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Evidence from Germany**

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Financial Constraints of Ethnic Entrepreneurship: Evidence from Germany

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Abstract

This is the first attempt to test hypotheses about financial constraints of ethnic minority owned businesses in Germany. Using data from a survey among 3,000 ethnic and native entrepreneurs, we examine differences in the financing patterns between both demographic groups. We find that entrepreneurs with a migration background are more likely to be denied credit or to obtain smaller loan amounts than requested. After controlling for observed risk factors and financial relationships as explanatory variables, ethnicity plays no role in explaining differences in the probability of credit rationing. These can be rather explained by the firm's location and characteristics of the bank-customer relationship. Thus, we find no evidence for prejudicial discrimination in the loan market.

JEL Code: G21, G32

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1. Introduction

Ethnic entrepreneurship is an important engine of employment and growth, especially in the ageing societies of Europe. It arises from self-employment or firm foundations by people with a migration background, which may be either born or immigrated in the country where they work. From 1987 to 2003, the number of foreign entrepreneurs in Germany almost doubled, reaching 286,000 firms. They provide about 3-4% of all employments. However, the self-employment rate is still very low with 9% for ethnic minorities and 10% for Germans (Bundesministerium für Wirtschaft und Arbeit 2005). Ethnic entrepreneurship seems to be constrained by lack of finance. In the US, ethnic minorities are substantially less likely to be self-employed¹ or to own an incorporated business compared to whites, which has caused concern and reactions by policy makers (Lofstrom/Wang 2006a, 2006b). This can be partly explained by financial exclusion and in particular credit rationing. Recent immigrants are most likely to be excluded from bank services because of low income, lack of appropriate documentation, lack of knowledge of and trust in the banking system, as well as cultural factors (Anderloni/Carluccio 2007, Atkinson 2006). Credit restrictions might be due to discrimination across different demographic groups in the credit market, which can be observed above all by disparities in credit access (Blanchflower/Levine/Zimmerman 2003, Cavalluzzo/Cavalluzzo/Wolken 2002, Cavalluzzo/Cavalluzzo 1998). But also differences in education and wealth have been found to partly explain the low self-employment rates of ethnic minorities. Human capital is a determinant of both business survival and the financial capital structure of small business start-ups (Bates 1990, Lofstrom/Wang 2006b, p. 3). Financial and human capital constraints are likely to restrict access of ethnic minorities to capital-intensive industries, pushing them into industries with low entry barriers (Lofstrom/Wang 2006b).

The theory of credit rationing under asymmetric information predicts that young and small firms have less access to external finance because they are informationally more opaque than larger firms (Stiglitz/Weiss 1981). According to recent cross-country evidence, this seems to be a growth constraint (Beck/Demirguc-Kunt 2006). Indeed, small firms face higher growth constraints and have less access to formal sources of external finance than larger firms, which may explain that a causal link between SMEs (small and medium-sized enterprises) and economic development cannot be found. In developing countries, finance from friends and family is often used to overcome credit restrictions due to asymmetric information and lack of

¹ African Americans have a self-employment rate of 5-6% compared to 13-14% for the white male work force (Fairlie 2003).

formal institutions. Therefore, SMEs create long-term business relationships and tight, ethnically-based business networks, which, however, vary across ethnic groups (Beck/Demirguc-Kunt 2006, p. 2939). But also in developed countries, which have a financial infrastructure that helps to reduce financial restrictions of opaque firms, ethnic entrepreneurs are likely to be disadvantaged due to higher information asymmetry arising from cultural or language problems. To better serve these customers, a growing number of banks have developed special schemes and products for immigrants as well as targeted communication and delivery strategies.² Moreover, governments have intervened to promote financial inclusion through facilitative actions and legislation.³

Most of the empirical literature on financial exclusion, racial discrimination in credit markets and self-employment differentials between ethnic groups refers to the US, while the evidence for Europe and Germany in particular is scarce so far. The present paper contributes to close this gap by examining financial constraints of ethnic entrepreneurship in Germany. On the basis of theoretically derived hypotheses, we provide an overview of previous evidence and own evidence using data from a survey conducted among 3,000 native and migrant entrepreneurs in 2006. Our main results are as follows. First, ethnic entrepreneurs in Germany are significantly more likely to be credit rationed than native entrepreneurs: they have a higher probability of being denied credit or obtaining smaller loans than requested (58% vs. 39%), are less likely to finance their start up by bank loans (26 % vs. 45%), and borrow more money from family members and friends than natives. Secondly, these financing differences do not seem to restrain growth and business activities, since there are no significant differences in size or industry affiliation between both groups. Thirdly, after controlling for observed risk factors and financial relationships as explanatory variables, ethnicity plays no role in explaining differences in the probability of credit rationing. These can be rather explained by the firm's location in East vs. West Germany and by characteristics of the bank-firm relationship. Thus, we find no evidence for prejudicial discrimination in the loan market.

The rest of the paper is structured as follows. Section 2 provides an overview of the theoretical literature and the hypotheses to be tested, and section 3 reviews the previous evidence. The data used, the measurements of the variables and the univariate results are presented in section 4, and the multivariate results in section 5. Section 6 concludes.

² See the initiatives of savings banks in Spain (Anderloni/Carluccio 2007, p. 69, Carbó/Gardener/Molyneux 2005, Anderloni/Aro/Righetti 2005) and several banks in Italy (Anderloni 2007, p. 369, Fn. 21).

³ For an overview and case studies see Anderloni/Carluccio (2007).

