regulators may seek to avoid spending resources in intervening banks for an extended period (Eisenbach, Lucca, and Townsend, 2016; Brown and Dinc, 2011). Secondly, they may aim to minimise the resolution costs of fire sales and bankruptcy fees (Brinkmann, Horvitz, and Ying-Lin, 1996; Santomero and Hoffman, 1998; Faccio, 2006; Houston et al., 2014)). Lastly, they may strive to prevent destabilising the targeted banks or exacerbating the bank's problems or failure contagious to other banks (Morrison and White, 2013). These considerations highlight the potential influence of political connections on the risk-taking behaviours of financial institutions, as BC senators advocate forbearance to prevent bank failures and mitigate the associated concerns of adverse impacts on the economy.

In addition to the aligned interests between regulators and senators in practising forbearance, there is a possibility of collusion between politicians, regulators, and banks that results in loosening regulatory supervision over bank risk-taking. This collusion aims to prevent market participants and taxpayers from hindering forbearance measures. Yue, Zhang, and Zhong (2022) highlight that banks with BC senators have greater abnormal loan loss provisions than banks in other states and are less likely to receive enforcement actions. These findings suggest politicians and regulators in states with BC senators act in banks' favour with loosened regulatory oversight. As a result of this lenient regulatory environment and aligned interests among these regulators and politicians, banks in states with BC senators are more inclined to take on more risks to their lending practices. The influence of such political connections and the resulting relaxed regulatory supervision could affect banks' lending to firms with higher climate risks.

Next, banks with political connections could take on more risks since they have the advantages or privileges of receiving governmental funds as the authority wants to mitigate the negative externalities of bank failures and the instability of the state economy (Brown and Dinc, 2005; Faccio et al., 2006; Houston et al., 2014). Financial assistance from the federal government is utilized to support politicians' interests, such as earning voter support, managing election campaigns, and potentially reaping individual rewards from corporate lobbying (Shleifer and Vishny, 1994). Influential senators can direct bailout funds (Paletta and Enrich, 2009) such as the Troubled Asset Relief Programme (TARP) money towards banks during financial distress. This dynamic can incentivise banks to bear excessive risks with the anticipation of government support during financial difficulties. In the same vein, the risk-taking behaviours of financial firms are supported by the idea of moral hazard, which is that the government would bail out financial institutions, encouraging them to take on higher risks.

Hence, banks with political connections tend to be riskier as they believe they have state support and protection.

Alternatively, another stream of literature on political connections and banks' lending practices focuses on how senators' political career concerns can influence their incentives. Senators might have concerns about bank failures in their home states, urging banks to follow safe and solid banking practices and intervene in banks' risky lending activities. In line with these objectives, regulators want to ensure strong banking governance and healthy bank performance in their home state. They closely monitor banks' financial reporting and risk assessment to maintain transparency and promote responsible banking practices. The Officer of the Comptroller red-flagged the action of delayed recognition of loan losses or provisioning timeliness as a sign of poor disclosure quality (OCC, 2001). Those banks that make opaque financial reporting choices, such as delayed loan losses, are found to have stricter regulatory actions and interventions (Nicoletti, 2018; Gallemore, 2022). These highlight that regulatory bodies are vigilant in monitoring banks' reporting practices and make efforts to address poor disclosure quality when observed. With attention to the bank's performance and reporting information, banks, fearing regulatory and enforcement action, would not lend excessively, report imprudently or bear uncontrolled risks.

2.2 Bank Lending and Climate Risk

It is crucial to recognize that climate change can pose a threat to the financial system itself. These financial risks related to climate change are now vital when investors allocate their funds. For instance, accumulating vulnerable assets, such as capital exposed to floods, landslides, or storm surges, can negatively impact insurance companies and result in weakened financial positions for affected businesses and consumers, causing potential losses for lending banks (Huang *et al.*, 2022). Consequently, failing to fulfil financial obligations due to

insolvency can give rise to non-performing loans, commonly known as bad debt, which affects the balance sheets of banks and other financial institutions. Hence, climate-related risks are essential in banks' lending practices.

Recent studies demonstrate a link between banks and their borrowers' ESG performance. It has been argued that financial institutions typically charge a higher loan spread on brown companies, potentially those with greater carbon emissions or stronger reliance on fossil fuels. One study by Jiang, Li and Qian (2023) indicates that banks provide higher loan spreads, increased borrowing costs, shorter loan durations, and require collateral from companies with higher levels of chemical pollution. Firms with higher climate risk tend to have higher loan spreads post-Paris Agreement (Ginglinger and Moreau, 2019; Degryse et al., 2020; Kacperczyk and Peydro, 2021).

By drawing our attention to physical risks, Javadi and Masum (2021) provide evidence of the impact of drought severity at firms' headquarters on the cost of bank loans. The change in climate risks is also crucial in the pricing of mortgage credit (Nguyen et al., 2022), bond returns and stock markets (Engle et al., 2020; Huynh and Xia, 2020), the real estate market (Bernstein, Gustafson and Lewis, 2019), and property damage (Cortés and Strahan, 2017). These studies collectively highlight the significance of climate risk assessment by financial institutions.

Financial institutions are also critical in driving changes for a successful climate transition. The Carbon Disclosure Project (CDP, 2020) and The Good Transition Plan by Climate Safe Lending Network (2021) emphasise the substantial climate impacts that financial institutions can have through their loans, investments, and insurance underwriting activities. The Taskforce for Climate-related Financial Disclosures (TCFD) also recognises the vital part of the financial sector in addressing climate-related risks and urges these financial institutions

to align their portfolios with a net-zero carbon world. Having the power to decarbonize their loan portfolio and cut their financing to carbon-intensive industries, financial sectors' actions aligning their activities with climate goals are instrumental in achieving a sustainable future.

As banks are essential in supporting corporate transition plans, they could enforce emission reduction by reducing their lending to brown firms and increasing support to green firms. According to Kacperczyk and Peydro (2021), banks have been observed to lend to borrowers with similar environmental, social, and governance (ESG) profiles. They can even positively influence firms' future ESG performance using RepRisk data, as noted by Houston and Shan (2021). However, despite several studies suggesting an association between bank lending and climate risk at the individual firm level, the impact of political connections on banks' lending to borrowers with different climate risks remains unexplored. Understanding the influence of banks' political relations on banks' lending decisions and the implications for borrowers is a critical gap that needs to be addressed in the literature.

3. Hypothesis Development

Existing research concerning the correlation between a bank's lending activities and its political connection primarily concentrates on aspects such as the bank's financial performance or risk-behaviours (Yue, Zhang and Zhong, 2022), support from government financial assistance programs like TARP (Brown and Dinc, 2005; Duchin and Sosyura, 2012; Kostovetsky, 2015), or the impact of political connections of borrowers on the bank's lending practices (Faccio, 2006).

From the literature review, there are many possible incentives for banking committee senators to practice forbearance on banks' risk-taking or exert monitoring on banks' lending

practices out of career concerns and worries of bank failure in their home state (Nicoletti, 2018; Yue, Zhang and Zhong, 2022; Gallemore, 2022). Some researchers claim that politically connected financial firms tend to be riskier with the anticipation of government support during financial difficulties. The idea of moral hazard that the government would bail out financial institutions also provides support.

