

# Weekly Report

## Do Internet Credit Markets Improve Access to Credit for Female Business Owners?

*Business owners and founders are a minority of any bank's business clients. Scientific studies of traditional credit markets often show a lower probability of loan approval or higher loan costs for female business owners compared to male business owners. With this background the question arises whether female business owners have to struggle with this problem less on Internet credit markets.*

*In this current study, DIW Berlin investigated business loans on the largest German Internet platform, smava. smava connects private individuals who wish to take on installment loan at a fixed interest rate or wish to lend money. The findings show that female borrowers are positioned at least as well as their male counterparts on smava. If all other loan and borrower-specific characteristics remain the same, then the loan requests of female business owners have even better prospects for success than loan requests from men. There are indications that this result is not platform-specific, but also applies to other innovative credit markets.*

The term Internet-credit markets (also known as Peer-to-Peer- or P2P-credit platforms) stands for Internet-based networks that serve to arrange loans between parties seeking loans and investors (peers) without the intermediation of traditional financial institutions.<sup>1</sup> Individuals who are looking for loans, can post their loan requests on the Internet sites. They indicate, among other things, the requested credit amount and the interest rate they are willing to pay. Capital investors can lend an amount in response. Thanks to Internet-credit platforms, borrowers have the opportunity to take out loans, where traditional credit institutions would either deny the request completely or only offer the loan at very unfavorable conditions. The investors at Internet-credit markets are, on the contrary, motivated to lend their money because they see an attractive investment in it and also can determine the purpose for which their capital will be used.

The first commercial Internet-credit market Zopa was founded in Great Britain in 2005. Since then, dozens of platforms have cropped up worldwide. The volume of Internet-credit markets compared to traditional credit business is still quite small. Nevertheless, the significance of these credit markets as future competitors for the

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<sup>1</sup> This weekly report from DIW Berlin is not to be considered an introduction to investing money in Internet credit markets.

traditional credit market is not to be overlooked. Depending on the country, these platforms are being used by hundreds to hundreds of thousands of members. The total volume of outstanding Internet loans worldwide is estimated at one billion dollars.<sup>2</sup> The phenomenon is increasingly drawing the attention of the general public, the financial industry and policy makers.<sup>3</sup>

The best-known Internet credit markets in Germany are the providers, auxmoney and smava, whose total volume for credits arranged in March 2010 was 33 million Euros.<sup>4</sup>

The spectrum of business models for existing platforms is very broad and extends from universal platforms that arrange loans with the motive of earning a profit to non-profit-oriented providers of micro-finance for very small business owners to special financiers, for example, for students.<sup>5</sup> The majority of credits arranged are for consumer purposes such as the procurement of consumable goods or for equipment and furnishings. However, these platforms are also relevant for businesses. A substantial part of the loans are taken out by companies and business owners.

### Do Female Business Owners have an Advantage in Internet Credit Markets?

As a rule, female business owners and founders are a minority of any bank's business customers. Scientific studies show that female business owners often have a lower probability of loan approval or receive higher loan costs than their male counterparts.<sup>6</sup> The investigations show that banks demand higher interest or more collateral from women than from men although no differences are detectable in the factors determining credit conditions such as estimated risk of default. With this background, the question arises whether female business owners who search for lenders on the Internet credit markets are less confronted with this problem. Is a business woman's chance of obtaining credit better

or worse than a business man's on these innovative credit markets?

The question is not an easy one to answer: on the one hand, the specific awarding mechanism on these markets could be fostering the equal treatment of male and female borrowers. Especially the fact that the borrowers set the conditions themselves and that there is a multitude of lenders for each credit request increases the chances that demand will meet with a corresponding offer.

On the other hand, lenders on Internet credit markets can decide on the basis of any criteria to whom and at what price they want to lend their money. This can lead to discrimination against certain groups of borrowers by lenders. Which factors have the dominant influence is difficult to discern. Another problematic aspect of comparison is that different marketplaces use different business models. Consequently, the interaction of these two factors can turn out differently in individual cases.

In order to answer the question about the relative chances of financing for men and women on innovative credit markets, the first step would be to study a specific Internet credit platform. The analyses and findings presented here refer to the volume of loans awarded by the largest German Internet credit market, smava.