2. Theory and Hypotheses

Human and financial capital are key input factors for the start up and growth of firms. Especially in the case of micro and small enterprises, a single person, usually the owner-manager, has to possess both technical and managerial skills (Neuberger/Räthke 2008). Moreover, he needs financial capital to finance investments. Given the scarcity of own assets, access to external finance is a restricting factor. According to the pecking order theory of optimum capital structure (Myers 1984, Myers/Majluf 1984), asymmetric information and signaling problems associated with external finance cause a hierarchy of firms' financing policies, with a preference for internal over external finance, and for debt over equity. If external finance is required, firms issue debt as the safest security first, then possible hybrid securities such as convertible bonds, then equity only as a last resort. Even if this theory has been developed to explain the financial practices of large publicly traded corporations, it also describes SMEs' financing practices, debt being by far the largest source of external finance for small businesses. However, the pecking order theory has to be modified to take into account the special characteristics of SMEs. The information asymmetry and agency costs arising between owner-managers and outside investors are likely to be larger in small, closely held enterprises, which have fewer disclosure requirements (Hall/Hutchinson/Michaelas 2000, p. 299). Since the differences in costs between internal equity, debt, and external equity are thus greater than in larger firms, the hierarchical approach has even more appeal to smaller firms (Scherr/Sugrue/Ward 1993, p. 21). Moreover, small firms usually do not have the option of issuing additional equity to the public, and the owner-managers of small firms are strongly averse to any dilution of their ownership interest and control (Holmes/Kent 1991). Thus, in a modified pecking-order of financing preferences for SMEs, new capital contributions from owner-managers rank behind internal finance, but in front of debt finance. These equity contributions may partly be implicit in the form of reduced or below market pay and overtime (Ang 1991, Zoppa/McMahon 2003, p. 5). On the basis of empirical evidence about the financing practices of SMEs, Zoppa and McMahon (2003, p. 16) proposed a fully specified modification of the pecking order theory, with the following hierarchy from most preferred to least preferred source of finance: (1) reinvestment of profits (including long working hours and below market salaries of owner-managers), (2) short-term debt financing (trade credit, personal credit card financing), (3) long-term debt financing (possibly beginning with longer-term loans from existing owners and owner-managers, their families and friends), (4) new equity injections from existing owners and owner-managers (perhaps including their families

and friends, with acceptance of low or zero dividends), (5) new equity capital from hitherto uninvolved parties (including private equity investors).

The theory of credit rationing under asymmetric information explains why young and small enterprises may not have access to credit because of their high information opacity. Problems of adverse selection and moral hazard prevent the price mechanism to bring about a Walrasian market equilibrium (Stiglitz/Weiss 1981). Credit rationing may be reduced by collateral: it acts as a signaling device, inducing a borrower to reveal his default risk (Bester 1985, Besanko/Thakor 1987), and as an incentive device, providing him with an incentive to exert effort and reveal truthfully the state of his project after having obtained the loan (Bester, 1987, 1994). However, collateralization may be costly for both contract partners. Lenders must evaluate and monitor collateral and bear the cost of liquidation and collateral utilization. Borrowers must prepare additional reports and tolerate restrictive asset usage (Leeth/Scott 1989, p. 380). Start-ups and small firms often do not have enough assets which are suitable for collateralization.

Another mechanism to ease credit access of SMEs is relationship lending through a close bank-customer relationship or housebank relationship.⁴ It helps to reduce information asymmetry, since the housebank accumulates knowledge about the borrower's quality and behavior through the course of time. Another benefit is seen in its intertemporal contract design, where the borrower's long-term binding enables the bank to compensate losses in some periods by gains in others.⁵ This permits the financing of long-term investment projects that would not be profitable in a shorter relationship (Boot, 2000; Ongena/Smith, 2000). On the other hand, the relationship lender gains an information monopoly, which may be used to hold-up the borrower, making future loans at non-competitive terms (Sharpe 1990). These hold-up costs may be reduced through multiple banking relationships. However, borrowing from too many banks cannot be optimal because this would imply a higher probability of being credit rationed (Angelini/Di Salvo/Ferri 1998). Hence, information opaque firms should hold only one to few bank relationships. Here again start-ups may be disadvantaged, because they have no credit history or long-lasting housebank relationship yet.

⁴ For surveys see Boot (2000), Ongena/Smith (2000) and Elyasiani/Goldberg (2004). A housebank or main bank is usually defined as the major lender of a firm, providing relationship lending services. The incidence of a housebank status has been shown to be positively related to the bank's share of borrower debt financing, but negatively related to the firm's number of bank relationships (Elsas, 2005). Hence, the observation that a firm holds only one to few lending relationships is an indicator of a housebank relationship.

⁵ See e.g. Greenbaum et al. (1989), Petersen/Rajan (1995), Elsas (2001, pp.56)

We expect that the above arguments about credit restrictions of SMEs apply even more to ethnic entrepreneurs and in particular immigrants, which tend to have higher information opacity and credit risk than native entrepreneurs. Ethnic minorities may be financially excluded because of “socio-economic limitations when financial services appear inaccessible to specific income, social or ethnic group either because of high costs, rationing, financial illiteracy, or discrimination” or “limitations of opportunity when talented newcomers with profitable projects are denied finance because they lack fixed collateral or are not well connected” (Beck/de la Torre 2006, Anderloni/Carluccio 2007, pp.9). Moreover, ethnic entrepreneurship may be restricted by lack of human capital or knowledge. In particular, new immigrants are likely to lack knowledge about the new institutional and cultural environment for setting up a business.

This leads us to the following hypotheses about financial constraints of ethnic entrepreneurship:

H1: Ethnic entrepreneurs are more likely to be credit rationed than native entrepreneurs:

- They are more likely to be denied credit or obtain smaller loans than requested.
- They lack collateral.
- They have to make larger investments of own savings and larger reinvestments of profits (e.g. through longer working hours).
- They borrow more money from family members and friends.

H2: Lack of finance restrains ethnic entrepreneurship:

- Ethnic minorities are less likely to be self-employed.
- Ethnic minority owned firms are smaller.
- Ethnic minorities are less likely to be active in capital-intensive industries than natives.

3. Previous Evidence

Problems in obtaining external finance may result from an exclusion from bank services in general or from rationing in the loan market in particular. Evidence for the US shows that recent immigrants are most likely to be excluded from bank services because of low income, lack of appropriate documentation, lack of knowledge of and trust in the banking system, as well as cultural factors (Anderloni/Carluccio 2007, Atkinson 2006). Similar results have been

found for European countries.⁶ Individuals in condition of socio-economic difficulty often do not approach a bank for a loan because of fear that the application will be rejected. This kind of self-exclusion was more common among migrants (Anderloni/Carluccio 2007, p. 84, Nieri 2007, p. 113).

