

DO FOREIGN CORRESPONDENT RELATIONSHIPS INDICATE RUSSIAN BANKS QUALITY?

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Abstract

This paper examines the relationship between foreign correspondent banking and domestic bank quality. The research compiles a unique data set from Russian language sources (Russian bank correspondent relationships, Central Bank of Russia decisions, and Russian bank financial and non-financial characteristics) and Federal Reserve sanctions for violations of correspondent bank transactions during a rare event timeframe, the Russian implementation of a *de novo* deposit insurance system for private banks. After controlling for financial and non-financial risk factors of Russian banks, we find that sanctions imposed on foreign correspondents are significant, additional indicators of domestic bank quality. Specifically, we observe that Russian banks who had correspondent relationships with sanctioned U.S. banks were less likely to be accepted into the deposit insurance system. These results suggest that foreign correspondents may possess complementary data useful for improving the external monitoring of banks. This study is the first to reveal the significant information content in correspondent bank associates. Recommendations for researchers and government supervisory agencies suggest future studies and regulatory policies.

Keywords: External Monitoring, Correspondent Bank Relationships, Cross-border Banking, Regulatory Sanctions, Information Revelation

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1. Introduction

Flannery (1998), Burton and Seale (2005), and Furlong and Williams (2006) review numerous studies of quantitative market signals used by banking regulators. They show that quantitative measures of debt, certificate of deposits, derivatives, and equity have been used in studies of bank default and non-default.³³ In this paper, we assume that quantitative

signals are important and direct our focus to the study of a promising *qualitative* signal. Specifically, we study foreign correspondent relationships, a qualitative source that is publicly released, insider sourced, financially motivated, and objective.

The Berger, Davies, and Flannery (2000) title question “Who Knows What When” in banking motivates the quest for better information sets. Extending data sets from quantitative to qualitative sources expands the coverage of bank conditions to include subjective, insider, and irregular events that would otherwise be delayed or ignored. Other qualitative signals include corporate briefings, rating agency reports, stock and bond analyses, Securities and Exchange Commission releases, and internet communications (Furlong and Williams, 2006). This research contributes to the growing body of bank signaling literature by revealing foreign correspondent bank relationships as a qualitative indicator of domestic bank quality. Further, our research extends this field from within country to international cross-border study of bank quality indicators.

³³ For early research on quantitative indicators of bank quality, see Baer and Brewer (1986), Hannan and Hanweck (1988), Cargill (1989), and Keeley (1990). Ellis and Flannery (1992) extended CD research to time series analysis. CD rate indicators for S&Ls are confounded by deposit insurance, as shown in Cook and Spellman (1996). Evanoff and Wall (2001, 2002) evaluate sub-debt yield spreads to avoid the confounding effects of deposit insurance. An extensive literature on equity metrics shows successful prediction capacity similar to CAMEL ratings from on-site examinations and reveals important differences in the timing and availability of information (Cole and Gunther, 1998; DeYoung, Flannery, Lang, and Sorescu, 1998).

Foreign correspondent bank relationships are a type of information not summarized in Furlong and Williams (2006) review.³⁴ Foreign correspondent bank relationships are established bank-to-bank private-sector agreements which facilitate inter-bank transactions such as wire transfers for private customer accounts. Extensions of these relationships include formal and informal information exchanges in written, electronic, and personal forms. The ongoing correspondent relationship reveals performance and reinforces trusted, confidential exchanges. Correspondent partners benefit from the high-efficiency and low-risk associated with conducting business through a trusted, extended network of private banks. Stakeholders who monitor banks might benefit, as well, by observing interactions in the correspondent banking network.

Our test procedure, in general, is a cross-sectional examination of natural experimental data consisting of (1) foreign correspondent banks subject to enforcement actions and (2) domestic bank supervisory quality rating. Specifically, our sample is drawn from U.S. bank correspondents of Russian bank deposit insurance applicants. We use U.S. banks because the Federal Reserve disclosed enforcement actions specifically name sanctioned U.S. banks. The sample selection is highly unique, taking advantage of (1) a one-time supervisory revelation of domestic bank quality and (2) an unusually large number of enforcement actions focused on foreign correspondent bank transactions.

This study is the first to reveal the significant information content in correspondent bank relationships. We find strong and consistent empirical evidence that correspondent relationships are worthwhile indicators for bank supervisors to consider in judging bank quality. Test results show a negative and significant coefficient for sanctioned U.S. correspondents and a positive and significant coefficient for reputable (non-sanctioned) U.S. correspondents. These results are observed in univariate framework and remain robust after controlling for financial and examiner information. This is strong evidence confirming the importance of foreign correspondent bank reputation for Russia's *de novo* deposit insurance system application acceptance. Thus, we contribute to the bank indicator literature by introducing and validating the significant information contained in correspondent bank relationships.

Bank supervisory agencies may apply the results of this research by systematically collecting and analyzing correspondent bank relationships. Observing the close ties among correspondent banks is an economical means of obtaining "friend of

friends" reputation data which we find to be likely correlated with the reputational quality of the Russian banks. The key result applied is our finding that correspondent relationship contains information uniquely and significantly different from information currently utilized. We comment in the conclusion regarding research directions that could test our findings in other venues and for other types of qualitative data that could be useful to public and private bank evaluators.

