Internet Appendix for

"Credit and Punishment: Are Corporate Bankers Disciplined for Risk Taking?"

Janet Gao
Indiana University
janetgao@indiana.edu

Kristoph Kleiner
Indiana University
kleinerk@indiana.edu

Joseph Pacelli
Indiana University
jpacelli@indiana.edu

This Appendix provides additional material and results, not reported in the paper. Section 1 provides a theoretical framework to support our empirical prediction. Section 2 examines how our results vary based on the time since loan issuance. Section 3 examines how turnover varies based on banker seniority. Section 4 examines how turnover varies based defaults and loan pricing. Section 5 examines cross-sectional variation related to a borrower's propensity to strategically default on a loan. Section 6 examines bankers' renegotiation ability. Section 7 adds controls to the turnover and lending term models for various credit event lags. Section 8 considers a Cox Hazard Model. Section 9 considers additional cohort fixed effects. Section 10 presents the estimation of our abnormal credit event model. Section 11 provides additional comparable event analyses.

IA.1 Theoretical Framework

IA.1.1 Setup

There are two time periods, $t = 1, 2$. There is a bank that has N bankers working in its corporate lending department. In each period, each banker i generates new loan deals amounting to $v_{i,t}$, and exerts effort to reduce the likelihood of default $q_{i,t}$ arising from each deal (i.e., risk management). Default may occur in each period. Each banker also has a certain level of ability to manage risk, but the bank cannot observe the banker's effort or ability.

The bank generates profit from its corporate lending activities in each period t depends on the total lending volume generated by bankers, V_t. The bank also faces a cost associated from loan defaults ξD_t, where D_t indicates the total number of loans that failed in period t, and ξ indicates the costs related to loan failures. Such costs might be direct costs related to capital losses, or indirect costs related to increased regulatory scrutiny or loss of future business with syndicate partners. ξ indicates how costly loan failures are for the bank, where lower values of ξ indicate that the bank has a higher tolerance for risk.

The bank pays wages amounting to $w_{i,t}$ to each banker i based on origination volume: $w_t = bv_t$, where b indicates the wage offered for each unit (or dollar) of deal volume. This is consistent with the emphasis on origination in the corporate lending industry, as suggested by anecdotal evidence and job postings for corporate bankers. We assume that b is set by the market. Total wage bills are denoted by W_t.

Upon experiencing a default, the bank terminates the banker with a probability of p.[1] This probability does not vary across bankers since the bank cannot observe bankers' ability or effort ex ante. If a banker departs, we assume that a bank can always hire a new banker from a pool of potential candidates with an average ability $\bar{\eta}$.

IA.1.2 Banker's Problem

In addition to generating deals, each banker is tasked with screening and monitoring borrowers. We denote banker i's innate ability to manage risk as η_i. For the remainder of this section, we suppress the subscript for each banker i since they face the same tradeoff in this setup. Bankers can exert effort in two ways. First, they can exert effort to generate deals (origination). Second, they can exert effort to screen and monitor their borrowers (risk management). We use x and a to denote these two dimensions of effort respectively. We

[1] It is beyond the scope of our paper to compare the benefit of termination with a wage contract that depends on loan failures. However, note that if the bank designs a contract that reduces wages based on loan failures, the bank will retain workers with low perceived ability in the next period. This increases the default likelihood at $t = 2$ as bankers no longer have the incentive to manage risk and risk exposure will entirely depend on bankers' ability.

assume that bankers have limited energy and time, thus $x + a = 1$ for all bankers and all periods. The default likelihood of loans in a banker's portfolio (q_t) is a function of the banker's risk management ability and effort:

$$1 - q_t = \eta + a_t$$

Similarly, banker's origination volume also depends on effort:

$$v_t = f(x_t)$$

Where $f(\cdot)$ is an increasing, concave function, i.e., $f' > 0$ and $f'' < 0$.

We also assume that bankers do not exert effort to manage risk in the second period because they do not face any threat of termination at the end of their career. Accordingly, $v_2 = f(1)$.

Bankers drive utility from wages during both periods. The value function for a representative banker is thus:

$$\pi = w_1 + \big(q_1(1-p) + (1-q_1)\big)w_2 = w_1 + \ b(1-pq_1)f(1) \tag{1}$$

Taking p as given, bankers choose their optimal effort a as follows:

$$\frac{\partial \pi}{\partial a} = 0$$

$$-w_1' - pq_1'w_2 = 0$$

So a^* satisfies that

$$f'(1-a^*) = pf(1) \tag{2}$$

The left-hand side indicates the cost of risk management, which is the sum of foregone wealth from reducing loan origination efforts and the added cost of exerting risk management efforts. The right-hand side indicates the future benefit from avoiding termination (i.e., career concerns).