Evidence consistent with H1 has been provided by many studies for the US, which suggest that ethnic minorities are discriminated in the small-business credit market (Bates 1991, Blanchflower/Levine/Zimmerman 2003, Cavalluzzo/Cavalluzzo 1998, Cavalluzzo/-Cavalluzzo/Wolken 2002, Cavalluzzo/Wolken 2005, Bostic/Lampani 1999).⁷ They mostly examine demographic differentials in credit denials or loan rates paid and seek to explain them by multivariate analyses. However, it is difficult to detect whether the observed demographic differentials in the credit granting behavior of banks are due to differential risk factors, thus being economically justified, or whether they arise from taste-based preferences of the lender. The first case is commonly referred to as statistical discrimination (Phelps 1972), the second one as noneconomic or prejudicial discrimination (Becker 1957). Statistical discrimination may arise from the fact that lenders lack economically relevant information that is correlated with demographic group. The use of demographic attributes as a proxy for missing information then leads to a differential treatment, which is based on economic grounds. Empirical studies of discrimination should control for all economic factors, which are important for the credit granting decision. Otherwise, the estimated demographic coefficients will be biased by omitted variables (Cavalluzzo/Cavalluzzo/Wolken 2002, p.642). Recent studies, based on large data sets from the National Survey of Small Business Finances in the US, found substantial demographic differentials in credit market experiences, even after controlling for a broad set of characteristics describing the firm and owner (Blanchflower/Levine/Zimmerman 2003, Cavalluzzo/Wolken 2005, Cavalluzzo/Cavalluzzo/-Wolken 2002), competition of the local banking market (Cavalluzzo/Cavalluzzo 1998) and local geography (Bostic/Lampani 1999). Black-owned small businesses were found about twice as likely to be denied credit as white-owned firms, even after taking into account differences in creditworthiness and other factors (Blanchflower/Levine/Zimmerman 2003). Substantial unexplained differences in denial rates between African-American, Hispanic, Asian, and white owned firms remained even after controlling for personal wealth, which was

⁶ According to the results from a survey among individuals in condition of socio-economic difficulty in France, Italy and Spain, the percentage of unbanked individuals was 40% for immigrants versus 11.9% for natives in Italy, 6% for immigrants versus 3.9% for natives in France and 19.2% for immigrants versus 0.7% for natives in Spain (Anderloni/Carluccio 2007, p. 84).

⁷ Moreover, there is a large empirical literature about racial disparities in mortgage lending: e.g. Blackburn/Vermilyen (2006), Black/Collins/Cyree (1997), Courchane/Nickerson (1997), Rosenblatt (1997).

negatively related to the probability of loan denial (Cavalluzzo/Wolken 2005). Evidence consistent with racial discrimination in small business lending has also been found for Trinidad and Tobago (Storey 2004), but not for Zimbabwe (Raturi/Swamy 1999).

In contrast to the bulk of the US literature, a recent comprehensive study about the financing of ethnic minority versus white owned SMEs in the UK finds that non-ethnic risk factors are able to explain most of the wide variations in financial outcomes amongst ethnic minority businesses (Fraser 2007). Of all ethnic groups (Indian, Pakistani, Bangladeshi, Black Caribbean, Black African, White), Bangladeshi and Black owned businesses have the fewest financial assets, the greatest problems in raising external finance (in terms of both access and cost) and the lowest self-confidence in dealing with finances. Even if Black African owner managers have the highest level of human capital (academic and financial qualification) and are the most likely to engage in business planning at start-up, Black owned businesses have higher rates of financial delinquency than other ethnic groups (Fraser 2007, p. 8). After removing the effects of differences in risk levels (track records, availability of collateral, financial delinquency) and financial relationships (relationship lengths, exclusivity), it has been found that there is no role for ethnicity in explaining financial rejection rates, discouragement from applying for finance, and the cost of borrowing. Some unexplained variations in finance gaps and loan margins among ethnic groups could be due to both ethnic discrimination and to non-ethnic factors such as a high share of high growth/high risk firms among the respective groups for which equity finance may be more suitable than debt finance. Even if this study does not find support for prejudicial discrimination in the UK, it provides evidence for large variations in financial rejections and discouragement among ethnic minority businesses, which could lead to the perception of ethnic discrimination.⁸ It concludes that better communications between finance providers and ethnic minority businesses together with improved financial support and advice may be required to tackle the underlying causes of poorer financial outcomes (Fraser 2007, p. 12).

Evidence about the financial situation of ethnic minority businesses in Germany is scarce and restricted to descriptive statistics so far. A survey of more than 40,000 individuals showed that migrants were twice as inclined as natives to found enterprises, however, they mentioned about twice as often as natives that access to loans was an obstacle to self-employment (Lehnert 2003). The share of business start-ups with financial restrictions (lack of own capital

⁸ The rejection rate of black owned businesses is up to six times that of Indian owned businesses, and black owned businesses are up to six times more likely to feel discouraged from applying for finance than White businesses (Fraser 2007, p. 202).

and debt capital) was 22% for migrants vis-à-vis 14% for Germans. Migrants showed a larger demand for external finance with volumes up to 50,000 EUR, while Germans more often demanded higher volumes. However, both groups most often needed loans in the range of 5,000-25,000 EUR, i.e. the volume of microlending (Lehnert 2003, Täuber 2003).⁹ Although such credits are provided by federal programs (by the DtA, Deutsche Ausgleichsbank), migrants seem to be less informed about these possibilities than natives. While 15% of all entrepreneurs which participate in the federal credit program for self-employment should be migrants, the share of migrants actually participating in it is only 3%. The main reasons mentioned by migrants for not applying for a credit within this program are lack of information (45% of the migrants compared to 25% of the natives) and credit denial by the housebank (22% compared to 12%). Since lack of information may be due to possible language problems, it is important to inform migrants about financing programs in their own language, to cooperate with foreign trade associations and to provide target-group specific consulting and coaching (Täuber 2003, Floeting/Reimann/Schuleri-Hartje 2005). Studies about ethnic entrepreneurship in selected German cities (Floeting/Reimann/Schuleri-Hartje 2005, Schuleri-Hartje/Floeting/Reimann 2005, Burgbacher 2004) find evidence consistent with the credit rationing hypothesis H1: about 80% of ethnic entrepreneurs finance their start-ups with own capital and loans from their family and friends, and German banks appear to lack intercultural competence. Credit access is hampered by the fact that foreign assets are not accepted as collateral. Beyond financial capital, the family provides personal help and formal or informal labor. Moreover, access to external finance may be affected by the age of the entrepreneur: in 2005, the average age of the foreign population was 37 years compared to 42 years for the main population (Federal Statistical Office and Statistical Offices of the Länder 2006). Financial constraints may also explain why ethnic minority owned businesses are mostly micro and small enterprises which seldom grow (Floeting/Reimann/Schuleri-Hartje 2005).

