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Stimulating managerial capital in emerging markets: the impact of business training for young entrepreneurs

Miriam Bruhn and Bilal Zia*

Finance and Private Sector Development Team of the Development Research Group, The World Bank, 1818 H Street NW, Washington, DC 20433, USA

Identifying the determinants of entrepreneurship is an important research and policy goal, especially in emerging market economies where lack of capital and supporting infrastructure often impose stringent constraints on business growth. This paper studies the impact of a comprehensive business and financial literacy programme on firm outcomes of young entrepreneurs in an emerging post-conflict economy, Bosnia and Herzegovina. The authors conduct a randomised control trial and find that, while the training programme did not influence business survival, it significantly improved business practices, investments and loan terms for surviving businesses. Female-run businesses further exhibited some improvements in business performance and sales.

Keywords: business training; financial literacy; entrepreneurship; business growth

1. Introduction

Much of the literature on the determinants of entrepreneurship and firm growth has focused on access to physical capital and external finance (for example, Banerjee et al. 2010; Bruhn and Love 2009; De Mel, McKenzie, and Woodruff 2008). However, a number of recent papers argue that ‘managerial capital’ or business skills are another important driver of firm growth and a key determinant of productivity (for example, Bloom et al. 2010; Bruhn, Karlan, and Schoar 2010).

This emerging academic interest to identify alternate determinants of firm growth has been accompanied by an equally strong policy interest in education programmes geared towards enhancing financial and business skills. Governments and private organisations alike are investing heavily in financial literacy programmes throughout the world.¹ Despite this attention, we are still in the initial stages of understanding what kinds of education programmes are effective and for whom.²

A number of recent rigorous impact evaluations of business and financial skills training in Peru, the Dominican Republic, Tanzania and Pakistan point to significant gender-differences in the effect of these programmes on business performance.³ These papers detect improvements in business knowledge or practices among both male and female entrepreneurs due to the training, but none of them find an impact on average profits or sales of female-run firms. We add to this literature by studying the impact of business and financial education on micro-entrepreneurs in Bosnia and Herzegovina and specifically explore gender differences along these dimensions.

*Corresponding author. Email: bzia@worldbank.org

Our paper focuses on young men and women who are business loan clients of our partner financial institution, Partner Microcredit Foundation (henceforth Partner), operating within and near the metropolitan city of Tuzla. Bosnia and Herzegovina are important location choices since they represent an emerging post-conflict economy, struggling with the burden of high youth unemployment and low business survival. In such a setting, the marginal value of a business and financial education programme is potentially very high. In addition, data from the World Bank's 2012 Women, Business and the Law report shows that Eastern Europe and Central Asia are the regions where women face the lowest number of legal differentiations on average (1.1, compared to 1.7 in Latin America, 6.3 in Sub-Saharan Africa, and 7.6 in South Asia – the regions covered in the previous impact evaluations). To the extent that this index of legal differentiations indicates greater possibilities and flexibility for women in running a business, business training may have a greater effect on the performance of female-run businesses in an environment where legal differentiation is low.

At the time of the baseline survey, approximately one-third of our sample did not own a business but had a business exploration loan with Partner. This sample feature enables us to study the effects of financial and business training not only on existing business owners, but also on potential entrepreneurs to identify impacts on business startup. We also utilise very detailed and high quality administrative loan data to study impacts on default rates and loan terms, in addition to analysing survey measures on business outcomes.

Our research design is a randomised control trial with 445 Partner loan clients, two-thirds of whom received an invitation to attend a comprehensive business and financial education programme run by a highly experienced and reputable training institute in the city. The remaining one-third of the sample is our control group. The randomisation was stratified by baseline financial literacy level, gender, industry and baseline profits.

Our analysis shows that the training programme led to significant improvements in basic financial knowledge for those who start out with low levels of financial literacy at baseline. However, we do not find any significant treatment effects on the extensive margin. Specifically, treatment businesses were no more likely to survive than control businesses in a period where 36 per cent of businesses were shut down by the time of the follow-up.⁴ In addition, we find no significant treatment effect on business start-up, with only one new business starting up during our study period. These results suggest that lack of business acumen is not the primary driver of business entry and survival, especially in a recession environment where other factors (such as lack of profitable opportunities or markets) pose potentially greater barriers.

While the extensive margin results are not significant, we identify positive treatment effects for businesses that remain operational during the study period. Our treatment group was 17 per cent more likely to implement new production processes than the control group, and 11 per cent more likely to invest savings into the business. These results are consistent with the central theme of the business training programme, which was to encourage capital investment among young businesses. Further, those invited to the business and financial training were significantly more likely to separate their business and personal accounts, which was also emphasised in the business training course.

In terms of business performance, we find a large positive effect of the programme on the profits of female-run firms (an 82 per cent increase relative to the control group), but not on male-run firms. Moreover, both women and entrepreneurs with high ex-ante financial literacy were significantly more likely to report having maintained or increased sales due to the training compared to their peers in the control group. On the other hand,

female-run businesses showed a decrease in employment due to the programme, possibly because they re-optimised their capital/labour ratio as a result of the training.