By contrast, some researchers consider the existence of political connections to pose stricter regulations and more supervision on banks' lending practices, prohibiting these banks from being too risky or beyond their socially optimal level in their lending. A priori, it is unclear whether such a political connection at the bank level could affect lenders' preference towards borrowers with different levels of climate risk exposure. Based on the premise that lenders headquartered in states with a banking committee senator take on more risks, these lenders may feel more comfortable taking on additional risks beyond their optimal level, including providing a cheaper loan to brown borrowers, as they anticipate potential assistance from the government in times of difficulty. We state the first hypothesis as follows:

Hypothesis 1: Banks headquartered in states with a Banking Committee senator will offer a cheaper rate to brown borrowers compared to banks without a Banking Committee senator in their headquarters state.

4. Data and Research Design

4.1 Syndicated Loan Data

We obtained syndicated loan data from Thomson Reuters Loan Pricing Corporation, DealScan. Our main study specifically studies loans that originated from 1995 to 2020, considering only loans granted to U.S.-incorporated firms or in the U.S. syndicated loan market. DealScan provides loan information at both facility (equivalently, "tranches") and package

level (equivalently, "deals"). The deal refers to a group of loan tranches given to the same firm at the same time, while each tranche is a loan from the splitting of the deal that is given to the same firm at different times but could involve different lenders. These tranches could be associated with different amounts, maturities, and loan spreads but generally the same covenants[5] (Celil, Julio and Selvam, 2023; Liu *et al.*, 2023).

We follow previous studies in our design to consider only the lead lenders (Hollander and Verriest, 2016; Houston and Shan, 2022). Lead Arrangers or lead lenders are expected to monitor the loans (Holmstrom and Tirole, 1997; Bharath et al., 2009), enforce covenants and negotiate or design the loan contracts (Hollander and Verriest, 2016). To classify lenders as "lead arrangers", we rely on DealScan's "lead_arranger" variable that provides information on the names of lead arrangers.

Next, in LPC's Dealscan database, over 35% of all syndicated loan deals initiated in the 1990s were comprised of multiple tranches (Maskara, 2010), and each tranche could consider more than one lead lender. In our study, each loan tranche between the individual lead lender and the borrower is regarded as a unique observation[6] since we focus on each lead lender's political connection. We manually retrieve lenders' headquarters from the official company website to measure the bank's political connection on whether a BC senator is at each bank's headquarters[7]. If the official website is no longer available due to bank closure or mergers and acquisitions, we manually find it from the Standard and Poor (S&P) Capital IQ, Bloomberg or the FDIC official website[8]. The cost of each loan is measured by the natural logarithm of all-

[5] Covenants are normally defined at the loan package or deal level.
[6] The results are robust when we collapse our data at the syndicate level, where we aggregate loans with multiple lead lenders into one observation (as shown in Section 9.1). This approach was similar to the approach in Hollander and Verriest's paper (2006) in looking at the design of loan contracts and the distance between lead lenders and borrowers
[7] These information are cross-checked with S&P Capital IQ or Bloomberg to ensure consistency.
[8] See https://banks.data.fdic.gov/bankfind-suite/bankfind.

in-spread-drawn[9], denoted as $AISD$ in our study. According to Javadi and Masum (2021), we exclude observations with negative all-in-drawn spreads or a leverage ratio that is more than one.

We also merged loan data with firms' accounting information from Compustat one year before the year of loan origination, using the Compustat-DealScan link provided by Chava and Roberts (2008). Financial and quasi-public firms (SIC code 6000–6999 & 9000–9999) are excluded. As this link is only updated to facilities up to 2017, we manually find those new borrowers' identifiers from Compustat.

4.2 Senators data

The memberships of the Senate Banking Committee are found in the annual volumes of the Official Congressional Directory, including information on each senator's name and home state for each senate committee during each Congress. Our primary sample covers the period of 1995 to 2020, corresponding to the 104th to 117th Congress. For analysis at the individual lead lender level, we use the dummy variable $BankSenator$ that equals one if the loan originated with the lender that has a BC senator at its headquarter in that year-quarter and zero otherwise.

When collapsing all observations within a single tranche that involve different lenders as a unique observation or conducting the analysis at the syndicate level, we use another variable $Senator\_tranche$ to measure the degree of banks' political connections for that specific tranche. $Senator\_tranche$ is computed as the ratio of the number of lead lenders in

9 All-In-Spread-Drawn-bps is an variable in DealScan that is computed as the total annual spread paid over London Interbank Offered Rate (LIBOR).

the tranche that is headquartered in the state with a BC senator to the total number of lead lenders in the tranche in that year-quarter of loan origination date, and zero otherwise.

4.3 Measuring Environmental Risks

Here, we use the specific environmental score component from MSCI ESG Stats to measure environmental risks. The environmental ratings are constructed using the methods following Cao et al. (2019) and Lins et al. (2017). Methodologically, we divide the number of concerns by the total maximum concerns in the environmental category for that year. By doing the computation as equation (1) below, we obtain the adjusted environmental concern index that ranges from 0 to 1 and denotes as $ClimateRisk_{MSCI}$ hereafter. A higher value of $ClimateRisk_{MSCI}$ signals that the borrower i is brown or has more climate risks.

$$ClimateRisk_{MSCI,i,year} = \frac{No.Concerns_i}{No.Concerns\ Category_{year}} \quad (1)$$

4.4 Control Variables

From syndicated loan literature, many regression models control both loan and firm characteristics. Here, we follow prior literature to control the characteristics of the borrowers, Altman-Z score, firm size, market-to-book ratio, debt ratio, profitability, tangibility, firm age, and cash holding (Javadi and Masum, 2021; Saunders and Steffen, 2011; Chava, 2014). We also control several loan characteristics such as tranche amount, maturity, the number of lenders, performance pricing dummy, collateral dummy and loan type and purpose dummies (Bradley and Roberts, 2015; Qian and Strahan, 2007; Chava, 2014; Ross, 2010). Following Graham, Li and Qiu (2008), we also include two macroeconomic variables, *TermSpread* and *CreditSpread,* to control monthly economic conditions in the U.S..

5. Results and Discussions

5.1 Summary Statistics

[Insert Table 1 about here]

The sample summary statistics are presented in Table 1. On average, The mean spread is 189 bps with a standard deviation of 137 bps, while the mean amount for each tranche is 807 million. The tranche has an average maturity of 50 months with a standard deviation of 21. For each tranche, it could consist of an average of 11 lenders. As shown in Panel B, an average firm in our sample has an Altman-Z score of 1.738 with 12.1 billion of firm assets and about 29 years of existence. These firms have a mean environmental concern score of 0.035, with a standard deviation of 0.098. About 67% of observations in our sample are with lenders whose headquartered states have BC senators.

5.2 Baseline Regression Model

Before moving on to the baseline model, we conduct a pre-analysis to test if the risk-taking explanation of banks with political connections holds. The untabulated pre-analysis analysis supports the narrative that politically connected banks are taking more risks than non-politically connected ones[10].

