

Corporate Finance and Credit Constraints in a Transitional Economy: Insights from Borrowers' Relations in Mongolia

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Abstract

This study examines changes in the extent of access to finance in order to ascertain how states that have transitioned from socialist to capitalist regimes have deepened their capitalist systems. To understand the extent of capitalization, it is important to confirm whether there are widespread opportunities for income growth in the country through structural reforms and economic growth since democratization, as access to finance as a safety net for the vulnerable has expanded, especially for the poor, especially in micro-enterprises where many of the poor are employed. This study focuses on micro-enterprises in Mongolia and examines changes over the last 20-25 years since capitalization. The first half of the paper deals with the financing situation of microenterprises, while the second half examines whether microenterprises are experiencing credit constraints through regression analysis. The data were collected by the author in 2011 and 2017, mainly in Ulaanbaatar, the capital of Mongolia.

Keywords: Credit Constraints, Transitional Economy, Micro-Enterprises, Trade Credit, Mongolia

1. Introduction

This study examines the changes in the degree of access to finance in order to ascertain how the state has deepened its capitalist system after the transition from socialist to capitalist regimes. The Mongolian state has generally achieved economic development since the transition in 1992, mainly due to the development of the mineral and This is mainly due to the development of the mineral resources sector. to understand the extent of capitalization, it

is important to confirm whether there are widespread opportunities for income growth in the country through structural reforms and economic growth since democratization, as access to finance as a safety net for the vulnerable is extended to the poor, especially to the micro-enterprises in which many of the poor are engaged. This study focuses on micro-enterprises in Mongolia and examines changes over the last 20-25 years since capitalization.

This study analyses three hypotheses on how borrowing channels have changed and how they have been affected by the two situations of economic crisis and the increasing number of financial actors for microenterprises in Mongolia, a country in transition. The first is about through which channels of the informal financial market, the cost of capital, agency costs and transaction costs, are considered from three perspectives. The second is to characterise firms that are credit constrained. Third, to identify whether the presence of credit constraints is an important obstacle to firms' investment and their performance. As performance indicators, we use the growth rate of employment and profitability of microenterprises.

Data from two time points, 2011 and 2017, will be used for the analysis. The data was collected by the author mainly in Ulaanbaatar, the capital of Mongolia. During the period of analysis, while financial market developments such as the expansion of mortgages for individuals and the increase in non-banks such as MFIs and savings and credit cooperatives promoted an increase in lenders and simplified borrowing procedures, Mongolia fell into an economic crisis and received support from the IMF.

The first two hypotheses are analysed by comparing summary statistics from year to year; the third hypothesis is analysed by regression analysis with the employment growth rate and profit growth rate as dependent variables. The results of the analysis show that the economic crisis increased the number of informal trade credit, but the share of accounts receivable and credit in trade credit decreased and the share of cash payments increased compared to pre-crisis levels. Furthermore, the increase in the number of lenders and the development of financial markets led microenterprises to increase their borrowing from non-banks. However, the existence of credit constraints was shown to hurt employment and profitability. It was also confirmed that the age and education level of microenterprise owners, the presence of relatives in the same industry and the years of current work experience increase profitability, but those young people with weak social relationships in the industry, few years of education and little experience in the industry are particularly credit constrained.

In Mongolia, a country in transition, this study examines the borrowing channels of formal finance and several informal finance channels, including trade credit, in a period of a simultaneous economic crisis severe enough to receive IMF support and financial market developments in terms of the increasing number of financial actors and simplification of application procedures for borrowing. It is novel in that it reveals changes. The study is also novel in that it shows how the impact of credit constraints changes when economic crises occur at the same time, despite the existence of many previous studies showing the development of financial institutions and the increase in the number of financial actors eases credit constraints.

2. Overview of the Mongolian Economy

Since democratisation, the country has pursued structural reforms towards a market economy, and in 1994 the economic growth rate turned positive.

The economy continued to develop steadily, but in 2008 it was affected by the global financial and economic crisis.

In 2009, there was negative growth (-1.3%). The economy then made a V-shaped recovery in 2010, growing by 6.4% in 2010 and 17.3% in 2011, thanks to the steady development of the mineral resources sector and the recovery of international market prices for mineral resources, which boosted domestic demand. However, restrictive investment policies and legislation, driven by resource nationalism, have led to a decline in investment in Mongolia.

In addition to a sharp decline in foreign investment in Mongolia, the economic growth rate fell to 2.3% in 2015 and 1% in 2016 due to a slump in the mining industry, a key industry, as a result of China's economic slowdown and low global resource prices. In light of this situation, the Mongolian government agreed to accept the IMF's Extended Credit Facility (EFF) in 2017. This was followed by an increase in mineral resource prices in 2017, which was followed by growth in industrial production, particularly in the mining industry, which accounts for about a quarter of GDP, and recovery in GDP growth to 5.3% in 2017.

3. Previous Review

3.1 Financing and Credit Constraints of Small and Medium Enterprises (SMEs)

In general, companies have two main sources of funding: external and internal. External funding requires the payment of remuneration to the provider of funds, which is the cost of capital when using external funds. Information asymmetries are common and agency problems arise between providers and consumers of funds. Agency costs arise in the form of collateralisation costs, information disclosure costs and risk premiums (Okuda (1998)). In addition to the agency costs, the transaction costs of raising external finance include the burden of preparing the necessary documentation and negotiating the terms of use of the funds. In other words, the cost of raising external finance for a company consists of the cost of capital, agency costs and non-agency transaction costs. On the other hand, the cost of capital is the opportunity cost of using internal funds, while internal funds do not incur agency costs because the supplier and the demander of funds are the same. In addition, transaction costs other than agency costs are very small, so the cost of raising internal funds is almost identical to the cost of capital. When we consider whether it is more advantageous for a company to use external or internal funds, we can say that it is internal funds.