Next, we study treatment effects on external finance. We use detailed administrative data from Partner to study the effect of the training on default rates, propensity to refinance and terms for new loans. We find that women are significantly less likely to take out new loans from Partner due to the training, but survey data shows that they are not less likely to have a loan from any source, suggesting that they are more likely to use alternative sources of finance. For new loans taken out from Partner, women receive significantly longer loan terms due to the training. We do not identify a treatment effect on default rates, but we find that our treatment group was significantly more likely to refinance its existing loans with Partner. This restructuring can take the form of a lower interest rate or longer loan term.

This paper proceeds as following. Section 2 lays out our hypotheses and summarises the related literature. Section 3 describes the setting and sample selection, and Section 4 outlines the research design and summarises the business and financial literacy programme. More details on the programme are provided in Appendix 1. Section 5 describes the implementation challenges we faced and provides summary statistics. Section 6 presents the baseline analysis, as well as the evaluation results. Section 7 concludes.

2. Hypotheses and related literature

Ongoing research on business training for entrepreneurs addresses a policy intervention that is increasingly recognised as being important for development. The reasons for this focus in the literature are twofold. First, many more people in developing countries derive their income from small enterprises, as opposed to wage and salary jobs. Second, recent work has highlighted the importance of ‘managerial skills’ as a key component in a firm’s production function and a driver of firm growth and productivity, apart from factors such as access to physical capital and external finance (Bruhn, Karlan, and Schoar 2010; Bloom et al. 2010). Adverse business environments and high interest rates, furthermore, make it difficult to use credit effectively, increasing the importance of training. Thus, business training programmes have the potential not only to improve individual livelihoods, but also to boost economic growth.

Following the conceptual framework in Bruhn, Karlan, and Schoar (2010), we illustrate the importance of business or management skills for firm performance with the following simple production function

$$Y = A(s) K^\alpha L^{1-\alpha},$$

where Y stands for output, A for productivity, K for physical capital, L for labour input, and s denotes business or management skills of the firm’s owner or principal decision maker. Productivity is a function of business skills. In particular, we stipulate that $\frac{\partial A}{\partial s} > 0$, such that an increase in management skills, s , leads to an increase in productivity, A , thus allowing the firm to produce more output, Y , with the same inputs of capital, K , and labour, L .

In order to determine the impact that an increase in business skills, s , has on the amount capital, K , and labour, L , used in production, we solve the firm’s profit maximisation problem, given a wage w and a cost of capital r

$$\pi = A(s) K^\alpha L^{1-\alpha} - wL - rK.$$

Taking first order conditions show that the optimal labour and capital demands are given by

$$L = K \left(\frac{(1 - \alpha)A(s)}{w} \right)^{\frac{1}{\alpha}}$$

$$K = L \left(\frac{\alpha A(s)}{r} \right)^{\frac{1}{1-\alpha}}$$

and the optimal capital labour ratio is

$$\frac{L}{K} = \frac{(1 - \alpha)r}{\alpha w}.$$

Based on these optimality conditions, we stipulate that managerial skills, s , affect the amounts of labour, L , and capital, K , in two ways. First, an increase in management skills, s , raises productivity, A , and thereby also increases the amount of labour and capital used in production, raising output, Y , further.

Second, we argue that better business skills and financial literacy can lower the cost of capital, r , since they may allow the firm owner to identify cheaper sources of finance. A decrease in the cost of capital, r , leads to an increase in the amount of capital, K , and labour, L , used and to an increase in output, Y . Finally, business training may also help firm owners to understand their production function better or to determine tradeoffs efficiently. Owners with low business skills may not use the optimal capital–labour ratio. Business training can help them adjust this ratio and could, thus, also lead to a reduction in either labour or capital. This adjustment may lead to lower output, Y , but higher profits, Π . Overall, the impact of an increase in management skills, s , on output, Y , depends on both the relative increase in productivity, A , and the changes in capital, K , and labour, L .⁵

With this simple framework in mind, we aim to test the following main hypotheses in this paper.

- H1. Business and financial literacy training improves enterprise owners' knowledge of business and financial concepts, as well as business practices,
- H2. Training increases business profits,
- H3. Training increases sales and the amounts of capital and labour used in production – although this effect is not unambiguously positive, since business owners may adjust their capital labour ratio as a result of the training.

The training studied in this paper has the potential to provide business owners the necessary knowledge to compare different funding options and to use them responsibly. From a conceptual standpoint, it is not clear whether training should lead a firm to be more or less likely to take out a loan, since this decision depends on individual circumstances and alternative sources of finance available to each firm. However, conditional on taking out a loan, we expect the training to improve repayment behaviour, since it aims to teach firm owners that a good credit history is important for maintaining the option of receiving external funding in the future. Our fourth hypothesis is, thus,

- H4. Conditional on taking out a loan, training lowers default rates.

