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The Impact of the 2008-2009 Global Crisis on Loan Applications and Access to Finance

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Abstract. *In this study, we examine new loan applications made by manufacturing firms in Eastern Europe and Central Asia. We compare the pre-global crisis and post-global crisis loan applications. We find that fewer manufacturers applied for a new loan post-crisis (45.89% vs 29.91%). When we compare the main reasons for manufacturers not applying for a new loan pre- vs. post-crisis, we find that, after the crisis, more firms stated that there was no need for a loan. Also, more firms stated that application procedures were complex, interest rates were not favorable, and they did not think it would be approved. On the other hand, fewer manufacturers stated that post-crisis, collateral requirement was too high, the size of loan and maturity were insufficient, and it was necessary to make informal payments (i.e., corruption). Overall, our findings suggest that while certain aspects of financing for manufacturers improved after the crisis, others deteriorated. We also find that there was a statistically significant decrease in the percentage of manufacturers that had their financial statements checked/certified by an external auditor. Finally, post-crisis, "access to finance" was seen as a smaller obstacle by manufacturers. We conclude that the reason for fewer manufacturers applying for a new loan post-crisis was not all measures of "access to finance"; it was rather the lack of a need for a new loan and certain aspects of "Access to finance".*

Keywords: access to finance, manufacturers, global crisis, corruption, loans, eastern Europe, central Asia

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Introduction and the Background

In this study, we investigate new loan applications by manufacturing firms in Eastern Europe and Central Asia before and after the 2008-2009 Global Crisis. We examine whether fewer manufacturing firms applied for a new loan post-crisis when compared to the pre-crisis period. We also explore whether fewer firms are audited by external firms, post-crisis. Finally, we examine whether more manufacturing firms saw "access to finance" as a more serious issue post-crisis. We use two surveys, namely the EBRD-World Bank Business Environment and Enterprise Performance Surveys (i.e., BEEPS IV and BEEPS V surveys), in our analyses. We take the BEEPS IV survey results as our pre-crisis results, and the BEEPS V results as our post-crisis results.

Previous studies like Bordo et al. (2015), Lysandrou and Nesvetailova (2015), Hüfner (2010), Maredza and Ikhide (2013), Liang (2012), Dungey and Gajurel (2015), and others show that the 2008-2009 Global crisis had a negative impact on the banking systems around the world. Besides these papers, Kaya (2021) shows that the Global crisis affected firms' profitability, while Kaya (2017) contends that banks' liquid assets and nonperforming loans deteriorated. Overall, these papers show how the 2008-2009 Global crisis affected banking systems around the world.

Besides these papers on the impact of the global crisis on the banking systems, there are several other papers that focus on the impact of the global crisis on "access to finance". Kaya (2016) shows that after the 2008-2009 Crisis, stock market trading was more concentrated in just a few firms which is a sign of deterioration in "access to finance". Isatayeva et al. (2019) show that loan rejection rates went up for young Kazakhstan firms after the global crisis. Saiedi and Broström (2019) show a similar result for young European firms. Lee et al. (2015) contend that innovative U.K. firms had more trouble getting loans, especially after the global Crisis. Tran (2021) argues that the cost of financing increased due to policy uncertainty. Carbo et al. (2016) show that SMEs in Spain prefer trade credit. Leitner and Stehrer (2013) confirm this for Latin American firms. Fernando et al. (2017) argue that European firms prefer issuing debt securities rather than getting loans. Andries et al. (2018) show that more concentrated European banking markets impede access to finance, especially for small firms.

Yet other papers focus more on small businesses. Anton and Bostan (2017) show that the problems with "access to finance" deter entrepreneurial activities. Álvarez and Görg (2012) argue that multinational firms (rather than smaller firms) exit a country when facing a global crisisCowling et al. (2018) show that even small firms with previous entrepreneurial experiences struggle in this hostile environment. Martinez-Sola et al. (2017) show that firms with more financial resources and a lower cost do not value supplier financing as much as other firms.

In this current paper, due to the constraints in the banking systems post-crisis, we expect to find more manufacturing firms to be discouraged, which would result in fewer firms applying for new loans. Due to the worsening financials of manufacturing firms, to hide their actual situation, we expect more of them to avoid hiring an external auditor post-crisis. On the other hand, due to governments' support around the world, whether in the form of stimulus payments or through bank loans, post-crisis, we expect fewer firms to see "access to finance" as a major obstacle.

Our results show that, after the crisis, fewer manufacturing firms in the region applied for a new loan. Post-crisis, fewer manufacturing firms' financial statements were checked/certified by an external auditor. Also, fewer manufacturing firms saw "access to finance" as a major obstacle. Regarding the financing environment, we find that the results were mixed. Post-crisis, more firms saw application procedures as being complex, more firms saw interest rates as unfavorable, and more firms thought that the application would not be approved. On the other hand, fewer firms saw the collateral requirement as too high, fewer firms complained about the size of the loan or the maturity of the loan, and fewer firms thought it was necessary to make informal payments.