### Rapid Growth at smava

The German Internet platform for awarding credit, smava, has been arranging credit since March 2007. The platform connects persons who want to take out a loan at a fixed interest rate or wish to make money available. The maximum amount of loan allowed is 50,000 Euro and can be taken on a period of 36 or 60 months.<sup>7</sup>

Since the platform was founded, a total of 3,602 credits with a total volume of around 26 million Euros have been arranged. At the end of March 2010, the 3,402 borrowers and 5,671 lenders have been active on the platform.

Business loans are a significant portion of the credit volume. Between March 2007 and March 2010, a total of 777 loan requests were submitted for various business purposes.<sup>8</sup> If a request receives less than 25 percent of the desired loan amount within 14

<sup>2</sup> German Bundestag: small poll on the topic "Private credit awarding in the internet", Publication 17/1832.

<sup>3</sup> See for example Deutsche Bank Research: Innovations in P2P Lending May Put Computers Over People. November 2009; BaFin Journal: "Kreditauctionen" im Internet und die Bankerlaubnispflicht. May 2007.

<sup>4</sup> C.f. also the press release from auxmoney from March 29th, 2010.

<sup>5</sup> A good overview of the types of platforms can be found in Lochmaier, L.: Die Bank sind wir. Hannover 2010.

<sup>6</sup> See for example Alesina, A., Lotti, F., Mistrulli, P. E.: Do Women Pay More for Credit? Evidence from Italy. Working Paper, January 2009; Muravyev, A., Talavera, O., Schäfer, D.: Entrepreneurs' Gender and Financial Constraints: Evidence from International Data. Journal of Comparative Economics, Vol. 37(2), 2009.

<sup>7</sup> The conditions changed over time: prior to March 2010, the permitted upper credit limit was 25,000 Euro; prior to June 2008 loans were arranged with a period of only 36 months.

<sup>8</sup> Requests that were withdrawn were not counted.

Table 1

**Distribution of Credit Requests by Success**  
In Percent

	All credit requests <sup>1</sup>	from men	from women
Not financed	7.6	7.9	6.3
At least 25 percent but less than as 100 percent financed	5.5	5.7	5.0
Completely financed	86.9	86.4	88.7

<sup>1</sup> Requests for business credits between March 2007 and March 2010. Source: smava; calculations by DIW Berlin.

Quellen: smava; Berechnungen des DIW Berlin. [DIW Berlin 2010](#)

Women were more successful than men by more than 2 percentage points.

days, this automatically leads to termination of the request and the return of the already approved funds to the investors. 675 loan requests were completely funded (86.9 percent). Another 43 credits (5.5 percent) exceeded the 25 percent threshold and were partially financed.

59 (7.9 percent) requests remained below the 25 percent threshold and were thus unsuccessful. Women were more successful than men (Table 1).

The total value of business loans arranged amounted to approximately 8.5 million Euros. The sum com-

prised 32 percent of the total loan volume of the platform. The average business loan came to 12,000 Euro. The average nominal interest rate was 9.4 percent per annum.

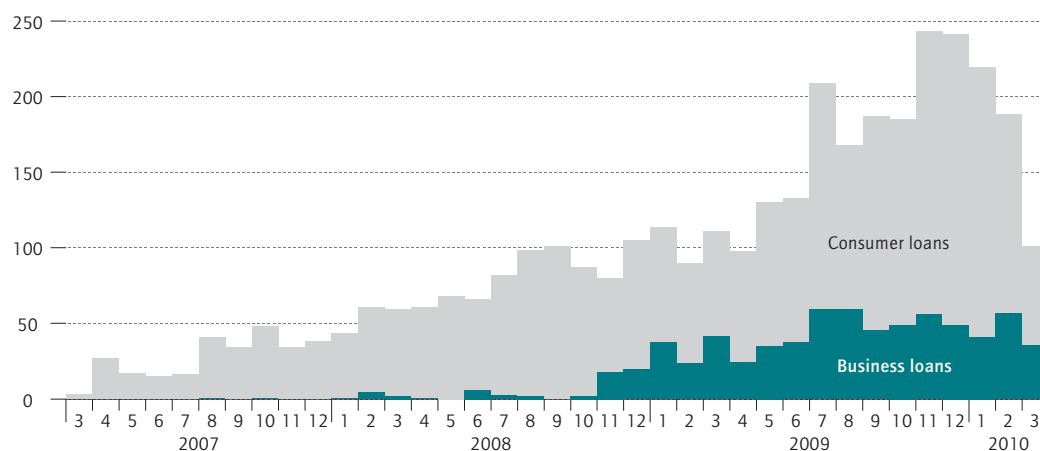
The demand for business loans varies over time (Illustration 1). In the first 20 months of the platform’s business operations, demand for business credit in comparison with consumer credit was rather small: on average, only two new credit requests were submitted per month. Since November 2008, the number increased considerably and came to an average of 44 requests per month. The rapid increase is primarily attributable to two events. First, in October 2008, smava received the best grade among German Internet credit markets from the German magazine Finanztest, which significantly increased the popularity of the platform.<sup>9</sup> Second, the drastic worsening of the situation on the capital markets in association with the bankruptcy of the US investment bank Lehman Brothers in September 2008 caused businesses to intensify their search for alternative sources of financing. Additionally, the introduction of loan awards with five-year periods on the platform in summer of 2008 played a positive role. Such middle-term loans are generally more attractive for business than loans with a three-year period.<sup>10</sup>