Some policymakers and researchers have argued that business training may also be beneficial for entrepreneurs who are in the process of starting a business. We test this argument with individuals in our study who had expressed interest in opening a business, but who were not yet operating a business at baseline. That is, we study whether these individuals are more likely to actually open a business due to the training. Conceptually, though, it could also be the case that business training discourages some entrepreneurs from opening a business. The training studied in this paper reviews basic concepts of entrepreneurship, as well as business planning, and could potentially allow some individuals to determine that their business idea is not viable.

Thus far, the literature that rigorously examines the impact of business training on firm performance is small, but growing. Karlan and Valdivia (2011) use a randomised control trial to evaluate the impact of business training sessions over a period of 1–2 years on business outcomes for female micro-entrepreneurs in Peru. They find that business knowledge improves and client retention rates increase, but that there is no additional impact on business revenue, profits or employment. However, it is difficult to generalise these results to other settings and demographics, since their study was very much focused on very poor rural women.

Drexler et al. (2011) show that a basic rules-of-thumb based training, but not formal business training, leads to improvements in business practices for micro-entrepreneurs in the Dominican Republic. The rules-of-thumb based training also increases sales in bad weeks, but neither of the training interventions has significant effects on average sales, investment behaviour or profitability of the firms in the treatment group. Similar to the Karlan and Valdivia (2011) study, most of the micro-entrepreneurs included in the Drexler et al. (2011) paper are women (90 per cent).

More recently, Giné and Mansuri (2012) evaluate a business training programme for microfinance clients in rural Pakistan, including both men and women. In line with the results of the previous studies, the authors find that training increases business knowledge among women, but it leads to no improvement in sales and profits. For men, the training improves business knowledge and it also leads to lower business failure rates. Training also seems to raise sales for male-owned businesses, but the evidence is somewhat mixed, depending on assumptions related to sample attrition. The study by Giné and Mansuri (2012) also includes individuals who were not yet operating a business when they participated in the training and the results show no statistically significant impact of training on business startups.⁶

Berge, Bjorvatn, and Tungodden (2011) conduct a field experiment in Tanzania that provided business training to microfinance clients who have an operating business. The results show that the training improves business knowledge and practices among women and men. However, the training has no effect on the performance of female-owned firms, while it leads to increased profits for male-owned firms.

Against this background, our study includes both men and women, to test whether the result that, business training improves business performance only for men, but not for women, also holds in our sample of microfinance clients in Bosnia and Herzegovina. To our knowledge, our study is the first to rigorously examine the impact of business training on firm performance and loan outcomes in a country from the Europe and Central Asia (ECA) region. The effects of business training on women may be greater in ECA than in other regions, since the business environment appears to be comparatively less restrictive for women. Data from the World Bank's 2012 Women, Business, and the Law report shows that ECA is the region where women face the lowest number of legal differentiations on

average (1.1, compared to 1.7 in Latin America, 6.3 in Sub-Saharan Africa, and 7.6 in South Asia – the regions covered in the previous impact evaluations).

Another difference to previous studies is that, our sample features younger business owners (28 years on average, compared to 37–40 years in other studies), who have been out of school for less time and may, thus, find it easier to learn in a classroom setting.

3. Setting and sample selection

For the implementation of this study, we partnered with one of the largest microcredit institutions in Bosnia, Partner Microcredit Foundation. Partner is a non-profit lending organisation, founded in 2001, with 44 offices covering all of Bosnia and Herzegovina, and with 19 per cent market share among microcredit organisations in the country. As of April 2008, Partner had a gross portfolio outstanding of approximately \$121 million, with 262 employees, 163 loan officers, 61,468 active clients and 63,323 active loans. The mission of Partner is primarily to provide accessible financial services to micro-entrepreneurs through business loans for agriculture, trade, services and production. Partner uses individual lending methodology and focuses on clients in transitional phases towards higher loan amounts. In 2008, the average size of disbursed loans was \$1994, with a maximum of \$6530, and the average monthly income of borrowers was under \$300. Moreover, unlike typical microfinance institutions that cater to the poorest segments of the population, Partner regularly makes large loans, all on an individual basis and with full credit cheques.

All participants in our study are Partner's loan clients. In order to select our study sample, Partner provided us with a list of their active borrowers between the ages of 18 and 35. We chose loan clients in this age bracket because Partner felt that business and financial education could have a particularly large impact on this group. Youth unemployment is high in Bosnia, about 58 per cent, according to the 2007 Labor Force Survey, and self-employment provides a potential solution to this problem. In this type of environment, it is particularly important to explore strategies to promote the entry, survival and growth of youth-led businesses.