The growth of micro and small enterprises in developing countries is important for achieving poverty reduction as it increases employment opportunities for the poor and raises household incomes. However, the underdevelopment of credit markets and the resulting lack of finance is a serious obstacle to small enterprise investment (Livingstone (2001)). Bigsten et al. (2000) found that the return on manufacturing in five African countries - Cameroon, Ghana, Kenya, Zimbabwe and Zambia The rate of return on real capital in the industry was as high as 23%,

but the stagnant investment was attributed to liquidity constraints Bigsten et al. (2003) showed that more than 60% of micro-enterprises face liquidity constraints. In a situation where credit markets are perfectly competitive and firms borrow as much as they need at a constant interest rate, the theorem of Modigliani & Miller (1958) states that firms' investment is unaffected whether it is brought by internal or external funds. On the other hand, if the credit market is imperfect, external financing will be more expensive than internal financing and therefore the availability of internal financing and cash flow will determine the level of investment. In developing countries, high transaction costs and information asymmetries make it rational for financial institutions to impose credit quotas on small borrowers with few assets to serve as collateral (Stiglitz & Weiss (1981), Fafchamps (1996), Livingstone (2001), Bigsten et al. (2003)). As a result, small firms are more likely to face credit constraints and the growth performance of firms deteriorates. In Kenya, lack of liquidity was reported to be the factor that led to the closure of the largest number of small enterprises (CBS et al. (1999)).

There are multiple ways to identify credit constrained firms. First, there is Zeller (1994), who used the ratio of ownership to assets as a measure of credit constraint and found that collateral holdings affect credit constraints. (Carter & Wiebe(1990), Sial & Carter(1996),)

Akoten et al. (2006a, 2006b) have studied the impact of credit constraints on employment and income in the Kenyan garment industry. 3) The third method is to collect and use information on borrowing through questionnaires as shown by Scotto (2000) (Jappeli (1990), Baydas, Meyer and Aguilera-Alfred (1994), Barham et al. (1996), Bigsten et al. (2003).

Scherr et al. (1990) and Hamilton & Fox (1998) found that SMEs voluntarily limit external financing to avoid reducing control of their firms. On the other hand, SMEs frequently find themselves in a situation where they want to borrow but cannot. Reasons for tight access to debt have also been discussed.

Berger and Udell (1995) showed that small and young enterprises are not only required to repay their loans in a shorter time and at higher interest rates, but also require more collateral; Saito & Villannueva (1981) and Peel & Wilson (1996) found that more The newer and smaller the firm, the higher the cost structure and the lower the access to financial markets due to asymmetric information; Levy (1993) found that constrained financial access reduced the growth of SMEs.

Fauceglia (2015) analysed the importance of financial market development, institutional arrangements and financial liberalisation to reduce credit constraints, using data from 17 developing countries. Similar results were presented by Leaven (2003) and Gelos and Werner (2002), while Rajan and Zingales (1998) found that the development of financial systems and legal institutions would increase access to finance for firms, leading to growth. They stated that this is particularly important for small and medium-sized enterprises (Beck et al., 2008). Firm size and age (Devereux & Schiantarelli, 1990; Winker, 1999), whether bonds are rated (Whited, 1992) and whether dividends are paid (Hoshi, Kashyap, & Scharfstein, 1991) were also considered important.

3.2 Financing of SMEs in Transition Economy

Among the transition countries, banks in Eastern Europe are smaller and lend to riskier companies than in Russia. In the event of company default, banks offer stronger creditor rights as secured creditors. Central and Eastern European countries (CEE) and the former Commonwealth of Independent States (CIS) have implemented a series of structural reforms, including economic liberalisation, macroeconomic stabilisation and legal reforms, and privatisation of state-owned enterprises (SOEs). The development of financial markets was recognised as important for the transition from a planned economy to a free market economy. However, it was difficult for commercial banks to assess the performance of SOEs and properly screen them for lending. High inflation and unemployment rates, corruption and a severe lack of human capital were also a problem. In addition, the lack of an effective legal system, including the absence of a collateral valuation system and bond rating system, ineffective bankruptcy laws and lack of proper enforcement mechanisms, greatly hindered market-oriented economicisation and economic development. State-owned banks sold off their non-performing loans, carried out large-scale restructuring and privatised. In addition, foreign banks entered the market. The entry of foreign banks developed the financial sector of the transition economy by introducing new technologies and improving management efficiency (Cojocaru, Falarisn Hoffman, & Miller (2016)), while groups with vested interests and inefficient institutions hindered development (Fink, Haiss & Vuksic, 2009). An unstable political and economic environment, weak court systems and underdeveloped capital markets also hinder economic development in transition countries as they become capitalised. Although still large enterprises during the socialist era, many privatised former state-owned enterprises were originally in a sound financial position (D'Souza, MEgginson, Ullah & Wei (2017)), and even after privatisation, political connections have helped to reduce the cost of enterprise. It was assumed that this has led to a reduction (Cosset & Saffar (2013)). In other words, improved access to finance, which enables access to capital, is important for large firms in breaking political ties and implementing independent management. Improving access to finance and the institutional arrangements for this are more important for SMEs than for large enterprises, as they are less politically connected. D'Souza et al. (2017) found that the smaller the enterprise at the time of privatisation, the more corrupt the business environment is. Brush & Chaganti (1999) showed that an environment of owner-ownership and creditor rights protection improved firm performance; Beck Demirguc-Kunt, & Maksimovic (2005) found that states with deeper corruption, immature financial markets and immature legal systems. The study found that credit constraints tend to arise in cases where. In particular, they found that the maturity and development of the legal system had an impact on SMEs' access to finance; Broadman & Recanatini (2002) examined the impact on the labour market under the privatisation process. They found that in Russia, enterprises had become partly smaller and, as a result, the overstaffing situation during the socialist period had not changed much.