<sup>9</sup> Finanztest: Die Bank sind Sie. Issue 11/2008.

<sup>10</sup> 80 percent of the business loans on the the platform have a period of five years. In consumer loans the share of five-year loans is only 54 percent.

Figure 1

**Number of New Credit Requests Per Month at smava**



Source: smava; calculations by DIW Berlin.

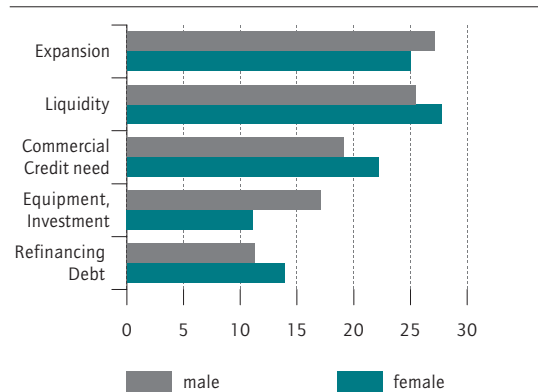
[DIW Berlin 2010](#)

Rapid Growth: smava is the largest credit platform in Germany. Business loans have played a role only since the financial crisis.

Figure 2

### Distribution of Business Credits by Gender of Borrower

In Percent



Source: smava; calculations by DIW Berlin. [DIW Berlin 2010](#)

*Business credits are used by women for other business purposes than by men at smava*

Depending on their purposes, business loans can be divided into five groups.<sup>11</sup> Most frequently, loans are taken out for bridge financing and for business expansion (Illustration 2). Together, these groups make up half of all business loans. Female business owners use Internet loans to secure liquidity somewhat more frequently than their male counterparts. Loans for expanding the existing business were more frequently taken on by men.

The third largest group (with around 20 percent) requests loans to secure commercial credit needs. Here, too, the difference between men and women is small and amounts to three percentage points in favor of women. Investment credits are sought primarily by persons who are looking for start-up capital in order to become independent. In this form of credit there is a large difference between the sexes. Credits of this type make up 17 percent of all business credits [loans] to men and only eleven percent of all those to women. The smallest group are loans that are used to refinance debt. Refinancing loans amounts to a share of 11 percent of business loans to men and 14 percent to women.

### Who are the Borrowers for Business Loans?

Between March 2007 and March 2010, a total of 687 persons applied for business loans with smava,<sup>12</sup>

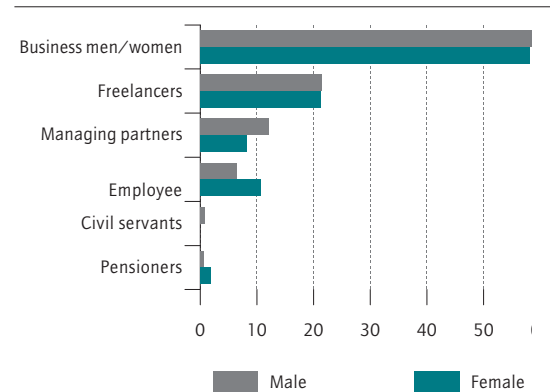
<sup>11</sup> The purpose of the credit [loan] is given by the borrower voluntarily and is not checked for accuracy.

<sup>12</sup> Each applicant can submit multiple credit requests on the platform

Figure 3

### Distribution of Credit Requests by Employment Status of Borrower

In Percent



Source: smava; calculations by DIW Berlin. [DIW Berlin 2010](#)

*Primarily business owners request credit with smava.*

among them 545 men (79 percent) and 142 women (21 percent). The age of applicants lies between 21 and 76 years and averages 44 years.