The paper is organized as follows. Section 2 provides background regarding the regulation of foreign correspondent relationships in Russia' and the Central Bank of Russia (CBR) implementation of the *de novo* deposit insurance system. Data and descriptive statistics are presented in Section 3. Section 4 outlines our methodology. Section 5 presents univariate and multivariate results. Section 6 summarizes and concludes.

2. Background

The classification data available for this study present a rare natural experiment. The CBR did not report quality ratings prior to or after releasing *de novo* deposit insurance applicant decisions.³⁵ First, this section summarizes statutory and CBR releases describing the process of evaluating applicants and revealing approved banks. Second, it describes the CBR licensing classifications for foreign correspondent banking.

2.1. Central Bank of Russia Acceptance of Banks for Deposit Insurance as Information Revelation

Russia's deposit insurance law was adopted in December 2003. The precedents for deposit insurance, reviewed in Ungan, Caner, and Ozyildrum (2008) include the Russian financial crisis of 1998 and the transition from state owned banks to a dual system of state and private banks.³⁶ It established compulsory participation in the deposit insurance system for all banks that attract retail deposits and outlined the procedures and the timeline for the system implementation. In addition to retail depositor protection, the new deposit insurance system was intended to strengthen Russian banking sector stability and prudential regulation. The law explicitly required the CBR to impose strict selection criteria to all banks admitted into the new insurance system and to exclude banks with questionable soundness,

³⁴ Furlong and Williams (2006) lists information of this type among the market signals used by supervisors but does not list any research on correspondent bank relationships in its review of financial market signals.

³⁵ Similarly, bank regulatory agencies in the United States of America do not reveal quality ratings on a comprehensive basis.

³⁶ See Ungan, Caner, and Ozyildrum (2008) for background on Russian finance and banking during the era studied in this research.

performance, and reputation. Ungan, Caner, and Ozyildrum (2008, p. 81) observe: “The introduction of the deposit insurance system created an opportunity for the CBR to thoroughly examine all the banks.” The Central Bank of Russia conducted analyses of financial reports, licenses, and on-site, unlimited investigations of all applicants prior to announcing deposit insurance decisions. For an overview of the introduction of the Russian DIS, see Tompson (2004) and Montes-Negret and Camara (2006).

To respond to this request, in January 2004, the CBR issued the list of suitability criteria for the in-depth on-site examination and applicant bank deposit insurance acceptance. These criteria included five groups of performance indicators to evaluate each bank’s financial stability: 1) capital adequacy, 2) assets quality, 3) quality of bank management, including risk management, 4) profitability, and 5) liquidity. Thus, the CBR instructions for bank evaluation do not include correspondent relationships. Therefore, the banks did not have a regulatory incentive to manage their correspondent bank selections to meet CBR requirements. This reduces the potential for a recursive functional form between correspondent bank decisions and CBR bank quality decisions.

In accordance with Russian legislative timeline, the banks had to apply for admission to the deposit insurance system by June 30, 2004. Then the CBR completed an intensive examination of all applicants on a first come first served basis. The CBR announced the first 26 banks approvals in September 2004. Thereafter, additional banks were approved weekly and by March 2005 the CBR had accepted 824 of 1,140 banks submitting applications.³⁷ The March 2005 acceptances are referred to as “first round” decisions and referred to as “accepted” in this study.

2.2. Central Bank of Russia Regulation of Correspondent Relations

The CBR licenses Russian banks as a means of regulating foreign payment transactions. CBR regulations implicitly distinguish two broad groups of foreign banks: 1) banks in the Commonwealth of

Independent States (CIS)³⁸ countries and Roszaganbanks³⁹ and 2) foreign banks in other countries. The licensing requirements for correspondent relationships with Group 1 foreign banks are less restrictive.

By the end of 2003, the CBR distinguished five types of licenses in terms of direct correspondent relationships with foreign banks.⁴⁰ Five types of licenses are as described below:

1. License for operation in rubles only (correspondent relationships with foreign banks are not permitted).
2. License for operations in any currency but without the right to establish direct correspondent relations with foreign bank (correspondent relationships permitted with CIS banks and Roszaganbanks).
3. License for operations in any currency with the right to establish direct correspondent relations with up to six foreign banks (correspondent relationships with CIS banks and Roszaganbanks; up to six correspondent relationships with other foreign banks, subject to offshore banks restrictions).
4. License for operations in any currency with no limitations on correspondent relations with foreign banks (unlimited number of correspondent relationships with any foreign banks, subject to offshore banks restrictions).
5. The so-called “General” license. This is the most advanced license for banking operations with the minimum amount of restrictions. In terms of correspondent foreign relationships, (4) and (5) are similar but the Russian bank with the general license has to meet additional criteria to qualify, including greater equity capital (unlimited number of correspondent relationships with any foreign banks, subject to offshore banks restrictions).

³⁸ CIS, an abbreviation for “Commonwealth of Independent States” is an international alliance of the post-Soviet states. On the sample date of December 31, 2003, CIS included twelve former Soviet Union Republics: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

³⁹ Roszaganbanks, all previously foreign offices of the Soviet Union State Bank during the Soviet Union era, are foreign country licensed banks directly or indirectly controlled by the Central Bank of Russia. Thus, Roszaganbanks are regulated by foreign countries, but managed by state-controlled banks headquartered in Russia. Russian banks that are not licensed to conduct business with foreign correspondents may correspond with Roszaganbanks. As of December 31, 2003, Roszaganbanks were Moscow Narodny Bank (UK), Donau Bank (Austria), Ost-West Handelsbank (Germany), BCEN-Eurobank (France), East-West United Bank (Luxembourg), Russian Commercial Bank (Cyprus), and Russische Kommerzbank (Switzerland).