Given that f is a concave function, it is easy to show that the optimal level of effort to manage risk a^* increases with p. In other words, bankers will exert greater efforts to manage credit risk if the bank imposes a greater degree of disciplining upon default.

In the derivation below, we use q^* to denote the default likelihood given workers' effort a^*, and an average risk management ability $\bar{\eta}$.

IA.1.3 Bank's Problem

The bank's value function is:

$$\pi_t = E[V_1 + V_2 - \xi D_1 - \xi D_2 - W_1 - W_2] \tag{3}$$

Given that in the first period, bankers' decisions can be anticipated by the bank, we move the expectation sign to the second period and make it relevant to the occurrence of default. The bank then solves the following optimization problem:

$$\max_p V_1 + E[V_2] - \xi E[D_1] - \xi E[D_2] - W_1 - E[W_2] \tag{4}$$

Given that $W_\tau = bV_\tau = b\sum_{i=1}^{N} v_{i,\tau}$ and that $D_\tau = \xi\sum_{i=1}^{N} q_{\tau,i}v_{\tau,i}$, the bank then maximizes $\sum_{i=1}^{N} v_{1,i}(1 - \xi q^* - b) + E[\sum_{j=1}^{N} v_{2,j}(1 - \xi q_{2,j} - b)]$. We use i to denote bankers working in period 1, and j to denote bankers working in period 2 (the set of bankers may differ due to termination and replacement). Given that all of the bankers only focus on origination in $t = 2$, we have $v_{2,i} = f(1)$, so the objective function becomes:

$$\sum_{i=1}^{N} f(1 - a_i^*)\left(1 - \xi q_{1,i}^* - b\right) + f(1)E[\sum_{j=1}^{N}(1 - \xi q_{2,j} - b)]$$

The first-order condition from this simplified objective function is:

$$\sum_{i=1}^{N}[-f'\frac{\partial a_i^*}{\partial p}\left(1 - b - \xi q_{1,i}^*\right) + f(1 - a_i^*)(-\xi\frac{\partial q_{1,i}^*}{\partial p})] + f(1)(-\xi)\frac{\partial \sum_{j=1}^{N} q_{2,j}}{\partial p} = 0$$

Given that $\frac{\partial q^*}{\partial p} = -\frac{\partial a^*}{\partial p}$ and that a_i^* is identical for all bankers, the above equation suggests the following tradeoff:

$$Nf'(1 - a^*)(1 - b)\frac{\partial a^*}{\partial p} = \xi N\left(q^* f'(1 - a^*) + f(1 - a^*)\right)\frac{\partial a^*}{\partial p} + \xi f(1)\frac{\partial \sum_j^N \eta_j}{\partial p} \tag{5}$$

The left-hand side suggests the cost of disciplining: bankers reduce their effort in originating loans, which leads to a reduction in bank profit. The right-hand side suggests the benefit of disciplining. The first term indicates the reduction in default due to reduced lending volume and due to bankers' increasing their lending standards. The second term suggests an increase in average banker type as a result of removing low-type bankers.

When defaults are very costly to the bank (i.e., when the bank has a low tolerance or preference for risk), ξ is relatively large. The benefit of disciplining will be high as it increases with ξ. As such, banks should choose a high level of disciplining. In other words, if a bank has a lower tolerance for risk than the rest of the market, it will find it more beneficial to terminate bankers that incur loan losses in their portfolios. On the other hand, if the bank has a high risk tolerance (in the extreme case, $\xi = 0$), it may not terminate bankers that incur loan losses (see discussion at the end of Section 1).

IA.1.3.1 Bank learning about bankers' type

In the second term of Equation (5), $\sum_j^N \eta_j$ is the total "talent" of bankers that remain at the bank in $t = 2$. The bankers in the corporate lending department consist of the following

(1) $(1 - q^*)N$ bankers that do not incur defaults at $t = 1$;

(2) $q^*(1 - p)N$ bankers that incur default but are not fired at $t = 1$; and

(3) pq^*N of newly hired bankers with average quality $\bar{\eta}$.

Given that default likelihood at $t = 1$ is $q = 1 - \eta - a^*$, the bank updates its perception of the worker's quality to be η_h if the banker does not incur a credit event, and η_l if the banker does incur a credit event (h denotes high type and l denotes low type).

