Banks as Stewards *

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Abstract

Banks play a potentially transformative role in enabling firms to overcome the well-documented frictions that hinder the generation and undertaking of value-creating investments,moving beyond the classic view of banks as mere credit providers. We put forth a conceptual model where banks steward companies to leverage informational advantages through industry specialization, thus guiding firms towards long-term investments. The model suggests that the effects of stewardship are most important for firms that face costs related to searching for undertaking long-term investments on their own, such as those with short-termist shareholders or those facing more severe agency challenges. We test these predictions using administrative credit registry data from U.S. banks and proxy long-term investments as those associated with the energy transition. We find that banks with more specialization in transition lending are more likely to finance projects with long-term payoffs, that they offer lower interest rates for these projects, and that they are particularly effective in helping short-termist firms' to overcome their obstacles against making such investments.

1 Introduction

Economy-wide growth depends on, among other things, firms' ability to generate and undertake value-creating investment opportunities. What role might banks play in this process? One answer might be that banks have no role. The classic frictionless Modigliani-Miller benchmark suggests a limited scope for lenders other than mechanical providers of credit, since client firm investment

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is entirely driven by the fundamental characteristics of their investment opportunities. Even in the vast literature on banks' special role in screening, monitoring existing projects, and utilizing relationship information asymmetries, banks play little role in the firm decisions that lead to the generation and undertaking of new value-creating opportunities.[1]

Another answer, however, is that banks have a role as stewards in their clients' ability to generate and undertake value-creating projects. Three strands of literature head in this direction. First is the literature that studies banks as equity-holding insiders, affecting client firm decisions (Berlin et al. (1996); Stiglitz (1985), and Winton (2015)). Evidence in this line of research finds that firms with bank insiders have higher performance (Gorton and Schmid (2000)) and that banks act to gain board seats when client firms perform poorly (Kaplan and Schoar (2005)).[2] Yet, this active equity holder role for banks is only applicable and legal in specific contexts.

A second angle on banks as stewards might be found in the inference from the common banking work by Giacomini et al. (2024) and Frattaroli and Herpfer (2023). These papers find that firms with a bank in common with their trade partners (or future partners) perform better in those trade relationships, suggesting that banks bring an information channel of being a common banker. The third angle on banks as stewards comes from the bank specialization literature (Blickle et al. (2024), Blickle et al. (2025), Paravisini et al. (2023), and Duquerroy et al. (2022)). These papers find that banks exhibit specialization (usually from path histories with clients a la Lummer and McConnell (1989)) that leads to both more favorable loan outcomes for banks and lower interest rates for clients.

In this work, we bring together the bank equity ownership and common banker literature ideas that banks have an active role to play in firm operations with a direct channel for bank specialization. In this expanded version of specialization, banks develop expertise not just in underwriting and monitoring existing firm projects, but also in impacting their clients' ability and willingness to generate and undertake new value-creating investment opportunities. We call this bank stewardship.

Bank stewardship might exist, but only if there is need. Our starting point is the large empirical and theoretical literature showing that firms may pass-up profitable investment opportunities. Firms may forego these opportunities because of credit constraints (Fazzari et al. (1988); Kaplan and Zingales (1997)), but since banks can overcome credit constraints without stewardship, we look to other motivations. In particular, banks may have a stewardship incentive to foster investment because of other hindrances to firms' taking investment opportunities including short-termism (Amihud and Lev (1981); Narayanan (1985); Stein (1989); Bolton et al. (2006); Graham et al.

[1]See, for example, Jaffee and Russell (1976); Stiglitz and Weiss (1981); Diamond (1984); Fama (1985); James (1987); Diamond (1991); Petersen and Rajan (1994); Puri et al. (2017); and Bharath et al. (2009a).

[2]See the survey of this literature in Drucker and Puri (2007))

(2005); Kumar and Purnanandam (2023)) and agency challenges such as empire entrenchment, enjoying the quiet life, and career concerns (Holmstrom and Costa (1986); Shleifer and Vishny (1989); Hirshleifer and Thakor (1992); Stein (2003); Bertrand and Mullainathan (2003)). This paper's objective is to show, theoretically and empirically, a link between bank stewardship and firm investment.

We begin with a model that envelopes bank stewardship into a firm's yes-or-no investment decision. A firm considers an expansion into a transition opportunity. We focus on the word *transition* to evoke the eponym of *Kodak moments*. Kodak has become the business school case for a failure to explore the role of a new technology in its industry (Anthony (2016)). Thus, in both our model setup and our empirical tests, we take a transition lens, although we argue that the ideas of the paper are more general.

In the spirit of the cash sensitivity of investment Almeida et al. (2004) and the favoritism of firms to short-term stock performance at the expense of investment (Bolton et al. (2006) and Almeida et al. (2024)). This distortion hinges on whether short-termism impacts valuation, whether it be valuation realized in the market (speculative valuation) or remain expected valuation by biased executives and boards (Harrison and Kreps (1978),Morris (1996); Bolton et al. (2004); Bolton et al. (2006)). Yet the survey evidence of executive CFOs in Graham et al. (2005) is compelling that short-termism does affect investment decisions against long-term projects. They find that "[t]he majority of firms view earnings, especially EPS, as the key metric for an external audience... [T]he majority of managers would avoid initiating a positive NPV project if it meant falling short of the current quarter's consensus earnings." Related, Kumar and Purnanandam (2023) use a cap-and-trade policy event for energy providers, showing that before the law's passage, firms preferred short term revenues over longer-term expected cash flows. These authors argue the effects are likely due to managerial incentives to prefer short-term profitability over transition opportunities.

In our model, firm valuation favors short-term dividends and payouts via an impatience discounting. We extend a simplified version of the model foundations of **?** in the direction of **?**, who study how financing access interacts with green investment opportunities. In our case, we show that the introduction of the choice to use bank financing for transition opportunities can overcome the short-term bias against such projects. Bank finance can allow firms to make the full earnings payout, thus appeasing short-termist valution decision makers, while financing the transition investment, the optimal long-term strategy. Our innovation extends to allow banks to be heterogeneous in specialization, following the literature on bank specialization of Blickle, Parlatore, and Saunders (2024), Blickle, He, Huang, and Parlatore (2025), Paravisini, Rappaport, and Schnabl (2023), and Duquerroy et al. (2022)), among others. These papers find that not only do banks exhibit specialization (usually from path histories), but this expertise results in

being able to offer clients lower interest rates, while still being more profitable. We allow for a reduced form specialization, thus generating a final prediction that the more that a firm suffers from short-termist pressures, the more valuable is bank specialization in being able to overcome the adverse long-term effects.

We corroborate the predictions from our model empirically, using Federal Reserve loan-level data collected as part of supervisory stress-testing efforts. Specifically, we find that transition loans are much more likely to be originated by banks specialized in transition lending (i.e. banks that have a larger proportion of their balance sheet directed towards loans associated with "transition" projects). These results are highly robust to a number of alternate specifications/definitions and hold even when we account for bank and borrower fixed effects. A one standard deviation change in bank specialization explains around a third of the unconditional probability that a firm may take a transition loan.

