

***Can Governments Mandate Hard Budget Constraints? Bank
Lending and Financial Isolation in Romania***

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Can governments mandate hard budget constraints?

Bank lending and financial isolation in Romania

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-Keywords: restructuring, financial restructuring, bank lending in transition.

Abstract

This paper examines the empirical evidence on the impact of reforms in the financial sector in Romania in the period 1993-1995. The methodological framework of the paper is based on a theoretical model of intertemporal bank lending in a transition country with uncertain prospects for stabilization (Carare and Perotti, 1997). The model identifies an empirical test to measure whether the banking sector has started to act as a source of financial discipline, or just as a temporary buffer for enterprise losses. The idea is to test whether the correlation between bank lending and arrears is decreasing over time. We also seek to assess the structure and impact of the program of financial isolation initiated by the government in 1994 to impose tighter budget constraints on a set of insolvent state-owned firms. We use both a logit specification and a structural test to analyze the determinants of the selection of firm included in the program.

Our results indicate that after the early stage of collective bailouts ended in early 1993, banks at first acted as channel to support insolvent firms. The evidence suggests also that by 1995, when the financial isolation program started, financial policies became more discriminative. While the criteria for the overall credit allocation appear to have improved, there are signs that support was shifted to a selected group of enterprises, perhaps in part through the program itself. However, only once more recent data becomes available it would be possible to investigate whether there has been a change in the initial discipline imposed on the financially isolated firms as a result of the program.

Non-Technical Summary

This paper examines the empirical evidence on the impact of reforms in the financial sector in Romania in the period 1993-1995. Our model identifies an empirical test to measure whether the banking sector has started to act as a source of financial discipline, or just as a temporary buffer for enterprise losses. We also seek to assess the structure and impact of the program of financial isolation initiated by the government in 1994 to impose tighter budget constraints on a set of insolvent state-owned firms. We found evidence of an increasing differentiation of bank credit allocation between firms in the program and outside. Some of these differences may be attributed to a rather arbitrary set of preferences (in favor of higher real wage firms, which could have been favored in the first place; perhaps an excessive degree of refinancing of trade credit of uncertain quality). We are tempted to conclude that overall credit allocation appears to have reversed its visible deterioration after 1995, although the possibility of excessive refinancing of wage arrears and doubtful receivable cannot be ignored.

Introduction

In the early days of transition the question of macroeconomic stabilization stood out among all reform priorities in transition countries. Unquestionably, the countries that achieved stabilization by a steady monetary policy (mostly in Central Europe and in the Baltic States) succeeded in restarting the growth process, while elsewhere monetary instability was accompanied by a protracted slump. Since all countries attempted stabilization, a critical policy issue is why stabilization was maintained in some countries and was reversed (often repeatedly) elsewhere. While macroeconomic indicators are often used to assess the performance of a country's reform process, microeconomic adjustment is the sole guarantee of progressive stabilization and performance. A tight credit policy that reduces inflation may be unsustainable when credit available is used to cover losses in the industrial sector. As enterprises fail to generate an appropriate return and decapitalize by paying insiders most of their surpluses, in the medium term the banking sector reveals its insolvent state, requiring massive recapitalization and thus lax monetary or budget policies.¹ The importance of a timely assessment on the quality of bank lending is thus essential to assess progress in restructuring incentives and in the reallocation of credit to better producers.

The initial stages of financial policy in Romania seem to fit well with early transition models which focused on the endogeneity of reform policy credibility (Roland and Verdier, 1995; Perotti, 1998).

In these models, an insufficient microeconomic restructuring response to the threat posed by reform policies may lead to collective inertia based on an increased likelihood of policy reversals. In Perotti (1998) the possibility of massive (mutual) default endangering economic activity and social stability may lead to a reversal to reflationary policies to bail out all arrears, which in turn justifies the ex ante inertial response and the creation of arrears. This model formalizes what Janet Mitchell (1997) classifies as the "too-many-to-fail" strategy of resistance to adjustment.