Our baseline regression model will be as below, referring to equation (2):

$$\begin{aligned} AISD_{i,s,t} = \alpha + \beta_1 BankSenator_{s,t} + \beta_2 ClimateRisk_{MSCI,i,t-1} \\ +\beta_3 BankSenator_{s,t} * ClimateRisk_{MSCI,i,t-1} \\ +Firm\ Controls\ + Loan\ Controls + Loan\ Type\ and\ Purposes\ FE \\ +\vartheta_s + \mu_t + \tau_{industry} + \varepsilon_{i,s,t} \end{aligned} \quad (2)$$

Where i indexes firm, s indexes the state of the lead lender's headquarters, t represents the quarter-year of the active date of the tranche. To price the cost of a loan, $AISD_{i,s,t}$ is the natural

[10] The untabulated results are available upon request.

logarithm of All-In-Spread-Drawn in DealScan. $BankSenator_{s,t}$ is a dummy variable equal to one when the bank is headquartered in a state with a BC senator. $ClimateRisk_{MSCI,i,t-1}$ is the climate risk of borrowers one year before the loan's active date, computed using equation (1) as stated in section 4.3.

By adding the interaction term of $BankSenator_{s,t} * ClimateRisk_{MSCI,i,t-1}$ this parameter of interest β_3 will then capture the difference in the loan rate that the borrower receives from a bank with a BC senator in headquarters state compared to a bank without a BC senator in headquarters state for the borrower's climate risk profile. Suppose a bank with a BC senator in the state has charged a cheaper loan rate to brown firms than a bank without a BC senator, the β_3 will be negative. This setup is like a generalised difference-in-difference specification and allows us to interpret the relationship in a regression setting (Huynh et al., 2020; Javadi and Masum, 2021). Also, this regression specification includes the quarter-year, industry, and lender-state fixed effects. The standard errors are clustered in firm levels[11] to control potential correlations in the cost of lending.

[Insert Table 2 about here]

Table 2 shows the regression results for the baseline model, showing that the coefficient for the interactions between *BankSenator* and $ClimateRisk_{MSCI}$ is statistically significant at a 1% level. This suggests that the politically connected financial firms can charge a lower spread to brown firms, which meets our expectation that lenders are likely to take more risks by providing a cheaper loan when they have political connections. Estimation from Column (4) indicates that with the presence of BC senators in the headquarters state of the lead bank for that tranche,

[11] In untabulated analyses, we cluster at firm and tranche levels since one tranche could consider multiple lenders (Petersen, 2009; Hollander and Verriest, 2016). The results are robust.

banks charge a 1.57-bps (exp(0.454)) to 3.03-bps[12] (exp1.107)) cheaper loan spread. When a senator is present at the bank's headquarters, an average loan of $807 million and four years of maturity could receive a 3.03-bps decrease in loan spread, translating to about a $0.98 million reduction of interest expenses.

6. Identification: Senator Turnover Event and Cost of Borrowing to Brown Firms

Our identification regression model leverages the exogenous variation in BC senators, characterised by time series and cross-state variations, to examine its impact on firm decisions(Kostovetsky, 2015). The influence of political connections on firm performance has been extensively studied and documented. Previous research has demonstrated that firms with political connections can gain tangible advantages that enhance firm value (Fisman, 2001; Faccio, 2006; Faccio et al., 2006; Bunkanwanicha and Wiwattanakantang, 2008). Conversely, when there is a change in political leadership or turnover, established political connections may be weakened or severed, leading to potential uncertainties that can significantly impact a firm. Due to the weighting and bias issues inherent in the traditional staggered DiD estimation[13] (Baker, Larcker and Wang, 2022), we follow Yue, Zhang and Zhong (2022) and Houston and Shan (2022) to conduct a stack event study by focusing on exogenous BC senator departures (Mehta and Zhao, 2020).

First, we identified 49 senator turnovers for the sample period from 1995 to 2020. Considering the reasons behind each turnover case using Charles Stewart's website and Google Search, we follow Mehta and Zhao (2020) and Mehta, Srinivasan and Zhao (2020) to identify only 20 cases that are considered as exogenous out of these 49 events: 17 senators transferred

[12] This is calculated by taking the exponential of absolute coefficient of Column (4) and (8) to obtain the range of the effect of BC senators on the lending to brown borrowers.
[13] The untabulated results remain robust when using staggered DiD conditional on firms' environmental performance. Results are available upon request.

to other Senate committees, and 3 resigned from Congress. Other senators took the position from the same state (12 cases), experienced re-election failure (7 cases) or retired (10 cases).

For each state with the turnover event, we specifically consider an event-study window from two years before and two years after the year-quarter of the turnover event. We then construct cohort-specific datasets that include all loans from lenders whose headquarters are in that state with a departure event and all other loans from all other pre-treatment state observations (Baker, Larcker and Wang, 2022). 'Pre-treatment' means that the control unit could be either a loan from a lender headquartered in a state that never experienced a BC departure or a loan from a lender headquartered in a state that has yet to experience a BC departure by period t. This stacked regression approach allows us to avoid bias from dynamic treatment effects and a better way to detect average treatment effects (Gormley and Matsa, 2011).

Here, we assume that loans are designed depending on previous firm characteristics and loan contract terms are ex-post information. Following Houston and Shan (2022), we perform matching at the loan level to ensure loans within the treated pool and those within the control pool are comparable regarding the borrowing firms' characteristics. Specifically, for each cohort, the treated loans are identified as those given to borrowers with at least one lead lender headquartered in the treated state. Conversely, control loans are defined as those loans given to borrowers within the control pool whose lead lenders never experienced or have not yet experienced a departure event by quarter t.

To do this, we use the propensity score matching method (one-to-one matching with replacement) to identify the matched firms from the control sample with similar firm characteristics to those from the treated sample for each quarter data of each cohort-specific dataset. The propensity score is estimated using lagged borrowers' firm characteristics for each quarter of the cohort using the logit function, commonly used in practice. The propensity score

matching(PSM) factors include the Altman-Z score, firm size, Market-to-Book ratio, debt ratio, profitability, tangibility, cash holding and firm age. We ultimately identified the matched pair of firms for all cohorts, a total of 496 pairs. We then merge the data at the firm level back to DealScan to obtain the final PSM sample data at the firm-loan level. Here, by doing propensity score matching on quarter frequency, we match the control loan to be initiated in the same year-quarter as the treated loan to ensure that the estimation of average treatment effects is not driven by time-series dynamics in the syndicated loan market (Houston and Shan, 2022). The final sample at the firm-loan level consists of 1789 loan observations, with 871 treatment loans and 918 control loans[14] from 496 pairs of matched firms.

For example, the lender 'AgFirst Farm Credit Bank' is headquartered in South Carolina with a BC senator who departed in 2013Q1. The event window for this cohort-specific dataset would be from 2011Q1 to 2015Q1, two years before and after the departure year-quarter. Loans from this lender and all other lenders headquartered in South Carolina would be treated loans within this event window. In contrast, Loans from all other states that are pre-treatment would be the control loans, i.e. if a lender is headquartered in a state that has a departure event on 2014Q3, we would include the observations of the loans made by this lender but only up to 2014Q2. For each quarter within this event window, we keep only the sample of treated loans and control loans from this respective quarter. After constructing the treated and control sample for each quarter in the event window, we use propensity score to find a matched pair of borrowers from the treated and control pool with similar firm characteristics in that respective quarter. When borrower A in the treated sample matches borrower B in the control sample based on their firm characteristics, we merge back to the DealScan loan data to consider all the loans received by these two firms in that quarter.

[14] As matched with replacement, the number of unique firms from the control and treated samples is unequal. In total, only 222 firms are unique in the control sample.