Importantly, we can use a borrower's past exposure to specialized lenders along with the passage of the Inflation Reduction Act (IRA) – which marked an exogenous shock to the availability of transition investment opportunities for firms in some industries – as ways to counter concerns regarding the endogenous selection of specialized banks by borrowers with transition projects in need of financing. The idea of this test is that the IRA exogenously created transition opportunities for a range of firms in particular sectors; we then consider which firms ended up initiating new transition projects, and the banks associated with these loans.

We further show that the price of transition loans is lower if the loan is originated by a bank with more experience in transition lending. Given the high degree of detail in supervisory data, which includes a bank's internal and confidential risk assessment of its borrowers, we can make loans by differently specialized banks as comparable as possible. In fact. a one standard deviation increase in bank specialization would reduce the cost of a loan – all else equal – by up to 24 basis points.

Finally, we can show that this lender specialization helps borrowers overcome short-termism (or related constraints that reduce the likelihood that investors wish to engage in transition investments). Our results indicate that a bank's stewardship may be most important for those firms with constraints, which may otherwise forego investing in transition projects.

2 Model

2.1 The Bank

We start with the bank and its incentive to make a loan. Bank b is willing to offer a loan to a firm j if the following inequality holds:

$$-L + \frac{1}{(1+r)} L(1+i)\pi_{bj} \geq 0. \tag{1}$$

The bank provides principal value L today and gets back this principal grown with interest $(1+i)$ in the future period. This future cash flow is discounted at the long-run market discount rate r.[3] The final term, π_{bj}, is the bank-client specific expected performance of the loan, including the expected default, spawning of future business, and any other idiosyncrasies. π_{bj} is positive and empirically close to one, but with a distribution of the default probability versus future business multiplier.

The components of π_{bj}, reflecting reduced form performance features as compelled by the literature, take the form $\pi_{bj} := \pi(\pi_{bj}^{spec}, \pi_b, \pi_j)$, with bank shifters π_b, firm shifters π_j, and bank-firm shifters π_{bj}^{spec} from specialization.[4] Our focus is on π_{bj}^{spec}, which captures bank specialization in its clients' activities or would-be activities, gained through path histories in the industry or geography of firm j.[5] Following the literature, we assume that loan performance is increasing in specialization, $\frac{\partial \pi}{\partial \pi_{bj}^{spec}} > 0$. Relatedly, we also assume that $\pi_{bj}^{spec} \geq 1$, that is, with no other bank or firm shifters, specialization can only *improve* the returns to the projects.

A bank will lend as long as the interest rate is sufficiently high to satisfy the inequality of wanting to lend; i.e.:

$$hurdle\ rate:\ i \geq \frac{(1+r)}{\pi_{bj}} - 1. \tag{2}$$

[3] The market discount rate is generally higher than the cost of capital for a bank, but we assume this rate also captures the mean rate of lending provision costs. We embed idiosyncrasies for the bank in the final term, π, capturing the bank's expected profitability of a loan.

[4] For example, A firm shifter can reflect a firm's default rates; a bank shifter can reflect market power.

[5] Blickle, Parlatore, and Saunders (2024); Blickle, He, Huang, and Parlatore (2025) find that banks with specializations in industries are able to offer lower interest rates to clients while yet lending more profitably . Likewise, Paravisini, Rappaport, and Schnabl (2023) find that banks with specialty knowledge about geography within sectors of export expertise provide lower interest, more profitable loans. Duquerroy et al. (2022) find that banks have industry specialization that further determines the equilibrium amount of lending into the future, and Frattaroli and Herpfer (2023) find that bank interconnected firms find value-enhancements for both the firm and the bank. Finally, a longstanding literature documents the lending relationship implications for loan contracts as value enhancement for firms and banks. See, for example, Bharath et al. (2007), and Bharath et al. (2009b) and the survey Elyasiani and Goldberg (2004).

If we assume that banks operate in an quasi-competitive environment, where they price loans at the hurdle rate equality condition of equation (2), $i = (1+r)/\pi_{bj} - 1$, then the break-even interest rate is (concavely) decreasing in specialization, $\frac{\partial i}{\partial \pi_{bj}^{spec}} < 0$, consistent with Blickle et al. (2024) and Paravisini et al. (2023).

2.2 The Firm

Imagine a risk neutral firm that has reached its stationary growth rate, g, with a valuation governed by the Gordon growth model and a long-run market discount rate, r. For simplicity, we assume that if the firm wants to continue operations in its stationary focus, it maintains investment in line with depreciation. As such, the firm's earnings will grow at g, and it will payout all earnings as dividends. We denote a baseline earnings at period $t = 0$ as E_0 and dividends at time t by d_t.

Rather than applying the Gordon growth valuation for the long term valuation today, at $t = 0$, we introduce a short term period as $t = 1$. This interim period allows us to consider the role of short-termism in investment decisions. We apply the long-run perpetuity at period $t = 1$.

In this setup, the stationary valuation to investors at time $t = 0$, $V_0^{stationary}$, can be written as today's dividends plus a discounted valuation at $t = 1$ of the firm's long-term value V_1, using the firm's discount rate ζ_j.

$$V_0^{stationary} = d_0 + \frac{1}{1+\zeta_j} V_1 \tag{3}$$

$$\tag{4}$$

Implementing the Gordon valuation at $t = 1$ for V_1 at the stationary growth rate g, then we have:

$$V_0^{stationary} = E_0 + \frac{1}{1+\zeta_j} \frac{E_0(1+g)^2}{r-g}$$

Discounting. A key attribute of the firm is the discount rate ζ_j, which we assume has the property $\zeta_j \geq r$. Discounting, or alternatively impatience, reflects the extent to which short term-focused investors are important for the firm, which in turn influences executive action acting through the board. From a firm point of view, because short-termism accurately depicts investor valuation, acting on V is rational. We subscript ζ with j, indicative of a particular firm j, to emphasize that this is a key attribute of our interest that is heterogeneous across firms. One way to think about this parameter is that $\zeta = r + c$, where c reflects a perceived cost incurred from exploring projects that pay off over the longer-term. This cost can be imposed due to the

consequences from short-termist investors or because of agency frictions which act on the market expected return.

We now consider what can happen if the firm borrowers from a bank. The short-termism of the firm can be negated by the possibility of a bank stewarding projects for the firm, because the bank guides the firm to long-term projects. This lowers the perceived cost of the firm to find such projects. . This specific role for stewardship acting on exploration costs in future discounting is not without grounding. A bank's effort to guide and support exploration into future opportunities may steer short termist investors from viewing managerial action is trading off today's dividend for tomorrow's, as we will show. To represent these mechanisms, when a firm has access to bank finance, we assume the discount factor can be parametrized as:

$$\zeta_j = r + \frac{c}{\pi_{bj}^{spec}}$$

2.3 Firm Investment and Financing

We now consider how the firm optimally invests in the transition project, depending on whether it has access to bank finance or not.