The bank's updating process follows a Bayesian rule:

$$\eta_l = E(\eta|D = 0) = \int Pr[D = 0|\eta] \cdot \eta \cdot n(\eta)d\eta / \Pr(D = 0)$$

and

$$\eta_h = E(\eta|D = 1) = \int Pr[D = 1|\eta] \cdot \eta \cdot n(\eta)d\eta / \Pr(D = 1)$$

where $n(\eta)$ is the distribution density of η, and $\bar{q}$ is the unconditional expectation of q. The results from the updating are that bankers that did not incur a default are perceived as higher quality, and bankers that did incur a default are perceived as lower quality.

If termination does not motivate greater effort, i.e., q^* does not depend on p, then it is easy to see that higher p is associated with higher average quality bankers in the corporate banking department (since the average quality of group 1 increases, the size of group 2 decreases). However, if q^*varies with p, especially decreases with p, then the overall effect is less clear.

We use an example to illustrate this result.

For simplicity, we now assume that η is uniformly distributed between $\left[0, \frac{1}{2}\right]$, and that a takes the range of $\left[0, \frac{1}{2}\right]$. $E[\eta] = \frac{1}{4}$. We then have $E[q^*] = \frac{3}{4} - a^*$, and that the distribution density function is a constant, i.e., $n(\eta) = 2$.

If there is a credit event, $D = 1$, then $\eta_l = E[\eta|D = 1] = \int_{[0,\frac{1}{2}]} \eta \frac{Pr(D=1|\eta)n(\eta)}{\Pr(D=1)} d\eta$

Because $n(\eta) = 2$, and that $Pr(D = 1|\eta) = q = 1 - a - \eta^*$, this expression becomes $\frac{2\int \eta(1-\eta-a^*)d\eta}{\Pr(D=1)}$.
Computing the integration on the numerator gives us $\frac{(1-a^*)}{4} - \frac{1}{12} = \frac{\frac{2}{3}-a^*}{4}$.
The denominator is $\Pr(D = 1) = q = \frac{3}{4} - a^*$, so the whole expression becomes:

$$\eta_l = \frac{1}{4} \cdot \frac{\frac{2}{3} - a^*}{\frac{3}{4} - a^*}$$

It is easy to see that η_l is strictly lower than $\frac{1}{4}$.

Similarly, in the case that there is no default, we have:

$$E[\eta|D = 0] = \int_{[0,\frac{1}{2}]} \eta \frac{Pr(D = 0|\eta)n(\eta)}{\Pr(D = 0)} d\eta$$

Because $Pr(D = 0|\eta) = 1 - q = a + \eta^*$, this expression becomes $\frac{2\int \eta(\eta+a^*)d\eta}{\Pr(D=0)}$. Computing the integration on the numerator yields: $\frac{a^*}{4} + \frac{1}{12} = \frac{\frac{1}{3}+a^*}{4}$. In addition, the denominator is $\Pr(D = 0) = 1 - q^* = \frac{1}{4} + a^*$, so the whole expression becomes:

$$\eta_h = \frac{1}{4} \cdot \frac{\frac{1}{3} + a^*}{\frac{1}{4} + a^*}$$

η_h is strictly larger than $\frac{1}{4}$.

To sum up, the occurrence of default reduces the perceived ability of a banker while the absence of default increases the perceived ability of a banker by his or her employer.

However, it is important to note that η_h decreases with a^*, thus it decreases with p. Along the same logic, η_l increases with p. This suggests that increasing termination threat increases efforts from all types, and reduces the informativeness of the signal.

At $t = 2$, the new group of bankers have an average perceived quality of $\delta \coloneqq (1 - q^*)\eta_h + q^*(1 - p)\eta_l + pq^*\bar{\eta} = (1 - q^*)(\eta_h - \eta_l) + pq^*(\bar{\eta} - \eta_l) + \eta_l$.

Increasing p has two competing effects on δ: On the one hand, higher termination threat removes the perceived bad type, thus increasing the overall banker quality by changing the composition of workers. On the other hand, higher termination threat also triggers higher effort from bankers to manage risk, a^*, which decreases the occurrence of default and decreases the perceived difference between high- and low- ability bankers. The overall effect is ambiguous.

IA.2 Time since Loan Issuance

Bankers are tasked with both screening and monitoring loans. Disciplining effects may be more pronounced for loans that fail early in the loan's life, suggesting a screening failure. In Table IA.1, we explore this issue by examining how the time since loan issuance influences the relationship between credit events and turnover. Specifically, we partition the sample based on whether the average number of years since issuance for loans in a banker's portfolio is above or below sample median, which is 1.93 years. We estimate that a credit event in a more recently issued portfolio is associated with a 4.3% higher rate of banker turnover. In comparison, we find no evidence that credit events are correlated with turnover when the banker originated the loans less recently. The results suggest that bankers face greater penalties when the credit event occurs near the time of the initial screening.