The hypothesis that lack of finance restrains ethnic entrepreneurship (H2) has been supported by several studies, mainly for the US. African-Americans and Mexican-Hispanics have substantially lower self-employment rates than natives in the US (Lofstrom/Wang 2006a, 2006b).¹⁰ This is due to discrimination in the small business market, since liquidity

⁹ See also the results of a survey conducted by the Center for Turkey Studies (Zentrum für Türkeistudien 1991), according to which firm-births by migrants are mostly established as sole proprietorships (81,7 % of the cases) with start-up investments between 12,500 and 25,000 EUR (80% of the cases).

¹⁰ Yuengert (1995) found that immigrants from countries with higher self-employment sectors showed a higher propensity to be self-employed, which was not supported by Fairlie and Meyer (1996).

constraints constitute a critical issue in business start up and survival (Kawaguchi 2005, p. 4).¹¹ Both credit market and consumer discrimination explain the self-employment gap between African Americans and whites (Kawaguchi 2005, Borjas/Bronars 1989). Other explanations are differences in wealth, education, family structure and parental entrepreneurship (Lofstrom/Wang 2006a, 2006b, Fairlie/Woodruff 2005). Human capital measured by owner educational background is a major determinant of both business survival and the financial capital structure of small business start-ups (Bates 1990, see Lofstrom/Wang 2006b, p. 3). Capital constraints seem to push ethnic minorities into industries with low entry barriers (gardening/landscaping, construction, retail trade and repair services), which display relatively low average educational attainment levels and capital expenditures (Lofstrom/Wang 2006b). Financial constraints are the major barriers to self-employment entry in manufacturing and wholesaling, while self-employment in skilled services increases greatly with the level of education (Bates 1995).

In the UK, immigrants appear to be more entrepreneurial than life-long residents, but ethnic minorities have the same rate of self-employment and business ownership as natives (Levie 2007, p.148). However, in Great Britain, there is a large self-employment gap between Indians and black Caribbean men (Borooah/Hart 1999), and the success of Asian entrepreneurs depends positively on their personal capital invested in the start up and on their human capital (Basu 1998). Surveys on the literature on self-employment across countries show the role of individual abilities, family background, occupational status, financial constraints and ethnic enclaves among others as relevant determinants of self-employment (Constant/Shachmurove/Zimmermann 2005, p. 6, Blanchflower/Oswald/Stutzer 2001, Le 1999).

Also in European countries like Germany, where entrepreneurial activities are generally lower than in the US, immigrants exhibit a lower self-employment rate than natives (Constant/Shachmurove/Zimmermann 2005). In Germany, the self-employment rate is 9% for migrants compared to 10% for natives (Bundesministerium für Wirtschaft und Arbeit 2005; in 2000: 8.4% vs. 10%, Lehnert 2003, p. 39). A recent study based on the German Socioeconomic Panel (GSOEP) of the year 2000 shows that the self-employment rate of the male labor force is 10% for Germans, 7% for Turks (the largest foreign ethnic group in Germany) and only 5% for all other male immigrants (Greeks, Italians, Spaniards, ex-Yugoslavs, and other Eastern Europeans) (Constant/Shachmurove/Zimmermann 2005). Turks are 70% more likely to be self-employed than any other immigrant group, which might

¹¹ See Holtz-Eakin/Joulfaian/Rosen (1994a, 1994b), Evans/Jovanovic (1989).

indicate that they are more entrepreneurial or that they face greater capital constraints or discrimination in the labor market. The self-employment gap can neither be explained by human capital nor by an earnings gap. Self-employed men earn, on average, significantly more than their salaried counterparts, and young immigrants earn more from self-employment than Germans. Thus, it pays for immigrants to get self-employed (Constant/Shachmurove/-Zimmermann 2005).

According to a survey of start-ups (Lehnert 2003), migrants are less likely to establish businesses in the services sector (31% compared to 49% for Germans) and in the health care sector (4% vs. 8%), but are more likely to be active in the trade sector (26% vs. 13%) and in the hotel and restaurant industry (11% vs. 5%).¹² The sectoral distribution of business registrations in 2005 shows that only 2.4 percent of all registrations by foreigners are in manufacturing, and that foreigners are also underrepresented in services (excluding restaurant and trade) (Bruder/Räthke-Döppner 2007). Other studies found that ethnic entrepreneurs concentrate on sectors with low entry barriers (such as tailoring or custodial services) (Floeting/Reimann/Schuleri-Hartje 2005, p. 11). This supports our hypothesis that their access to capital-intensive industries is constrained.

4. Data, measurements and univariate results

Data is obtained from a survey among 3,000 entrepreneurs in Germany, which was carried out in 2006. A questionnaire was sent to 2,250 entrepreneurs with origin from nine ethnic minority countries (France, Greece, Italy, Poland, Russia, Spain, Turkey, Vietnam, former Yugoslavia) as well as to 750 native entrepreneurs as a control group. The survey covers whole Germany, but has a special focus on East Germany, where ethnic minorities are underrepresented compared to West Germany. Ethnic entrepreneurship in East Germany has not been investigated so far. Per ethnic minority group, we addressed 250 entrepreneurs, of which 40 are located in East Germany and 30 in Berlin. Within the sub-samples of East and West Germany, the allocation to the federal states conforms to the actual regional distribution of the ethnic minority groups in 2004. The control group of native entrepreneurs was allocated to West Germany, East Germany and Berlin with the same weights and to the federal states according to their population shares.