Firm's investment without bank finance. Suppose a firm is considering an investment opportunity that would increase the firm's long-run growth rate to g^*. To keep the model simple, we assume that the company risk profile does not change when a firm invests in transition opportunities.[6] If the firm chooses to make the investment, from period 0 to period 1, the firm grows at the baseline growth rate of g. However, by investing in the opportunity at $t = 0$, over the longer-term the firm grows at an opportunity growth rate of g^*, where $g^* > g$. To make the investment, we assume the firm has to rely on its own period 0 retained earnings (we consider the case with debt in the subsequent section). Furthermore, can only access up to kE_0 of the period 0 earnings for the investment, with $k \in (0, 1)$, because $(1 - k)E_0$ is paid out as a dividend at $t = 0$. We think of this parameter k as a reflecting a notion of capital intensity, being largely dictated by industry need, rather than a firm decision, thus treating k as a fixed, industry-specific parameter.

Thus, the earnings in period $t = 2$ would be $E_0(1 + g)(1 + g^*)$, which would all be paid out as

[6]Embedding risk of realization of g^* or overall risk profile of the company would cause a shift in the current valuation and default profile of the company. Whereas such attributes might be desirable, they are not obvious. The transition economy setting of today may imply equal or greater risk from remaining solely in the stationary economy. Also, the lack of taking such opportunities may lower overall g. Our motivation in abstracting from changing risk profiles is purely for simplicity of fixing ideas. However, the intuition of our model predictions hold when embedding a deeper understanding of these risks, just with more complexity in the modeling results.

d_2. In this scenario, the valuation at $t = 0$ can be expressed as:

$$V^{Invest|NoBankDebt} = (1-k)E_0 + \frac{1}{1+\zeta_j}\frac{E_0(1+g)(1+g^*)}{r-g^*}. \tag{5}$$

where the firm's discount rate $\zeta_j = r + c$ because it does not have access to bank finance.

The firm will choose to invest in the transition opportunity whenever $V_{\iota=1}^{Invest|NoBankDebt} > V^{Stationary}$. This simplifies to the inequality:

$$\underbrace{\frac{1+g^*}{r-g^*}}_{\text{Opportunity perpetuity factor}} - \underbrace{\frac{1+g}{r-g}}_{\text{Stationary perpetuity factor}} > \underbrace{k\frac{(1+r+c)}{(1+g)}}_{\text{Outlay cost amplified by the impatience-to-growth rate}} \tag{6}$$

Equation 6 has a natural interpretation; firms will make the transition investment if the excess of the opportunity perpetuity factor minus stationary perpetuity factor is greater than the cost in terms of the industry-level capital outlay intensity k cost value that is amplified at the impatience rate relative to the forgone stationary growth rate. It is also straightforward to see that firms without a transition opportunity ($g^* = g$) will never invest since k, ζ_j, and g are all positive.

Firm investment with bank debt. As we showed, there are some firms who might not invest in the transition opportunity when it must be financed solely from period 0 retained earnings.

Limiting to such firms, we consider how the firm's investment choice would change if it has access to bank debt. We now allow the firm to borrow kE_0 from a bank to finance the transition investment, allowing it to maintain its short-term shareholder payouts. In this case, the firm can pay shareholders the full dividend equal to earnings E_0 in the base period, invest kE_0 into the transition investment, and repay the loan at $t = 1$ at the interest rate i.

In this scenario, the value of the firm, using the earnings valuation applied to the perpetuity, is given by:

$$V^{Invest|BankDebt} = E_0 + \frac{1}{1+\zeta_j}\left[\frac{E_0(1+g)(1+g^*)}{(r-g^*)} - kE_0(1+i)\right]. \tag{7}$$

, where now $\zeta_k = r + c/\pi_{bj}^{spec}$. Comparing this valuation to $V^{stationary}$ leads to the decision relationship that the firm will now choose to make the transition investment with bank debt

when:

$$\frac{1+g^*}{r-g^*} - \Big(\frac{1+r+\frac{c}{\pi_{bj}^{spec}}}{1+r+c}\Big)\frac{1+g}{r-g} > \underbrace{\frac{k(1+i)}{(1+g)}}_{\text{Outlay grown at interest rate relative to growth rate}} \tag{8}$$

The firm compares the the boost in the perpetuity factor that comes with a transition opportunity g^* to the ratio of the cost of undertaking the investment, $k(1+i)$ relative to the gross stationary growth rate.

Effect of bank finance on transition investing. In the following parameter space, the firm undertakes the investment when it has access to specialized bank finance, but does not do so without bank finance:

$$k\frac{(1+\zeta_j)}{1+g} > \frac{1+g^*}{r-g^*} - \frac{1+g}{r-g} > \frac{k(1+i)}{(1+g)} + \frac{c}{1+r+c}\frac{\pi-1}{\pi}\frac{1+g}{r-g} \tag{9}$$

This tradeoff implies the following relations. Without debt access and with high discount factor ζ_j, the first term of the equation may be too big to overcome, meaning that the boost in the perpetuity factor may not be large enough to induce an investment. This equation is more likely to hold as a firm's cost of exploration c increases, because this increases the firm's discount factor ζ. For example, firms with high short-termism will be more likely to have this inequality hold, all else equal.

In addition, a higher level of bank specialization π_{bj}^{spec} makes this inequality more likely to hold, because higher specialization leads to a lower interest rate i, helping to enable more firm investment into long term valuation maximizing projects. Thus from the perspective of the firm, the bank debt increases the valuation, resolving a short term : long term conflict inside the firm.

2.4 Testable Predictions

Using the lens of the model, we obtain the following empirical predictions:

> Prediction (I): Loans for transition opportunities will be more likely to be extended by banks with a specialization in transition projects.

This prediction follows from the following logic in the model. First, if a firm is using bank debt to invest in a transition opportunity, it faces a high cost of exploration c which prevents it from doing the investment on its own (e.g. high short-termism, agency frictions). Given this constraint, it is likely that more transition investment will be conducted with more specialized

banks– banks that can offer competitive terms that overcome such constraints. This result comes from Equation 9.

This first prediction relies on an assumption of how specialized lender price transition loans, influencing the cost of credit for such project. In the model we assumed that the break-even interest rate is decreasing in specialization. This leads to our next prediction:

> Prediction (II): Loans from specialized banks for transition opportunities will have a lower interest rate than other firm-bank financing of transition opportunities.

Our focus on the interest rate pricing centers on notions of bank specialization. With a high bank-project specialization, the bank can offer a lower interest rate than other banks while remaining profitable. This prediction comes directly from Equation 2.

Lastly, the model highlights that bank specialization is particularly important for specific types of firms. This is because, given the existence of a transition opportunity for a firm ($\iota = 1$), a firm may still optimally chose to invest–even without bank finance. In particular, the propensity to invest in transition projects is declining in short-termism when firms do not have access to bank credit. For firms with longer-term horizons, bank financing from a specialized bank may not induce any additional investment–they would have done the investment anyway. Thus, empirically, Prediction I should hold with a greater strength in the subsample of firms that are short-termist. That is, bank financing will be more important for inducing transition investment for firms that would not have done it in the absence of bank financing. This intuition leads to the third empirical prediction:

> Prediction (III): If a firm with high impatience invests in a transition projects, it is more likely it is that a lender participating in the transition investment is a specialized lender.