We limited our study sample geographically to areas around Tuzla,⁷ where Partner is headquartered, to facilitate the logistics of the business training. Moreover, we dropped clients who had not taken out a loan for business purposes from our sample in order to target clients who were either running a business or planning to start a business. We also did not include clients who were delinquent on their loan payments according to Partner's definition.⁸

All 2274 Partner clients meeting these criteria received an initial screening phone call, asking them whether they would be interested in participating in a business and financial education training course. About 500 clients could not be reached over the phone. Among the 1783 clients who were reached, half reported being interested in participating in the course. Table 1 examines which borrower and loan characteristics predict whether the client was interested in the course. These characteristics all come from Partner's client database.

Table 1 shows three specifications, one with demographic characteristics alone, the next one adding loan characteristics, and the final one with Partner branch fixed effects. All specifications show that women were about 13 per cent less likely to be interested in participating in the training.⁹ In addition, clients who had been late on at least one of their loan payments (during the course of the loan) were 5 per cent more likely to be interested in training. On average, almost 60 per cent of clients had made a loan payment at least

Table 1. Determinants of interest in business training.

	interested in (1)	participating in (2)	training (3)
Female	-0.127*** (0.025)	-0.125*** (0.025)	-0.131*** (0.025)
Domiciled	0.012 (0.037)	0.012 (0.037)	-0.025 (0.041)
Rural	-0.024 (0.027)	-0.018 (0.027)	-0.012 (0.030)
Age	-0.046 (0.041)	-0.045 (0.041)	-0.051 (0.041)
Age squared	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Farming & Livestock sector	-0.009 (0.034)	-0.004 (0.035)	0.006 (0.035)
Services sector	0.012 (0.029)	0.014 (0.029)	0.021 (0.030)
Loan amount outstanding (in 1000s)		-0.002 (0.004)	-0.002 (0.004)
Missed loan repayment		0.054** (0.024)	0.058** (0.024)
Branch FEs	No	No	Yes
R-squared	0.015	0.017	0.019
N	1783	1783	1783

Notes: This table reports the results from OLS regressions estimating which borrower and loan characteristics predict whether the client was interested in the business training course. These characteristics all come from Partner's client database. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

one day late, but the median number of days late was relatively small (that is, two days). This last result is promising in that people who were late on payments perceive business and financial education as being valuable. None of the other variables show a statistically significant correlation with being interested in training. Most notably, neither the client's age, nor the loan amount, predicts whether the client is interested in participating in the business and financial education course.

In our study, we only include clients who were interested in the training. This implies that we measure the impact of training only on the population of interested clients. For policy purposes, this is probably the most relevant sample, since only clients who are interested in the training will take it up, if offered the training.

4. Curriculum details and research design

4.1. Curriculum details

The business training was provided through a local NGO, the Entrepreneurship Development Center (EDC). EDC is located on the premises of the Chamber of Commerce of Tuzla Canton and has extensive experience with providing entrepreneurship training to university students. Most of EDC's instructors are faculty members at the University of Tuzla.

For the purposes of our study, EDC adapted its regular business training course curriculum to meet the needs of our target audience. In order to do this, they conducted

face-to-face interviews with existing Partner loan clients and consulted with Partner's credit officers in various field offices in the Tuzla region. Moreover, EDC pilot tested the new curriculum with first year university students who resembled our target group in terms of age, previous education and income.

The business training offered through our study consisted of six comprehensive modules and lasted 9 hours in total (spread out over 3 days of 3 hours training each). The first module discussed general concepts of entrepreneurship, including advantages and disadvantages of being an entrepreneur, how to recognise a business opportunity, as well as different basic decisions related to the business, such as legal types, registering the business or not and tax regimes. The second module stressed the importance of business planning and explained how to develop a business plan. The third module covered marketing and sales strategy. The fourth module went over financial management, including accounting, planning, and separation of business and personal household accounts. The fifth module focused on business growth, exploring deeper concepts such as business investment and growth strategies and highlighted the advantages of up-front capital investment. The sixth and final module covered a range of issues related to financial literacy. It reviewed different sources of external finance and stressed the importance of financial responsibility. It also discussed interest rate calculations, diversification and concepts related to consumer protection, that is, understanding contract terms. Appendix 1 includes a more detailed list of the topics covered in each module.

The content and duration of this course are comparable to those of other business training programmes that are frequently provided around the world. For example, the International Labor Organization's (ILO) Start and Improve Your Business (SIYB) programme is one of the most widely-spread training course currently in the market. It has trained an estimated 4.5 million individuals in more than 100 countries.¹⁰ The programme has separate courses targeted towards potential entrepreneurs (Start Your Business, SYB) and also to existing entrepreneurs (Improve Your Business, IYB). SYB takes approximately five days and covers a range of aspects needed to start a business, including drafting a marketing strategy, planning staff needs, costing goods and services, deciding on the legal form of the business, getting a clear idea about the licences and the permits needed and financial planning. IYB takes about 7.5 days and is designed to help firms market products more effectively, set up buying procedures, set up a stock control system, forecast sales, costs, and cash flow, produce balance sheets, cost goods and services, keep records and improve productivity through improved workplace practices.