IA.3 Banker Seniority

A commonly tested implication of the career concerns framework is that junior bankers are more likely to face punishment than senior bankers (e.g., Chevalier and Ellison 1999). This is because the bank has accumulated more information about senior bankers from their prior performance and thus has a more established prior. We test this implication from the career concerns framework by partitioning our banker career sample based on banker experience. Senior bankers refer to bankers with at least 10 years of experience, and junior bankers refer to those with less than 10 years of experience. Table IA.2 shows that junior bankers are more likely to turn over following credit events than senior bankers. This suggests that loan failures generating more severe career consequences for younger workers, which is consistent with the prediction from the career concerns framework.

IA.4 Default and Spreads

We expect bankers to face greater disciplining when defaulting loans were issued with aggressive pricing. We test this conjecture by examining regressions of *Exit* on *Default*, and partitioning based on bank median loan spreads. The results from this analysis are provided in Table IA.3. The results indicate that turnover is concentrated among loans with low spreads. The difference in coefficients across subsamples is significant at the 5% level.

IA.5 Strategic Default

Strategic defaults may arise if borrowers decide to default on loans that they find least important for their future business. We explore the extent to which borrowers' strategic defaults may influence our findings by examining how variation in the duration of a firm's lending history with a bank impacts the relationship between credit events and turnover. Assuming that borrowers value a long-standing banking relationship more, they should have fewer incentives to strategically default on loans extended by their relationship bank (e.g., Lummer and McConnell 1989, Bharath et al. 2009). Table IA.4 provides results from regressions of *Exit* on *Credit Event* interacted with various relationship measures (*Relationship*). In Column (1), *Relationship* is defined based on duration. In Columns (2) and (3), *Relationship* is defined based on total past loan amount and past loan volume, respectively. While the coefficient of *Credit Event* has a positive and significant coefficient, the interaction term (*Credit Event X Relationship*) is insignificant in all three columns. This indicates that our results do not vary based on relationship importance, or strategic defaults associated with banking relations.

IA.6 Banker's Renegotiation Ability

Renegotiation represents an important part of a banker's job and prior studies have discussed how renegotiation is an important aspect of a lender's monitoring function (e.g., Gorton and Kahn 1993, Rajan and Winton 1995, Denis and Wang 2014, Roberts 2015). The ability to renegotiate should thus reflect a banker's ability to monitor its borrowers, especially when it relates to reducing a bank's credit risk exposure. In cases where renegotiation happens due to borrower distress, bankers who are unable to navigate through this difficult time (through either further renegotiation or more intense monitoring) should ultimately experience a credit event. We introduce a new analysis that tests how sensitive our results are to a banker's failure to renegotiate effectively. Specifically, we remove credit events that are preceded by a borrower breaching or almost breaching a covenant, as such credit events are likely to be associated with renegotiation. We calculate covenant tightness of loans in a banker's portfolio at every point in time and define "binding" loans as those with covenant tightness over 90%. Removing loans with binding covenants allows us to examine loans that do not face urgent needs to renegotiate. Table IA.5 shows that our results hold in this subsample. This analysis suggests that the need for renegotiation does not appear to drive our results.

IA.7 Timing of Credit Events

We further consider the robustness of our turnover results to event timing, as prior studies document transitory changes in individual behavior following the arrival of new information. For example, Berger and Udell (2004) and Bordalo, Gennaioli, and Shleifer (2018) argue that changes in investor beliefs contribute to credit cycles. This argument states that credit market investors overweight recent economic conditions (including default experiences) and underweight those conditions in the past when forming their beliefs. This behavior contributes to a pattern in which lending standards react strongly to recent events but under-react to events that occurred in the more distant past. Consistent with this view, there is also evidence in other markets suggesting that investors overweight recent experiences while underweighting earlier experiences (e.g., Chiang, Hirshleifer, Qian and Sherman 2011; Malmendier and Nagel 2011).

In Table IA.6, Panel A, we re-examine our results using a credit event measure that only includes credit events in period *t-1*. Our inferences remain unchanged. We also consider the robustness of our turnover (Table 3) and lending terms results (Table 8) to controlling for multiple lags of Credit Events. In Table IA.6, Panels B and C we add indicators for credit events in *t-2* and *t-3*. Panel B presents the turnover results, and Panel C presents the loan term results. We continue to find that credit events in the prior period are associated with higher turnover rates and more stringent lending terms, which is consistent with recent defaults influencing banker behavior. This result is consistent with Murfin (2012), who shows that banks learn from their recent default experiences, but not earlier ones.