This prediction comes directly from Equation 9, where short-termism can hinder a project without bank finance. However, this can be overcome with bank financing as long as the interest rate is sufficiently low, which is more likely to occur with a specialized lender. This means that firms with high short-termism are more likely to invest in transition projects when they obtain financing from a specialized lender.

3 Data and empirical approach

The model generates clear testable predictions which can be evaluated in the data. Our primary data for this paper comes from an administrative credit registry that is collected by the Federal Reserve system as part of its supervisory efforts. We first describe the data and then explain how we test the model's predictions.

Y-14 Loan Data To identify firm-bank relationships, track lender specialization, and conduct loan-level analyses, we make use of Y14-Q, schedule H1 data. The dataset contains detailed quarterly information on the C&I loans of reporting banks. Reporting institutions must file all loans they hold with a total balance-sheet commitment of more than 1 million USD in a given quarter. In the sample period between 2012:Q2 and 2023:Q2, we observe 40 banks that report several million loan observations. We keep observations for which we observe the amount, maturity, and interest rate. We naturally remove observations with interest rates or maturities that are likely the result of coding errors (i.e. negative or beyond reasonable coding ranges). In our cleaned sample, we thus focus on about 297,000 term loans, 512,000 credit lines with a total of over 8,000,000 loan-quarter observations. The data includes private as well as public borrowers – unlike many other data sets. Ultimately, our cleaned data contains loan-information for around 70% of C&I lending in the United States.

Banks report a large set of characteristics for each loan they hold that are useful for our analyses. Loan characteristics include the type of loan (credit line vs. term loan), total committed amount, total drawn amount, interest rate, the loan purpose (i.e. the project-type being financed) whether a loan is collateralized or unsecured, loan maturity, a loan's risk rating as rated by the bank and reported to Federal Reserve examiners, as well as whether a loan has become non-performing or is in arrears. Besides loan characteristics, the data contains additional information on borrower characteristics. These include borrower name, location, and – importantly–, the 6-digit NAICS of the industry to which the loan is directed.

We use the 6-digit industry code associated with each loan to identify whether a loan is directed towards a transition or "green" project or not. The Bureau of Labour Statistics (BLS) provides a list of industries that it identifies as being associated with the transition to a greener economy.[7]. It includes – as one may expect – industries associated with green energy generation, bio-fuels, certain agricultural sectors or agricultural improvements, and more. The median firm has loans associated with just over three different two digit-naics codes but around 15 different industries when counted at the 6-digit level. Around 3% of all loan observations (as well as 3% of new loans) at this 6 digit level are considered transition-loans by our definition.

In Table 1 we outline some additional key metrics for our sample. The average bank has directed around 2 percent of its portfolio to transition investments. This follows from the fact that only 3 percent of all loans in our sample (unweighted) are considered transition loans. The degree to which banks "specialize" into what we call transition investments does not vary much over time. As can be seen in Appendix A.1, banks in the top tercile of "exposure to transition

[7]The full list can be found here. We refine the list somewhat to remove borderline green industries such as aluminum smelting and tar production in our baseline regressions. All our results hold if we make use of the list as originally specified or if we focus on only "green" projects as opposed to transition projects more broadly.

loans" have significantly higher exposure to such lending (as a share of their balance sheet) than banks in the lowest tercile. This difference is steady accross our sample period. The average rate paid for any given loan is 3.8% while the rate paid for transition loans is around 3.9% and not statistically different (not reported in the table for brevity). The average loan size is 17 mil. USD, with a long right tail, skewed towards some large syndicated loans.

Measuring Shareholder Short-Termism In this paper, we also require a measure of shareholder short-termism for each firm, which we proxy by estimating, for each firm in each period, what share of the company's shareholders are short-termist. We utilize 13F filings data for this purpose. Large institutional investors with more than $100 million in assets under management are required to report (every quarter) their holdings of U.S. stocks and other related securities to the Securities and Exchange Comission. We access these 13F filings through WRDS for the post-2013 period, and from Backus et al. (2020) for for the period prior to 2011. Our first step is to first identify which institutional investors can be classified as "short-termist". We follow the literature (Bushee (2001)) and consider two measures of short-termism: the share of their investor's portfolio held for less than 2 years, and the share of the investor's portfolio that is turned over in each period. We classify an investor as "short-termist" if it is in the top quartile of short-termism using either measure, or whether that investor is classified as short-termist in the Bushee (2001) classification.[8] We then calculate for each firm what fraction of their outstanding shares are held by "short-termist" investors. We combine this data with compustat information on each firm, also pulled from WRDS.

We merge Y-14 data with our firm level 13F and compustat data using a multi-step process. In some cases, public-firm loans are listed with the company's ticker or tax ID (tin). This allows us to match publicly traded or other large firms to compustat data directly. In the majority of cases, however, we merge by name and headquarter zip code. Our algorithm first removes common article words and other non-identifying additions to names [9]. We subsequently match firms with one another if they operate in the same four digit zip code and have names with a high similarity score. In a final step we hand check the largest 2500 firms based on their total asset size. Our final matched sample covers 56% of all firms listed in compustat by count but just over 90% by size. As can be seen from Table 1, around 62% of our loan-quarter observations are directed towards firms with short-termist investors. Naturally, our merged sample of firms for which we have short termist data is somewhat reduced.

[8]We thank Brian Bushee for making this data publicly available on his website. Bushee (2001) classifies institutional investors into "dedicated" (DED), "quasi-indexer" (QIX), and "transient" (TRA) types based on their portfolio characteristics. The "TRA" types are short-termist.

[9]This includes words associated with a firms corporate structure such as LLC, Holding, Corporation, and abbreviations of these and similar words.

3.1 Methodology

We bring the model predictions to the data by considering the following the empirical tests.

Baseline Test of Specialization We estimate a baseline OLS model in a panel of loan-firm-bank-quarter data, in which the dependent variable is dummy variable indicating whether a loan l from bank b to firm j at time t is for a transition opportunity, denoted Y_{lbjt}. We then construct a measure of the degree to which a bank b is specialized ($Specialized_{bt}$) based on Blickle et al. (2025) and Paravisini et al. (2023). For our baseline specifications, we define lender specialization as simply the share of a bank's C&I lending going to transition projects. To test Prediction I, we consider whether lender specialization itself is positively correlated with firm transition investment. We consider specifications of the form:

$$Y_{lbjt} = \beta Specialized_{bt} + \delta_j + \delta_b + \delta_t + \gamma' X_{lbjt} + \epsilon_{ljt} \tag{10}$$

The coefficient of interest β indicates whether transition loans are more likely to be conducted with specialized banks, where Prediction I implies $\beta > 0$.