Another business training course with wide international coverage is IFC's Business Edge™ programme. Since 2002, Business Edge™ has been launched in 35 developing markets in Africa, Asia, the Middle East, Latin America and the Caribbean. By December 2011, more than 145,000 individuals had been trained through a network of 120 accredited training and consulting firms, relying on more than 820 trainers. In a market like Vietnam alone, over 330,000 self-study books were sold. The programme consists of three core components: (a) training material, (b) capacity building tools for trainers and training firms and (c) market development tools. The training content includes over 52 classroom training seminars (usually 1–2 days in length) and self-study books covering topics in marketing, finance and accounting, human resources, production and operations, personal productivity skills, financial literacy and tourism.¹¹

While the topics covered in the business training course studied in this paper are very similar to the list of topics included in the ILO and IFC courses, the amount of time devoted to each individual topic appears to be somewhat shorter. The course studied here devoted approximately 1–3 hours to each topic, while the other courses spend around one day on each topic. The reason for keeping the course relatively short was that, the target population

expressed a preference for attending a course that would not take more than three days and that would not last the whole day.

As part of our implementation strategy, we hired two local consultants to handle the logistics of the business training, including calling Partner's clients and scheduling them for make-up sessions, in case a session was missed. The training was typically held in groups of six to ten clients. The consultants also kept track of attendance, administered a short follow-up test at completion of the course, collected course evaluation forms and distributed certificates for completing the course. Clients were paid 50 KM (approximately US\$35) for participating in the course, in order to compensate them for the opportunity cost of their time. We also offered clients, complementary transportation to the training location. The total cost of providing the course, including transportation and the 50 KM cash compensation, was about 350 KM (about US\$245) per participant.

4.2. Research design

Our research design is a randomised control trial with a sample of 445 active business loan clients.¹² We originally envisioned two distinct treatment groups, one receiving the first five modules of the business training course, and the other an additional module on issues pertaining to the financial crisis. 149 clients were randomly allocated into treatment group 1 and 148 clients were randomly allocated into treatment group 2, while the remaining 148 acted as the control group.

We performed a stratified randomisation, using information from Partner's database and from a baseline survey conducted in April and May 2009. At baseline, we collected information on measures of financial and business knowledge, education and risk aversion, as well as business employment, assets, expenditures, sales, profits and use of external finance.

The randomisation was stratified by gender, sector (Farming & Livestock, Services, and other), above and below the median of the business knowledge/financial literacy score in the baseline questions, and a dummy for whether profits were missing in the data. Within strata, we sorted by baseline profits and randomly allocated clients to our three experimental groups within each sequence of three observations.

The implementation of the business training was carried out soon after the baseline, between June and December 2009. An exit test to measure business and financial knowledge was administered at the end of the training to all participants. Finally, a telephone-based follow-up survey was conducted in May and June 2010, one year after the baseline survey. For the follow-up, we were able to track down and interview 396 out of the 445 individuals in our study. The attrition rate was relatively low, and uncorrelated with treatment status.

5. Implementation challenges and summary statistics

The implementation of the business training programme was quite challenging. We faced considerable reluctance from our treatment group for attending the course, despite the fact that, our entire sample consisted of individuals who had initially expressed interest in such a course. Out of 297 individuals in the treatment group, only 117 (39%) actually attended the course.

In the follow-up survey, we asked for the main reason why treatment individuals did not participate in the training programme, and the overwhelming reason was lack of time.

However, among the people who did attend, the satisfaction rate was quite high, with more than 96 per cent of people agreeing that they would recommend this course to a friend.

Given our low attendance figures, and the fact that only a handful of individuals in the second treatment actually attended the sixth module, we decided to forego our original experimental design of two separate treatment groups, and merged both treatment groups into one.

Yet another complication we faced was that, not all of the 445 clients in our sample actually had a business at baseline, even though they had a business loan at that time. We were not aware of this at the time we were designing the experimental protocol, and only later did we identify that about one-third of our baseline clients did not have an operating business at baseline. Partner later explained to us that these clients most likely received the business loans for a planned or potential business venture. While on the one hand, we were unable to stratify on this variable, on the other hand, this variation in the sample offers us the opportunity to study the impact of business training on new business start-up. Indeed, potential entrepreneurs are likely prime candidates for whom business training would be beneficial.

From a sample composition point of view, our treatment group is balanced in terms of individuals who did or did not have a business at baseline. In fact, there are no statistical differences between the ratio of treatment and control samples for these two groups. Further, the business training attendance data shows that individuals with and without a business at baseline were equally likely to attend and complete the course, with a mean attendance rate of 39.4 per cent and 39.3 per cent, respectively.

Table 2 provides summary statistics for the baseline survey, broken down by treatment and control group. The last column provides *p*-values for a difference-in-means test between the two groups. Panel A presents a summary of demographic and stratification variables, and Panel B focuses on business characteristics for those individuals who had a business at baseline. The businesses in our sample have about two employees on average (including the owner) and monthly profits of around KM 1000 (US\$700). They are about 5 years old and 20–30 per cent of them are registered with the authorities.