Section 1 goes over our hypotheses. Section 2 explains our data and methodology. Section 3 presents our empirical results. Section 4 concludes.

1. Hypotheses

Ivashina and Scharfstein (2010) examine bank lending in the U.S. during the financial crisis of 2008 and they find that new loans to large borrowers fell by 37% relative to the prior three-month period and by 68% relative to the peak of the credit boom which was in the Spring of 2007. Since credit conditions worsened during the global crisis (i.e. interest rates went up) and business activities declined, we expect to find fewer firms to apply for a new loan post-crisis.

Therefore, our first hypothesis is as follows:

Hypothesis 1: "After the global crisis, there was a significant drop in new loan applications by manufacturing firms".

Lin and Hwang (2010) examine the impact of external auditor size, reputation, and tenure on earnings management. They show that earnings management goes down if a larger, more reputable, and experienced external auditor is hired. In our study, post-crisis, since firms struggle financially, we expect a larger percentage of firms to avoid hiring an external auditor and apply for a new loan without getting audited by an external auditor. Therefore, our next hypothesis is as follows:

Hypothesis 2: "After the global crisis, significantly fewer firms had their financial statements checked/certified by an external auditor".

As explained above, Tran (2021), Kaya (2016), Isatayeva et al. (2019), Saiedi and Broström (2019), and Lee et al. (2015) show that "access to finance" became more of a problem for firms during the 2008-2009 Global Crisis and that this problem gradually dissolved over time. Post-crisis, in most countries, governments helped firms through either direct stimulus payments or through financial institutions. Therefore, in this study, post-crisis, we expect to find a smaller percentage of manufacturing firms defining "access to finance" as an obstacle. Our final hypothesis is as follows:

Hypothesis 3: "After the global crisis, significantly fewer firms defined access to finance as a major obstacle".

2. Data and Methodology

In order to compare the pre-crisis period to the post-crisis period, we use EBRD-World Bank's BEEPS IV (i.e. 2007) and BEEPS V (i.e. 2010-2014) surveys. These surveys cover manufacturers in 32 countries in Central Asia and Eastern Europe.

Related to our objectives, the surveys ask manufacturers if they applied for any new loans or lines of credit, the main reason for not applying, if their financial statements were audited, and if access to finance was a problem. To compare the responses before and after the crisis, we use the Chi-square test.

The tables in the "Empirical Results" section show the results for each of these questions in detail.

3. Empirical Results

Table 1 compares the pre-crisis and post-crisis percentages of manufacturing firms that applied for a new loan. Our chi-square test shows that there was a statistically significant decrease in the percentage of manufacturers that applied for a new loan post-crisis ($p<0.0001$). While 45.89% of manufacturers applied for a new loan pre-crisis, the corresponding percentage is only 29.91% post-crisis.

Table 1. Did the Manufacturing Firm Apply for Any Loans?

	Pre-Crisis		**Post-Crisis**	
Variables	**N**	**%**	**N**	**%**
Yes	2,282	45.89%	1,882	29.91%
No	2,691	54.11%	4,411	70.09%
Total	4,973	100.00%	6,293	100.00%
Statistic	**df**	**Value**	**Prob**	
Chi-Square	1	304.5035	<0.0001	

Source: compiled by the author.

Table 2 examines whether the main reason for manufacturers not applying for a new loan changed after the crisis. We find that their main reason had significantly changed after the crisis ($p<0.0001$). More firms stated that post-crisis, there was no need for a loan (62.78% vs 65.52%), application procedures were complex (5.48% vs. 5.68%), interest rates were not favorable (16.25% vs 17.55%) and did not think it would be approved (1.84% vs. 2.65%). These answers suggest that the firms believed that credit conditions were less favorable after the crisis (according to the firms, application procedures were more complex, interest rates were not favorable, and they were less likely to be approved). On the other hand, fewer firms stated that post-crisis, collateral requirements were too high (5.82% vs 4.09%), size of the loan and maturity were insufficient (2.03% vs. 1.27%), and it was necessary to make informal payments (0.71% vs 0.14%). Therefore, according to the manufacturers, these aspects of financing (i.e., collateral requirements and corruption) significantly improved.

Table 2. The Main Reason for Not Applying for New Loans

	Pre-Crisis		**Post-Crisis**	
Variables	**N**	**%**	**N**	**%**
No need for a loan	1,673	62.78	2,848	65.52
Application procedures are complex	146	5.48	247	5.68
Interest rates are not favorable	433	16.25	763	17.55
Collateral requirements are too high	155	5.82	178	4.09
Size of loan and maturity are insufficient	54	2.03	55	1.27
Necessary to make informal payments	19	0.71	6	0.14
Did not think it would be approved	49	1.84	115	2.65

Table 2 (cont.). The Main Reason for Not Applying for New Loans

Other	136	5.10	135	3.11
Total	2,665	100%	4,347	100%
Statistic	**df**	**Value**	**Prob**	
Chi-Square	7	57.132	<0.0001	

Source: compiled by the author.