In reference to employment status, businessmen/women make up by far the largest group (Illustration 3). In this group, the proportion of male and female applicants is similar: 59 and 58 percent respectively.

The second largest group with approximately 21 percent each is freelancers. The third largest group is made up of managing partners. The proportion of persons with this employment status amounts to 12 percent of men and 8 percent of women. A slightly smaller group is made up of employees and workers who apparently want to use loans to start operating independently. The share of permanently employed [salaried] women and men among the persons requesting credit comes to 11 and 6 percent respectively. The smaller group with around 2 percent each are pensioners and civil servants.

Admittedly, data on the level of income or size of business are not publicly accessible. It is, however, to be expected that it is primarily small businesses that draw on this form of financing, since the highest loan amount that can be approved is 50,000 Euro.

and also accept multiple loans. For this reason, the number of credit requests can be higher than the number of applicants.

### Are Chances of Credit Approval Dependent on Gender?

To answer the questions about the different chances of credit access between men and women, the probability of success of a loan request has been examined in relation to the gender of the borrower. All available factors relevant to the loan and the borrower are taken into account here. This excludes the possibility that the correlation between factors in successfully obtaining a loan and the borrower's gender will be distorted.

For example, the creditworthiness of each borrower has to be taken into account, since the risks among the borrowers are different. Groups of borrowers with tendencies toward higher risk are either avoided by lenders or must reckon with paying higher costs. Known risk factors for the success of the request are accounted for using a multi-variable regression analysis.<sup>13</sup> Along with the gender, two groups of influential factors are included in the analysis and their effect on the probability of success of a credit request is estimated:

- Borrower-specific characteristics such as age, employment, residence and creditworthiness based on the Schufa-class [German Credit Bureau rating] – and the borrower's ability to service loans/debts.<sup>14</sup>
- Loan-specific factors such as the requested loan amount, interest rate, period and purpose of loan.

Tabelle 2

#### Characteristics of Credit Requests

	Example 1	Example 2
Interest rate offered	10 percent	–
Requested loan amount	–	12 000 Euro
Duration	36 months	36 months
Purpose of loan	liquidity	liquidity
Age of borrower	35	35
Employment status	Businessman	Businessman
Credit rating	D	D
Debt servicing load	20–40 percent	20–40 percent

Source: calculations by DIW Berlin.

DIW Berlin 2010

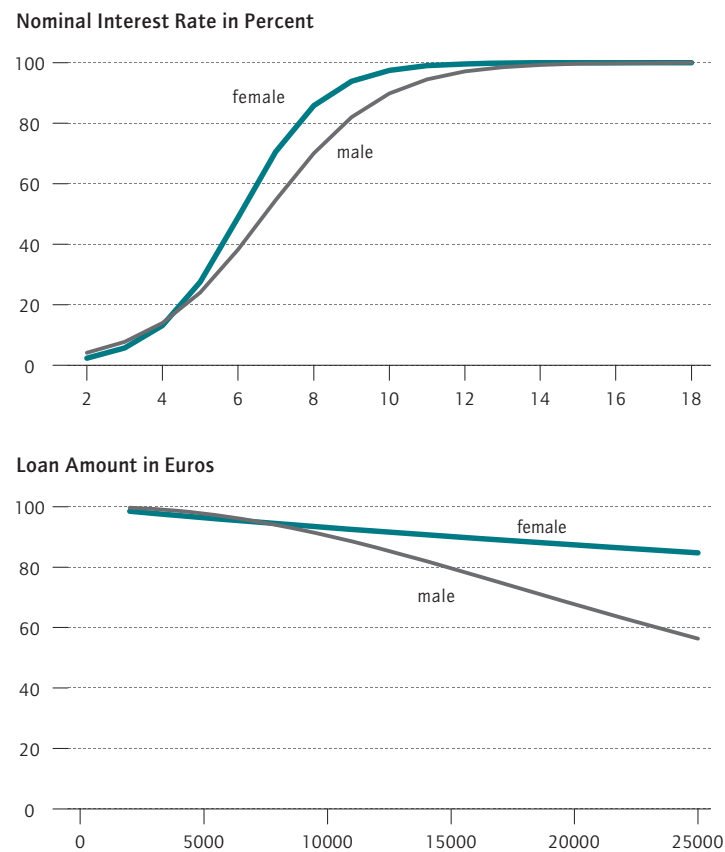
<sup>13</sup> The basis for regression analysis is provided by a multi-variable probit model. The variable to be explained is the probability that a loan request will be financed.