Overall, the means of the baseline variables are very similar across the treatment and control groups, with only a few exceptions. However, these differences are entirely due to chance. We can be sure of this, since we performed the randomisation ourselves. Following the suggestions in Bruhn and McKenzie (2009), we control for strata dummies and also for baseline outcome levels in our regression analysis.

6. Analysis

6.1. Predictors of take up

As mentioned above, 39 per cent of the individuals who were invited to the business training programme actually attended. Table 3 presents results of regressing attendance on various baseline characteristics of those invited. In the full sample (Column 1), none of the characteristics are statistically significant predictors of take-up. In the sample of individuals who had a business at baseline (Column 2), the only variables that are statistically significant are the dummy for having completed secondary school (these individuals are more likely to take up the programme) and business age (entrepreneurs with older firms are also more likely to take up the programme). Overall, however, the explanatory power of personal and business characteristics for programme take-up is low, as indicated by the low *R*-squared of both regressions in Table 3.

Table 2. Baseline characteristics.

	Total	Treatment	N	Control	N	Difference in means test (p-value)
Panel A. Full sample						
<i>Personal and loan characteristics</i>						
Age	445	28.14	297	28.04	148	0.302
Rural	445	0.71	297	0.70	148	0.697
Domiciled	445	0.39	297	0.85	148	0.253
Completed secondary school	444	0.85	297	0.80	147	0.190
Risk averse	445	0.68	297	0.71	148	0.530
Loan amount outstanding (in 1000s)	445	4.00	297	4.20	143	0.511
Missed loan repayment	445	0.61	297	0.64	148	0.600
Has participated in other business training course	444	0.10	297	0.05	147	0.099*
Has alternative job/employment	445	0.42	297	0.47	148	0.402
<i>Stratification variables</i>						
Female	445	0.35	297	0.35	148	0.980
Baseline fin lit score	445	2.67	297	2.61	148	0.630
Missing profit in March 2009	445	0.20	297	0.21	148	0.355
Sector = Farming & Livestock	445	0.27	297	0.27	148	0.924
Sector = Services	445	0.46	297	0.47	143	0.922
Panel B. Had a business at baseline						
<i>Business Characteristics</i>						
No. of employees (incl. owner)	260	2.28	168	2.05	92	0.562
Net profits in March 2009 (KM)	217	731.58	139	611.80	78	0.316
Business age (Months)	253	58.27	165	59.74	88	0.323
Registered	267	0.20	172	0.30	95	0.093*
Has checking/savings account for business	267	0.48	172	0.46	95	0.762
Has credit line	267	0.91	172	0.92	95	0.810
Has credit card	267	0.07	172	0.06	95	0.837
Keeps business accounts	267	0.49	172	0.60	95	0.093*
Has alternative job/employment	267	0.43	172	0.43	95	0.983
<i>Stratification variables</i>						
Female	267	0.31	172	0.34	95	0.703
Baseline fin lit score	267	2.69	172	2.66	95	0.871
Missing profit in March 2009	267	0.16	172	0.16	95	0.917
Farming & Livestock sector	267	0.20	172	0.25	95	0.299
Services sector	267	0.54	172	0.46	95	0.226

Notes: This table reports summary statistics for the business loan clients included in an experiment on the impact of a business and financial literacy programme. Panel A describes the full sample consisting of 445 clients. Panel B describes the subsample of clients who had a business at baseline, consisting of 267 clients. The last column provides *p*-values for a difference-in-means test between the treatment and control groups. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

6.2. Evaluation specification

Since treatment was randomly assigned, we estimate causal impacts with the following equation,

$$y_i = \alpha + \beta \times \text{TrainingInvite}_i + \varepsilon_i \quad (1)$$

Table 3. Predictors of take up.

	Attended training	
	(1)	(2)
Baseline financial literacy score	−0.007 (0.021)	−0.004 (0.029)
Female	0.038 (0.063)	0.031 (0.093)
Domiciled	0.035 (0.092)	−0.048 (0.122)
Rural	−0.059 (0.070)	−0.006 (0.096)
Age	−0.046 (0.107)	−0.058 (0.163)
Age squared	0.001 (0.002)	0.001 (0.003)
Completed secondary school	0.073 (0.083)	0.204* (0.122)
Has participated in other business training	0.113 (0.100)	0.178 (0.136)
Risk averse	−0.040 (0.062)	0.056 (0.079)
Loan amount outstanding (in 1000s)	−0.014 (0.009)	−0.015 (0.012)
Missed loan repayment	−0.097 (0.060)	−0.131 (0.088)
Registered		−0.110 (0.106)
Farming & Livestock sector		0.041 (0.127)
Services sector		0.078 (0.096)
Business age (Months)		0.004** (0.002)
Business age (Months)–Squared		−0.000 (0.000)
No. of employees (incl. owner)		−0.002 (0.003)
R-squared	0.035	0.148
N	297	165
Baseline mean of dep var	0.394	0.424