⁴⁰ CBR Bulletin, January 22, 2004, No. 4.

³⁷ Banks rejected in the first round were given a chance to address the CBR criticism and to apply for a second review. Using this appeal procedure provided by DI law, 265 banks have reapplied and 92 of them were admitted in the second round. All repeated applications were finalized by the end of September 2005. In the third, and the final round, 142 banks appealed but only 5 were accepted. By the end of 2005, the CBR has completely finalized all evaluation procedures. As of January 1, 2006, the Deposit Insurance Agency registry consisted of 931 banks admitted under the deposit insurance system.

3. Data and Descriptive Statistics

This study uses data compiled from several sources, including CBR Bulletins, Deposit Insurance Agency registry, two local commercial databases on Russian banking (Intelbridge and Bankrate), and the U.S. Federal Reserve Lists of Enforcement Actions. The definition and sources of variables is provided in Table 1. All financial and non-financial bank characteristics, including the correspondent relationships with U.S. banks, are as of the end of 2003. The DIS acceptance outcomes are for the period September 2004 - March 2005, i.e. for the first stage of DIS implementation in Russia. We collect information on sample banks' registration, types of licenses, legal form, and geographical location from various issues of the Bulletin of Central Bank of Russia. The CBR deposit insurance (first stage) acceptance decisions are extracted from the Russian Deposit Insurance Agency (DIA) directory. Data on foreign correspondent relationships of Russian banks come from the Commercial Banks of Russia database issued by Intelbridge Information Company.⁴¹ Bank-level financial data are obtained from Intelbridge and Bankrate local datasets.

[Table 1]

Empirical tests of our hypothesis require the following three criteria for sample selection: (1) correspondent relationships, (2) deposit insurance eligibility, and (3) Russian bank ownership type. A specific focus of this study is the examination of the relationship between the Russian banks' DIS acceptance and the correspondent bank relationships between Russian and U.S. banks. Consequently, the study sample excludes Russian banks that are not licensed for establishing direct correspondent relationships with U.S. banks. To match bank names, the sample was limited to banks that report complete names of foreign correspondents in the Intelbridge dataset⁴². We exclude banks ineligible to apply for the DIS acceptance because they are not licensed for retail deposit-taking as of year-end 2003. We exclude state-controlled banks from our investigation because the DIS acceptance of these banks can be driven by

political reasons.⁴³ We exclude foreign-controlled banks because their network of correspondent relationships is largely decided by their foreign parent bank.⁴⁴

Our final sample consists of 377 Russian privately-controlled banks that maintained at least one foreign correspondent relation as of the end of 2003. The comparison of the study sample relative to a population of 1,277 banks Russian bank as of the end of 2003 is reported in Table 2. The study sample and all Russian banks are similar with respect to legal forms, geographical locations, and bank size characteristics. By our selection criteria described above, all sample banks have a license for international payment transactions through the foreign correspondent banks outside CIS countries. The count (proportions) of study banks accepted and rejected in the first round of deposit insurance decisions are 289 (76.7%) and 88 (23.3%), respectively.

[Table 2]

To construct bank size and financial ratios variables, we collect data on bank assets, capital, liabilities, business loans, retail deposits, liquid assets, and net income. The CBR would have had financial data for the year before the DIS introduction (December 31, 2003) when making the first wave selections. Table 3 reports descriptive statistics (Panel A) and cross-correlations (Panel B) for Russian bank financial variables. To mitigate the effect of extreme outliers sometimes generated by financial ratio computation, the variables are winsorized at the 2.5th and 97.5th percentiles. Bank size, measured as end of year 2003 total assets, is used to normalize other financial accounts and in log form to define bank size. The most significant cross-correlation (Panel B) is

-0.464 between *Size* and *Capital*. This significant negative relationship is typical for U.S. banks, as well. Also, the significant positive correlation between size and business loans for Russian banks parallels that of U.S. banks, as large banks tend to adopt strategies oriented toward business rather than consumer customers.

[Table 3]

For each sample bank, we obtain a list of foreign correspondent banks from the Intelbridge database. Table 4 reports the descriptive statistics for the

⁴¹ The Intelbridge is a member of the Association of Russian Banks and provides comprehensive bank-level information on annual bases.

⁴² The most typical example of incompleteness is when a bank reports only the total number of its foreign correspondents without specifying their names and locations. We also exclude banks that fail to disclose their Russian correspondents assuming that this may indicate incomplete or unreliable data on foreign correspondents as well.

⁴³ The CBR 2003 Development Report provides the following estimates for the numbers and role of state- and foreign-controlled banks in Russia: 20 state-controlled banks that collectively account for about 36% of assets and 41 foreign-controlled banks that collectively account for about 7.4% of banking system assets.