Fewer enterprises in Russia belong to small and medium-sized enterprises (SMEs) than in other countries. Russia also shows a positive correlation between enterprise size and profitability. In Estonia, during the period of market reforms associated with capitalisation, there was a large influx of workers into SMEs; SMEs created jobs, especially in the services

and trade sectors. The SME sector in Estonia accounted for 71% of the total workforce. Egerer (1995) analysed Czech bank lending and found that performance was not transparent and that weak creditor rights and collateral legislation made collateral lending difficult. In transition countries, partial bank ownership of enterprises complements weak laws and asymmetric information. Chaves, Sanchez, Schor & Tesliuc (2001) analysed financial markets in the Romanian local economy. They identified obstacles in many areas compared to efficient financial services. They stated that whether investment opportunities take place is related to ownership structure and other factors related to financial intermediation. Inflation and weak legal protection were cited as reasons for the low level of borrowing in Romania. Koke & Salem (2000) analysed cross-sectional data from 10 Eastern European countries. Budina et al. (2003) analysed Bulgaria and found that liquidity constraints were low. They also found that, unlike in developed countries, low liquidity constraints were unrelated to low equity premiums. Low liquidity constraints are the result of soft budget constraints and an inefficient financial sector, according to Barth et al. (2011), while multiple banking regulatory regimes benefit some SMEs by encouraging banks to lend more prudently and reducing funding costs. However, it harms other SMEs because it exacerbates access difficulties. The politically independent banking regulator also stated that it would increase obstacles to bank lending and require higher costs. Setting minimum capital ratios for banks would induce riskier behaviour by banks and lead to higher costs being imposed on borrowers. On the other hand, efforts to increase corporate transparency, the introduction of international accounting standards and the introduction of external auditors would also make it easier for borrowers to obtain financing.

Financial liberalisation induces foreign participation. Foreign entrants seek to remove obstacles that exacerbate information asymmetries. Lenders also have incentives to lend based on firm transparency and solid information such as collateral and business revenues, while local lenders facing opaque borrowers have a comparative advantage over SMEs in terms of information (Berger & Udell 2006; Detragiache et al. 2006; Dell'Ariccia & Marquez 2004; Sengupta 2007; Maurer 2008). Foreign entrants to transition countries enhance lending to SMEs ((Dell'Ariccia & Marquez 2004; Memmel et al. 2008; Neuberger et al. 2008). SMEs in transition countries are uncertain. In addition, credit rating systems that improve creditor capacity, better contract enforcement, efficient collateral systems and functioning legal systems mitigate the negative effects of information asymmetries, but the lack of maturity of such systems means that SMEs in transition countries are generally vulnerable ((Beck & Demirguc-Kunt 2006; Claessens 2006); Bach et al. (2020) analysed the relationship between formal finance, informal finance and trade credit in Viet Nam. Bank lending, which is formal finance, is substitutive for informal finance, while informal finance is complementary to trade credit; Archer et al. (2020) also analysed credit constraints and informal finance in Viet Nam and found that formal and informal finance Alternative relationships were identified.

4. Methods

This study analyses three hypotheses.

The first is that the informal financial market is a channel through which the cost of capital,

agency costs and transaction costs are considered from three perspectives. This is done by presenting summary statistics of the data in Section 5 and discussing the characteristics of each channel in terms of capital costs, agency costs and transaction costs, based on previous research.

The second is to show the characteristics of credit-constrained firms.

The third hypothesis is, to identify whether the existence of credit constraints is an important obstacle to firms' investment and their performance. Whether they are credit constrained and why they are credit constrained will be identified in section 6.1 using a questionnaire survey of microenterprise managers; the second and third hypotheses will be confirmed in section 6.2 through the estimation of regression analyses. The relationship between firm performance and credit constraints will be analysed through regression analysis with the employment growth rate and profit growth rate as dependent variables. As performance indicators, the microenterprise employment growth rate and the profit rate will be used. The estimation model is described in section 6.2.

5. Channels for Data and Borrowing

We interviewed 351 microenterprises in Ulaanbaatar, the capital of Mongolia, about their financing and asset status.

In the case of enterprises where ownership and management are separated, internal funds are generated through retained earnings and depreciation, but in the case of micro-enterprises where ownership and management are not separated, "owned enterprises" are included in the personal assets of the enterprise managers. However, in the case of a micro-enterprise where ownership and management are not yet separated, the manager's assets include the 'owned enterprise'. In this case, it is rational for the manager to use the 'personal assets other than the owned enterprise' to maximise the 'personal assets including the owned enterprise'. From the above, it is reasonable to include managers' assets in internal funds (Nakamura (2001)).