The main specification of the stacked event study analysis, equation (3), is as follows:

$$AISD_{i,s,t,c} = \beta_0 + \beta_1\left(\text{ClimateRisks}_{MSCI,i,t-1} * Treated_{s,c} * Post_{s,t,c}\right) + \beta_2 \text{ClimateRisks}_{MSCI,i,t-1} + \beta_3 Treated_{s,c} * Post_{s,t,c} + Controls + Loan\ Type\ and\ Purposes\ FE + \vartheta_{s,c} + \mu_{t,c} + \tau_{industry,c} + \varepsilon_{i,s,t,c} \quad (3)$$

Where $AISD_{i,s,c,t}$ is the all-in-drawn spread over LIBOR, i indexes firms, s index states of lender headquarters, t indexes the year-quarter and c indexes cohort. $Treated_{s,c}$ is an indicator variable equal to one if the loan is treated as if it is from the lender that is headquartered in the cohort-specific state s, with exogenous BC senator departures. $Post_{s,t,c}$ indicates whether the observation is in the cohort-specific dataset's period after the turnover event. $\text{ClimateRisks}_{MSCI,i,t-1}$ and control variables are the same as our baseline models. Here for fixed effects, we include the interactions of cohort and quarter-year, industry and lender-state fixed effects (Baker, Larcker and Wang, 2022) to control for differences across cohorts.

[Insert Table 3 about here]

Table 3 reports the balancing test between the ex-ante profiles of borrowers in the treatment and control groups. Ensuring the matching procedure works successfully before analysing the regression results based on the matched sample is essential. The means of the matched variables should not be significantly different from zero between the treatment and control groups after the matching procedures. The table below shows that out of eight matched variables, we have three expectations that are still statistically significant after matched. The mean differences between *Altman Z* and *Tangibility* are only slightly different and statistically significant at 5% level and *FirmAge* at 10% level. Additionally, as Hallman et al. (2023) argue, this did not pose a concern in our analysis as the difference is greatly reduced and significantly closer to zero after being matched. We will also control various borrower and loan

characteristics as well as fixed effects to absorb both observed and unobserved factors in our regression.

[Insert Table 4 about here]

The estimates from the cohort-based PSM regression using equation (3) are reported in Table 4. In column (1), the coefficients of the primary interest variable $\text{ClimateRisks}_{MSCI,i,t-1} * Treated_s * Post_{s,t}$ is significantly positive, implying the senator's absence at the bank's headquarters could allow financial institutions to charge a higher spread to firms with greater climate risks. Hence, banks may be able to align more effectively with the objectives of the green transition as they would charge a higher spread to brown firms when they lose the connections to BC senators.

The difference-in-difference model assumes that, in the absence of treatment, the difference between the treatment and control groups is constant over time (parallel trend). Thus, we should exclude the possibility that the difference between the treatment and control groups in terms of the cost of lending to brown firms already existed before the treatment event of the senator's departure. To test this assumption, we replace the Post dummy with quarter dummies, D_t, which is an indicator variable equal to one for observations in quarter k relative to the year-quarter of the departure event for the cohort-specific datasets. The first indicator variable, D_{-4}, is set to one if it has been four or more quarters before the year-quarter of the BC departure event, while the last indicator variable, D_4, is set to one if it has been four or more quarters after the year-quarter of the BC departure event (Serfling, 2016; Babenko, Bennett and Wang, 2023). We use CT(t) to refer to this $\sum_{t=-5}^{4} \beta_t \text{ClimateRisks}_{MSCI,i,t-1} * Treated_{b,s} * D_t$ accordingly.

Our dynamic model results are in column (2) of Table 4. Here, we use CT (<=-5) as the baseline group and omit it to avoid multicollinearity. Both results show no significant pre-trend before the departure event happens. We also find that banks started to significantly charge a

higher spread to brown borrowers in the quarter of the departure of BC senators, suggesting that banks can respond fast or swiftly change their attitudes towards their risk-taking behaviours (Yue, Zhang and Zhong, 2022) or lending to brown firms.

7. Heterogeneity across Different Riskiness and Project Choices

The previous results show that banks with political connections charge cheaper loans to borrowers with poor environmental performance. Here, we conduct three heterogeneity tests regarding the degree of such effects with the relative riskiness of loans and borrowers, as well as different project or investment choices, before and after the Paris Agreement.

[Insert Table 5 about here]

7.1 Heterogeneity across different loan maturity and firm tangibility

In this subsection, we conduct triple interaction analysis by introducing two variables, *ShortLoan* and *LowTangibleFirm*, and both are dummy variables that indicate if the loan is a short-term loan with maturity below the median loan maturity and if the borrower has low tangible assets (below the median tangibility of firms). In particular, we expect the effect of $BankSenator_{b,t} * ClimateRisk_{MSCI,f,t-1}$to be stronger when the loan or borrower is more risky because banks with political connections take more risks and charge cheaper loan rates. A recent study by Jiang, Li and Qian (2023) examined the trend in banks charging a relatively higher loan spread to borrowers with more tangible assets, which signals the extent of exposure to physical climate risks (e.g., Sea Level Rises; hereafter SLR). Firms with more tangible assets are more vulnerable to SLR risks due to the vulnerability nature of tangible assets and costs associated with relocation in times of flooding.

The estimated coefficients are tabulated in Table 5. Panel A. Overall, the result leads us to conclude that the presence of BC senators at the bank's headquarters state has a reduction effects on the loan spread to brown borrowers regardless of the short-term and long-term loans but has a stronger reduction effect on the loan spread to brown borrowers with low tangible assets or more exposed to physical climate risk.

7.2 non-price terms and project choices

Next, we examine whether the effect of *BankSenator*ClimateRisk*$_{MSCI}$ is more likely to be associated with being collateralized, having a longer maturity, or having a covenant in place. Our analysis in Panel B, however, reveals that the presence of BC senators at banks' headquarters allows them to take on more risks via providing brown borrowers with greater loan amounts, yet no other effects on covenants, upfront fees or collateral requirements.

7.3 Paris Agreement

Paris Agreement was accepted on December 12, 2015, and signed in May 2016 by the United States. This agreement has strengthened the view that banks and other financial institutions need to support green transitions. Degreyse et al. (2020) highlight that green banks charge a lower spread to green firms, and such an effect has become more substantial after the Paris Agreement. We first ran the regression on the cost of debt to brown firms after the Paris Agreement. From Panel C of Table 5, the coefficient of *Paris* ClimateRisk*$_{MSCI}$ in Column (1) is statistically significant and positive at 10%, implying that banks charge a higher spread to brown firms after the Paris Agreement. This finding is consistent with prior literature (Ginglinger and Moreau, 2019; Degryse *et al.*, 2020; Kacperczyk and Peydro, 2021). However, when we consider the presence of BC senators at banks' headquarters, it is evident that the banks with political connections charge a relatively lower spread to brown firms after the Paris Agreement.

8. Mechanism

Here, I propose three potential mechanisms: the political ideology of senators, proximity of borrower, lender and senators through reducing information asymmetrics, and borrowers' political connection with BC senators.

[Insert Table 6 about here]

8.1 BC Senators' Political Ideology

Politicians with different political ideologies and regulatory cultures could influence banks' lending practices to brown firms differently.