Data about ethnic minority owned businesses in Germany is not publicly available. Although all businesses have to be registered at the trade office and are members of the Chamber of

¹² Also most of the start-ups by migrants which were financed with federal aid pertain to the trade sector (25.5%) and to the hotel and restaurant industry (24.5%) (Täuber 2003, p. 25).

Industry and Commerce or the Chamber of Trade, the nationality of their owners is usually not recorded. Therefore, the addresses of the interviewees were randomly chosen from the business entries in the yellow pages. The allocation to a nationality was done by a phonetic analysis of the first names and family names, which are characteristic of that nationality. This sample selection may be faulty and biased towards small firms or sole proprietorships, neglecting cases where the enterprise does not carry the name of its owner. The thus selected ethnic entrepreneurs were addressed in their mother tongue to avoid possible language problems in understanding and completing the questionnaire. Besides, we offered them the possibility to download the questionnaire in one out of ten languages (the nine ethnic minority languages, German, and English) and to complete it online in German or English. This has also been used.

The questionnaire contained a variety of standardized questions referring to the business start-up, firm characteristics, business financing and bank relationships, as well as to the entrepreneur's personal characteristics and life situation. 234 interviewees answered the questionnaire, implying a response rate of 7.7%. The variable definitions and descriptive statistics are listed in table 1 .

52.6% of all respondents belong to an ethnic minority, and 39.4% are located in East Germany. With on average four employees and an annual turnover of 363.8 thousand EUR, the firms in our sample are microenterprises.¹³ Only few of them are incorporated, most of them (92%) have a legal form with unlimited liability. 40% belong to the retail, hotel and restaurant industries. The amount of investment in the year of start-up was mostly below 25,000 EUR. 70% of the loans obtained are micro and small loans not exceeding the amount of 50,000 EUR.

To test our hypotheses about financial constraints of ethnic entrepreneurs, we examine whether the means of the relevant variables differ significantly between ethnic minority and native owned businesses. Table 2 summarizes the hypotheses to be tested, the relevant variables and the expected signs of the differences. The significance of differences in means has been examined by t-tests. The results are presented in table 3.

¹³ According to the European Union, the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million. Within this category, a microenterprise, respectively small enterprise is defined as an enterprise which employs fewer than 10 persons, respectively 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million, respectively EUR 10 million (Commission of the European Communities, 2003, p. 39).

Table 1: Definition, measurements and descriptive statistics of variables

Variable name	Definition	Mean	Stand. Dev.	Median	Observations
<i>Credit rationing</i>	Dummy with value 1, if a loan was denied or supplied at a smaller amount than requested, otherwise 0	0.5211	0.501	1	142
<i>Firm characteristics</i>					
Employees	Number of employees	4.37	13.42	2	226
Turnover	Turnover per year in thousand EUR	363.8	987.27	108	186
Industry	Dummy with value 1, if the firm belongs to the retail, hotel and restaurant industries, otherwise 0	0.397	0.490	0	214
Ethnic minority	Dummy with value 1, if the entrepreneur belongs to an ethnic minority, otherwise 0	0.526	0.5004	1	232
West	Dummy with value 1, if the firm is located in West Germany, otherwise 0	0.606	0.4896	1	221
Incorporated	Dummy with value 1, if the firm is incorporated, otherwise 0	0.084	0.278	0	226
<i>Personal characteristics</i>					
Marital status	Dummy with value 1, if the entrepreneur is married, otherwise 0	0.6896	0.4636	1	232
School attendance	Number of years the entrepreneur went to school	11.805	2.63	12	208
Working hours	Number of hours the entrepreneur usually works per day	9.93	2.57	10	220
Income	Income per year of the entrepreneur's household in thousand EUR	41.7	65.4	30.0	167
<i>Business financing</i>					
Duration of bank relationship	Duration of the bank relationship in years	14.25	11.13	11.5	212
Investment volume	Set of dummies indicating whether the amount of investment in the year of start-up was (1) less than 10,000 EUR (2) from 10,000 up to 25,000 EUR (3) more than 25,000 EUR	0.392 0.273 0.335	0.489 0.446 0.4729	0 0 0	227 227 227
Loan maturity	Maturity of the loan in years	7.99	5.12	8	79

Loan volume	Set of dummies indicating whether the loan amounts to: (1) less than 10,000 EUR (2) from 10,000 up to 50,000 EUR (3) more than 50,000 up to 100,000 EUR (4) more than 100,000 up to 250,000 EUR (5) more than 250,000 up to 500,000 EUR (6) more than 500,000 EUR	0.303 0.394 0.182 0.061 0.040 0.020	0.462 0.491 0.388 0.240 0.198 0.141	0 0 0 0 0 0	99 99 99 99 99 99
Housebank	Set of dummies indicating whether the housebank is a (1) savings bank (2) private bank (3) cooperative bank	0.438 0.305 0.257	0.497 0.461 0.438	0 0 0	210 210 210
Number of lending relationships	Number of loans used for the business	0.819	0.683	1	133
Multiple lending relationships	Dummy with value 1, if the firm uses more than 1 lender, otherwise 0	0.113	0.317	0	133
Collateral volume	Amount of collateral relative to the amount of the loan	65.5	52.3	60	59
Kind of collateral	Set of dummies indicating which kind collateral was provided: (1) mortgage (2) personal loan guarantee (3) transfer of property by way of security (4) assignment of claim (5) pledging	0.116 0.133 0.112 0.030 0.025	0.321 0.341 0.316 0.171 0.159	0 0 0 0 0	232 232 232 232 232
Source of equity	Dummies indicating where the equity capital for the start up came from: (1) own savings (2) family and friends (3) institutional investors	0.776 0.377 0.107	0.417 0.485 0.310	1 0 0	233 233 233

Start-up finance	Set of dummies indicating whether the start-up was financed by:					
	(1) equity capital	0.643	0.479	1	233	
	(2) bank loan	0.356	0.479	0	233	
	(3) loan from family and friends	0.274	0.447	0	233	
	(4) public subsidies	0.197	0.398	0	233	
Reasons for credit rationing	Set of dummies indicating whether a loan was not obtained because of					
	(1) missing documents	0.008	0.092	0	233	
	(2) communication problems	0.034	0.182	0	233	
	(3) insufficient equity capital	0.098	0.2989	0	233	
	(4) insufficient collateral for a loan	0.201	0.4021	0	233	
	(5) own nationality	0.021	0.1452	0	233	