Table 1 shows the channels through which microenterprises raise start-up capital.

Table 1. Start-up financing for small and micro enterprises

	All self-funded by manager	Partly self-funded by manager	All funds by non- managers	Others
2011	94.1	5.5	0.3	0.1
2018	86.7	10.1	3.1	0.1

Table 2 shows the ratio of own funds as a funding channel for start-ups.

Table 2. Number of firms by the percentage of owner's funds in start-up capital

(as of 2017)		
100%	50~99%	49%以下
304	39	8
(86.7%)	(11.1%)	(2.2%)

The percentage of micro-enterprises that relied completely on the owner's funds to finance their start-up was 94.1% in 2011 and 2017. Table 2 was 86.7% in 2011 and 86.7% in 2017. The proportion of companies whose owners did not contribute any start-up capital (including companies founded by transferring ownership or donating capital) was 0.3% in 2011 and 3.1% in 2017. Although the proportion of enterprises that raised all of their start-up capital from their funds is high (around 90%), the proportion has decreased, while the proportion of enterprises that did not need to raise start-up capital from their owners through methods such as the transfer of ownership of the enterprise has increased. From the above, it is confirmed that microenterprises in Mongolia use the owner's funds as the main financing channel for start-up capital. This means that the manager is the owner of the enterprise at the same time. In other words, the manager's assets may play a role as the internal capital of the company. Throughout the interviews, there are many cases where the managers' savings have been used as working capital for the company.

The table below sets out the funding channels for recurrent borrowing.

Table 3. Small and micro enterprise borrowing (% of total)

	No loans	Borrowed
2011	70.1	29.9
2017	56.1	43.9

From Table 3, the proportion of companies that did not borrow was 70.1% in 2011 and 56.1% in 2017. The majority of microenterprises finance their activities through internal funds rather than borrowing, confirming the importance of internal funds as a financing channel.

Table 4. Micro-enterprises borrowing (% of total borrowings)

	Banks	Savings and Credit Cooperatives	Non-Banks	VC	Family	Individual
2011	2.3	18.3	32.1		33.4	13.9
2017	1.9	5.1	51.4	11	16.5	14.1

Table 5. Main lenders for micro-enterprises

	Banks	Savings and Credit Cooperatives	Non-Banks	VC	Family	Individual
2011	1.6	8.9	30.8		32.1	26.6
2017	1.6	6.1	48.4	6.5	20.1	17.3

However, the proportion of internal funds fell significantly and the proportion of firms that were able to borrow rose. This allows microenterprises to borrow. Table 4 shows the amount borrowed per lender divided by the total amount borrowed for the entire sample. Non-banks include microfinance institutions. Table 5 shows the number of borrowings per lender divided by the total number of borrowings for the entire sample. Borrowing from non-banks, including microfinance institutions, has increased significantly for informal finance while borrowing from banks, which is formal finance, has not changed significantly

The following section discusses the use of the informal finance market by microenterprises in Mongolia, based on the results of Tables 4 and 5.

Concerning the financing of microenterprises in developing countries, the high dependence on the informal financial market for financing at high interest rates is pointed out, and as in previous studies, Tables 3 to 5 show. There is a high reliance on internal funding and low reliance on external funding, but there is a high reliance on informal financial markets for external funding: 1) borrowing from relatives and friends, 2) trade credit, and 3) borrowing from non-banks and savings and credit cooperatives. The three types of borrowing are discussed below.

5.1 Borrowing from Relatives and Friends

The degree of information asymmetry between borrowers and lenders is very small, as funding is based on blood and land relations. They are often interest-free and unsecured, which distinguishes them from other external funding channels. They are also characterised by low agency costs and transaction costs. These funds do not have a zero cost of capital and can be thought of as if the opportunity cost of the funds is borne by the lender as the provider of the funds. There is a certain benefit to the lender in the form of future support or gifts. Borrowing from relatives and friends is a financing channel similar to internal financing due

to the low cost of capital, low agency costs and low transaction costs. In 2011, 32.1% of companies with external financing borrowed from family members and 26.6% from individuals, while in 2017, borrowing from family members decreased to 20.1% and borrowing from individuals to 17.3%.

5.2 Banks, Savings and Credit Cooperatives and Non-Banks

There are 14 commercial banks, about 550 non-banks and about 280 credit unions in Mongolia (as of June 2019). The total assets of the financial industry as a whole are approximately ¥1.3 trillion, with four banks - Khan Bank, TDB (Trade and Development Bank), Golomt Bank and Xac Bank - accounting for approximately 70% of the total assets of commercial banks. Trade and Development Bank, Golomt Bank and Xac Bank account for about 70% of the total assets of the commercial banks, making the four banks an oligopoly. Non-banks can only offer loans, while credit unions can offer deposits and loans. Interest rates are around 15% per annum for car loans and 8% per annum for housing loans, while non-bank small loans have interest rates of between 60% and 80% per annum.

The non-banks provide small loans to small and medium-sized enterprises, low-income groups and rural households, and their share of total assets in the financial sector is small, around 2%, but is gradually expanding. The non-bank business is concentrated in the capital Ulaanbaatar and other urban areas, with only 10% of institutions operating in rural areas. The amount of credit extended has grown significantly in the 2010s, as the credit process is simpler and faster than for bank lending. The credit bureau of the Bank of Mongolia, the central bank, can be used to grant credit, and social insurance passbooks and photographs are used to verify identity. As non-banks are not allowed to collect deposits, they rely heavily on equity capital to finance their loans, with the remainder coming from loans.