⁴⁴ Russian legislation prohibits foreign bank branches.

frequency of foreign correspondent relationships for sample banks. Overall, the sample banks have 2,535 correspondent relationships with foreign banks. The mean and median for the number of foreign correspondents per bank is 6.7 and 4.0, respectively. The distribution is skewed by a few banks with many correspondent relationships; the maximum number of relationships is 158. The quartile range is from 1 to 6 for the number of foreign correspondents. Apparently, some Russian banks are engaged in clearing transactions with many foreign banks while others are concentrating their transactions with a very few number of foreign banks. Among the sample of 377 Russian banks, 191 have at least one foreign correspondent with a U.S. bank (Table 4). The maximum number of U.S. correspondents per bank is 14. On the other hand, 143 Russian banks have only non-U.S. foreign correspondents.

[Table 4]

To distinguish reputable and sanctioned U.S. correspondent banks, we use the U.S. Federal Reserve Lists of Enforcement Actions disclosed at the Federal Reserve official website. To identify U.S. banks that were sanctioned for violations of the foreign correspondent relations' regulations and money laundering during the period 2002-2005, we browse the Enforcement Actions press releases. Overall, there are 26 unique U.S. banks in our dataset (not reported in the table). These 26 U.S. banks account for 261 unique correspondent relationships with Russian banks (as some Russian banks have multiple U.S. correspondents). Although only 4 U.S. banks in our dataset of foreign correspondents were sanctioned by the Federal Reserve for the violations of correspondent relations and money laundering regulations during the sample period, these sanctioned U.S. banks account for 167 correspondent relationships or 64.0% of all correspondent relationships between U.S. and Russian banks in our sample.

4. Methodology

We examine the importance of the foreign correspondent relationships in revealing the quality of the Russian private banks (proxied by the DIS acceptance) to test the following two hypotheses:

H1: The likelihood of DIS acceptance is higher for Russian banks which maintain correspondent relationships with reputable U.S. banks.

H2: The likelihood of DIS acceptance is lower for Russian banks which maintain correspondent relationships with sanctioned U.S. banks.

To perform multivariate empirical tests, we employ bank-level data on Russian private banks correspondent relationships with reputable and sanctioned U.S. banks. We model a mix of

correspondent relationships with reputable and sanctioned U.S. banks by constructing two separate dummies: at least one reputable U.S. correspondent and at least one sanctioned U.S. correspondent. In other words, we assume that DIS acceptance outcome is a trade-off between positive and negative signals and, on a bank level, one negative signal may offset many positive ones (or vice versa). The multivariate regression framework separates potential positive and negative effects. In particular, we estimate the logistic regression model in the following form:

$$\text{Likelihood (DIS)} = \beta_0 + \beta_1(\text{US_rep}) + \beta_2(\text{US_sanc}) + \beta_i(\text{Financial variables}) + \beta_j(\text{Non-financial variables}) \quad (1)$$

Where:

DIS is a zero-one indicator variable of the Russian bank DIS acceptance by the end of the first acceptance stage, March 2005 (1 = accepted; 0 = rejected);

US_rep is a zero-one indicator variable that is equal to one if a Russian banks had at least one reputable US correspondent as of the end of 2003;

US_sanc is a zero-one indicator variable that is equal to one if a Russian banks had at least one sanctioned U.S. correspondent as of the end of 2003;

Financial variables is a vector of *i* financial control variables for Russian bank, including *Size*, *ROA*, *Capital*, *Liquid*, and *B_Loans* ratios as of the end of 2003;

Non-financial variables is a vector of *j* non-financial control variables for Russian bank. It includes dummy variables indicating *General* license, *OAO* legal form, and *Regional* location as of the end of 2003.

The dependent variable is the Russian bank acceptance or rejection in the *de novo* DIS system during the first stage of its introduction (March 2005) when the CBR had finalized on-site examinations of all applied banks and revealed its acceptance and rejection decisions. Consistent with the hypotheses, we expect $\beta_1 > 0$ and $\beta_2 < 0$.

We control for the importance of financial statements in revealing individual Russian bank quality by using financial performance measures similar to the U.S. bank regulatory CAMEL elements.⁴⁵ The "capital" is estimated as the capital to total assets ratio, "asset quality" is estimated with the business loans to all earning assets ratio, "earnings" is estimated as the profitability ratio of after tax income to total assets, and "liquidity" is estimated as liquid assets to total assets. The preferred "asset quality" accounts, delinquent loans and charge-off loans, were not reported for the Russian data. Hence, we substituted the surrogate "business loans" on the tenuous assumption that business loans are riskier than other bank assets.

⁴⁵ All the control variables are constructed with positive expected signs.

Licensure, ownership form, and location are the variables comprising the non-financial category. Importantly, the “general license” (described earlier in the Background section) is a privileged status, conferring the right to conduct all types of banking business. The open joint-stock company (*OAO*) form of ownership proxies stakeholder influence and managerial incentive circumstances. The location variable “Regional bank” identifies banks headquartered outside the Moscow region. As the risk experience with was historically lower with regional than Moscow area banks, we expect this indicator to be positively related to acceptance.