IA.8 Hazard Model

In Table IA.7, we estimate a Cox Proportional Hazard Model. The Cox Hazard Model is commonly used to examine the relationship between survival time and a certain treatment. In our setting, we examine the relationship between the number of years that a banker remains in a bank and whether he (she) incurs a credit event during his (her) job span.

We consider several specifications of the Cox Model using a banker-job span panel, whereby each observation represents a distinct job of a banker in a bank. In Specification 1, we compare the number of years in the job between a banker that incurs a credit event at some point during a particular job and a banker that does not incur a credit event. This is our baseline specification. In Specification 2, we restrict our sample to the first job of a banker, thus maintaining only one observation per banker. This removes the possibility that a banker may re-enter the sample.

In the next specification, we continue with the sample in Specification 2 and further sharpen the treatment by restricting the comparison between a treated banker (who incurs a credit event at some point in the job) and a control banker who works in the same bank during the same year as the treated bankers. Furthermore, we compare the post-event survival time of the treated banker and the control banker. In other words, if a treated banker works in a bank for 5 years and incurs a credit event during year 3, and a control banker works in the same bank for 7 years. We compare the 2 survival years (=5 – 3) of the treated banker with the 4 survival years (=7 – 3) of the control banker, conditional on them both having survived the job for 3 years. As such, Specification 3 runs a Cox Model for this matched sample of bankers. All specifications indicate that credit events significantly increase turnover.

We also present two figures showing the Kaplan-Meier Curves based on Specifications 1 and 3, respectively. The figures indicate that bankers that face a credit event are less likely to survive in their jobs.

IA.9 Other Cohort Effects

In Table IA.8, we assess the sensitivity of Table 10, Panel C to alternative cohort fixed effects, including *Bank-Bank Entrance-Decade*, *Bank-Cohort-Decade*, *Bank-Portfolio Size-Decade*, *Bank-Bank Entrance-Business Cycle*, *Bank-Cohort-Business Cycle*, and *Bank-Portfolio Size-Business Cycle* fixed effects. Business cycles are separate dummy variables indicating each boom-bust span of the U.S. economy, based on NBER definitions. Namely, we define a separate dummy variable for years pre-2000, 2001, 2002—2006, 2007—2009, and 2010 forward. Our inferences remain unchanged.

IA.10 Estimation of Abnormal Credit Events

In Table IA.9, we provide the results of estimating Equation (2), which is the basis for the abnormal credit results provided in Table 4 of the paper.

IA.11 Additional Comparable Analysis

In Table IA.10, we refine our comparable analyses to include *Credit Event*, *Comparable Loan Event* and the interaction of *Credit Event* and *Comparable Loan Event*. Our results continue to indicate that credit events increase turnover. We also find that the interaction term is negative, although not significant, suggesting that the effect of credit event on turnover may diminish when comparable loans also default.

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Table IA.1. Credit Events, Turnover, and Time Since Issuance

This table examines how the relation between credit events and banker turnover varies based on the time since loan issuance. The dependent variable is *Exit*, an indicator variable that takes the value of one if a banker exits a bank in a given year, and zero otherwise. *Credit Event* is an indicator variable that takes the value of one if a banker lends to a firm that experiences a rating downgrade, default or bankruptcy in the current or previous year, and zero otherwise. The sample is partitioned on the median value of *Time Since Origination*. All other variables are defined in the Appendix. Standard errors are clustered by bank-year and t-statistics are presented in parentheses. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit*	(1)	(2)
Time Since Origination	Recent	Non-Recent
Credit Event	0.0433***	-0.0154
	(2.72)	(-0.71)
Controls	Yes	Yes
Industry-Year FE	Yes	Yes
Bank FE	Yes	Yes
Banker FE	Yes	Yes
Observations	4,073	3,512
Adj. R-squared	0.2880	0.3168

Table IA.2. Credit Events, Banker Experience, and Banker Turnover

This table examines how banker experience influences the relation between credit events and banker turnover. Column (1) examines the turnover of bankers with less than 10 years of experience, and Column (2) examines the sample of bankers with more than 10 years of experience. Standard errors are clustered by bank-year and t-statistics are presented in parentheses. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit* Experience:	(1) Under 10 Years	(2) Over 10 Years
Credit Event	0.0641**	0.0174
	(2.25)	(1.37)
Controls	Yes	Yes
Industry-Year FE	Yes	Yes
Bank FE	Yes	Yes
Banker FE	Yes	Yes
Observations	1,759	4,401
Adj. R-squared	0.1776	0.2170