¹ This raises the question of whether the insistence on monetary stabilization led to neglect microeconomic reform, such as industrial restructuring, strengthening of contract enforcement and the enactment and enforcement of a bankruptcy code.

The argument about “too many to fail” fits well the facts in the first few years of transition in the Eastern Balkan states and in the FSU countries outside the Baltic States. Collective (that is, indiscriminate) bailouts of firm arrears funded with monetary emissions took place in Russia in 1992 and to a lesser degree in 1993; in Romania in 1991 and 1993; in Bulgaria in 1994. However, governments (and firms) realized soon that collective bailout offered an insufficient degree of real compensation for arrears. The main reason was that, given a weak fiscal position, the only resources available to the government to perform a bailout were monetary emissions; as a result, the real value of the clearing of arrears was depreciated by the clearing itself. The immediate inflationary impact and strong IMF pressure convinced the government to stop such measures.

The goal of this paper is to seek a framework to interpret financial policy in the next stage of transition. We believe that the banking system played a central role in this stage. A thorough understanding of the credit process is thus necessary to explain why several countries have fallen in serious financial crises. We outline here our interpretation.

Since fiscal resources were insufficient to offer full compensation to all firms in arrears, governments had to choose to support firms selectively. We believe that political influence was at work to induce the banking sector to lend to selected enterprises. Firms that were either too large to fail or politically and economically too powerful to be allowed to fail persisted in their resistance to adjustment, relying on their ability to attract more of the subsidies or targeted credit resources. This raises the question of the role of the financial isolation program started in Romania in 1994 (see Djankov and Ilayperuma (1997) for an excellent description of the program). The stated intention was to mandate restructuring of a selected subsample of highly insolvent firms while attempting to restrain further borrowing. At the same time, significant resources were provided to the firms in the program, conditional on concrete restructuring steps.

The other firms were left in somewhere in between, not any longer subsidized², yet not subject of a serious bankruptcy threat. Realizing that further inertia would lead

² With the exception of tax arrears, an involuntary subsidy.

to a rapid dissipation, some firms attempted restructuring, others were depleted by insiders. In fact, the financial isolation program itself may have been used as a tool to provide extra support for a few selected firms. Djankov and Ilayperuma (1997) advance support for this view.

The main questions we wish to investigate are:

- 1) what lending criteria were used by the banking sector in the period ?
- 2) how did they evolve over the period ?
- 3) what were the criteria for inclusion of firms in the financial isolation program ?

To test the shift to selective support via politically inspired bank lending (both inside and outside the program) we rely in part on the model by Carare-Perotti (1997), that investigates the allocation of bank credit in Romania in 1992-1994. They test for evidence of tightening of financial discipline on Romanian state-owned enterprises. Their conclusion is that the quality of bank lending suffered a significant deterioration across that period, with banks becoming a source of financial support for the poor performing firms.

Studying the disciplinary role of the banking system on enterprise restructuring requires data on the true amount of bad loans and the quality of new credit. The information provided by banks is hardly reliable to this purpose. An alternative is to assess the data related to bank borrowing and arrears from the SOE's yearly balance sheets.

Regressing observed changes in bank credit on profitability to verify the sign of the correlation is not necessarily informative on the quality of lending, as this cannot separate supply and demand effects. In principle, high profitability is positively related to credit supply (banks like to lend to good firms), but as real interest rates rise during stabilization, credit demand by better firms falls. Firms with the worse prospects would not be as concerned with the high rates, as they are not as likely to repay the loans anyway; their incentives are skewed towards short term objectives and possibly towards higher risk undertakings (Stiglitz and Weiss, 1984). For this subset of firms demand for credit is unlimited; therefore the suppliers of capital determine the volume and allocation of credit. In conclusion, for better firms credit allocation is more determined by demand, while for worse firms it is supply-driven.