Savings and Credit Cooperatives were established in 1996 under the guidance of the Asian Development Bank (ADB). Their share of total assets in the financial sector is very small, less than 1%. They accept deposits from members and provide loans and other services to members. Compared to non-bank lending, it provides small, short-term loans (less than one year) for the purchase of small machinery, vehicles, school fees, etc. They also exist in Ulaanbaatar, but differ from the non-banks that operate mainly in Ulaanbaatar in that they tend to be located in regional cities. The main source of loans is deposits from members. Hass Bank has franchise agreements with about 60 unions in the provinces to provide bank loans.

It is based on the income of micro-enterprises and individuals, and the degree of information asymmetry between borrower and lender is less than in commercial bank lending but greater than in inter-company credit. Loans are based on income and may be unsecured. Interest rates are lower than those of commercial banks because the amount of the loan is within the range of repayments that can be made by the micro-enterprise's business continuity and because repayments are frequent and small. Compared to commercial banks, they have a smaller cost of capital and lower agency costs, but larger transaction costs.

Table 5 shows that 30.8% of firms with external financing borrowed from non-banks in 2011 and 48.4% in 2017. This shows that it is the main channel of external financing. Savings and

credit cooperatives accounted for 8.9% of borrowing in 2011 and 6.1% in 2017. Borrowing from commercial banks was 1.6% in 2011 and 1.6% in 2017.

5.3 Trade Credit

Since the existence of an ongoing relationship or the trust is essential for trade credit, the degree of information asymmetry is expected to be small, agency costs are unlikely to arise, and transaction costs are likely to be low.

Table 6 shows the number and percentage of firms that accessed trade credit out of 351 firms.

Table 6. Access to trade credit

	Accounts Receivable		Loans without Collateral		Cash • Prepayments	immediate payment
	1 month	3 month	1 month	3 month		
2011	9 (12.7%)	5 (7.0%)	7 (9.9%)	5 (7.0%)	45 (63.3%)	0 (0%)
2017	10 (9.4%)	9 (8.5%)	8 (7.5%)	6 (5.7%)	73 (69%)	0 (0%)

The most common form is the sale of goods on account of the supplier's accounts receivable (and the purchase of goods on account of the customer enterprise's accounts payable). Since the interviews revealed that interest rates are often set as monthly repayments, sales on account with a settlement period of more than one month can be considered as credit. For 19.7% of the companies in 2011 and 17.9% in 2017, accounts receivable and accounts payable are used frequently and are an important channel for working capital. In addition, suppliers often extend credit to their customer enterprises. The cost of capital is likely to be low due to the ongoing nature of the transaction but is likely to be internalised in the selling price. In addition, the credit extended by the supplier to the customer enterprises firm may be in the form of advance payment for future raw material purchases, and thus may have both a borrowing component for the customer enterprises and a saving component for the supplier. The advance payment of raw material costs may also be a way for the supplier to express its desire for a continuing relationship with the customer enterprises, which may reduce transaction costs and the cost of capital for both parties.

Other forms of trade credit include the granting of funds for the purchase of raw materials and intermediate goods by the ordering company or merchant and the granting of raw materials and intermediate goods in kind. In such cases, too, the financing of the purchase is equivalent to the granting of credit. The provision of funds and in-kind goods, based on a relationship of trust based on ongoing business transactions between companies, solves the cash flow problems of micro-enterprises, such as the temporary loss of cash, and reduces the possibility of business stoppages due to cash flow problems. The establishment of lending and borrowing relationships, including in-kind lending, reduces information asymmetries by

allowing both parties to monitor each other's cash situation. In an environment where a variety of payment methods do not exist, it is difficult to choose a method other than cash payment. The inclusion and implementation of temporary in-kind or financial transfers in the business relationship can benefit both parties in the long term, as each temporary cash payment difficulty increases the probability of the closure of the business and the closure of one party causes a significant loss for both party. Sometimes a financially strong client company will provide support to a business partner, but may require a down payment as part of the sales price or advance payment in full, prior to the actual transaction. This allows the company to reduce its need for other sources of finance and to secure working capital more easily. In addition, when a company commits to deliver a certain quantity of goods to a client, it can make an investment by means of a deposit or an advance payment, and take advantage of economies of scale to place orders efficiently, even in the case of large orders. In some cases, such as in the service sector, where the company deals with seasonal products that do not necessarily have a monthly relationship, or where the client company purchases products from the supplier's product range when they are available, a down payment or advance payment may be required, with the down payment or advance payment acting as a margin or deposit. In such cases, the cost of capital is also likely to be internalised in the transaction price.

5.4 Funding for Micro-Enterprises

We examine the channels through which microenterprises obtain financing in the informal financial market from three perspectives: cost of capital, agency costs, and transaction costs. While borrowing from family members and acquaintances remains the largest source of finance for microenterprises, inter-firm credit borrowing is rising and the share of non-bank borrowing is increasing. The fact that they have expanded significantly since then shows that small transaction costs are important for the financing of microenterprises. In addition, in terms of the expansion of inter-firm transactions, continuous business relationships are important, and the cost of capital and agency costs have become smaller as well as internalised depending on the level of continuous business relationships. The fact that transaction costs are smaller in a business relationship also seems to be important as a funding channel. The interviews also show that ongoing relationships have resulted in longer repayment terms and increased borrowing, which may have led to lower real interest rates on loans.