Liberals and conservatives have different attitudes toward risk-taking. Liberals tend to provide more government support than conservatives on spending resources on corporate bailouts (Bischof, Daske and Sextroh, 2020). Yue, Zhang and Zhong (2022) highlight that liberal BC senators positively impact banks' opacity. This implies that banks in states with liberal BC senators would be riskier with greater discretionary loan loss provisions. It is also supported that analysts who contribute to the Democratic Party tend to adopt a less conservative forecasting style by making forecasts that are more prone to deviate from the actual performance and more likely to be bold (Jiang, Kumar and Law, 2016). In this case, banks connected to liberal BC senators could be more likely to be riskier than banks connected to conservative BC senators, hence charging a lower spread to firms with greater environmental concerns.

On the other hand, liberals and conservatives behave differently when it comes to combating climate change and tackling environmental issues. As previously mentioned, Democratic senators recently sent a letter to the SEC chair to urge banks to disclose emissions data generated by their customers (Beyoud and Nguyen, 2022), while Republican officials warned major financial institutions of adverse consequences if they stopped the lending to coal

industries (Gelles,2022). Kim, Ryou and Yang (2020) highlight that firms with institutional shareholder control with a more Republican political ideology are less inclined to publish environmental reports. Di Giuli and Kostovetsky (2014) suggest that firms with democratic founders, CEOs, and directors score higher CSR scores. In this case, banks connected to liberal BC senators could be more active in supporting green transitions than banks connected to conservative BC senators, hence charging a higher spread to firms with greater environmental concerns.

As banks connected to liberal BC senators could act differently from what the literature on risk-taking behaviours and green transition suggested, it is not clear how clear the political ideology of BC senators affects banks' lending to brown firms. Understanding the interplay between political ideology, regulatory dynamics, and banks' lending practices is crucial for comprehending how banking committee senators influence the financial institutions' decision-making when lending to brown borrowers.

Referring to Bischof, Daske, and Sextroh (2020) and Yue, Zhang and Zhong (2022), we use the first dimension of the *DW-NOMINATE* score of Lewis et al. (2019), which is constructed using the politicians' past roll call voting records in Congress[15]. The ideology score for each senator ranges from -1 to +1 and increases with the level of conservative ideology. *LIBERAL* is an indicator variable for a liberal BC senator, equal to one if the BC senator's ideology score is below the sample median and zero otherwise. By re-estimating our main baseline equation, we find that the coefficient of the critical variable *LIBERAL* ClimateRisk*$_{MSCI}$ in Column (1) of Table 6 is negative and significant at the 1% level in all specifications. These results suggest that the ideology of BC senators plays a vital role in banks' lending to brown firms.

[15] See https://voteview.com.

8.2 Proximity of Lenders, Borrowers and Senators

Another potential channel will be the proximity of lenders, borrowers, and senators. Hollander and Verriest (2016) state that their geographical proximity to these borrowers influences lenders' ability to collect information about borrowers. When borrowers and lenders are in the same geographical area, lenders could be better aware of the borrower's situation (Almazan, 2002), hence reducing information asymmetry and easing access to local information. Here, we examine whether the impact of BC senators on the cost of lending to brown borrowers diffs if borrowers and lenders are headquartered in the same state. Here, we measure this using another dummy indicator, *SameState*, that equals one if they are headquartered in the same state at the time of loan origination. Here, a significant and negative relationship was found to support the effect of BC senators on banks' lending to brown firms, as shown in Column (2) of Table 6.

8.3 Politically Connected Borrowers

In this section, we examine how the effect of BC senators on bank lending to brown borrowers varies when borrowers are also politically connected. Specifically, we consider borrowers politically connected when they are from the same states as senators from the US Senate Banking Committee at the time of loan origination. Previous studies have found that politically connected borrowers obtain cheaper loan rates as banks recognize the borrowers' superior creditworthiness from their connection (Houston et al., 2014; Zhou, 2023). Here, we use *BorrowerSenator*, a dummy indicator that equals one when the borrower is headquartered in states with BC senators at the time of loan origination. However, the results in Column (3) of Table 6 suggest that the politically connected borrowers have no additional reduction effect on the cost of bank debt from politically connected lenders to brown borrowers.

9. Robustness

9.1 Syndicate Level: Loans with multiple lead banks are aggregated into one observation and considered at the syndicate level.

[Insert Table 7 about here]

Previously, in our baseline and identification model, we considered the unit of analysis at the loan level. We included multiple loans in the same trance made to the same borrower from different lead lenders as unique observations. In a separate test, we aggregate loans with multiple lead arrangers into one observation and consider the information at the syndicate level. Here, we replace *BankSenator* with the *BankSenator_Tranche* variable, which equals the ratio of number of lead lenders in the tranche that is headquartered in the state with a BC senator to the total number of lead lenders in the tranche in that year-quarter of loan origination date, and zero otherwise. Our results remain statistically significant and robust to our main findings.

9.2 Alternative Environmental Performance Measure

[Insert Table 8 about here]

For robustness checks, we use alternative measures of environmental risks: Trucost Emission data and Sautner's textual analysis of environmental data. The reason for choosing Trucost data is due to its unique source of data, which comes directly from the reported figures of the firm's carbon emission, instead of rating agencies that may be subject to bias or manipulation. However, Trucost data has a lower coverage than the MSCI score. The final observation used in regression using Trucost is 9,185, while the one using the MSCI score is about 17,985. As displayed in Table 8, the results remain robust and statistically significant at a 1% level. We further replicated our main findings by changing the environmental measures to Sautner's textual analysis of environmental data, and we found similar significant results for borrowers with greater exposure to physical and regulatory shocks.

10. Conclusion

In conclusion, this paper sheds light on the complex interplay between political connections, climate risk, and banking behaviour, offering valuable insights into the role of banks in the global green transition. Our findings underscore the significant impact that political capital, in the form of headquartering at the state with a senator form U.S. Senate Banking Committee, can have on bank lending decisions to firms with greater climate risk exposure. These findings raise questions about aligning banking practices and senator roles with global efforts to combat climate change.

Our study could have significant policy implications, especially in the context of growing attention on transition to a greener economy. The significant negative impact of BC senators on the cost of lending to brown firms suggests that the current supervision of local politicians' behaviour may not be sufficient and that these BC senators did not benefit banks in supporting greener lending. Policymakers should consider measures encouraging banks to align their lending practices with climate goals and promote sustainability.

Table 1: Summary Statistics

This table reports the summary statistics (number of observations, mean, standard deviation, minimum,25%, 50%, and 75% percentiles) for the main variables used in the paper. In Panel B, all continuous Firm Characteristics variables are winsorised at 1% and 99% level.