<sup>14</sup> The ability to service loans/debts is determined for each person seeking a loan on the platform on the basis of proof of income. The amount of debt servicing is expressed in an indicator "debt servicing load". This indicator shows the lenders the amount of available net income that a borrower needs to service all outstanding loans and lease payments including the addition of the smava-loan.

Figure 4

### Estimated Probability of Success by Interest Rate, Credit Amount and Gender of Borrower

In Percent



Source: smava; calculations by DIW Berlin.

DIW Berlin 2010

At very high or very low interest rates and at very small loan amounts, men and women have the same chances of obtaining a loan.

The data are obtained from the platform's publicly accessible websites.<sup>15</sup> They are visible for all users.

The results of the estimate show that the gender of the borrower has a significant influence on the probability of success of a loan request even if other important influencing factors are taken into account.

Specifically, women have at least as high a probability of obtaining a loan as men across all Schufa-classes. How high this probability turns out in the individual case depends on concrete characteristics of the credit and the borrower. The interest rate and the amount of the requested loan play an important

<sup>15</sup> Included in the analysis were all loan requests that are reported in the loan project archive on the smava platform.

role in this. This is shown by two examples. The probability was calculated in each case for a credit request that has the traits named in Table 2.

As expected, the probability of success increases if borrowers offer a higher interest rate (Illustration 4). The probability of success for a request is higher for a woman than for a man for all interest rates between 4 and 15 percent. The distance between the curves increases between 4 and 9 percent and then decreases. This means that both sexes have equally high or equally low chances of obtaining a loan at very low and very high interest rates. The gap is largest at interest rates near 9 percent, that is the interest at which about half of the loans are awarded.

The second example refers to the influence of the requested loan amount. The estimated probability that a requested amount would be financed at 100 percent is investigated, depending on the amount and the gender of the borrower. The estimate is based on amounts between 2,000 and 25,000 Euros. At the time of the analysis, no loans [credits] were being awarded above 25,000 Euros.

Apparently there is a negative correlation between the amount and the probability of financing.<sup>16</sup> The decreasing chance of success as a reaction to the increasing loan amount is more pronounced for men than for women. With smaller loan amounts, the two sexes have an equal probability of success. For higher loan amounts, however, women have better chances of success than men. The difference in chance of financing a credit request is therefore higher the larger the requested amount is.

In summary, it is maintained, that female business owners have the same chances as men or better chances of receiving the requested amount of credit on this platform.

There seems to be positive discrimination for women on this Internet credit market. There are different conceivable explanations for this. For example, the special credit-awarding mechanism could play a role; furthermore, women are generally shown more trust in micro-financing; finally women could be preferentially treated by female investors when awarding credit. The last possibility mentioned was reviewed. However, an assessment with any explanatory power was not possible due to the small number of cases with female investors.

<sup>16</sup> The negative correlation stems from two sources. First, the risk for the lender increases with the amount. Since these loans are unsecured, defaults on large loans bring larger losses. Second, since the individual lenders only invest small amounts in each loan, larger loans as a rule require more lenders than small loans.

Female investors comprise only 10 percent of all investors and there are no loans that were exclusively financed by women.

### Can the *smava* Results be Generalized?

Since the analysis is based only on data from one of the many platforms, the question arises, whether the results can be generalized. At this time, this cannot be directly checked. Additionally, the differences in client structure and business models make comparisons between the individual platforms more difficult. Nevertheless, there are initial indications that female borrowers are at least not placed at a disadvantage compared to male borrowers on the other platforms. A study from the United States indicated that female borrowers tend to be treated more favorably.<sup>17</sup> This result refers, admitted, to borrowers in general and not specifically to business owners.

### Conclusion

Internet credit markets are enjoying increasing popularity. In traditional credit markets it is often more difficult for female business owners to obtain loans than for male business owners. The opposite is the case in the largest German Internet credit market, *smava*, investigated here. The probability of obtaining a loan is higher there for female business owners than for male business owners. In the area of micro-financing, women tend to be shown more trust than men, since the chances of repayment are better with female borrowers. On the other hand, the awarding mechanism can also play a role. On credit platforms, several investors, as a rule, have to reach a positive decision in order for financing to be completed, while in banks the decision often depends on a single loan officer.

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<sup>17</sup> Pope, D. G., Syndor, J. R.: What's in a Picture? Evidence of Discrimination from Prosper.com. Appears in Journal of Human Resources.



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