All explanatory variables, including correspondent relations, financial, and non-financial ones, are as of the end of 2003. The lagged values of explanatory variables do not only reflect the nature of the DIS procedures in Russia (the application submission period was from January to June 2004), but also allow us to eliminate any potential reverse causality effects. In particular, it is possible that some Russian banks that wanted to be admitted into the deposit insurance scheme could try to establish correspondent bank relationships with reputable banks in order to increase their perceived quality. However, we believe that distorting effects of “window dressing” with pseudo relationships are probably insignificant for two reasons. First, as described in the background section, the CBR DIS acceptance criteria did not explicitly account for any correspondent relationship issues. Neither the Russian DIS statute nor the regulations for applicant banks requested foreign correspondent bank relationship information. Thus, the Russian banks were not alerted to the possible use of such information by the CBR. Second, the procedure of establishing a direct correspondent relationship with a U.S. bank is lengthy. Establishing a foreign correspondent relationship requires banks to undertake due diligence investigations that are time consuming. The general banking practice is to maintain the same correspondent relationships over long periods of time. Also, the relevant time period in this research followed immediately after the Patriot Act by the U.S. The Patriot Act mandated that U.S. banks know their customers before conducting business with them. In effect, the Patriot Act increased the time and effort taken to establish new banking relationships.

In addition to testing our main hypotheses, a broad set of financial and non-financial control variables also allows us to detect other significant bank-level determinants of the DIS acceptances in the Russian banking system.

5. Results

To test whether the likelihood of the Russian banks acceptance into the DIS is positively associated with correspondent relationships with reputable U.S. banks

and negatively associated with sanctioned U.S. banks, we perform univariate and multivariate tests.

5.1. Univariate Comparison

The sample counts and percentages of the sample Russian banks categorized by correspondent bank relationships (Table 5) present a univariate depiction of the correspondent relationships. First, we note the number of insurance applicants having either (1) none or (2) at least one U.S. correspondent is nearly equal. Second, we note that acceptance rates, 79.0% and 74.4%, are similar for applicants without and with at least one U.S. bank correspondent. Third, we note that the entire sample (377) is evenly split between banks without (186) and with (191) U.S. correspondents. Thus, the univariate observations reveal little if any relationship between CBR *de novo* DIS applicant decisions and U.S. bank correspondent bank sanctions.

[Table 5]

In contrast to relatively neutral baseline observations, we note that the acceptance percentages are 94.7% and 64.3%, respectively, for banks with (1) only reputable or (2) only sanctioned U.S. bank correspondents. Another viewpoint of the same sample counts reveals that deposit application rejection is approximately seven times (35.7%/5.3%) more likely for Russian banks with sanctioned than non-sanctioned correspondent bank relationships. Of course these observations are neither statistical finding nor controlled for other important factors. Next, the analysis is advanced by incorporating variance and control variables with a logistic regression relating CBR deposit insurance acceptance and U.S. correspondent bank sanction characteristics.

5.2. Logistic Regression Analysis

This subsection presents empirical tests for the likelihood of bank acceptance into the DIS relative to positive indicators. “Acceptance”, in the context of the hypotheses, means that the application by a Russian bank to the CBR for the *de novo* DIS is approved in the first phase. Indicators for the acceptance are categorized as (1) U.S. correspondent relationships, (2) financial performance measures, and (2) non-financial bank characteristics. A summary of all variables’ definitions is presented in the Table 1.

The logistic regression estimates are reported in Table 6. The foreign correspondent bank variables of interest, *US_rep* and *US_sanc*, enter the logistic regression with positive and negative signs, respectively, and are significant at the 0.05 level. Both estimated coefficients have the hypothesized signs, positive for “reputable” and negative for “sanctioned” banks. This is strong evidence confirming the

importance of foreign correspondent bank reputation for Russia's *de novo* deposit insurance system application acceptance. We do not infer causality to this finding, however, as the relationship might have been generated by Russian and U.S. banks with common transactional practices finding like partners. In the context of Furlong and Williams (2006) signals, the finding may be viewed as an objective indicator that is either independent or confirming with respect to examiner information. The high level of significance and consistency in signs provides strong evidence that correspondent relationships are signals worthwhile considering by bank supervisors.

[Table 6]

The interpretation of odds ratios reveal sizeable effects of U.S. correspondent relationships on the likelihood of sample banks acceptance into the DIS. The odds ratio is 4.22 for at least one reputable U.S. bank as a correspondent and 0.55 for at least one sanctioned U.S. bank dummy.⁴⁶ Thus, regressions results suggest that for a Russian bank with at least one CR with a reputable U.S. bank (holding all other independent variables constant) the probability of DIS acceptance increases more than 4 times compared to banks that do not have any reputable U.S. correspondents. If a Russian bank have at least one foreign correspondent relation with a sanctioned U.S. bank, the probability of DIS acceptance drops by almost two times compared to Russian banks without such correspondent relationships.

ROA (return on asset ratio) was a significant coefficient with an expected, positive sign. This result is consistent with the Banking Dialog's encouragement of a CAMEL-like system for rating banks.⁴⁷ However, the insignificant findings for *Size*, *Capital*, *Liquid*, and *B_loan* variables is not consistent with the Banking Dialog's shift in supervisory philosophy. This observation may be due in part to Russia's developing accounting systems. The Dialog anticipated that greater transparency is a fundamental, needed change.

The non-financial characteristic *General* license enters with a positive, significant coefficient. As the general license confers largely unlimited rights to banks with respect to domestic and international operations, the positive coefficient confirms the intent

of licensure: banks without a general license are restricted to limited, safer operations. Russia's licensure form of supervision is long-established and, recently, renewed with stronger enforcement. Thus, the results are congruent with expectations and confirm its use as a control variable.