	N	Mean	SD	p25	Median	p75
Panel A. Loan Characteristics						
all in spread drawn	17985	188.486	136.523	100	162.5	250
AISD	17985	4.955	0.832	4.605	5.091	5.521
upfront fee bps	2882	68.009	111.149	20	50	100
lnupfrontfees	2689	3.742	1.065	3.219	3.912	4.605
Tranche_Amount	17985	807.31	1689.377	150	400	900
Ln. Amount	17983	5.884	1.317	5.011	5.991	6.802
Maturity	17985	50.256	21.417	36	60	60
Maturity (log form)	17985	3.765	0.645	3.584	4.094	4.094
Collateral	17985	0.425	0.494	0	0	1
covenant	17985	0.554	0.497	0	1	1
refinancing	17985	0.71	0.454	0	1	1
performacepricing	17985	0.418	0.493	0	0	1
No.Lenders	17985	10.928	8.473	5	9	14
Ln. Lenders	17985	2.107	0.807	1.609	2.197	2.639
Panel B. Firm Characteristics						
Altman-Z score	17985	1.738	1.128	1.004	1.675	2.411
Asset	17985	12144.507	25676.091	1211.21	3194.8	10096.1
Log Asset	17985	8.205	1.526	7.099	8.069	9.22
Market-to-Book ratio	17985	1.913	0.986	1.271	1.616	2.208
Debt Ratio	17985	0.311	0.198	0.178	0.285	0.41
Profitability	17985	0.16	0.085	0.106	0.146	0.198
Tangibility	17985	0.278	0.222	0.102	0.211	0.401
Firm Age	17985	29.127	21.496	17	25	34
LnAGE	17985	3.212	0.622	2.89	3.258	3.555
Cash	17908	763.291	1749.132	47.121	164.111	573
LnCash	17908	5.094	1.876	3.853	5.101	6.351
Panel C. State Information						
BankSenator	17985	0.674	0.469	0	1	1
BankSenator_tranche	10046	0.708	0.390	.5	1	1
Panel D. Climate Risk						
$ClimateRisk_{MSCI}$	17985	0.035	0.098	0	0	0
Panel E. Macroeconomic factors						
TermSpread	17303	1.399	0.871	0.684	1.518	2.146
CreditSpread	17303	-1.004	0.345	-1.155	-0.92	-0.802

Table 2: Baseline Model

This table summarises the results of baseline regressions of banks' political connections on the cost of lending to brown firms. The dependent variables are the logarithm form of All-in-Spread drawn. The key explanatory variable is the interaction of BankSenator, a dummy indicator of the bank's political connection, and $ClimateRisk_{MSCI}$, the adjusted MSCI environmental concern score. All continuous explanatory variables are winsorized at the 1 percent and 99 percent levels. The t-statistics are reported in parentheses below the coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively. The standard errors are clustered at the firm level.

VARIABLES	(1) AISD	(2) AISD	(3) AISD	(4) AISD	(5) AISD	(6) AISD
BankSenator	-0.215***		-0.151***	-0.146***	0.007	-0.004
	(-8.870)		(-6.638)	(-8.127)	(0.760)	(-0.315)
$ClimateRisk_{MSCI}$		-1.816***	-0.810***	0.020	0.333**	0.376**
		(-8.044)	(-2.934)	(0.072)	(2.263)	(2.510)
BankSenator *$ClimateRisk_{MSCI}$			-1.107***	-0.964***	-0.407***	-0.454***
			(-3.583)	(-3.225)	(-2.751)	(-2.996)
ALTMAN-Z score				-0.115***	-0.051***	-0.051***
				(-7.547)	(-5.285)	(-5.419)
Log Asset				-0.298***	-0.100***	-0.104***
				(-17.177)	(-8.377)	(-8.751)
Market-to-Book ratio				-0.194***	-0.114***	-0.116***
				(-11.326)	(-9.805)	(-10.049)
Debt Ratio				1.081***	0.472***	0.472***
				(14.001)	(8.637)	(8.735)
Profitability				-0.823***	-0.435***	-0.416***
				(-4.133)	(-3.212)	(-3.097)
Tangibility				-0.111	0.033	0.031
				(-1.611)	(0.593)	(0.566)
LnAGE				0.039*	-0.046***	-0.046***
				(1.884)	(-3.210)	(-3.269)
Cash				0.105***	0.021***	0.020***
				(8.803)	(3.065)	(2.970)
Ln.Lenders					-0.025**	-0.021**
					(-2.355)	(-1.984)
Ln.Amount					-0.100***	-0.095***
					(-11.259)	(-10.918)
Maturity					0.103***	0.100***
					(7.458)	(7.312)
Collateral					0.395***	0.387***
					(21.670)	(21.362)
performance pricing					-0.034**	-0.032**
					(-2.042)	(-1.972)
TermSpread					0.015	0.016
					(0.262)	(0.293)
CreditSpread					0.052	0.053
					(0.637)	(0.656)
Observations	17,985	17,985	17,985	17,908	17,871	17,867
Adjusted R-squared	0.015	0.046	0.058	0.351	0.700	0.704
Firm control	No	No	No	Yes	Yes	Yes
Loan control Type & Purpose FE	No	No	No	No	Yes	Yes
MacroeconomicFactors control	No	No	No	No	Yes	Yes
Time FE	No	No	No	No	Yes	Yes
Lender_State FE	No	No	No	No	No	Yes
Industry FE	No	No	No	No	Yes	Yes

Table 3: Propensity Score Matching: Comparison of Treatment and Control Firms

This table compares the means of the climate risks and matched covariates used in propensity score matching before and after matching. P-values are based on t-tests of mean differences between the treated and control firms. We use PSM to find a matched sample of borrowers with similar climate risks and firm characteristics that do not have loans from lenders that did not experience BC senator turnovers in that quarter (One-to-One matching with replacement). All variable definitions can be found in the Appendix.

	N	Treated	N	Control	Difference	p-value
$ClimateRisk_{MSCI}$	496	0.035	496	0.028	-0.007	0.292
ALTMAN-Z score	496	1.977	496	1.834	-0.144	0.031
Log Asset	496	8.104	496	8.05	-0.053	0.498
Market/Book ratio	496	2.086	496	2.09	0.004	0.957
Debt Ratio	496	0.169	496	0.163	-0.007	0.22
Profitability	496	0.299	496	0.279	-0.021	0.109
Tangibility	496	0.273	496	0.295	0.022	0.036
Cash	496	5.102	496	4.918	-0.183	0.066
Firm Age	496	3.214	496	3.222	0.008	0.824

Table 4: Identification Model: Senator Turnover Event and Cost of Borrowing to Brown Firms

This table examines the impact of the unexpected departures of BC senators on banks' lending to brown borrowers. The variable *Treated* would be an indicator equal to one if the lead lender for that loan experienced a plausibly exogenous departure of their BC senator because of a committee transfer or resignation. *Post* is an indicator variable equal to one if the year-quarter of the loan is after the departure. We use PSM to find a matched sample of borrowers with similar climate risks and firm characteristics that do not have loans from lenders that did not experience BC senator turnovers in that quarter (One-to-One matching with replacement). We then merged the sample back into the loan data for regression. The dependent variables are the logarithm form of All-in-Spread drawn. The key explanatory variable is the Treated, Post, and Climate Risk measure interaction. To test this assumption, we replace the Post dummy with quarter dummies, D_t, which is an indicator variable equal to one for observations in quarter k relative to the year-quarter of the departure event for the cohort-specific datasets. The first indicator variable, D_{-4}, is set to one if it has been four or more quarters before the year-quarter of the BC departure event, while the last indicator variable, D_4, is set to one if it has been four or more quarters after the year-quarter of the BC departure event (Serfling, 2016; Babenko, Bennett and Wang, 2023). We use CT(t) to refer to this $\sum_{t=-5}^{4} \beta_t \text{ClimateRisks}_{MSCI,i,t-1} * Treated_{b,s} * D_t$ accordingly. Here, CT (<=-5) is the baseline group, and omit it to avoid multicollinearity. All variable definitions can be found in the Appendix. The t-statistics are reported in parentheses below the coefficient estimates. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level respectively. The standard errors are clustered at the firm level.