Table 2: Overview of hypotheses and expected signs of differences in the means

Hypotheses	Variable	Expected sign of difference ethnic minority - German
H1 Ethnic entrepreneurs are more likely to be credit rationed than native entrepreneurs.		
- They are more likely to be denied credit or obtain smaller loans than requested.	Credit rationing Loan volume	+
- They lack collateral.	Start-up finance: bank loan (Kind of) collateral	-
- They have to make larger investments of own savings and larger reinvestments of profits.	Source of equity: own savings Working hours	+
- They borrow more money from family members and friends.	Source of equity: family and friends Start-up finance: loan from family and friends	+
H2 Lack of financial capital restrains ethnic entrepreneurship.		
- Ethnic minorities are less likely to be self-employed.	(see literature review)	
- Ethnic minority owned firms are smaller.	Employees Turnover	-
- Ethnic minorities are less likely to be active in capital-intensive industries than natives.	Industry: retail, hotel and restaurant	+

Table 3: Results of the mean difference tests

Variable	Means of variables		Difference ethnic minority – German (t-test)
	Ethnic minority	German	
Credit rationing	0.58	0.39	+**
Employees	3.93	4.84	-
Turnover	375.6	342.4	+
Industry: retail, hotel and restaurant	0.41	0.38	+
West	0.594	0.618	
School attendance	12.29	11.35	+***
Working hours	9.931	9.932	
Income	50.3	32.3	+**
Duration of bank relationship	11.56	17.12	-.***
Investment volume (classified from 1-5)	2.147	2.16	-
Loan maturity	7.32	8.666	-
Loan volume (classified from 1-6)	2.10	2.255	-
Housebank			
(1) savings bank	0.366	0.469	-.*
(2) private bank	0.376	0.239	+**
(3) cooperative bank	0.258	0.292	-
Number of lending relationships	0.921	0.750	+*
Multiple lending relationships	0.137	0.118	+
Collateral volume	63.3	65.5	-
Kind of collateral:			
(1) mortgage	0.07	0.17	-.***
(2) personal loan guarantee	0.10	0.17	-.*
(3) transfer of property by way of security	0.06	0.18	-.***
(4) assignment of claim	0.01	0.06	-.**
(5) pledging	0.02	0.02	
Source of equity:			
(1) own savings	0.75	0.83	-.*
(2) family and friends	0.43	0.33	+*
(3) institutional investors	0.13	0.07	+*
Start-up finance:			
(1) equity capital	0.62	0.67	-
(2) bank loan	0.26	0.45	-.***
(3) loan from family and friends	0.32	0.23	+*
(4) public subsidies	0.16	0.24	-.*
Reasons for credit rationing:			
(1) missing documents	0.02	0.00	+*
(2) communication problems	0.06	0.01	+**
(3) insufficient equity capital	0.12	0.73	-.*
(4) insufficient collateral for a loan	0.23	0.17	+
(5) own nationality	0.04	0.00	+**

*** Significant at 1% level, ** significant at 5% level, * significant at 10% level

In line with hypothesis H1, ethnic entrepreneurs are significantly more likely to be credit rationed than natives. 58% of the migrants, but only 39% of the Germans experienced a loan denial or obtained a smaller loan amount than requested. The difference in the probabilities of start up financing by bank loans is significantly negative as expected. 45% of the natives, but only 26% of the ethnic minority start ups obtained bank loans. When asked for the reasons of problems with credit access, ethnic entrepreneurs significantly more often indicate missing documents, communication problems and (trivially) nationality.

The amount of collateral relative to the amount of loan obtained does not differ significantly between both groups. However, native entrepreneurs provide significantly more often collateral in the form of mortgages, personal loan guarantees, transfers of property by way of security, and assignment of claims. This indicates a lower availability of collateral at minority owned businesses. Native entrepreneurs are also more likely to have own savings, which they invest as equity capital into their business. Therefore, ethnic entrepreneurs have to borrow more money (equity and debt) from family members and friends and they more often obtain external equity from institutional investors than native entrepreneurs. This may be a further support for the credit rationing hypothesis, given that external equity capital is the last resort of finance according to the pecking order theory. Minority owned businesses are significantly less likely to overcome financial restrictions by public subsidies to their start-ups. This may again indicate lack of information or communication problems.

Hypothesis H2 that insufficient financial capital restrains ethnic entrepreneurship cannot be supported by our data. The size of the firm measured by the number of employees or turnover does not differ significantly between ethnic and native entrepreneurs. Ethnic minorities have a higher probability of being active in the low capital intensive retail, hotel and restaurant industries, but the difference to native entrepreneurs is not significant. Also the activities in other sectors do not differ significantly between both groups. The financial restrictions may not be binding because they are compensated by help from family members and friends as well as by own efforts. With a significantly higher household income, the ethnic entrepreneurs in our sample seem to be more successful than their native counterparts.

5. Multivariate results

We use multivariate analyses to test whether credit rationing depends on the entrepreneur's origin after controlling for established economic risk factors and financing variables. The dependent variable 'credit rationing' is a binary (0/1) variable indicating the probability that a loan is denied or supplied at a smaller amount than requested. We employ both logit and

probit estimations used in the literature to test the robustness of our results. As independent variables we use measures of firm-specific risks, personal characteristics of the entrepreneur and financing sources and relationships. The correlation matrix of regressors is shown in table 5 (see appendix). Multicollinearity does not seem to be a problem.

Firm size (measured by the number of employees and turnover), industry and legal form are proxies for credit risk and information opaqueness commonly used in the literature.¹⁴ Large firms tend to be less risky and less opaque than smaller firms. Industries with low sunk costs, high intangible assets or high technological change tend to be more risky than other sectors. Incorporated firms are likely to be riskier because of limited liability, but less opaque than unincorporated firms. Moreover, we include the variable ‘West’, which indicates whether the firm is located in West Germany. Lending to East German firms tends to be riskier than lending to West German firms due to a gap in economic development between both regions (Lehmann/Neuberger/Räthke 2004).