5.3. Robustness Check: Alternative Asset Quality Measures for Reduced Sample

Data limitations create a potential problem in our empirical analysis. We could not account directly for the quality of bank loan assets. Our data do not include loan performance fields comparable to those required for US banks. (Table 6). Our measure, the ratio of business loans to earning assets, focuses on the degree each bank specializes in a risky category and indirectly captures the degree of credit risk-taking. Thus, it may fail to reflect accurately bank loan asset quality. Alternatively, consistent with the broader banking literature, a direct measure of asset performance is an important characteristic of bank risk-taking and, therefore, may be a significant, omitted predictor of DIS acceptance.

To verify the robustness of our main results, we examine a smaller subsample of banks for which we are able to obtain accounting data on overdue loans and the provision for loan losses. For the period preceding introduction of DIS, loan performance data are publicly available only for a limited number of Russian banks. In particular, since early 2004, the CBR started to disclose banks' financial statements for about 53% of Russian banks in a centralized manner, through the CBR website. We use the earliest available balance sheet data, as of February 1, 2004, to construct two alternative measures of bank asset quality: the ratio of overdue loans to total loans and the provision of loan losses to total loans. We are able to collect these data for 251 banks which represents 66% of our original sample. The average ratio of overdue loans to total loans in this subsample is 1.69%, while the PLL to total loans is 6.42%. Because the correlation coefficient between the two asset quality proxies is 0.45, we report separate regressions for each proxy.

The robustness check results are presented in Table 7. Our main result remains the same: there is a robust positive relationship between a Russian bank correspondent relationship with a reputable US bank and the likelihood of DIS acceptance. There is a robust negative relationship between a Russian bank correspondent relationship with sanctioned US banks and the likelihood of DIS acceptance. As expected, coefficients for the PLL ratio and overdue loans ratio are negative. However, both variables are insignificant predictors of the Russian bank DIS acceptance. A possible explanation for insignificance coefficients is that total loans grew very rapidly in

⁴⁶ The odds ratio of 7.6 to 1 is similar to the univariate statistic observed in Table 5.

⁴⁷ The Banking Dialog supported Russia's development of bank regulatory systems with U.S. expertise in many areas, including deposit insurance and CAMEL rating systems with conferences and an attaché located in Moscow (Taylor, John B. 2004, "The United States –Russia Banking Dialog: Two Years Later, Conference on Investment Opportunities in Russian Banking", <http://treas.gov/press/releases/js1326.htm>)

Russian banks during this period. Loan growth may mask the accumulation of bad loans in the banks' balance sheets, as measured by the ratios of loan non-performance to total loans. Further, the Russian Accounting Standards for banks allows long delays in the recognition of potential loan losses, leading to a possible misstatement of loan quality accounts.

[Table 7]

6. Summary and Conclusions

The statistical tests of correspondent relationship variables, both favorable and adverse in nature, significantly affirm the expected relationship between U.S. foreign correspondent transactions enforcement actions (no actions) and Russian bank deposit applicant rejection (acceptance). Our tests control for prior licensing status, financial characteristics, and regional propensity for correspondent bank infractions in Russia. In both univariate and multivariate analyses, the results provide strong confirmation that Russian bank quality is signaled by U.S. correspondent reputation as revealed by Federal Reserve sanctions.

An important implication of our findings is that monitoring foreign correspondents of domestic banks may provide useful information to supervisory agencies. The correspondents are stakeholders much like the supervisory agencies, having fears of counterparty non-performance. Correspondents continuously monitor transactions systems performance under a wide range of market and customer conditions. Lateral communications among correspondents enable quick, unbiased confirmation or dismissal of false positives, so that contagion risks are controlled.

Overall, as conceptualized by Berger, Davies, and Flannery (2000), our results suggest that foreign correspondents may possess complementary data useful for improving the external monitoring of banks. Further study appears warranted, as the costs of incorporating foreign correspondents as delegated monitors is low and the expected timeliness and accuracy appears promising. A subsequent IMF country report (IMF, 2009) for Russia criticized that banks with "no specific requirement to understand nature of respondent's business or determine quality of supervision."⁴⁸ Implicit in the criticism is the use of domestic banks to act as delegated monitors of cross-country respondent banks. Given the findings in this study, the use of foreign correspondent bank compliance with money laundering and terrorist financing (ML/TF) requirements to evaluate domestic banks has some merit. Future research might examine

the correlate issue of the effect of domestic government enforcement on the establishment of domestic banks as delegated monitors of foreign respondent banks. Further, we foresee a need for research expanding the investigative scope to include effects of ML/TF regulation on prudential practices of foreign respondent banks.

Despite the affirming empirical results observed in Russia's deposit decision event, we recognize many reasons for caution in using correspondent stakeholders as delegated monitors. Unlike on-site bank supervisory examiners, the correspondent banker does not have access to personnel and records needed to evaluate many false positives. The 2008 breakdown in the Federal funds market demonstrates that information voids by outsiders like correspondent bankers is a continuing hazard. Similarly, the information voids may mask problems that could be uncovered with internal sources.