At the loan-level, we are able to account for a number of controls. Ultimately, in our most saturated specifications, we can account for firm-fixed effects (δ_j), bank fixed effects (δ_b), time fixed effects (δ_t). These hold fixed any invariant unobserved characteristics that may separately influence transition opportunities, such as the capital intensity of the firm (κ in the model), or the overall profitability of a bank. We also include other controls for time-varying characteristics that can influence lending outcomes in the vector X_{bjt}, including a control for the firm's total borrowing and the average interest rate paid by the firm, as well as additional fixed effects for loan purpose, loan type, syndication, and the risk rating of the loan. Risk ratings are assigned by the bank and are – for the purpose of stress testing efforts – comparable across different banks. They reflect non-public information about the quality of a borrower's project and help us make sure our loans are comparable.

With these rich fixed effects and controls, we identify how the propensity of a firm to invest in transition-projects may vary with the degree to which the lender in question is specialized *in that particular year*.

Even with our controls, a natural endogeneity concern in Equation 10 is that firms which borrow more from specialized banks may have unobservably different investment opportunities (relating to transition projects), which change over time. In the context of the model, this would be represented as some firms not having access to g^* technology, while others do, with this propensity changing over time and being correlated with the likelihood of relying on specialized banks.

We consider three variations of this main specification to address such concerns. Firstly, we run our tests on the full sample of outstanding loans, as well as the subsample of newly originated loans, to focus on the flow of new lending rather than legacy loans. In this way, we leave out renegotiations that might be the result of contemporaneous changes in a firm's opportunities and a bank's propensity to invest in transition loans.

Secondly, we consider lagged measures of a lender's specialization, rather than the contemporaneous measure. We use a lag of 5 quarters (just over 1 year) to far exceed the length of time it may take to negotiate a loan. With this test, we can say whether the prior experiences of a lender – with transition lending – change the probability that a borrower invests in transition opportunities. We thus try to avoid the issue of borrowers seeking out lenders with high expertise for the purpose of making a transition investment *in the period in which* they have the opportunity to invest. Similarly, we can take a lagged measure of a borrower's average (arithmetic mean) exposure to specialized lenders as our variable of interest. Given a persistence in transition-specialization among lenders, this borrower-focused test is more stringent and more cleanly avoids the issue of endogenous lender-borrower selection. It helps us argue that past exposure to highly specialized banks – on average – may help borrowers to engage in transition investing.

Thirdly, we consider shocks to transition opportunities stemming from the Inflation Reduction Act. The idea behind this test is that the law generates an observable shift in transition opportunities for all firms in sectors benefiting from IRA subsidies. By limiting our sample to "IRA-affected" firms, we can "hold fixed" investment opportunities, and consider which firms take up the new opportunity. By further making use of lagged bank specialization, we come as close to a natural experiment as possible: we compare highly similar firms with *new* transition opportunities, differenced by whether they have had exposure to lenders with previous experience in transition lending. We identify firms affected by the IRA at the 3-digit NAICS industry level. Specifically, we calculate the abnormal stock returns (using a 100 day window for normalization) for firms in various 3-digit industries on the day the IRA was passed. We find that the average stock prices for firms in some industries had a significant positive reaction to the passage of the IRA. We sort industries by the degree to which they were affected and take all firms in the top half of our sample as those "positively affected" by the passage of the act.

In our final baseline analysis, we test whether exposure to transition lenders changes the average propensity of a borrower to engage in transition investments. This arguably is the aggregation of our previous analyses. We collapse our data at the bank-firm-quarter level and relate the average share of transition loans taken by a borrower to the average degree to which said borrower's banks had been specialized in transition lending. We can thus determine the degree to which a given borrower's investment behavior was stewarded – on average – by exposure to lender specialization.

Pricing We next consider a test of Prediction II related to the pricing of green loans. For this test, we limit the sample to transition loans, and estimate the relationship between lender specialization and the interest rate charged on green loans, controlling for other related characteristics such as the risk properties of the loan. Our vector of controls W_{bjt} includes all the controls from 10, as well as additional controls for the size of the loan and the type of collateral pledged.

$$r_{lbjt} = \eta Specialized_{bt} + \delta_j + \delta_b + \delta_t + \gamma' W_{lbjt} + \epsilon_{ljt} \tag{11}$$

The coefficient of interest η reflects how the interest rate associated with green loans relates to the specialization of the bank. Prediction II implies $\eta < 0$, that specialized banks can charge lower interest rates for transition loans.

A natural concern in Equation 12 is that firms which borrow more from specialized banks have unobservable different risk properties which change over time and also influence the interest rate. We argue that our comprehensive set of controls and fixed effects, along with controls for the firm's overall interest rate paid for outstanding loans and the bank's internal risk assesment of the loan, help alleviate this concern. If we include firm fixed effects with our risk controls, we are ostensibly comparing highly similar loans from differently specialized banks.

Since we cannot observe the loan demand or the bargaining process, but only the ex-post borrowing outcome, we are careful not to make causal claims about the relationship between specialization and loan cost. We are simply identifying the degree to which differently specialized banks may have charged different prices for similar loans.

Short-termism Lastly, we test Prediction III, that bank specialization can help firms overcome short-termism. The Prediction implies that the effects of bank specialization on transition investment should be more pronounced for firms that are short-termist. We consider this test by restricting the sample to a set of publicly traded firms, and calculate short-termism as the fraction of outstanding shares held by short-termist investors in each period (the variable ST_{jt}). We consider the following interacted specification:

$$Y_{lbjt} = \theta Specialized_{bt} \times ST_{jt} + \phi ST_{jt} + \lambda Specialized_{bt} + \delta_j + \delta_b + \delta_t + \gamma' W_{lbjt} + \epsilon_{ljt} \tag{12}$$

The coefficient of interest θ estimates whether specialization has a stronger effect on transition lending for firms which more short-termist shareholders. The vector X includes the same controls and fixed effects as in Equation 10. From Prediction III, we expect $\theta > 0$.

4 Results

4.1 Specialization

We find that specialized lenders are more likely to make loans associated with the energy transition if they have experience making this type of loan. Specifically, in Table 2, we can see that lender specialization is positively correlated with transition lending. The dependent variable here takes a value of 1 if the loan is associated with a project whose 6-digit NAICS code was identified as being associated with the transition economy by the BLS.

We can measure lender specialization a number of ways, as discussed above. In these regressions, we measure it as the share of a bank's C&I loans (by volume) that are directed towards transition investments. In our regressions we additionally account for a number of bank and borrower characteristics/fixed effects. For instance, we include both the rating a lender assigns to the project as well as the average rate paid by a given borrower for all outstanding loans to gauge borrower riskiness. We also account for the type of loan being made, the 4-digit industry of the borrower, the purpose of the loan, and whether the loan is syndicated to other lenders as well.

In our most saturated regressions, we further include lender or even firm and lender fixed effects. We are thus identifying our effect of interest within a given borrower and bank – leveraging the degree to which a given lender's experience with transition projects may vary over time and how this, in turn, may affect how likely it is for any given borrower to obtain transition-project financing.