6. Credit Constraints

6.1 Analysis of the Impact of Credit Constraints

Table 7 shows the results of a survey of micro-enterprises applying for loans through commercial banks and non-banks. The survey was conducted among microenterprise owners. We asked questions about applications for loans to commercial banks and non-banks. Thus, for example, even if a microenterprise did not borrow in 2011 and 2017 in the above survey, it is counted as having borrowed if it borrowed and repaid the loan between 2011 and 2017. In addition, while the data presented in the previous sections are based on actual borrowing, this section also includes data on firms seeking loans, including those that did not apply for a

loan as a result, based on whether or not they were seeking a loan as of 2017. The following six survey items on credit constraints were used.

- 1) I applied for a loan and was able to borrow as much as I needed,
- 2) I applied for a loan but did not get enough. 3) I did not apply for a loan

because of fear of business stoppage due to default, 4) did not apply for a loan because of fear of rejection, 5) did not need to take out a loan, 6) did not know how to apply for a loan.

Respondents who answered 2), 3), 4) and 6) above can be regarded as credit constrained people, which means that 91% of the companies surveyed are facing borrowing constraints. Comparing firms that are credit constrained with those that are not, those that are credit constrained had lower profitability than those that are not.

Table 7. Restrictions on borrowing from non-banks and commercial banks

1 I applied for a loan and was able to borrow as much as I needed	13
2 I applied for a loan but did not get enough	194
3 I did not apply for a loan because of fear of business stoppage due to default	76
4 I did not apply for a loan because of fear of rejection	47
5 I did not need to take out a loan	20
6 I did not know how to apply for a loan	1
Ratio of firms facing credit constraints(2+3+4+6)	91%

Overall, 20% of businesses have not applied for a loan for fear of defaulting, and 13% have not taken out a loan for reasons such as fear of rejection due to lack of earnings or collateral.

6.2 Model, Estimation Methods and Results of analysis

6.2.1 Credit Constraints and Rates of Return and Employment Growth

To investigate whether the presence of credit constraints is an important obstacle to firms' investment and their performance, we estimate a performance function for firms. Due to data constraints, we define firm performance as the rate of return and the employment growth rate between 2011 and 2017. The rate of return is defined as the ratio of the current profit amount to the resale value of machinery and other equipment, while profit is defined as sales revenue minus the imputed costs of materials, labour costs and family labour. With these performance indicators as explained numbers, we estimate the profit rate function and the employment growth rate function.

On the right-hand side, we include a dummy variable *CC* that indicates the credit constraint status and takes the value of 1 if the manager is subject to credit constraints from non-banks and 0 otherwise.

$$P_t = X_t\beta_x + \delta CC_t + v_t \quad (1)$$

Let I^* be the optimal level of investment in the absence of credit constraints, and let I be the actual level of investment. If there is no credit constraint, $I^*=I$, but if there is credit constraint, $I^*>I$. Let the gap between the optimal investment and cash in hand be $H = I^* - I$, and let H be shown as a linear function of a group of variables W , we obtain the following induced formula for the determination of credit constraint.

$$H_t = W_t\beta_w + s_t \quad (2)$$

$$CC_t = 1 \text{ if } H > 0$$

$$CC_t = 0 \text{ if } H \leq 0 \quad (3)$$

Table8 shows the results of the maximum likelihood estimation: 1a)2a) are the estimation results for the rate of return function and the employment growth function; 1b)2b) are the determinants of the credit constraints corresponding to each function. The bottom part of the table shows the estimation results of the covariance $\sigma_{v_1v_2}$ between the error terms. (1a) means the result of the regression analysis for second stage and (1b) for the first stage. (2a) means the result of the second stage, (2b) for the first stage.

Table 8. Relationship between credit constraints and rates of return and employment growth

	(1a)	(2a)	(1b)	(2b)
Dependent Variable	Rate of return	Employment growth rate	Dummy for Credit Constraint(CC)	Dummy for Credit Constraint(CC)
CC	-5.98*** (-3.23)	-3.91** (-2.41)		
ln(number of employees at the beginning)	-1.49*** (-3.41)	-10.99*** (-14.33)	-0.67*** (-3.05)	-0.70*** (-3.71)
ln(Age of the company)	1.41 (-1.73)	0.04 (-0.03)	-0.56* (-1.91)	-0.61** (-2.21)
Companies engaged in product labelling	0.01* (-2.01)	0.22* (-1.92)	-0.09* (-1.91)	-0.10* (-2.41)
Dummy ownership of off-market workshops	2.67** (-3.02)	2.84** (-2.99)		
Dummy whose manager is a man	1.08 (-2.01)	0.9 (-0.09)	-0.21 (-0.72)	-0.31 (-0.79)
Married Dummy	3.11** (-2.33)	5.80*** (-5.29)	0.42 (-0.68)	0.11 (-0.29)
Dummy with relatives in the same industry			-0.24*** (-5.21)	-0.19*** (-4.22)
Dummy born in Ulaanbaatar	1.77 (-0.89)	8.91*** (-2.91)	-0.21 (-0.19)	-0.41 (-0.31)
Dummy with a management age of 21 to 35 years	0.45 (-0.33)	-5.10** (-3.11)	0.41 (-0.91)	0.58 (-1.89)
Dummy with management age between 36 and 50 years	1.41 (-1.21)	-4.91*** (-3.11)	0.11 (-0.98)	0.57 (-1.64)
ln(years of education)	5.29*** (-4.87)	9.41*** (-5.01)	0.38 (-2.22)	0.29 (-2.07)
Dummy who has previously worked in the same profession	1.65 (-1.74)	2.65** (-2.35)	0.22 (-1.54)	0.19 (-0.67)
Constant term	-7.05 (-2.63)	-4.22 (-0.64)		
$\sigma_{\nu t}$	0.91*** (-5.47)	0.21 (-0.58)		
	2nd	2nd	1st	1st
log likelihood	-814.84	-904.78		
Number of companies	351	351		

Numbers in parentheses are z-statistics. ***, ** and * denote significance levels of 1%, 5% and 10% respectively.