This research suggests three directions for future research. First, our results suggest public regulators and private agencies should develop consistent, formal plans to exploit this here-to-fore unrecognized source of readily available bank quality data. Second, the single country event demonstrates the potential merits of undertaking further studies in other countries using different correspondent bank data and events. Particularly promising are studies extending the scope of bank information validated with respect to standards and compliance. Third, respondent data collection experience in this study suggests that standards development has potential for enhancing market efficiency and regulatory compliance.

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⁴⁸ Respondent refers to the counter party bank transacting with the domestic bank in the context of a formal correspondent bank agreement.

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Appendices

Table 1. Definition of Variables

All Russian bank-level variables, except DIS acceptance, are as of the end of 2003. The DIS acceptance data are as of the end of March 2005 (the end of the first wave of deposit insurance acceptances). All financial ratios are winsorized at the 2.5th and 97.5th percentiles. The U.S. banks' sanctions for violations of the correspondent relations' regulations are for the period 2002- 2005. The Federal Reserve Lists of Enforcement Actions and press releases are obtained from <http://www.federalreserve.gov/Boarddocs/press/enforcement/>

Variable	Notation	Definition	Source
DIS acceptance	DIS	= 1 if a bank was accepted to the Deposit Insurance System (DIS) in the first round	Deposit Insurance Agency register
<i>Russian banks' correspondent relationships with U.S. banks:</i>			
Reputable U.S. banks	US_Rep	= 1 if a bank has established correspondent relation with at least one reputable U.S. bank as of the end of 2003 and zero otherwise	Intelbridge
Sanctioned U.S. banks	US_Sanc	= 1 if a bank has established correspondent relation with at least one sanctioned U.S. bank as of the end of 2003 and zero otherwise	U.S. Federal Reserve Lists of Enforcement Actions
<i>Russian banks' nonfinancial characteristics:</i>			
General license bank	General	= 1 if a banks holds a general license (no restrictions on legitimate banking operations) and zero otherwise	CBR Bulletin of Banking Statistics
Open joint-stock bank	OAO	= 1 if a banks is in legal for of the open joint-stock company (OAO) and zero otherwise (private bank: ZAO or OOO legal form)	CBR Bulletin of Banking Statistics
Regional bank	Regional	= 1 if a bank is headquartered outside of Moscow and zero otherwise	CBR Bulletin of Banking Statistics

Russian banks' financial characteristics:

Bank size	Size	Log of bank assets in thousands of Rubles	Intelbridge
Profitability	ROA	After tax income to total assets	Intelbridge
Capital ratio	Capital	Book equity to total assets	Intelbridge
Liquidity ratio	Liquid	Liquid assets to total assets	Banksrate
Business loans ratio	B_Loans	Business loans to earning assets	Banksrate

Table 2. Frequencies for Russian Bank Sample Characteristics (377 sample banks versus 1,277 all Russian banks)

Russian Central Bank Deposit Insurance Acceptance (1st stage) are reported for March 27, 2005, the end of the first wave of deposit insurance acceptances. Russian bank license type, legal form, location, and size characteristics are reported for the end of the year 2003. The description and sources of variables are provided in Table 1.

	Sample banks		All Russian banks	
	N	%	N	%
<i>Deposit insurance acceptance</i>				
Accepted in the 1 st stage	289	76.7	824	64.5
Not accepted in the 1 st stage	88	23.3	453	35.5
<i>License type</i>				
Operations in rubles only	0	0.0	154	12.1
Right to establish correspondent relationships with CIS banks only	0	0.0	84	6.6
Right to establish correspondent relationships with up to six foreign banks outside CIS countries	41	10.9	86	6.7
No limitations on the number of correspondent relationships with foreign banks outside CIS countries	150	39.8	643	50.4
“General” license: Additional rights by large capitalized Russian banks	186	49.3	310	24.3
<i>Legal form</i>				
Open joint stock banks (OAO)	191	50.7	482	37.7
Closed joint stock banks (ZAO)	108	28.6	326	25.5
Private banks (OOO)	78	20.7	472	36.9
<i>Geographical location</i>				
Moscow banks	205	54.4	645	50.5
Regional banks	172	45.6	632	49.5
<i>Bank asset size</i>				
Below \$100 million	275	72.9	1,083	84.8
From \$100 million to \$1 billion	95	25.2	171	13.4
Above \$1 billion	7	1.9	23	1.8
Total banks	377	100.0	1,277	100.0

Table 3. Descriptive statistics and correlations of financial bank characteristics (377 Russian banks)

Descriptive statistics are computed with the entire sample of 377 Russian banks and accounting information dated December 31, 2003. Definitions and notations for financial ratios are provided in the Table 1. Bank assets are total assets (with standard bank accounting for contra-accounts) denominated in rubles (\$1 = Rb29.45). Ratios are winsorized at the 2.5th and the 97.5th percentiles. In Panel B, *, ***, and *** denote 10%, 5%, and 1% significance.

Panel A. Descriptive Statistics

Bank characteristics	Mean	SD	Min	25 th percentile	Median	75 th percentile	Max
Size	11.66	1.57	6.32	10.68	11.71	12.64	16.27
ROA	0.013	0.013	0.000	0.004	0.009	0.017	0.055
Capital	0.336	0.195	0.071	0.200	0.281	0.422	0.895
Liquid	0.238	0.159	0.015	0.116	0.207	0.310	0.673
B_Loans	0.602	0.271	0.000	0.421	0.674	0.815	0.991

Panel B. Cross-correlation coefficients between financial variables.