We can see form column (1), that a one standard deviation increase in a lender's specialization would increase the likelihood of a loan being a transition loan by just under 1 percentage point. While this may seem small, it it is worth noting that the unconditional probability of any given loan being associated with a transition industry is around 3%. As such, our effects are both statistically and economically meaningful. Our results are unaffected whether we focus only on new originations or on originations and re-negotiations. Including firm fixed effects reduces our coefficient magnitude. However, this is to be expected as it implies that even with in a given firn, transition loans are more likely to be made by specialized lenders.

Lagged Exposure We acknowledge that our tests above make use of contemporaneous bank specialization. Despite our fixed effects, we may worry that (i) a given borrower has sought out a given lender at the exact point at which they needed the transition financing or (ii) that a given lenders transition expertise is distorted by the very loan we are observing, which may be the case if such a loan is particularly large. We can address this issue using lagged specialization. First, we lag the specialization of the lender and make use of lender specialization from over a year

(5 quarters) before the current loan was originated. We can see in Table 3, Panel A, that our results are not impacted by this lagging operation. In fact, we find that lender specialization is still strongly related to the likelihood that the firm receives a transition loan.

Besides lagging lender specialization, we can also approach the issue from another angle and lag the borrower's exposure to specialized lenders. To do this, we take the average specialization (arithmetic mean) of all of the lenders to which a given firm may be exposed and lag this exposure by 5 quarters. We thus argue that the borrower in question is not selecting to do business with any given specialized bank because of a transition opportunity in that period. Far rather, Panel B of Table 3 is suggesting that a borrower's past exposure to highly specialized banks may induce them to engage in transition projects.

Inflation Reduction Act An argument might still be made that we are biasing our coefficients upwards because we are inherently observing those firms with good transition opportunities who request (and receive) transition loans. As such, in a final step, we try to focus on a sub-sample of firms that may have all received the same shock to their ability to make invest in transition projects. To this end, we make use of the passage of the inflation reduction act (IRA).

Table 4 includes only those firms whose industries were positively affected by the passage of the IRA. We assume that such firms had a positive shock to their ability to make transition investments. We then relate transition lending to a bank's past (lagged 5 quarters) specialization with transition lending. We find that the effect is still strongly positive and strongly significant. Our coefficients are slightly smaller than in our baseline sample, as we are focusing explicitly on those firms who now all have better transition opportunities. Endogenous borrower-bank relationships based on transition lending are unlikely to be an issue in this sample/specification.

Bank-Specialization and Aggregate Firm Behavior Finally, we relate the change in investment behavior at the firm-level to (lagged) changes in a bank's specialization. We do so in order to ascertain whether being associated with more specialized lenders drives a borrower to take more transition-oriented loans overall. We relate the average share of transition loans (relative to all loans) taken by a firm in a given period on the degree to which it's average lender had specialized. We show graphical relationships of this in Figure 1. It is evident that past lender specialization is strongly correlated with average borrower transition investment in subsequent periods. These relationships hold whether we weight loans by their size or if we weight the average specialization of a borrower's lenders by their total interaction volume.

In Table 5 we make use of simple averages. We include a host of fixed effects, and controls, as above, to show that a firm's association with specialized borrowers, on average, is associated with more transition-oriented loans. Similarly, we can show (in columns (3) and (4)) that a firm's

most specialized lender is also associated with additional transition investment. Finally, we relate whether a bank had a sudden increase in transition lending (i.e. a one standard deviation or more rise in specialization in a single quarter) with subsequent borrower transition loans. We again find a positive and significant relationship, indicating that sudden changes in lender specialization may drive borrower behavior.

4.2 Pricing

We extend our analysis by looking at the cost of transition loans made by specialized versus those made by less specialized lenders. In Table Table 6 we regress the interest rate paid for a loan on the specialization of the lending entity. We limit our sample to only those loans that are considered "transition loans". We include the same controls as above – as well as a loan's size and the type of collateral pledged – to account for borrower risk and other aspects of the loan or borrower that may affect a loan's rate.

We find that loans made by specialized banks are significantly less costly. All else equal, the same firm, borrowing from the same bank would pay less in those periods in which the bank is more specialized in transition lending. Looking at column (3), we can say that a one standard deviation increase in a bank's specialization would reduce the rate charged for a similar transition loan by 0.4 percentage points. We lose a degree of significance when we look at only new originations (excluding renegotiations or renewals) as the sample size may be too small in the face of our highly saturated regressions.

4.3 Short-termism

Bank specialization can help firms overcome short termism issues (as well as similar constraints that might otherwise limit their ability to invest). First, we show that short-termist investor strongly reduce investments in transition technologies. In the Appendix, we discuss this in detail at the firm level and in Table A.1, we show that short termism at the borrower level is negatively associated with transition loans. Given our controls, we can say that times at which th efirm is more shor yttermist are times during which fewer investments in transition technolgies are likely to be made.

In Table 7 we show that the interaction of short termism (see above) and bank specialization is positive. In fact, the effect of lender specialization may be the most pronounced for firms that are otherwise constrained by short termism. These findings hold no matter how (or if) we lag our specilization measure and whether we focus on all loans or new originations only.

It should be noted that our sample in these analyses is limited to those firms for whom we can

combine both compustat and investor filing data with Y14 data. This may be skewed towards larger and more public firms. Firms that are naturally likely to be less affected by opacity issues that might limit otherwise small firm ability to invest in transition projects. In the Appendix A.2, we include an example of our regression from Table 3 (above) using only the combined sample also used here. We can see that the coefficients are indistinguishable or – if anything – slightly larger in our merged sample. Part of this (small) difference may indicate that larger public firms are generally more likely to be affected by investor short-termism, which makes investing in transition opportunities more difficult.

An alternate approach to testing proposition 3 can be found in Appendix Table A.3. Here, we limit our sample to only those loans considered transition investments. We then relate the specialization of the lender for each loan to the degree to which the borrower is short-termist. We find that more short-termist borrowers are likely to be borrowing form specialized lenders, provided they are making transition investments.

5 Conclusion

We argue that banks are not merely fungible, mechanical providers of credit, but rather integral guides who enable firms to undertake long-term, value-creating investments. We synthesize work in banking and corporate finance into a novel concept that we denote: bank stewardship. Banks expertise in certain types of investment projects impact their clients' ability (and willingness) to undertake such projects. We focus on "transition opportuinities", whereby firms must invest in novel industrries to remain relevant.

Building on the literature around bank specialization (Paravisini et al. (2023), Blickle et al. (2024), or Blickle et al. (2025)) we develop a model, which showcases that banks with more expertise in certain types of projects can help firms make such investments. Specialized banks familiar with financing transition opportunities would charge lower rates to their clients. We show that particularly firms with high short-termism (or similar constraints) may find bank expertise necessary to engage in value-creating investments.

We corroborate our theory empirically using supervisory – and highly detailed – stress-testing data. For these empirical tests, we use investments into greener technologies, which were relevant to the growth of some sectors during our sample period, as transition opportunities. We find that our empirical predictions map onto the data well.