For the rate of return function, the covariance is positive and statistically significant, meaning that the sample selection bias is not negligible. For the employment growth rate function, on the other hand, the correlation between the error term is positive but not statistically significant. The results presented in 1a) show that the rate of return of firms under credit constraints is 6 percentage points lower than that of firms without such constraints. Furthermore, the results presented in 2a) show that firms facing credit constraints have a 4 percentage point lower employment growth rate than unconstrained firms. Since credit constraints are a constraint on capital accumulation, they should induce a substitution from the capital to labour, and therefore the absolute value of the negative effect of credit constraints on investment should be larger than the negative effect on employment (4%). This means that the existence of credit constraints hinders the profitability of firms and employment growth. We also find

that managers who are married and have a higher level of education and work experience tend to be more profitable. We also found that companies run by young managers under the age of 50 had lower employment growth rates than companies run by managers over the age of 50. There was also no support for gender differences in profitability. Table 8 shows that credit-constrained managers can be said to be young people with short current business experience, no peer relatives, and especially in enterprises with small employment sizes. In other words, credit-constrained managers have weak social relationships and little experience.

6.2.2 Credit Constraints and Determinants of Loan Acquisition Channel

Next, we consider in detail the determinants of the credit constraint corresponding to the rate of return function and the employment growth function of 1b)2b), the determinants of access to different funds and their impact on credit constraints are analyzed using a multivariate probit model. Together with a probit model of whether to obtain loans from family members and acquaintances (FRs), MFIs (MFI) and commercial banks (Banks), we estimate a probit model of how these loans affect the determination of credit constraints (CCs).

$$H_t = \sum_{k=1}^3 \alpha_k C_{kt} + Z_t \gamma + s_{Ht} \quad (2')$$

$$CC_t = 1 \text{ if } H > 0$$

$$CC_t = 0 \text{ if } H \leq 0 \quad (3)$$

$$FR_t = M_t \beta_1 + s_{1t} \quad (4)$$

$$MFI_t = M_t \beta_2 + s_{2t} \quad (5)$$

$$Bank_t = M_t \beta_3 + s_{3t} \quad (6)$$

$$C_{1t} = 1 \text{ if } FR_t > 0 \text{ and } 0 \text{ otherwise,} \quad (7)$$

$$C_{2t} = 1 \text{ if } MFI_t > 0 \text{ and } 0 \text{ otherwise,} \quad (8)$$

$$C_{3t} = 1 \text{ if } Bank_t > 0 \text{ and } 0 \text{ otherwise,} \quad (9)$$

In the previous section, the determinants of credit constraints were demonstrated by analysing the impact of the existence of credit constraints on the rate of return and employment growth. Next, in order to examine the determinants of credit constraints in more detail, the determinants of access to different funds and their impact on credit constraints are analysed using a multivariate probit model. Specifically, we estimate a probit model of whether a person obtains loans from friends or relatives, business-to-business credit, MFIs and commercial banks, as well as a probit model of how these loans affect the determination of credit constraints (CC).

We estimate a probit model of whether to obtain loans from family and acquaintances, trade credit, MFI and commercial-bank sources. Given the possibility that these financing and credit constraints are interrelated and that the error terms in each probit model are not independent, we perform simultaneous estimation using a multivariate probit model. The number of exogenous variables in the CC equation needs to be smaller than in the other probit equations for model identification. Credit constraints are assumed to be determined only by the presence or absence of different types of loans and the asset variable Z . The equations to be estimated simultaneously are the determinants of CC and

the loan availability equations for FR, Trade Credit, MFI and Bank. We estimate a maximum likelihood estimation of Geweke-Hajivassiliou-Keane(GHK)

Table 9 shows the estimated determinants of credit constraints and access to the four credit markets.

Table 9. Credit constraints and determinants of the loan acquisition

	(2)	(3)	(4)	(5)	(6)
	Dummy for Credit Constraint(CC)	Dummy for borrowing from relatives/friends	Dummy for borrowing from trade credits	Dummy for borrowing from MFIs	Dummy for borrowing from Commercial banks
Dummy borrowing from commercial banks	-3.21** (2.29)				
Dummy for borrowing from MFIs	-0.72 (0.41)				
Dummy for borrowing from Inter-firm credit	-1.93* (1.60)				
Dummy for borrowing from relatives/friends	0.02 (0.01)				
Dummy for firms without borrowing	-1.95** (2.40)				
Dummy for credit transactions	-2.06*** (2.86)				
ln(assets)	1.48*** (7.17)				
ln(assets) squared	-0.10*** (0.41)				
ln(number of employees at initial point in time)		-0.38 (1.57)	0.09 (0.52)	0.06 (0.89)	0.22 (0.95)
ln(Age of the firm)		-1.21*** (3.45)	-0.53* (1.66)	0.55* (1.88)	1.75*** (2.65)
Firms with product labeling		0.04 (0.92)	-0.002 (0.08)	-0.03 (0.07)	0.31** (2.41)
Dummy for out-of-market workshop ownership		0.21 (0.51)	0.35 (1.31)	0.38 (0.30)	0.91* (1.97)
Dummy where the manager is male		0.33 (1.65)	-0.81** (3.13)	-0.51** (2.43)	0.37 (1.22)
Married Dummy		-0.33 (0.59)	0.71** (1.97)	0.18 (0.28)	3.64*** (2.95)
Dummy who has relatives in the same industry		0.07 (0.99)	0.10** (2.21)	0.05 (0.89)	0.29*** (2.86)