Pinto and van Wijnbergen (1994), analyzing balance sheet and survey data from Polish SOEs, showed a breakdown in the negative correlation between SOEs profitability and their access to new credit. They conclude that a structural break took place in the behavior of Polish banks as a result of a broad reform of the banking system in 1992. Schaffer (1997) concludes also that Hungarian banks have tightened their criteria since 1992. Pinto and van Wijnbergen control for demand side effects by using survey data on firms' perceived ease of obtaining credit, which allows a partial identification of the demand curve.

The approach in this paper is more structural. Rather than looking at the correlation between bank credit and profitability, we identify, based on the theoretical model of Carare-Perotti (1997), another coefficient that measures the change of a firm's financial constraints. The idea is that a financial system moving towards tighter financial discipline and greater solvency reduces its exposure to bad borrowers and reallocates resources towards better ones. At a minimum there must be no automatic rollover of bad debts. The model suggests that the change over time of the correlation between bank credit and bank arrears may be taken as an empirical measure of the evolution of bank lending quality.

It is not surprising *per se* to observe a strong initial correlation between these two values at the beginning of the transition period. In an economy subject to large trade and price shocks, many firms initially suffer from the sudden price adjustment; moreover, banks may have a hard time at first identifying the quality of borrowers and reducing their exposure to unprofitable enterprises.³ If appropriate microeconomic reform takes place over time, however, it should be possible to observe a progressive improvement in the composition of bank lending. On the other hand, if banks are subject to political pressure, or if they act on the assumption of a generalized recapitalization of bad loans, they may direct credit to less creditworthy but politically sensitive enterprises.

Carare-Perotti (1997) applied these ideas to a sample of Romanian state-owned enterprises for the years 1991-1994. Our results were not encouraging. Over the

³ There may be a perverse incentive even on the part of profit-maximizing banks to continue to direct credit to the worse former borrowers rather than new and better firms when by doing so insured banks may hope to retrieve some of the old loan as well (Perotti, 1993).

period, the correlation of bank lending to the stock of financial arrears, controlling for various financial variables and politically sensitive variables such as size and employment, is increasing and strengthening until 1994. Bank credit appears to have been directed increasingly towards firms that are, on average, larger, less profitable, and having a larger arrears position in trade and bank credit. Even lending to profitable firms was biased towards those with the largest trade arrears. In conclusion, the evidence suggested that bank credit in 1993-1994 replaced state subsidies of 1990 and direct bailouts of trade arrears of 1991-1992.

Section I briefly describes the economic context of the Romanian reform process and outlines the theoretical predictions in Carare-Perotti (1997). Section II describes the sample and methodology, and presents the empirical results. We offer some conclusions at the end.

SECTION I

Brief overview of financial transition in Romania

Romania experienced in 1990-91 a hyperinflationary environment, with highly negative interest rates on loans; demand for credit was unlimited and needed to be rationed. As the central bank attempted to rein in inflation, a serious arrears crisis developed in the Romanian state industrial sector. The stock of inter-enterprise arrears rose rapidly 18-fold, until it amounted to a stunning 50% of Romania's GDP. The implementation of the Global Compensation Scheme (GCS) in December 1991 did not bring any considerable improvement to the trade arrears problem (Clifton and Khan, 1993; Calvo and Coricelli, 1993). The CGS led to a massive shift of financial arrears to the banking sector and, ultimately, to the Romanian National Bank, which had to provide funds for clearing outstanding trade debts between enterprises. Following the GCS, the money supply rose by 149 billion lei⁴, leading to an increase in prices of 223%, some 118% more than projected. The money supply increased rapidly; by December it was up by 71 %. Though interest rates were formally liberalized during 1991, substantial restrictions were imposed to prevent interest rates from becoming positive in real terms (Croitoru and Ciocirlan, 1994). The basis for a cyclical pattern of tight monetary policy, rapid buildup in arrears and finally centralized bailout had been established.