Borrowers associated with lenders that are specialized in transition lending are themselves more likely to take transition loans. These findings are highly robust. Moreover, we can use a borrower's lagged exposure to lender specialization and the passage of the IRA – which affected transition

opportunities – as ways of avoiding endogeneity concerns around the selection of specialized lenders by borrowers with transition opportunities.

We further find that transition lenders charge less for transition loans. These results hold even in the face of restrictive risk-controls and borrower as well as lender fixed effects. Finally, we can show that transition lenders are indeed most critical in the case of larger short-termist borrowers.

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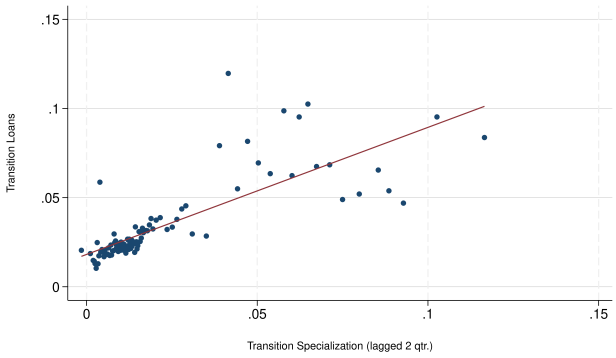
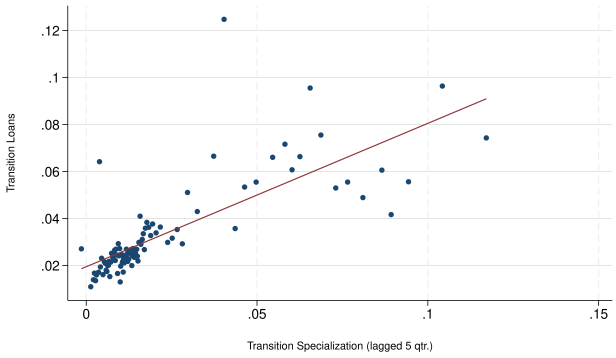
6 Tables and Figures

Figure 1: **Correlations of Transition Loans to Bank Transition Specialization**

(a) Specialization Lagged 2-Qtr.



(b) Specialization Lagged 5-Qtr.



Notes: We relate the share of transition loans (relative to all loans) made to a borrower to the average transition specialization of their lenders. We absorb time fixed effects.

Table 1: **Summary Statistics of Key Variables**

	N	Mean	SD	p25	p75
Lender Share of Transition Loans	8,338,797	0.018	0.021	0.011	0.024
Transition Loans	8,338,797	0.031	0.152	0.00	0.00
Interest Rate	8,338,797	3.82	1.95	2.41	4.75
Loan Size (tsd.)	8,338,797	17,928	50,549	1,741	14,210
Loan Internal Risk Rating (1-10)	8,338,797	4.67	1.18	4	5
Short-Termist	1,497,187	0.62	0.08	0.57	0.67

Notes: This table shows summary statistics for our sample.

Table 2: "Transition Projects" and Bank Specialization

	(1)	(2)	(3)	(4)	(5)	(6)
	All Obs.			New Origination		
	Transition Loan					
Lender Specialization	0.396***	0.317***	0.0950***	0.423***	0.351***	0.0857*
	[111.33]	[25.74]	[14.70]	[27.69]	[6.32]	[1.76]
Controls	Total Firm Borrowing, Average Firm Rate					
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating					
Addtl. FE	–	Lender	Lender, Firm	–	Lender	Lender, Firm
N	4,826,329	4,826,329	4,795,321	243,109	243,108	156,710
R2	0.617	0.618	0.933	0.578	0.580	0.906

Notes: We regress whether a loan is considered a transition loan, which is a binary variable that takes the value of 1 if the 6-digit NAICS code of the loan can be considered a transition-related industry, on the degree to which the associated lender is specialized in transition lending. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations). T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 3: "Transition Projects" and Lagged Specialization

Panel A: Lagged Bank Specialization

	(1)	(2)	(3)	(4)
	All Obs.		New Origination	
	Transition Loan			
Lender Specialization$_{t-5}$	0.392***	0.358***	0.388***	0.314***
	[99.23]	[116.77]	[22.83]	[16.50]
Controls	Total Firm Borrowing, Average Firm Rate			
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating			
Addtl. FE	–	Firm	–	Firm
N	4,379,625	4,346,017	216,557	137,841
R2	0.615	0.932	0.581	0.906

Panel B: Lagged Borrower Exposure to Lender Specialization

	(1)	(2)	(3)	(4)
	All Obs.		New Origination	
	Transition Loan			
Avg. Lender Specialization$_{t-5}$	0.362***	0.0573***	0.218***	0.00790
	[80.55]	[7.52]	[8.72]	[0.25]
Controls	Total Firm Borrowing, Average Firm Rate			
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating			
Addtl. FE	–	Lender	–	Lender
N	3,979,152	3,979,152	122,878	122,878
R2	0.616	0.617	0.554	0.556

Notes: We regress whether a loan is considered a transition loan, which is a binary variable that takes the value of 1 if the 6-digit NAICS code of the loan can be considered a transition-related industry, on the degree to which the associated lender is specialized in transition lending. We lag the specialization of the lending institution by 5 quarters in panel A. In panel B, we take the average specialization to which the borrower was exposed (based on the arithmetic average of its lenders) from 5 periods earlier. We include fixed effects, as indicated. Columns (3) -(4) make use of only loans newly originated in the given quarter (excluding renegotiations). T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 4: "Transition Projects" and Lagged Bank Specialization – IRA Affected Sample

	(1)	(2)	(3)	(4)
	All Obs.		New Origination	
	Transition Loan			
Lender Specialization$_{t-5}$	0.148***	0.125***	0.136***	0.0637**
	[19.75]	[21.55]	[4.26]	[1.97]
Controls	Total Firm Borrowing, Average Firm Rate			
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating			
Addtl. FE	–	Firm	–	Firm
N	755,148	744,214	32,141	19,168
R2	0.590	0.952	0.585	0.951

Notes: We regress whether a loan is considered a transition loan, which is a binary variable that takes the value of 1 if the 6-digit NAICS code of the loan can be considered a transition-related industry, on the degree to which the associated lender is specialized in transition lending. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 5: Firm-Level Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	Transition Loan					
Avg. Lender Specialization$_{t-5}$	0.451***	0.330***				
	[20.51]	[17.53]				
Top Lender Specialization$_{t-5}$			0.0576***	0.0554***		
			[7.68]	[8.36]		
Increase in Specialization (0/1)					0.00133**	0.000678
					[2.58]	[1.93]
Controls	Total Firm Borrowing, Average Firm Rate					
Baseline FE	Industry, Qtr*Year, Avg. Rating					
Addtl. FE	–	Firm	–	Firm	–	Firm
N	147,316	147,123	147,316	147,123	147,316	147,123
R2	0.635	0.962	0.636	0.964	0.635	0.962