As measures of risk related to the entrepreneur, we include marital status, school attendance and working hours. We expect that credit risk is lower if the entrepreneur is married, is qualified through human capital accumulation at school and makes personal investments by longer working hours. However, more qualified individuals may have higher capital demand and thus a higher probability of running into credit constraints (Fraser 2007, p. 175).

Financing variables which are likely to affect credit risk and information opacity are the duration of the bank relationship, housebank relationship, concentration of lending relationships, investment volume, loan maturity and loan volume. A long duration of the bank-customer relationship, a close housebank relationship and an exclusive lending relationship are common proxies for relationship lending with gathering of soft information about the borrower. Credit rationing is likely to be lower, if the bank-customer relationship has a long history and if borrowing is concentrated at a single lender. To examine the influence of lender concentration, we use the dummy variable ‘multiple lending relationships’, which takes the value 1, if the firm maintains more than one lending relationship. We expect that this variable exerts a positive influence on the probability of credit rationing. The variable housebank indicates to which banking group (savings banks, private banks, cooperative banks) the firm’s housebank belongs. In Germany, most of the SMEs are financed by public savings banks and cooperative banks, which are small regional banks specializing on relationship lending with the provision of long-term fixed-rate loans to

¹⁴ Fraser (2007), Blanchflower/Levine/Zimmerman (2003), Cavalluzo/Cavalluzo/Wolken (2002), Elsas/Krahen (1998), Harhoff/Körting (1998), Lehmann/Neuberger/Räthke (2004), Lehmann/Neuberger (2001).

micro and small firms. We expect that firms whose housebank is a savings bank or cooperative bank are less likely to be affected by credit constraints than firms which obtain most of their finance from a big private bank. Finally, we expect that a larger amount of investment or loan as proxies for loan demand and a longer loan maturity as proxy for credit risk increase the probability of credit constraints.

The results of the logit and probit estimations are reported in table 4. To examine the influence of ethnicity combined with different economic risk factors on the probability of credit rationing, we perform five specifications. Beyond the ethnic minority variable, models I and II include different sets of the firm-specific variables, model III includes the proxies for personal characteristics of the entrepreneur, and models IV and V include different sets of the financing variables.

Consistent with our expectations and previous evidence (Lehmann/Neuberger/Räthke 2004), West German enterprises are significantly less likely to be affected by credit constraints than enterprises located in East Germany. Differences in this regional risk seem to be more important than risk differentials arising from other characteristics of the firm and its owner. These do not play a role in explaining differences in credit constraints among the micro enterprises in our sample. Business financing variables, however, have larger explanatory power. Among them, proxies for relationship lending exert a significant influence: A longer duration of the bank-customer relationship reduces the probability of credit rationing. Firms which use a cooperative bank or savings bank as housebank have a significantly lower probability of being credit rationed than firms which obtain most of their finance from a private bank. Multiple lending relationships significantly increase the probability of rationing, as expected. This is consistent with the hypothesis that housebank relationships with small, regional banks and long-term or concentrated lending relationships help to reduce credit rationing resulting from asymmetric information.

Controlling for observed risk factors and financial relationships involves a significant reduction of observations. Keeping this in mind, we find that ethnic origin plays no role in explaining differences in credit constraints. Thus, we do not find evidence for prejudicial discrimination. The higher probability of credit rationing for ethnic entrepreneurs can rather be explained by differences in the duration and concentration of lending relationships and the type of housebank used. Entrepreneurs with a migration background have significantly shorter and more lending relationships than native entrepreneurs, and they more often use a private

Table 4: Regression results (Logit and Probit regressions)

Dependent variable: credit rationing (probability that a loan was denied or supplied at a smaller amount than requested)

	Logit I N = 102	Logit II N = 86	Logit III N = 109	Logit IV N = 45	Logit V N = 47	Probit I N = 102	Probit II N = 86	Probit III N = 109	Probit IV N = 45	Probit V N = 47
Number of Obs.										
Constant	0.4016 (0.84)	0.2159 (0.42)	-0.8969 (-0.70)	2.152 (1.07)	1.831 (1.12)	0.2415 (0.81)	0.1271 (0.40)	-0.5628 (-0.70)	1.169 (1.06)	1.038 (1.10)
Independent variables										
Firm characteristics										
Employees	-0.0146 (-0.58)					-0.0094 (-0.59)				
Turnover		0.0003 (1.49)					0.0001 (1.55)			
Industry	0.2271 (0.53)	0.1624 (0.35)				0.1463 (0.56)	0.1061 (0.37)			
Ethnic minority	0.3604 (0.85)	0.4574 (0.99)	0.5579 (1.39)	-0.489 (-0.44)	-0.340 (-0.37)	0.2223 (0.86)	0.2828 (1.00)	0.3489 (1.39)	-0.213 (-0.39)	-0.198 (-0.40)
West	-1.2042 (-2.64)***	-1.1230 (-2.22)**				-0.7454 (-2.70)***	-0.6951 (-2.25)**			
Incorporated	0.2087 (0.29)	0.0821 (0.09)				0.1270 (0.29)	0.0511 (0.09)			
Personal characteristics										
Marital status			-0.1064 (-0.25)					-0.0642 (-0.24)		
School attendance			0.0065 (0.08)					0.0039 (0.08)		
Working hours			0.0400 (0.51)					0.0252 (0.52)		
Business Financing										
Duration of bank relation				-0.0993 (-1.77)*	-0.096 (-1.59)				-0.0577 (-1.89)*	-0.056 (-1.80)*

Investment volume																							
(1) less than 10,000 EUR																					-0.840 (-1.07)		
(2) from 10,000 up to 25,000 EUR																					-0.210 (-0.31)		
(3) more than 25,000 EUR																					-0.0434 (-0.75)		
Loan maturity																					-0.0367 (-0.71)		
(1) less than 10,000 EUR																						-0.942 (-1.58)	
(2) 10,000 up to 50,000 EUR																						-0.232 (-0.36)	
(3) more than 50,000 EUR																							
Housebank																							
(1) savings bank																							-1.085 (-1.61)
(2) private bank																							-1.911 (-2.58)***
(3) cooperative bank																							-1.677 (-2.21)**
Multiple lending relationships																							1.785 (2.57)***
Pseudo R ²	0.072	0.073	0.017	0.309	0.324	0.072	0.073	0.017	0.318	0.334	0.072	0.073	0.017	0.318	0.334	0.072	0.073	0.017	0.318	0.334	0.072	0.073	0.017

*** Significant at 1% level, ** significant at 5% level, * significant at 10% level

bank as housebank (see table 3). This may be due to a shorter stay in Germany or to lack of information about relationship lending services of small, regional banks. When requesting a loan, immigrants seem to turn first to big private banks, which have a worldwide reputation.