The interest rates for credits offered by commercial banks in Romania in 1992 and 1993 varied considerably (during December 1992, for instance, interest rates for credits ranged from 15 % to 180%, another sign that a dual market for credits was effective during at least 1992 and 1993).⁵

In May 1992 the NBR tightened its policy briefly, and interest rates on loans by the main state-owned banks, calculated on a quarterly basis, became positive in real

⁴ Clifton and Khan, 1993, p. 690

⁵ In fact, looking at the published real rate is misleading, as only (well connected) firms could really borrow at those rates. It is thus not true that borrowing under high inflation is cheap; since savings escape the local intermediaries, credit becomes extraordinarily scarce, and is allocated on the basis of political preferences at highly concessionary rates.

terms for a short period during the second and third quarters of 1992. After a new credit relaxation (connected to a further clearing of trade arrears) real interest rates plunged dramatically. Real rates became positive at the beginning of 1994. At about the same time, the NBR imposed quantitative ceilings for refinancing. Interest rates on inter-bank credit auction rose to 184% in March 1994, while the PPI was rising at a lower rate. The real level of lending rates kept rising until 1996.

Table 1

Year	Bank lending rate	CPI change
1992	N/A.	210.4
1993	86.4	256.1
1994	62.4	61.7
1995	41.5	32.3*

Source: Economics of Transition, statistical annex, and The World Bank

* PPI change

Commercial banks easily shifted the high interest rates to firms, suggesting that loan demand was quite inelastic during this period. This may reflect the fact that many uncreditworthy firms maintained a high level of loan demand.

In this paper we try to account for the effect that real interest rates might have had on the demand for bank loans. It is clear that demand for credit by better firms will be reduced by high positive interest rates, while credit demand for worse firms may in fact increase in such circumstances. Our starting assumption is that during most of 1993 credit was inexpensive in real terms; in 1994 rates rose significantly so as to reduce loan demand for better firms and enhance loan demand by the more troubled firms. We cannot rely solely on the significance of profits as a determinant of bank credit supply.

Empirically, the conclusion of the model developed in Carare-Perotti (1997) can be translated in a prediction on the evolution over time of the coefficients on some of the determinants of bank lending to individual enterprises. Specifically, if we observe that the coefficient on profitability in a regression that explains bank borrowing in terms of the borrower's balance sheet figures cannot be interpreted unambiguously, the

coefficient on bank arrears should decline over time in absolute terms, as banks tighten their credit assessment.

In contrast, if the incentive for monitoring declines because of lack of monetary credibility (as bad loans are increasingly expected to be bailed out), there would be no improvement in the cross-section correlation between arrears and the stock of bank credit.⁶ This would signal a poor credibility of future monetary policy, resulting in a drop in monitoring intensity and, ultimately, a serious banking crisis.⁷

It is not possible to interpret a negative correlation between credit and profitability as a sign of poor lending quality, as the loan portfolio composition also depends on demand effects: good borrowers may choose to reduce their borrowing during tight credit, when real interest rates are higher.

⁶ The more extreme empirical result would be that the correlation between arrears and lending were to **become stronger** over time. In this case we could conclude that bank credit is being used as a buffer for losses; though we could also not ignore the possibility of a positive bias by profit-maximizing banks in favor of worse borrowers due to the equity-like nature of overdue debt, so that there are greater benefits for banks in refinancing old loans than in offering loans to new firms (Perotti, 1993).

⁷ Lack of discipline may be self-reinforcing and self-fulfilling when the incentive to lend to poor performers (related to the bailout probability) rises with the overall stock of bad loans (Perotti, 1995).

SECTION II

Basic question and methodology

In our approach we make use of balance sheet information on the stock of bank arrears. If banks were lending on the basis of the capacity and willingness to repay, they should be withholding loans from firms with a history of unpaid loans and overdue trade liabilities. As the discussion in Section I indicates, credit would be positively correlated (but progressively decreasing) with the amount of financial arrears, after controlling for firm profitability. Over time, a strengthening of this decline would reflect tighter financial constraints. We would also expect scaled bank credit to be independent of firm size⁸ and positively related to the stock of trade receivables (a measure of short-term assets to be funded), after controlling for the overdue component.