Notes: This table reports OLS regressions of a dummy variable, that is equal to one if the treatment group client took up the business training programme, on personal and business characteristics. The first column includes all treatment group individuals and the second column focuses on the sub-sample of treatment group individuals who had a business at baseline. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

where the dependent variable is the knowledge, business performance or loan behaviour metric used in the regressions. The main coefficient of interest is β , which represents the treatment effect of being invited to our business and financial education programme. We focus on the reduced-form relationship because it is difficult to compel people to attend a training session; thus, the intention-to-treat estimate may be of greatest interest.¹³

Whenever available, we follow the recommendation in McKenzie (2011) and control for the baseline value of our dependent variable, and run an Analysis of Covariance

(ANCOVA) specification. In addition, all specifications include strata dummies and a survey wave dummy, since our follow-up survey was conducted over two waves.¹⁴

In addition to estimating Equation (1), we also examine heterogeneous treatment effects for two of the variables we stratified on – gender and baseline business and financial literacy – by including interaction terms between the treatment dummy and these variables in the regression. We do not need to include the variables themselves in the regression, since they are captured in the strata dummies. To measure baseline business and financial knowledge, we included the eight questions that are listed in Appendix 2 in the baseline survey. We construct an overall business and financial literacy score by tallying the correct answers to these eight questions. The score, thus, runs from zero to eight. The average of this score is about 2.7 in both the treatment and control group, meaning that, on average, clients gave the correct answer to 2.7 out of 8 questions.

6.3. Evaluation results – effects on business and financial knowledge and perceptions

In order to assess the effect of the training on business and financial knowledge, we first examine the results from the exit test that participants filled out at the end of the training. This test included the same eight business and financial knowledge questions as the baseline survey. Results from this exit test are available only for entrepreneurs who attended the training and thus, cannot be compared to a randomly chosen control group. However, comparing exit test results to baseline answers provides a first indication of whether participants improved their business and financial knowledge after the training.

Panel A in Table 4 shows the fraction of respondents who answered each question correctly, at baseline and during the exit test. The fraction of correct answers during the exit test is significantly higher than at baseline for three out of the eight questions. Respondents also did significantly worse during the exit test in answering two out of the eight questions, compared to the baseline. Specifically, on questions about compound interest and understanding percentage calculations, we find negative differences, though we do not have comparable numbers from an exit test for the control group. This lack of impact on numeracy skills is consistent with the literature that finds no impacts of financial education on numeracy skills (see for example, Carpena et al. 2012; McKenzie and Zia 2012).¹⁵ However, the total score (that is, the sum of correct answers to the eight questions) increased significantly from 2.6 to 2.9 after the training, suggesting that the training improved business and financial knowledge on average.

The baseline and exit test also included a number of questions to measure financial perception and attitudes, such as risk aversion and preference for using credit versus own funds to finance purchases. Panel A in Table 5 illustrates that, financial perceptions changed significantly from baseline to the exit test. Specifically, respondents were more risk averse after the training and less likely to prefer using credit instead of own funds. Moreover, respondents had a better understanding of the importance of having a good credit history. In fact, before the training, only 22 per cent of entrepreneurs thought that a good credit history could help them obtain larger or better loans, while 75 per cent of entrepreneurs thought so after the training.

Our follow-up survey was conducted over the phone, and therefore, did not allow us to ask all of the business and financial knowledge and financial perception questions. Instead, we chose to include only the three shortest and easiest to administer business and financial knowledge questions in the follow-up survey. As shown in Table 4, these questions test whether the respondents know VAT law, whether they know what the credit registry is and

Table 4. Business and financial knowledge.

	<i>N</i> (1)	Baseline (2)	Exit test (3)	Follow- up (4)	Exit test baseline (5)	<i>p</i> -value (6)	Follow- up -baseline (7)	<i>p</i> -value (8)
Panel A. Treatment								
<i>Invited to training</i>								
Q1. Knows past returns don't predict future returns	264	0.375						
Q2. Knows compound interest	264	0.538						
Q3. Knows making min. payments doesn't eliminate debt	264	0.057						
Q4. Knows VAT law	264	0.360		0.402			0.042	0.250
Q5. Knows what the credit registry is	264	0.193		0.356			0.163	0.000**
Q6. Understands percentage calculations	264	0.519						
Q7. Understands diversification	264	0.170		0.458			0.288	0.000**
Q8. Can compare financing options	264	0.455						
Total Score (all 3 questions)	264	2.667						
Total Score (Q4, Q5, and Q7)	264	0.723		1.216			0.492	0.000**
<i>Attended training</i>								
Q1. Knows past returns don't predict future returns	112	0.393	0.330		-0.062	0.252		
Q2. Knows compound interest	112	0.527	0.330		-0.196	0.002**		
Q3. Knows making min. payments doesn't eliminate debt	112	0.045	0.063		0.018	0.482		
Q4. Knows VAT law	112	0.339	0.625	0.464	0.286	0.000**	0.125	0.022**
Q5. Knows what the credit registry is	112	0.241	0.571	0.429	0.330	0.000**	0.188	0.000**
Q6. Understands percentage calculations	112	0.527	0.411		-0.116	0.085		
Q7. Understands diversification	112	0.170	0.304	0.446	0.134	0.008**	0.277	0.000**
Q8. Can compare financing options	112	0.366	0.277		-0.089	0.150		
Total Score (all 3 questions)	112	2.607	2.911		0.304	0.083		

(Continued)

Table 4. (Continued).