6. Conclusion

The present paper investigated whether and why businesses established by ethnic minorities face or may face larger financial constraints than those established by natives. It reviewed the theory of small business finance based on the pecking order and credit rationing theories to derive testable hypotheses on differences in credit rationing and entrepreneurial activities between ethnic minority and native entrepreneurs. A review of the empirical literature showed that financial exclusion and credit rationing are serious problems for ethnic minority businesses, in particular black-owned businesses, in the United States. Differential treatment in credit markets does not only seem to be based on economic grounds, but also on prejudicial discrimination. It explains a self employment gap between natives and ethnic minorities. In the UK, however, large differences in financial outcomes and entrepreneurial activities amongst ethnic minority and native owned businesses have been explained by differences in economic risk factors, without a significant role for ethnicity. Also for Germany, previous evidence shows that ethnic minorities are disadvantaged in the credit market, and are therefore more likely to be active in low capital intensive industries than natives. In contrast to the evidence for the US and UK, however, it is only based on descriptive statistics, while multivariate analyses are missing so far.

The present paper made a first attempt to close this gap. Using data obtained from a nationwide survey among 3,000 entrepreneurs with origin from nine ethnic minority countries (France, Greece, Italy, Poland, Russia, Spain, Turkey, Vietnam, former Yugoslavia) and Germany, we tested whether (1) ethnic entrepreneurs are more likely to be credit rationed than native entrepreneurs, (2) lack of financial capital restrains ethnic entrepreneurship, and (3) credit rationing depends on ethnic origin. Univariate analyses of the differences in the financing patterns showed that the first hypothesis cannot be rejected. Ethnic minorities are significantly more likely to be denied credit or obtain smaller loans than requested, are less likely to finance their start up by bank loans and have to borrow more money from family members and friends than native entrepreneurs. The second hypothesis, however, cannot be supported by our data. Ethnic minority owned businesses are neither significantly smaller nor more likely to be active in industries with low entry barriers than natives. To test the third hypothesis, we examined the influence of economic risk factors, financial relationships and

ethnicity on the probability of being credit rationed using logit and probit estimations. We found that differences in credit rationing can be explained by the location of the firm and bank-firm relationships. Firms established in East Germany are significantly more likely to face credit restrictions than West German firms. The probability of credit rationing is reduced by relationship lending through small, regional banks and long-term or exclusive housebank relationships. Having controlled for observed risk factors and financial relationships, we find that the entrepreneur's ethnic origin plays no role in explaining differences in credit constraints.

Our results correspond by and large to those of a comprehensive study on SME finance in the UK (Fraser 2007), even if both studies are not directly comparable. The present study is based on a much smaller data set, which does not allow us to differentiate between different ethnic groups and to examine the influence of a broader set of potential risk factors. Since data about ethnic minority businesses in Germany is not publicly available, we had to choose the addresses of the interviewees from the yellow pages, using a phonetic analysis to identify an entrepreneur with a migration background. This sample selection may be faulty and biased. Therefore, we have to be cautious with interpreting our results. Nevertheless, we may tentatively conclude that racial discrimination in the credit market does not seem to be a problem for ethnic entrepreneurs in Germany. The significant differences in credit constraints can be explained by differences in the duration and concentration of lending relationships and the housebank used. Moreover, entrepreneurs with a migration background have less own equity capital and assets that can be pledged as collateral. Finally, communication problems and lack of information about possible sources of external finance, relationship lending services of local banks and public subsidies seem to play a role. Better communications between financial institutions and ethnic minority businesses may help to reduce the financing gap vis-à-vis native entrepreneurs. To draw more robust conclusions, more research in this area is needed.

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Appendix

Table 5: Correlation matrix of regressors (N=30)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Credit rationing	1.000															
2 Employees	-0.020	1.000														
3 Industry	0.191	-0.123	1.000													
4 Ethnic minority	0.000	0.136	-0.134	1.000												
5 West	-0.213	0.068	-0.189	-0.141	1.000											
6 Turnover	-0.117	0.359	0.158	0.182	0.182	1.000										
7 Incorporated	-0.161	0.184	0.018	0.000	0.189	0.543	1.000									
8 Duration of bank relation	-0.213	0.147	-0.024	-0.299	0.365	0.197	0.287	1.000								
9 Loan maturity	0.157	-0.196	0.213	-0.315	-0.575	-0.282	-0.176	-0.226	1.000							
10 Loan volume (1)	-0.230	-0.109	-0.175	0.218	0.154	-0.323	-0.175	-0.068	-0.026	1.000						
11 Loan volume (2)	0.123	-0.315	0.055	-0.136	0.000	0.037	-0.218	-0.018	-0.023	-0.535	1.000					
12 Loan volume (3)	0.099	0.446	0.117	-0.073	-0.154	0.284	0.408	0.088	0.051	-0.429	-0.535	1.000				
13 Housebank: savings bank	-0.151	-0.086	0.401	-0.600	0.283	-0.174	0.000	0.279	0.007	-0.073	0.000	0.073	1.000			
14 Housebank: cooperative bank	-0.155	0.123	-0.358	0.394	0.056	0.200	-0.147	-0.179	-0.339	0.155	0.032	-0.189	-0.552	1.000		
15 Number of lending relationships	0.061	-0.127	-0.109	0.000	0.082	0.029	-0.031	0.060	-0.028	-0.076	0.142	-0.076	0.000	0.211	1.000	
16 Multiple lending relationship	0.264	-0.162	0.200	-0.000	-0.1768	-0.080	-0.133	-0.066	0.196	-0.146	0.272	-0.146	-0.000	0.118	0.814	1.000