We collect our data from a sample of 4430 Romanian firms, mostly state-owned enterprises, matched across years based on a code supplied by the Romanian Ministry of Finance. For each firm we use balance sheet data that is deflated with the PPI, such that all variables are expressed in constant 1992 Lei. We recognize some 20 firms as extreme outliers in terms of per-worker receivables and discard them.

The first step in our analysis is to assess empirically the criteria used by policymakers to determine the set of financially isolated firms. We first compare the amount of bank lending per employee for the firms included in the isolated sample against the entire sample. The test indicated strongly that the average level of debt is (as expected) very significantly different, either assuming the same variance or (even more strongly so) when we allow for different variances. This indicates that a first order cause for inclusion in the program was the stock of bank debt.

⁸ Political pressure may influence the allocation of bank credit directly or through promises of financial relief for loans to preferred firms. However, it is difficult to find proxies for firms that may be natural constituencies of government supporters. Size may then measure the political bargaining power of large enterprises. Interestingly, it results that in Romania size has a positive impact but employment has a negative effect, suggesting that the government favors capital intensive sectors.

Table 2: Independent Samples Test; t-test for equality of means

Scaled bank loans (using employment)	t value	Significance (2 tailed test)
Equal variances assumed	-2.330	.020
Unequal variances assumed	-7.611	.000

Next we run a logit regression trying to explain the characteristics of the firms included in the program. We base our analysis on balance sheet information available to policymakers in 1994, when the decision on inclusion in the program was made.

In addition to the usual determinants of bank lending, we use in our logit model a variable (CESPRO) that is a non-linear measure of the change in a firm's profitability over years. By using the above variable, we investigate whether policymakers regarded large swings (either positive or negative) in profitability as a criterion for inclusion in the set of FI firms.⁹

We present below the results of the logit regression. The dependent variable is ISODUM, equal to one for isolated firms. We use as independent variables, in the same order, the stock of bank loans, average (per employee) profit, average wages and receivables. We employ LOGSALES as a measure of a firm's size. We also present the marginal effects, computed at the mean of the data in table No. 4.

Table No. 3 - Logit coefficients:

VARIABLE	β _LOGIT	STD.ERR.	T-VAL	PROBITI
CONSTANT	-5.98706	0.75042	-7.97826	0.0000
<i>BKL_E</i>	0.00016	0.00004	3.66406	0.0002
<i>PRO_EM</i>	-0.00060	0.00006	-9.58996	0.0000
<i>WAG_EM</i>	0.00024	0.00016	1.54205	0.1231
<i>REC_E</i>	-0.00013	0.00009	-1.50602	0.1321
<i>BARR_E</i>	0.00084	0.00047	1.77409	0.0760
<i>WAGEA_E</i>	-0.02671	0.00460	-5.80773	0.0000
<i>LOGSAL</i>	0.64716	0.17623	3.67219	0.0002
<i>CESPRO</i>	-0.00002	0.00003	-0.80912	0.4184

Measures of fit:

Likelihood Ratio	259.189685
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⁹ CESPRO is computed as: $CESPRO = ((pro_em95 - pro_em94)^3 + (pro_em94 - pro_em93)^3)^{1/3}$.

R^2 (Laitila)	0.683893
Wald test ($\beta=0$)	1019.207412

The change in the probability of inclusion into the set of FI firms, as a result of a marginal change in one of the independent variables, depends on the initial point of measurement. We choose to evaluate the marginal effects at the mean of the data. We present the results in Table 3 below.