Notes: We collapse our data at the firm-time level. We regress the average share of a given borrower's loans that are considered transition loans on the average degree to which its lenders are spoecialized in transition lending. We further make use of the specialization of a borrowers most specialized lender in columns (3) and 94). In columns (5) and (6) our variable of interest is binary and takes the value of 1 if a borrower's lender has experienced a one standard deviation or more increase in transition specialization in a single quarter. We include fixed effects, as indicated. T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 6: Interest Rates on Bank Specialization

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	All Obs.			New Origination		
	Green Loan Interest Rate					
Lender Specialization	-2.970***	-4.271***	-2.802***	-8.834***	-8.375*	-0.535
	[-9.56]	[-4.07]	[-5.91]	[-6.26]	[-1.65]	[-0.17]
	-5.9	-8.5	-5.6	-17.7	-16.8	-1.1
Controls	Total Firm Borrowing, Average Firm Rate, Loan Size					
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating, Collateral Type					
Addtl. FE	–	Lender	Lender, Firm	–	Lender	Lender, Firm
N	131,120	131,120	129,899	6,531	6,529	3,639
R2	0.354	0.378	0.770	0.398	0.421	0.783

Notes: We regress whether a loan is considered a transition loan, which is a binary variable that takes the value of 1 if the 6-digit NAICS code of the loan can be considered a transition-related industry, on the degree to which the associated lender is specialized in transition lending. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

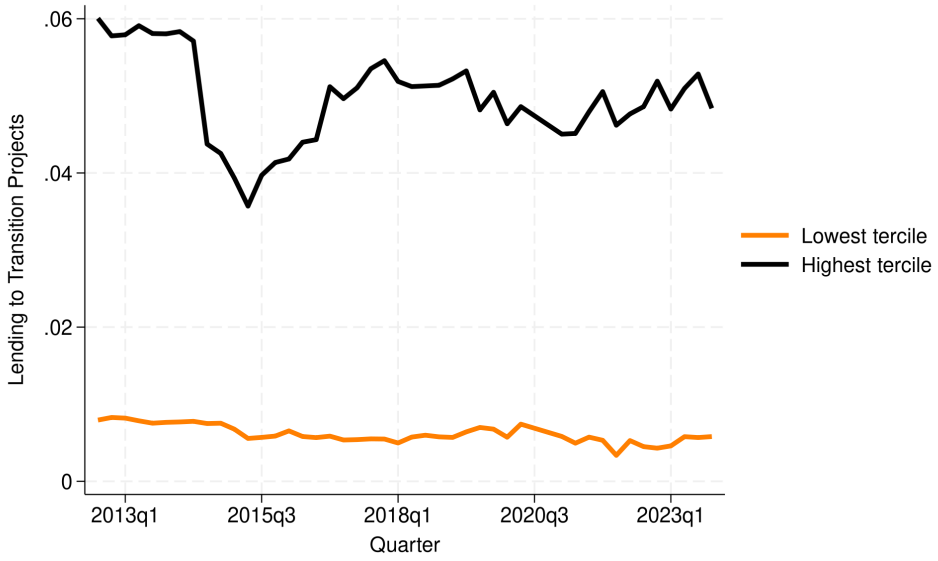
Table 7: Interaction: Bank Specialization and Firm Short Termism

	(1)	(2)	(3)	(4)
	All Obs.		New Origination	
	Transition Loan			
Lender Specialization$_{t-5}$	0.209***	-0.0948	-0.263	-0.720***
	[3.60]	[-1.64]	[-1.21]	[-3.20]
Interaction: ST * Lend. Special.	0.219**	0.343***	0.973***	1.351***
	[2.45]	[4.10]	[2.80]	[4.06]
Short Termism (ST)	-0.00798***	-0.00270	-0.0122	-0.0152
	[-3.56]	[-1.02]	[-1.35]	[-1.30]
Controls	Total Firm Borrowing, Average Firm Rate			
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating			
Addtl. FE	–	Lender and Firm	–	Lender and Firm
N	711,058	710,930	41,090	40,754
R2	0.493	0.619	0.502	0.651

Notes: We regress the rate (in percentage points) paid for a transition loan on the degree to which the associated lender is specialized in transition lending. Naturally, we limit our sample to transition loans. We include an additional line in the table that scales coefficients; it shows the basis point change in loan price for a one standard deviation change in lender specialization. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations). T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

A Appendix

Figure A.1: **Specialization in Transition Projects**



Notes: We chart the share of transition loans (relative to all loans) made by banks in our sample. We spit our sample into terciles of exposure to transition lending at the start of the sample and plot the average of the top and bottom tercile.

Table A.1: Share of "Transition Projects" on Short-Termism (new loans)

	(1)	(2)	(3)
	Transition Loan		
Short Termism	-0.0191***	-0.0293***	-0.00652*
	[-6.01]	[-9.19]	[-1.66]
Controls	Total Firm Borrowing, Average Firm Rate		
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating		
Addtl. FE	–	Lender	Firm
N	813,087	813,087	809,800
R2	0.245	0.251	0.354

Notes: We regress whether a loan is considered a transition loan, which is a binary variable that takes the value of 1 if the 6-digit NAICS code of the loan can be considered a transition-related industry, on the degree to which the firm in question can be considered short-termist. We limit our sample to those Y14 firms for whom we can merge in 13-F and compustat data. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table A.2: Share of "Transition Projects" on Specialization – Merged Sample Only

	(1)	(2)	(3)	(4)
	Transition Loan			
Specialization$_{t-5}$	0.533***	0.528***	0.404***	0.407***
	[98.92]	[106.10]	[18.66]	[19.89]
Sample	All Obs.		New Origination	
Controls	Total Firm Borrowing, Average Firm Rate			
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating			
Sample	All Obs.		New Origination	
Addtl. FE	–	Firm	–	Firm
N	2,135,772	2,135,583	111,837	111,138
R2	0.538	0.629	0.520	0.622

Notes: We regress whether a loan is considered a transition loan, which is a binary variable that takes the value of 1 if the 6-digit NAICS code of the loan can be considered a transition-related industry, on the degree to which the associated lender is specialized in transition lending. We focus on htose firms for whom we can merge filing and compustat data with Y14 data. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table A.3: Bank Specialization on Firm Short Termism – Green Loans Only

	(1)	(2)	(3)
	Lender Specialization		
Borrower Short-Termism	0.0229***	0.00644***	0.0135***
	[9.00]	[7.31]	[9.56]
Controls	Total Firm Borrowing, Average Firm Rate		
Baseline FE	Purpose, Industry, Qtr*Year, Loan Type, Syndication Dummy, Rating		
Adtl. Fixed Effects	–	Lender	Lender and Firm
N	15589	15588	15509
R2	0.282	0.922	0.929

Notes: We regress the specialization of the bank making a given loan on the degree to which the borrower is short termist. We restrict our sample to only those loans that are considered "transition loans" at the 6-digit NAICS code level. We include fixed effects, as indicated. Columns (4) -(6) make use of only loans newly originated in the given quarter (excluding renegotiations T-stats are shown in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.