Table IA.3. Defaults, Turnover, and Spreads

This table examines how the relation between defaults and banker turnover varies based on loan spreads. The dependent variable is *Exit*, an indicator variable that takes the value of one if a banker exits a bank in a given year, and zero otherwise. *Default* is an indicator variable that takes the value of one if a banker lends to a firm that experiences a default or bankruptcy in the current or previous year, and zero otherwise. The sample is partitioned on the median value of loan spreads. All other variables are defined in the Appendix. Standard errors are clustered by bank-year and t-statistics are presented in parentheses. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit*	(1)	(2)
Raw Spreads	Low	High
Default	0.1369**	0.0210
	(2.04)	(0.79)
Controls	Yes	Yes
Industry-Year FE	Yes	Yes
Bank FE	Yes	Yes
Banker FE	Yes	Yes
Observations	3,998	3,587
Adj. R-squared	0.2238	0.2534

Table IA.4. Credit Events, Turnover, and Lending Relations

This table examines how the relation between credit events and banker turnover varies based on strength of the lending relationship. The dependent variable is *Exit*, an indicator variable that takes the value of one if a banker exits a bank in a given year, and zero otherwise. *Credit Event* is an indicator variable that takes the value of one if a firm in a banker's portfolio experiences a rating downgrade, default or bankruptcy in the current or previous year, and zero otherwise. *Relationship* is one of three measures. In Column (1), relationships are measured based on the number of years since a borrower started its first loan with the bank. In Column (2), relationships are measured based on prior loan amount that the bank extended to the borrower. In Column (3), relationships are measured based on the total number of loans that the bank extended before. All other variables are defined in the Appendix. Standard errors are clustered by bank-year and t-statistics are presented in parentheses. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit*	(1)	(2)	(3)
Relationship Measure:	Duration	Prior Loan Value	Prior Loan Count
Credit Event	0.0273**	0.0254*	0.0279**
	(2.02)	(1.86)	(2.03)
Credit Event X Relationship	-0.0023	0.0001	-0.0049
	(-0.21)	(0.05)	(-0.32)
Relationship	0.0029	0.0006	0.0091
	(0.66)	(1.40)	(1.42)
Controls	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes
Banker FE	Yes	Yes	Yes
Observations	7,585	7,585	7,585
Adj. R-squared	0.1823	0.1825	0.1825

Table IA.5. Credit Events and Turnover for Non-binding Covenants

This table examines the relation between banker turnover and credit events for loans that do not have binding covenants. We define a non-binding covenant as one in which the overall strictness (calculated following Murfin's (2012) methodology) is less than 90%. The dependent variable is *Exit*, an indicator variable that takes the value of one if a banker exits a bank in a given year, and zero otherwise. *Credit Event* is an indicator variable that takes the value of one if a firm in a banker's portfolio experiences a rating downgrade, default or bankruptcy in the current or previous year, and zero otherwise. All other variables are defined in the Appendix. Standard errors are clustered by bank-year and t-statistics are presented in parentheses. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit*	(1)
Credit Event	0.0271**
	(1.99)
Controls	Yes
Industry-Year FE	Yes
Bank FE	Yes
Banker FE	Yes
Observations	6,668
Adj. R-squared	0.1909

Table IA.6. Credit Events & Multiple Lags

This table examines the sensitivity of the turnover and lending terms results to the inclusion of multiple credit event lags. Panel A presents results for turnover regressions restricted to only events in *t-1*. Panel B presents the turnover results with indicators for credit events in period *t-2* and *t-3*. Panel C presents the loan term results with indicators for credit events in period t-2 and t-3. All other variables are as defined in Table 3 and Table 8. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Panel A: Turnover Regressions (Restricted to Events in t-1)

Dep. Var.: *Exit*	(1)	(2)	(3)	(4)
Credit Event (t-1)	0.0457***	0.0445***	0.0390**	0.0410***
	(2.72)	(2.63)	(2.40)	(2.87)
Controls	No	Yes	Yes	Yes
Industry-Year FE	No	No	Yes	Yes
Bank FE	No	No	Yes	Yes
Banker FE	No	No	No	Yes
Observations	7,585	7,585	7,585	7,585
Adj. R-squared	0.0015	0.0021	0.0139	0.1932