Table No. 4 Marginal effects (at the mean of data)

VARIABLE	Sample Averages	SLOPE	T-VAL.	PROBITI
<i>CONSTANT</i>	1.000	-0.05009	-4.3920	0.0000
<i>BKL_E</i>	547.487	0.00000	3.1224	0.0018
<i>PRO_EM</i>	118.482	-0.00000	-5.2179	0.0000
<i>WAG_EM</i>	1162.110	0.00000	1.5169	0.1293
<i>REC_E</i>	836.783	-0.00000	-1.4883	0.1367
<i>BARR_E</i>	11.301	0.00001	1.7001	0.0891
<i>WAGEA_E</i>	58.184	-0.00022	-8.0540	0.0000
<i>LOGSAL</i>	4.021	0.00541	3.0986	0.0019
<i>CESPRO</i>	1126.777	-0.00000	-0.8127	0.4164

Some comments are immediate. Firms were more likely to be included if

- 1) they had more bank loans
- 2) they were less profitable
- 3) they had more bank arrears
- 4) they had less (!) wage arrears
- 5) they were larger firms

While the signs of many of these coefficients are reasonable, it is surprising to find that wage arrears had a negative impact on the probability of inclusion in the program. Two possible explanation arise in our framework: either the program was set up with the proper intent not to bail out firms which were unable or unwilling to pay their workers; alternatively, the presence of wage arrears indicates that the firm was all along not politically favored. Interestingly, there is anecdotal evidence that firms in labor intensive sectors but little political significance, such as the textile industry, received little support. On the other hand, sectors such as mining, where the workforce was favorably disposed towards the government and wages were comparatively high

(probably not a coincidence) received much more attention in the allocation of subsidies. In fact, in the above regression, the coefficient on the wage level per employee is positive, though not quite significant.

Explaining the cross section of bank lending in subsequent years

We next turn to examine directly the characteristics of bank lending for the sample over the period.¹⁰

Our regressions examine some standard determinants of borrowing, such as the need to finance receivables (which may be then used as collateral) and the effect of the interest rate. We introduce the level of profit to control for various factors. First, we wish to see whether bank lending was directed towards firms with better prospects, while recognizing the possibility that the coefficient may reflect, in particular since 1994, a reduced demand for credit by better firms. Next, we include variables which, according to what our model suggests, may have an inertial effect on lending if indeed budget constraints had not been tightened: the level of bank and wage arrears.

In recognition of the likely role that political considerations play in this stage of transition, we consider a list of non-financial variables as well, such as the size of the enterprise and the average wage level.

Following our previous approach (Carare Perotti, 1997), we scale all variables (except sales, our measure of size) by employment. In similar analyses in the West it is more common to scale by assets (e.g. Rajan and Zingales, 1997). However, in a country such as Romania, subject to high inflation and large relative price shocks across assets, the book value of assets is a poor proxy for their market value. Moreover, the significance of these values over time is undermined by the fact that Romanian firms have re-valued, at different points in time, their long term assets by applying various multiples over historical cost. Moreover, to the extent that credit may be allocated on the basis of political interest, employment is a natural scaling factor.¹¹

¹⁰ Once new data for 1996-1997 becomes available, we could attempt to unearth what may be the differential criteria used in financing isolated firms from the rest of firms.

¹¹ Sale revenues are also a possibility, although there is great variation in the ratio of market value to sales across industries and there is no clear theoretical basis for this choice. There is also a problem in that Romanian firms tend to report transactions such as production for inventories as sales

In this procedure we need to use some caution in the specification of the isolation dummy. It would be improper to use it *per se* in regression, as it is most probably endogenous: the error term in our regression is most probably not orthogonal on regressors.

To avoid an endogeneity-based bias, we construct (using a probit regression) a non-linear instrument for the isolation dummy called ISOPROB, the probability of a firm being subjected to the financial isolation program, conditional on an index based on the firm's characteristics.

In the table below, all the variables with the ISO prefix have been multiplied by the variable ISOPROB. We run for each year a regression that reveals the determinants of bank lending for firms that received positive levels of bank credit. About 80 percent of firms have positive levels of bank credit each year. We account for possible selection bias by employing a method of selection bias corrected regression (Heckit). The variable *lambda* purges the correlation of the error term with the regressors arising from self-selection.