	(1)	(2)
VARIABLES	AISD	AISD
$\text{ClimateRisks}_{MSCI,i,t-1} * Treated_s * Post_{s,t}$	0.914***	
	(2.650)	
CT(-4)		-1.442
		(-1.131)
CT(-3)		0.856
		(1.224)
CT(-2)		0.487
		(1.082)
CT(-1)		2.229
		(1.288)
CT(0)		1.990***
		(3.660)
CT(1)		1.448***
		(2.988)
CT(2)		0.298
		(0.388)
CT(3)		1.194*
		(1.685)
CT(4)		1.610***
		(2.756)
CT(>=5)		0.434
		(0.787)
Observations	1,780	1,780
Adjusted R-squared	0.786	0.786
Firm controls	Yes	Yes
Loan controls, Type and Purpose FE	Yes	Yes
Macroeconomic control	Yes	Yes
Time FE*Cohort	Yes	Yes
State*Cohort FE	Yes	Yes
Industry*Cohort FE	Yes	Yes

Table 5: Heterogeneity Tests

This table examines the impact of BC senators on banks' lending to brown borrowers with heterogeneity across loan maturity, firm tangibility and different non-price terms before and after the Paris Agreement. All variable definitions can be found in the Appendix. The t-statistics are reported in parentheses below the coefficient estimates. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level respectively. The standard errors are clustered at the firm level.

Panel A. Heterogeneity across Loan Maturity and Firm Tangibility

	(1)	(2)
VARIABLES	AISD	AISD
BankSenator *$ClimateRisk_{MSCI}$*ShortLoan	-0.348	
	(-1.354)	
BankSenator *$ClimateRisk_{MSCI}$*LowTangibleFirm		-1.527***
		(-3.327)
Observations	17,867	17,867
Adjusted R-squared	0.706	0.705
Controls	Yes	Yes
Year-Quarter FE	Yes	Yes
Lender_State FE	Yes	Yes
Industry FE	Yes	Yes
Loan Type & Purpose FE	Yes	Yes

Panel B. Non-Price Terms

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log (tranche amount)	Log (# of covenants)	Log (# of general covenants)	Log (# of financial covenants)	Log (upfront fee)	Collateral
$ClimateRisk_{MSCI}$	-1.421***	0.037	0.013	0.096	-0.152	0.202*
	(-2.857)	(0.211)	(0.083)	(0.533)	(-0.384)	(1.747)
BankSenator	-0.025	-0.015	-0.025	-0.028*	0.125***	0.016
	(-1.065)	(-0.710)	(-1.318)	(-1.953)	(2.909)	(1.282)
BankSenator* $ClimateRisk_{MSCI}$	1.551***	-0.070	-0.065	0.035	-0.006	-0.189
	(3.398)	(-0.419)	(-0.429)	(0.211)	(-0.017)	(-1.632)
Observations	17,867	17,867	17,867	9,614	2,674	17,867
Adjusted R-squared	0.564	0.479	0.474	0.301	0.563	0.344
Firm and Loan Controls	Yes	Yes	Yes	Yes	Yes	Yes
Type & Purposes FE	Yes	Yes	Yes	Yes	Yes	Yes
Macroeconomic control	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

(Continued)

Panel C. Paris Agreement

	(1) AISD	(2) AISD
$ClimateRisk_{MSCI}$	-0.024	0.288*
	(-0.212)	(1.936)
Paris * $ClimateRisk_{MSCI}$	1.025*	1.267*
	(1.696)	(1.957)
BankSenator* Paris * $ClimateRisk_{MSCI}$		-0.748*
		(-1.910)
Observations	17,867	17,867
Adjusted R-squared	0.704	0.704
Firm control	Yes	Yes
Loan control	Yes	Yes
Macroeconomic control	Yes	Yes
Time FE	Yes	Yes
State FE	Yes	Yes
Industry FE	Yes	Yes
Loan Type FE	Yes	Yes
Purpose FE	Yes	Yes

Table 6. Mechanism Tests

This table presents the results of the effects of BC senators' ideology, borrowers' political connections, and geographical proximity on Loan Spread to Borrowers with Higher Climate Risks. We use the first dimension of DWNOMINATE (ideology) provided by Lewis et al. (2019) to measure ideology. The ideology score for each senator ranges from -1 to +1 and increases with the level of conservative ideology. *Liberal* is an indicator variable for a liberal BC senator, equal to one if the BC senator's ideology score is below the sample median and zero otherwise. *BorrowerSenator* is a dummy variable for the channel of borrowers' political connections that equals one if the borrower is headquartered in states with BC senators, a measure for borrowers' political connection. *SameState* is a dummy variable for the channel of geographical proximity between lenders and borrowers that equals one if both borrower and lender are in the same state. The dependent variable in this table is the natural logarithm of the loan spread. All variable definitions can be found in the Appendix. The t-statistics are reported in parentheses below the coefficient estimates. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level respectively. The standard errors are clustered at the firm level.

VARIABLES	(1) spread	(2) spread	(3) spread
$ClimateRisk_{MSCI}$* Liberal	-0.403***		
	(-3.039)		
BankSenator*$ClimateRisk_{MSCI}$* SameState		-1.251**	
		(-2.399)	
BankSenator*$ClimateRisk_{MSCI}$* BorrowerSenator			-0.118
			(-0.447)
Observations	17,867	17,867	17,767
Adjusted R-squared	0.704	0.704	0.704
Firm control	Yes	Yes	Yes
Loan control	Yes	Yes	Yes
Macroeconomic control	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
Lender_State FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes

Table 7. Robustness Test: Senator/Bank's Political Connection at the Syndicate Level

This table presents the regression results of the bank's political connections on loan spreads of borrowers with higher climate risks. The dependent variable is the natural logarithm of the loan spread. The key explanatory variable is the interaction of *BankSenator_Tranche*. This variable is constructed as the ratio of number of lead lenders in the tranche that is headquartered in the state with a BC senator to the total number of lead lenders in the tranche in that year-quarter of loan origination date, and zero otherwise., and $ClimateRisk_{MSCI}$, the adjusted MSCI environmental concern score. All variables are defined in the Appendix. P-values are based on standard errors adjusted for heteroskedasticity and firm-level clustering and are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1) AISD	(2) AISD	(3) AISD	(4) AISD	(5) AISD
BankSenator_Tranche	-0.351***		-0.270***	-0.217***	0.017
	(-8.434)		(-6.684)	(-6.882)	(0.837)
$ClimateRisk_{MSCI}$		-1.689***	-0.631	0.332	0.415**
		(-7.322)	(-1.627)	(0.806)	(2.083)
BankSenator_Tranche* $ClimateRisk_{MSCI}$			-1.126**	-1.023**	-0.437**
			(-2.520)	(-2.291)	(-1.976)
Observations	10,046	10,046	10,046	10,001	9,972
Adjusted R-squared	0.023	0.039	0.058	0.356	0.706
Firm control	No	No	No	Yes	Yes
Loan control Type & Purpose FE	No	No	No	No	Yes
Macroeconomic control	No	No	No	No	Yes
Time FE	No	No	No	No	Yes
Lender_State FE	No	No	No	No	No
Industry FE	No	No	No	No	Yes