Panel B: Turnover Regressions with Multiple Lags

Dep. Var.: *Exit*	(1)	(2)	(3)	(4)
Credit Event	0.0322***	0.0324***	0.0285***	0.0457***
	(3.13)	(3.14)	(2.78)	(3.80)
Credit Event$_{t-2}$	0.0251*	0.0231*	0.0200	0.0422***
	(1.82)	(1.68)	(1.46)	(3.15)
Credit Event$_{t-3}$	0.0054	0.0005	0.0056	0.0237
	(0.39)	(0.03)	(0.39)	(1.61)
Controls	No	Yes	Yes	Yes
Industry-Year FE	No	No	Yes	Yes
Bank FE	No	No	Yes	Yes
Banker FE	No	No	No	Yes
Observations	7,585	7,585	7,585	7,585
Adj. R-squared	0.0022	0.0028	0.0147	0.1952

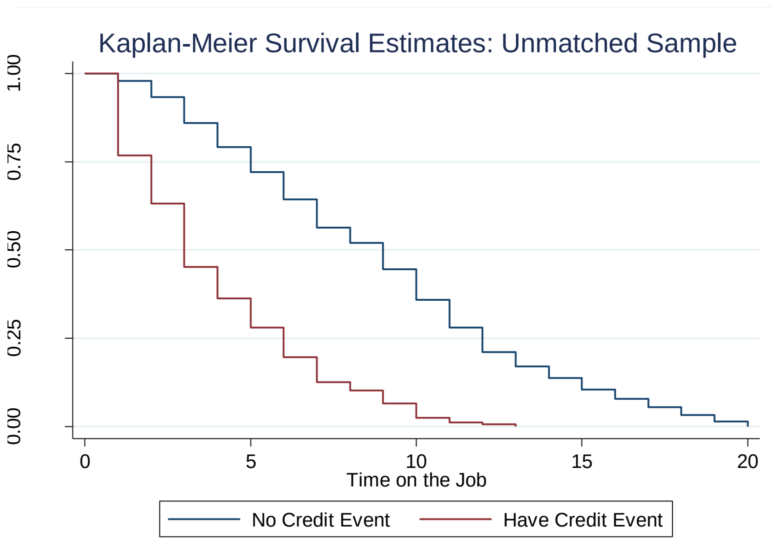
Panel C: Lending Term Regressions with Multiple Lags

Dep. Var.: *Lending Term*	(1)	(2)	(3)	(4)
Lending Term:	*Covenants*	*Covenants*	*Strictness*	*Strictness*
Credit Event	0.6471*	0.5856*	0.1748**	0.1685**
	(1.81)	(1.70)	(2.28)	(2.28)
Credit Event$_{t-2}$	-0.3915	-0.3866	-0.1280	-0.1365
	(-1.39)	(-1.40)	(-1.16)	(-1.37)
Credit Event$_{t-3}$	0.0004	0.0049	-0.1297	-0.0995
	(0.00)	(0.01)	(-0.87)	(-0.65)
Comparable Loan Type	Yes	Yes	Yes	Yes
Other Controls	No	Yes	No	Yes
Loan Type FE	No	Yes	No	Yes
Industry-Year FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Banker FE	Yes	Yes	Yes	Yes
Observations	3,092	3,092	2,190	2,190
Adj. R-squared	0.7787	0.7800	0.8513	0.8513

Table IA.7. Hazard Model

This table provides the results from estimation of a Cox Hazard Model. Specification 1 presents the baseline specification, without fixed effects or sample requirements. Specification 2 removes all of a banker's future jobs. Specification 3 further matches a banker with a credit event (i.e., treated bankers) with a control group of bankers who enter the same bank during the same year (i.e., same cohort). The two figures represent Specifications 1 and 3, respectively.

	Beta		Hazard Ratio	
Specification	*Coefficient*	*T-Statistic*	*Coefficient*	*T-Statistic*
1. Baseline	2.0627***	20.66	7.8674***	20.66
2. Remove Future Jobs	2.1300***	20.90	8.4151***	20.90
3. Remove Future Jobs, Matched by Bank & Cohort	1.4407***	9.37	4.2238***	9.37