Table 5: Description of variables

PRO_E	operating profit / employment	WAGA_E	wage arrears / employment
WAG_E	total wages /employment	ISOLSAL	Log sales times ISOPROB
REC_E	receivables / employment	ISOPROE	Pro_e times ISOPROB
BARR_E	bank arrears / employment	ISORECE	Rec_e times ISOPROB
LOGSAL	logarithm of sales	ISOWAGE	Wag_e times ISOPROB
IRPRXY	interest paid / total bank loans	ISOARR_E	Barr_e times ISOPROB

We present in table 6 the results of our analysis for each year. Note that we have included our isolation from 1994, the year in which the firms were chosen and the program started. T-values are presented in parentheses.

Table No. 6: Regression results 1993-1995:

VARIABLE	1993	1994	1995
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(Djankov and Ilayperuma (1997). In any event our results are not very different when we use revenues.

CONSTANT	-4899.7334 (-2.3868)	1538.84744 (5.94767)	204.39984 (0.82673)
PRO_E	-1.0834 (-4.6710)	0.02139 (1.84588)	0.07510 (5.13059)
WAG_E	-0.8565 (-2.4444)	0.38209 (11.36726)	0.00526 (0.18336)
REC_E	0.3126 (9.1052)	0.51647 (26.25793)	0.21991 (11.56666)
BARR_E	0.4851 (6.2873)	0.60884 (3.26598)	0.29456 (3.46840)
LOGSAL	-97.1439 (-0.5944)	-276.62020 (-9.33987)	38.29668 (1.56167)
IRPRXY	-	-0.05157 (-0.62321)	-0.29440 (-1.07484)
ISOPROB	-	61266.07939 (16.42512)	24120.78534 (12.62158)
WAGA_E	-	0.62645 (1.71915)	0.84311 (2.77535)
ISOLSAL	-	-3105.62514 (-12.42403)	-1799.24395 (-11.91030)
ISOPROE	-	1.90263 (13.42511)	2.55854 (9.09342)
ISORECE	-	0.56822 (2.80968)	1.15653 (8.24414)
ISOWAGE	-	3.32114 (2.47003)	1.89347 (2.00004)
ISOARR_E	-	-3.02846 (-0.45288)	-0.69236 (-0.18339)
LAMBDA	18455.1208 (4.0679)	-264.97709 (-1.55771)	-1286.37394 (-7.06468)
	R ² = 0.37401 F = 93300.27	R ² = 0.39535 F = 94148.77	R ² = 0.28439 F = 9585.309

The first compelling result in terms of the specified model is the changing correlation between bank lending and bank arrears. The broader sample confirms the results in Carare and Perotti (1997): up to the year 1994 there is evidence that bank lending was increasingly responsive to total arrears. Interestingly, however, the onset of the program of financial isolation and the persistently positive interest rates in 1995 may have had an impact on the firms *NOT* included in the financial isolated sample. The results for 1995 indicate that the correlation between bank lending and total arrears did weaken for both firms in the general sample and in the financial isolation program. A panel test has confirmed that the drop in the coefficient for 1995 is significant in statistical terms.

The next observation is that bank credit switches from a negative relation with profitability in 1993 to an increasingly positive correlation. While we would have had a difficult time interpreting a negative coefficient because of demand side effects, in this case the economic interpretation is unambiguous: *outside the subset of firms included in the financial isolation program*, bank credit is increasingly allocated to more profitable firms. The result is mirrored for firms inside the program: in fact, the correlation appears to be even stronger.

Interestingly, the correlation of bank credit with our proxy of the interest rate charged to each enterprise is negative, though not significant; we are tempted to conclude that over time the average Romanian firm (outside the program) shows an increasing sensitivity to the real cost of credit.