Table 8. Robustness: Alternative measures of environmental performance

This table presents the regression results of the bank's political connections on loan spreads of borrowers with higher climate risks using alternative measures from the Trucost environmental dataset (Panel A) and Sautner's textual-based Environmental Performance measures (Panel B). The dependent variable is the natural logarithm of the loan spread. The key explanatory variable is the interaction of *BankSenator*, a dummy indicator of the bank's political connection, and $ClimateRisk_{LnScope1}$, the natural logarithm of the scope one emission; and $ClimateRisk_{SautnerOP}$ for operational risks, $ClimateRisk_{SautnerRG}$ for regulatory risks, and $ClimateRisk_{SautnerPHY}$ for physical risks. All variables are defined in the Appendix. P-values are based on standard errors adjusted for heteroskedasticity and firm-level clustering and are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Trucost Emission Data

VARIABLES	(1) AISD	(2) AISD	(3) AISD	(4) AISD	(5) AISD
BankSenator		0.363***	0.308***	0.189***	0.192***
		(2.679)	(2.878)	(2.689)	(2.706)
$ClimateRisk_{LnScope1}$	-0.081***	-0.050***	-0.010	0.014	0.013
	(-7.502)	(-4.996)	(-0.928)	(1.571)	(1.537)
BankSenator*$ClimateRisk_{LnScope1}$		-0.047***	-0.040***	-0.019***	-0.020***
		(-3.918)	(-4.101)	(-3.037)	(-3.198)
Observations	9,185	9,185	9,175	9,152	9,150
Adjusted R-squared	0.058	0.077	0.334	0.670	0.673
Loan control Type & Purpose FE	No	No	No	Yes	Yes
Firm control	No	No	Yes	Yes	Yes
Macroeconomic control	No	No	No	Yes	Yes
Time FE	No	No	No	Yes	Yes
Lender_State FE	No	No	No	No	Yes
Industry FE	No	No	No	Yes	Yes

Panel B. Sautner's climate risk measures

VARIABLES	(1) AISD	(2) AISD	(3) AISD
BankSenator	-0.291	-0.589**	-2.051***
	(-1.025)	(-2.326)	(-3.170)
$ClimateRisk_{SautnerOP}$	1.455***		
	(4.005)		
BankSenator* $ClimateRisk_{SautnerOP}$	-0.035		
	(-0.972)		
$ClimateRisk_{SautnerRG}$		0.979***	
		(3.265)	
BankSenator* $ClimateRisk_{SautnerRG}$		-0.058**	
		(-2.261)	
$ClimateRisk_{SautnerPHY}$			0.458
			(0.804)
BankSenator*$ClimateRisk_{SautnerPHY}$			-0.180***
			(-3.149)
Observations	19,792	19,792	19,792
Adjusted R-squared	0.652	0.652	0.652
Firm & Loan controls	Yes	Yes	Yes
Loan control Type & Purpose FE	Yes	Yes	Yes
Macroeconomic control	Yes	Yes	Yes
Time, Lender_State, & Industry FE	Yes	Yes	Yes

Appendix

Table OA1. Sample Selection

This table reports the sample selection and breakdown of our sample. Afterall, the number of unique borrower is 2,104 while the number of unique lead lenders is 326. These lenders are headquartered in 37 states.

Sample Selection	**Obs**	
1.DealScan Data with conditions of "U.S." as the country of Syndication (From 1980-2023.03)	1,350,662	
2. New-Old Borrower_ID mapping	1,304,089	
3. Borrower_information		
3.1 Chava Dealscan-Compustat Link (updated till Aug 2017)		556,938
3.2 Manually match new borrowers to Compustat		12,014
3.3 If borrower has one GVKEY, then fill those other borrower_id but same borrower with missing identifiers the GVKEY information		340,004
Obs left	908,956	
4. Matched with COMPUSTAT Fiscal year end month to determine fiscal year	724,306	
5. Dropped Financial firms		-91,367
6. Dropped Utilities firms		-50,309
7. keep if Tranche_currency= U.S. Dollar		-8,071
8. keep if Deal_currency= U.S. Dollar		-106
Obs Left	574,453	
9. Matched with COMPUSTAT GVKEY FYEAR	488,700	
10. Keep obs if no missing observation and no missing loan-relevant data	334,149	
11. Keep if lead ==1	82,006	
12. Keep if year>1994	77,435	
13. Drop duplicates obs (all contract terms are the same within the duplications)		-798
14. Drop duplicates obs if everything the same except the tranche starting date(keep the one with earliest date)		-31,833
15. Drop duplicates obs if same tranche, lender but the difference in loan amounts for Revolver		-1,086
Obs Left	43,718	
16. With Senator Information	32,698	
17. With MSCI score	17,990	
18. Drop if "Bankers' Acceptance", "Standby Letter of Credit", " Step-Payment Lease", "Guidance Line (Uncommitted)", "Trade Letter of Credit","Multi-Option Facility", "Undisclosed", "Unadvised Guidance Line (Uncommitted)", "Performance Standby Letter of Credit"		-5
Total Obs left	**17,985**	

Table OA2. Variable Definitions

Main Variable of Interest	
BankSenator	Dummy variable that equals 1 if the loan is from a lead lender whose headquarter is in a state with a BC senators at the time of loan origination, and 0 otherwise. Source: Congress Report
$ClimateRisk_{MSCI}$	Scaled climate concern index that is computed by dividing divide the number of concerns by the total maximum concerns in the category for that year. Source MSCI KLD Database
Dependent Variable	
AISD	The natural logarithm of the total annual spread paid over the London Interbank Offered Rate (LIBOR). Source: DealScan
Control Variables	
ALTMAN-Z score	
Log Asset	Natural logarithm of the book value of total assets. Source: Compustat
Market-to-Book ratio	Market value of equity divided by book value of equity. Source: Compustat
Debt Ratio	The debt ratio calculated as the sum of long-term debt and short-term debt scaled by total assets. Source: Compustat
Profitability	Earnings before interest, taxes, depreciation, and amortization (EBITDA) scaled by lagged total assets. Source: Compustat
Tangibility	Property, plant and equipment (PPENT)/ Total assets. Source: Compustat
Firm Age	The natural log of a firm's age. Firm age is computed using the firm's founding date from Jay Ritter's website. In cases where the founding date is missing, I use the earliest appearance date of a firm on Compustat database.
Cash	The natural logarithm of Cash. Source: Compustat
No.Lenders	The natural logarithm of the number of lenders funding the loan. Source: DealScan
Tranche_Amount	The natural logarithm of loan size in million dollars. Source: DealScan
Maturity	The natural logarithm of loan maturity in months. Source: DealScan
Collateral	An indicator variable which is one if a loan is collateralized, and zero otherwise.
Performacepricing	An indicator variable which is one if a loan has a performance pricing clause, and zero otherwise. Source: DealScan
Loan Type Dummies	Indicator variables for types of loans including term loan, revolving loan less than one year, revolving loan greater than one year, 364-day facility, and bridge loan separately. Source: DealScan
Loan Purpose Dummies	Indicator variables for purposes of loans such as corporate purposes, working capital, LBO, debt repayment, takeover, leveraged buyouts, and et cetera. Source: DealScan
Macroeconomic Factors	
Term Spread	The yield spread between BAA and AAA corporate bond indexes.
Credit Spread	The yield spread between 10-year Treasury and 3-month Treasury bonds.

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