Dummy born in Ulaanbaatar	0.19 (0.45)	1.21* (2.18)	0.29 (0.39)	-3.22*** (4.20)
Dummy for manager age between 36 and 50 years old	0.70* (1.59)	-0.24 (0.66)	-0.29 (0.48)	-0.05 (0.08)
Dummy for manager age between 36 and 50 years old	0.59 (1.79)	0.27 (0.78)	0.35 (0.89)	-0.49 (0.75)
ln(Years of education)	-0.14 (0.72)	0.21 (0.67)	0.11 (0.26)	1.22* (1.94)
Dummy who worked in the same occupation before	0.01 (0.03)	-0.21 (1.09)	0.4 (0.08)	0.41 (0.67)
Constant term	2.48 (3.22)	0.41 (0.33)	3.84* (1.64)	-4.35*** (3.54)
Covariance of error term				
Commercial banks and CC	0.4 (0.37)			
MFI and CC	0.22 (0.41)			
Inter-firm credit and CC	0.31 (0.52)			
Relatives/friends and CC	0.23 (0.31)			
MFIs and commercial banks	0.03 (0.12)			
Inter-firm credit and commercial banks	-0.22 (0.40)			
Relatives/friends and commercial banks	0.07 (0.21)			
Inter-firm credit and MFIs	0.41*** (3.33)			
Relatives/friends and MFIs	-0.29** (2.55)			
Relatives/friends and Inter-firm credit	-0.06** (0.61)			
log pseudo-likelihood	-451.15			
Number of companies	351			

Numbers in parentheses are z-statistics. ***, ** and * denote significance levels of 1%, 5% and 10% respectively.

Table 9 shows that the determinants of loan acquisition different depending on the source of financing.

Equation (3) shows that managers who borrow from family and acquaintances tend to be younger. This means that young managers have no choice but to borrow working capital from family and acquaintances. As the young manager's business grows, his need for funds will

increase, and he will be faced with borrowing from non-bank sources if he exceeds the amount of borrowing available through inter-firm and firm-to-firm credit. It was observed that both inter-firm credit and borrowing from non-banks increased with the years of experience of the managers. It was also observed that non-bank borrowing increased as the level of education increased. Borrowing from family members and acquaintances was not sufficient to alleviate credit constraints due to the upper limit of borrowing amount, and it was confirmed that most of the firms have credit constraints except for those firms that have successfully borrowed from non-banks. It was also confirmed that asset value using equipment and inventory as asset value is useful in mitigating credit constraints.

The covariance of the error terms for family/acquaintance and inter-firm credit is positive and significant, suggesting that these sources of finance may be complementary.

Since 2012, housing loans have begun to spread and banks have increased their lending to individuals. In addition, the spread of non-banks, especially in the capital Ulaanbaatar, and savings and credit cooperatives in rural areas has facilitated access to external financing. In addition, the emergence of non-bank and microfinance institution-based commercial banks has led to an increase in lending to individuals by some commercial banks.

7. Conclusion

We confirm whether the poor have sufficient opportunities to increase their income by examining the access to finance for the microenterprises about a quarter of a century after the transition. In the first part of the paper, we examine the channels through which microenterprises raise funds in informal financial markets from three perspectives: cost of capital, agency costs, and transaction costs. While borrowing from family members and acquaintances remains large source of financing for microenterprises, trade credit is on the rise, and the share of borrowing from non-banks is increasing.

The legal drive for non-banks and Savings and Credit Cooperatives in the 2000s and the opening of offices on small-scale finance across the country has led to a significant increase in borrowing from these lenders since the simplification of procedures was promoted. Competition associated with capitalisation created these changes and lowered various costs.

The fact that they have expanded significantly since then shows that small transaction costs are important for microenterprises to raise funds. In addition, from the perspective of expanding trade credit, continuous business relationships are important and depending on the level of continuous business relationships, the cost of capital and agency costs became smaller as well as internalized.

The second half of the paper confirms that firms facing credit constraints have lower rates of profitability and employment growth than unconstrained firms. Since credit constraints are a constraint on capital accumulation, they should induce substitution from capital to labor. We also found that managers who are married and have a longer education level and business experience tend to be more profitable. Credit-constrained managers are young people with short current work experience, no relatives in the same industry, and especially in firms with small employment sizes. In other words, credit-constrained managers were confirmed to be

managers with weak social relationships and little experience. It was confirmed that the credit constraint eased with age and managerial experience.

From the above, it is confirmed that through capitalization, borrowing from non-banks and Savings and Credit Cooperatives has been expanded, but the share of family, acquaintances and trade credit is still very large. The results also showed that the existence of credit constraints worsened the rate of profitability and employment growth of microenterprises. However, it was confirmed that credit constraints are mitigated through age and managerial experience, and that education level also has a positive impact.

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