	Size	ROA	Capital	Liquid	B_Loans
Size	1.000				
ROA	0.031	1.000			
Capital	-0.463***	-0.051	1.000		
Liquid	-0.066	0.035	-0.103**	1.000	
B_Loans	0.242***	0.126**	-0.138***	-0.112**	1.000

Table 4. Descriptive statistics for the frequency of foreign correspondent relationships (377 Russian banks; 2,535 unique correspondent relationships with foreign banks)

All Russian banks in our sample have at least one foreign correspondent relation (by the sample selection criteria).

	Mean	SD	Min	25 th percentile	Median	75 th percentile	Max
Total number of foreign correspondents	6.7	11.3	1	2	4	7	158
U.S. foreign correspondents including:	0.7	1.1	0	0	1	1	14
U.S. reputable banks	0.2	0.8	0	0	0	0	11
U.S. sanctioned banks	0.4	0.6	0	0	0	1	3

Table 5. Correspondent relationships with U.S. banks and deposit insurance acceptance (377 Russian banks)

The tables compares foreign correspondent relationships in accepted and rejected Russian banks with at least one foreign CR.

Correspondent relationships with U.S. banks	N of Russian banks	% of sample	DIS acceptance		
			% of banks rejected	% of banks accepted	All banks, %
None	186	49.3	21.0	79.0	100.0
At least one U.S. correspondent, including	191	50.7	25.6	74.4	100.0
only reputable U.S. bank(s)	38	10.1	5.3	94.7	100.0
reputable and sanctioned U.S. bank(s)	27	7.2	7.4	92.6	100.0
only sanctioned U.S. bank(s)	126	33.4	35.7	64.3	100.0
Total	377	100.0	23.3	76.7	100.0

Table 6. Determinants of Russian banks acceptance into DIS: Logistic regression results (377 Russian banks)

This table presents coefficient estimates of the determinants of Russian banks' acceptance into the Deposit Insurance System (DIS). The dependent variable takes the value of "one" if the bank was accepted into DIS by the end of the first wave of acceptances (March 2005) and the value of "zero" otherwise. The definitions of all explanatory and control variables are provided in Table 1. Standard errors robust to heteroskedasticity are in parentheses below each estimate.

Variable	Coefficient estimate robust standard error	and	p-value
Constant	0.738 (1.343)		0.583
<i>Correspondent relationships with U.S. banks</i>			
US_rep	1.440 (0.575)		0.012
US_sanc	-0.602 (0.297)		0.043
<i>Russian bank financial characteristics</i>			
Size	-0.082 (0.107)		0.443
ROA	38.887 (19.713)		0.049
Capital	-0.699 (0.750)		0.351
Liquid	0.141 (0.843)		0.867
B_loans	0.885 (0.525)		0.092
<i>Russian bank non-financial characteristics</i>			
General	0.644 (0.314)		0.040
OAD	-0.130 (0.292)		0.656
Regional	1.873 (0.405)		0.000
N of observations	377		
Model Chi-sq	44.55		
Percentage correctly classified	80.4%		
Nagelkerke R ²	22.0%		

Table 7. Determinants of Russian banks acceptance into DIS: Subsample of 251 banks with available asset quality data

This table presents coefficient estimates of the determinants of Russian banks' acceptance into the Deposit Insurance System (DIS) for subsample of banks with disclosed asset quality data as of the end of 2003. The dependent variable takes the value of "one" if the bank was accepted into DIS by the end of the first wave of acceptances (March 2005) and the value of "zero" otherwise. The *Overdue* is the ratio of overdue loans to total loans. The *PLL* is the ratio of provision for loan losses to total loans. The definitions of all other explanatory and control variables are provided in Table 1. Standard errors robust to heteroskedasticity are in parentheses below each estimate.

Variable	Coefficient estimate and robust standard error	p-value	Coefficient estimate and robust standard error	p-value
Constant	1.134 (2.076)	0.585	0.932 (2.025)	0.645
<i>Correspondent relations with US banks</i>				
US_rep	1.322 (0.731)	0.070	1.419 (0.715)	0.047
US_sanc	-0.863 (0.440)	0.050	-0.812 (0.421)	0.054
<i>Russian bank financial characteristics</i>				
Size	-0.123 (0.160)	0.441	-0.133 (0.158)	0.401
ROA	34.573 (30.659)	0.259	37.755 (30.442)	0.215
Capital	-0.765 (1.212)	0.528	-0.618 (1.183)	0.602
Liquid	1.110 (1.348)	0.410	1.311 (1.268)	0.301
B_loans	1.306 (0.787)	0.097	1.374 (0.757)	0.069
Ovedue	-9.622 (8.899)	0.280		
PLL			-1.122 (2.964)	0.705
<i>Russian bank non-financial characteristics</i>				
General	1.043 (0.480)	0.030	1.118 (0.462)	0.015
OAD	-0.480 (0.445)	0.281	-0.551 (0.432)	0.202
Regional	2.476 (0.541)	0.000	2.463 (0.560)	0.000
N of observations	251		251	
Model Chi-sq	38.30		36.04	
Percentage correctly classified	87.7%		86.1%	
Nagelkerke R ²	29.2%		28.5%	