Table 3 compares the pre-crisis and post-crisis percentages of manufacturing firms that had their financial statements checked/certified by an external auditor. Our test shows that there was a statistically significant decrease in the percentage of manufacturers that had their financial statements checked/certified by an external auditor ($p<0.0001$). While 50.39% of manufacturers had their financial statements checked/certified by an external auditor pre-crisis, the corresponding percentage is only 37.78% post-crisis. This finding indicates that the quality of financial statements probably went down after the crisis. This may be due to an attempt by some struggling manufacturers to play with their books.

Table 3. Were Fin. Statements Checked/Certified by an External Auditor?

	Pre-Crisis		**Post-Crisis**	
Variables	**N**	**%**	**N**	**%**
Yes	2,488	50.39	2,381	37.88
No	2,449	49.61	3,904	62.12
Total	4,937	100%	6,285	100%
Statistic	**df**	**Value**	**Prob**	
Chi-Square	1	176.2028	<0.0001	

Source: compiled by the author.

Table 4 examines whether manufacturers see "access to finance" as a bigger or smaller obstacle after the crisis. Overall, interestingly post-crisis, "access to finance" was seen as a smaller obstacle by manufacturers ($p<0.0001$). The percentage of manufacturers that see "access to finance" as "no obstacle" went up from 29.97% to 45.22%. On the other hand, the percentage of manufacturers that see "access to finance" as "minor obstacle", "moderate obstacle", "major obstacle", and "very severe obstacle" all went down after the crisis. Therefore, we conclude that the reason for fewer manufacturers applying for a new loan post-crisis was not "access to finance" as a whole; it was rather the lack of a need for a new loan, the complexity of application procedures, the higher interest rates, and the belief that it would not be approved.

Table 4. Was Access to Finance an Obstacle for the Manufacturing Firm?

	Pre-Crisis		**Post-Crisis**	
Variables	**N**	**%**	**N**	**%**
No obstacle	1,459	29.97	2,882	45.22
Minor obstacle	908	18.65	1,098	17.23
Moderate obstacle	1,131	23.23	1,176	18.45
Major obstacle	834	17.13	781	12.25
Very severe obstacle	537	11.03	436	6.84
Total	4,869	100%	6,373	100%
Statistic	**df**	**Value**	**Prob**	
Chi-Square	4	301.7528	<0.0001	

Source: compiled by the author.

Table 5 confirms our findings in Table 4. Pre-crisis, manufacturers thought "access to finance" was a bigger obstacle (i.e., the average degree of obstacle as seen by these firms was 1.6061); post-crisis, this measure dropped to 1.1826. This drop was statistically significant ($p<0.0001$). According to the manufacturers, "access to finance" was a less serious problem for them after the crisis.

Table 5. Was Access to Finance an Obstacle for the Manuf. Firm?

	Pre-Crisis			**Post-Crisis**			**Mann-W.**
Variables	**N**	**Mean**	**Std**	**N**	**Mean**	**Std**	**p-value**
Degree of obstacle	4,869	1.6061	1.3575	6,373	1.1826	1.3075	<0.0001

Source: compiled by the author.

Conclusion

In this study, we examine the impact of the 2008-2009 Global Crisis on new loan applications of manufacturing firms in Eastern Europe and Central Asia. We use the BEEPS IV and BEEPS V surveys to compare the pre-crisis period to the post-crisis period.

In line with the Ivashina and Scharfstein (2010) findings for the U.S., we find that, after the global crisis, fewer manufacturers applied for a new loan in this region. When we compare the main reasons for manufacturers not applying for a new loan pre- vs post-crisis, we find that, after the crisis, more firms stated that there was no need for a new loan. Also, more firms stated that application procedures were complex and interest rates were not favorable, and they did not think it would be approved. On the other hand, fewer manufacturers stated that post-crisis, the collateral requirement was too high, size of the loan and maturity were insufficient, and it was necessary to make informal payments (i.e., less corruption). Overall, we conclude that the main reasons for fewer manufacturers applying for new loans in the post-crisis period was the lack of a need for a new loan, the complexity of application procedures, the unfavorable interest rates, and their belief that it would not be approved.

Lin and Hwang (2010) find that earnings management and external auditor size, reputation, and tenure are negatively related. When we examine whether more manufacturers used an external auditor to go over their financial statements during these hard times, we find that there was a statistically significant decrease in the percentage of manufacturers that had their financial statements checked/certified by an external auditor. Therefore, we can argue that the quality of these firms' financial statements went down after the crisis.

Finally, when we examine whether manufacturers see "access to finance" as a bigger or smaller obstacle post-crisis, we find that post-crisis, "access to finance" was seen as a smaller obstacle by manufacturers. This finding is in line with Tran (2021), Kaya (2016), Isatayeva et al. (2019), Saiedi and Broström (2019), and Lee et al. (2015) findings. As mentioned earlier, while "access to finance" was regarded as a smaller obstacle post-crisis, certain aspects of it became more serious for these firms. These aspects and the lack of a need for a new loan caused fewer manufacturers to apply for a new loan after the crisis.

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