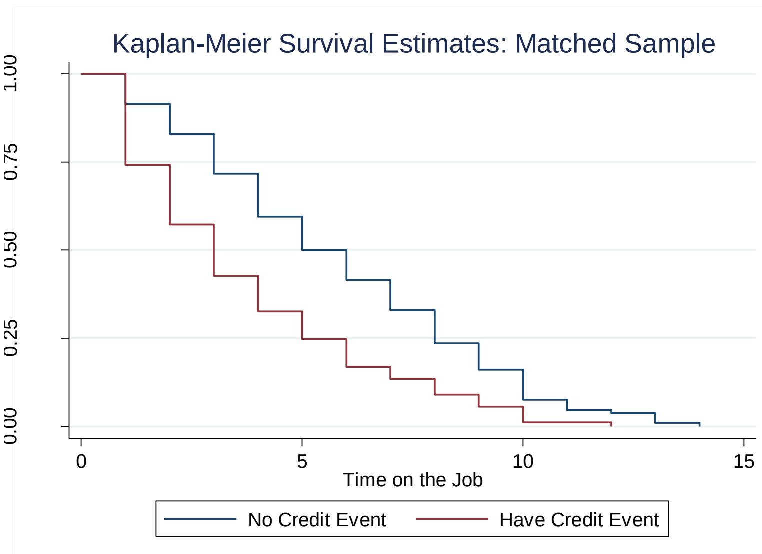


Table IA.8. Additional Cohort Effects

This table examines the sensitivity of the turnover results controlling for cohorts to the inclusion of additional cohort fixed effects. *Decade* represents the decade of the observation. *Business Cycle* is defined using NBER definition: we define a separate dummy variable for years pre-2000, 2001, 2002-2006, 2007-2009, and 2010 forward. All other variables are as defined in Table 3 and Table 10. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit*	(1)	(2)	(3)	(4)	(5)	(6)
Credit Event	0.0342**	0.0288**	0.0206*	0.0255*	0.0216*	0.0231*
	(2.53)	(2.55)	(1.75)	(1.74)	(1.78)	(1.82)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Banker FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank-Bank Entrance-Decade FE	Yes					
Bank-Cohort-Decade FE		Yes				
Bank-Portfolio Size-Decade FE			Yes			
Bank-Bank Entrance-Business Cycle FE				Yes		
Bank-Cohort-Business Cycle FE					Yes	
Bank-Portfolio Size-Business Cycle FE						Yes
Observations	6,333	7,585	7,585	6,333	7,585	7,585
Adjusted R-squared	0.2420	0.2535	0.2159	0.2915	0.3109	0.2353

Table IA.9. Estimating the Abnormal Credit Event Model

This table presents the results from estimating the abnormal- credit event model (Equation (2)). All variables are as defined in Table 3 and Table 4. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.:	*Credit Event*
Size	-0.0049
	(-1.21)
Capital Expenditures	-0.0000
	(-0.62)
Market-to-Book	-0.0342***
	(-4.43)
Cash Holdings	-0.0003
	(-0.00)
Profitability	0.0884
	(0.91)
Tangibility	-0.0489**
	(-2.32)
Cash Flow	-0.3594***
	(-3.62)
Rated Dummy	0.1361***
	(12.26)
Industry-Year FE	Yes
Observations	6,908
Adj. R-squared	0.0643

Table IA.10. Additional Comparable Analysis

This table examines the relation between credit events, comparable loan events, and banker turnover based on benchmarks of credit risk. The dependent variable is *Exit*, an indicator variable that takes the value of one if a banker exits a bank in a given year, and zero otherwise. The independent variable is *Credit Event*, an indicator variable that takes the value of one if a firm in a banker's portfolio experiences a rating downgrade, default or bankruptcy in the current or previous year, and zero otherwise. Columns (1) through (4) control for benchmark spreads, based on comparable borrower groups defined by criteria indicated in the row titled "Comparable Group." All other variables are defined in the Appendix. Standard errors are clustered by bank-year and t-statistics are presented in parentheses. ***, **, and * denote 1%, 5% and 10% level of significance, respectively.

Dep. Var.: *Exit*	(1)	(2)	(3)	(4)
Credit Event	0.0392***	0.0387**	0.0391***	0.0342**
	(2.73)	(2.53)	(2.72)	(2.30)
Credit Event X Comparable Loan Event	-0.0299	-0.0232	-0.0333	-0.0235
	(-1.61)	(-1.25)	(-1.63)	(-1.12)
Comparable Loan Event	0.0129**	0.0126**	0.0180***	0.0159**
	(2.12)	(2.21)	(2.71)	(2.34)
Comparable Group	Industry, Rating	Industry, Distance-to-Default	Industry, Rating, Maturity	Industry, Rating, Maturity, Loan Type
Controls	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Banker FE	Yes	Yes	Yes	Yes
Observations	7,420	7,386	7,178	7,052
Adj. R-squared	0.1942	0.19353	0.1998	0.2005