Bank credit also appears to be in part financing trade receivables; though it is unclear to what extent these receivables are a proper collateral for loans. The possibility remains that bank credit is used from 1994 onwards to encourage trade lending even to poor performing firms. The fact that firms inside the program receive an even higher amount of credit as a function of their receivables makes this issue of critical importance, particularly since the regression coefficient is high for these firms (above one). A possible further test would look at the degree of repayment on such trade loans within the subsample.

A disturbing development for the sample as a whole is the increasing significance of wage arrears as a determinant of bank credit. This certainly is consistent with the notion of political influence.

On the other hand, the significance of the real wage level as a determinant of credit breaks down for the average firm in 1995 outside the sample, but increases for the firms included in the financial isolation program. This is probably the strongest sign of a preferential treatment of firms in terms of their labor force: isolated enterprises with higher real wages receive a higher amount of credit per employee.

Finally, the significance of firm size (as measured by log sales) for as a determinant of borrowing seems to be changing. While in 1993 and 1994 the correlation is negative and significant, in 1995 it becomes positive (though not quite significant). While this is hardly a satisfactory measure of a trend, this seems to be a significant warning signal, particularly as the coefficient refers to credit to firms outside the program. Within the program there seems to be a negative relationship; the coefficient for these firms is most certainly negative. If credit for firms inside the program were allocated according to political preference, it is not the size of a firm that determines the political influence of the firm.

Conclusion

We have found evidence of an increasing differentiation of bank credit allocation between firms in the program and outside. Some of these differences may be attributed to a rather arbitrary set of preferences (in favor of higher real wage firms, which could have been favored in the first place; perhaps an excessive degree of refinancing of trade credit of uncertain quality). We are tempted to conclude that overall credit allocation appears to have reversed its visible deterioration after 1995, although the possibility of excessive refinancing of wage arrears and doubtful receivable cannot be ignored.

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APPENDIX

Descriptive statistics¹²

1993:

VARIABLE	MEAN	STDEV	MAX	MIN
BKL_E	624.79351	1710.9438	42168.670	0.02000000
PRO_E	-825.32220	1542.9325	40616.440	-15930.480
WAG_E	1143.7163	572.15986	17652.430	0.85000000
REC_E	926.77819	1574.4671	19999.620	0.00000000
BARR_E	14.675389	276.17864	11082.170	0.00000000
LOGSAL	10.077073	1.0340679	21.170000	1.6100000
ISOPROB	0.027433781	0.042572290	0.97508500	0.00000000
WAGA_E	33.816280	118.41217	6627.1667	0.00000000

No. of observations: 3256

1994:

VARIABLE	MEAN	STDEV	MAX	MIN
BKL_E	703.79572	1883.6427	43815.220	0.01000000
PRO_E	-33.843447	2592.6437	116044.59	-18970.530
WAG_E	1161.7468	835.39795	29609.250	7.9400000
REC_E	872.45225	1544.7828	19744.470	0.02000000
BARR_E	14.304147	160.39062	4307.4200	0.00000000
LOGSAL	9.2591747	1.0791525	21.220000	2.0800000
ISOPROB	0.027182281	0.039786406	0.97508500	0.00000000
WAGA_E	57.162085	80.475784	1578.0748	0.00000000

No. of observations: 3429

1995:

VARIABLE	MEAN	STDEV	MAX	MIN
BKL_E	593.73969	1374.5323	32207.950	0.01000000
PRO_E	144.47912	1910.1311	47885.100	-13580.460
WAG_E	1311.9740	966.27635	33637.730	29.490000
REC_E	1005.2568	1553.7203	19842.130	0.00000000
BARR_E	29.993625	349.45245	12027.330	0.00000000
LOGSAL	8.9787206	1.1231680	21.170000	0.65000000
ISOPROB	0.027634220	0.042096487	0.97508500	0.00000000
WAGA_E	48.584737	86.416028	2073.5158	0.00000000

No. of observations: 3236

¹² For firms that have received non-zero bank credit each year.