	<i>N</i> (1)	Baseline (2)	Exit test (3)	Follow- up (4)	Exit test baseline (5)	<i>p</i> -value (6)	Follow- up -baseline (7)	<i>p</i> -value (8)
Total Score (Q4, Q5, and Q7)	112	0.750	1.500	1.339	0.750	0.000**	0.589	0.000**
Panel B. Control								
Q1. Knows past returns don't predict future returns	132	0.348						
Q2. Knows compound interest	132	0.530						
Q3. Knows making min. payments doesn't eliminate debt	132	0.045						
Q4. Knows VAT law	132	0.371		0.348			-0.023	0.614
Q5. Knows what the credit registry is	132	0.212		0.326			0.114	0.005**
Q5. Understands percentage calculations	132	0.538						
Q7. Understands diversification	132	0.182		0.455			0.273	0.000**
Q8. Can compare financing options	132	0.439						
Total Score (all 3 questions)	132	2.667						
Total Score (Q4, Q5, and Q7)	132	0.765		1.129			0.364	0.000**

Notes: This table reports business and financial knowledge at baseline, exit test, and follow-up among the sample of follow-up respondents. The exit test was administered after the training, and is thus available only for respondents who attended the training. The *p*-values reported in column 6 report the statistical significance of a paired mean-comparison test between the exit test and the baseline. The *p*-values reported in column 3 report the statistical significance of a paired mean-comparison test between the follow-up and the baseline. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 5. Financial perception.

	<i>N</i>	Baseline	Exit test	Exit test -baseline	<i>p</i> -value
Panel A. Treatment					
<i>Invited to training</i>					
Thinks financial skills are important in business	264	0.216			
Risk averse (coin toss)	264	0.686			
Strongly agree/agree w/: not sure risky investment even if big possible profit	264	0.451			
Prefers to finance vehicle via credit	264	0.542			
Thinks good credit history can help obtain larger/better loans	264	0.174			
<i>Attended training</i>					
Thinks financial skills are important in business	112	0.205	0.563	0.357	0.000 **
Risk averse (coin toss)	112	0.679	0.804	0.125	0.010 **
Strongly agree/agree w/: not sure risky investment even if big possible profit	112	0.384	0.420	0.036	0.558
Prefers to finance vehicle via credit	112	0.607	0.464	-0.143	0.009 **
Thinks good credit history can help obtain larger/better loans	112	0.223	0.750	0.527	0.000 **
Panel B. Control					
Thinks financial skills are important in business	132	0.235			
Risk averse (coin toss)	132	0.735			
Strongly agree/agree w/: not sure risky investment even if big possible profit	132	0.417			
Prefers to finance vehicle via credit	132	0.538			
Thinks good credit history can help obtain larger/better loans	132	0.212			

Notes: This table reports financial perception at baseline and exit test among the sample of follow-up respondents. The exit test was administered after the training, and is thus available only for respondents who attended the training. The *p*-values reported in the last column report the statistical significance of a paired mean-comparison test between the ex it test and the baseline. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

whether they understand diversification. The results in the last column of Table 4 indicate that, all training participants were significantly more likely to answer these questions correctly at follow-up than at baseline. However, entrepreneurs in the treatment group who did not participate in the training, as well as entrepreneurs in the control group also did better at answering two of these questions at follow-up than at baseline.

In Table 6, we thus, turn to estimating the causal impact of the training on business and financial knowledge, using the specification described in Section 6.2. Here, our measure of business and financial knowledge is the sum of correct answers to the three questions that were included in the follow-up survey, as explained in the previous paragraph. The result in Column 1 indicates that the average treatment effect of the training on business and financial knowledge is positive, but not statistically significant. We then examine whether this treatment effect differed by whether the entrepreneur had a baseline financial literacy level above or below the median. Column 2 shows that the effect of the training on business

Table 6. Impact on business and financial knowledge.

	Knowledge score			
	(1)	(2)	(3)	(4)
Treatment	0.099 (0.091)	0.239* (0.131)	0.161 (0.109)	0.045 (0.165)
Treatment \times above median baseline financial literacy		-0.248 (0.181)		
Treatment \times female			-0.180 (0.152)	
Treatment \times had business at baseline				0.092 (0.205)
R-squared	0.179	0.183	0.182	0.186
N	336	396	396	396
Control mean dependent variable	1.129	1.129	1.129	1.129
Control mean Dep Var [above median/had business/female]		1.311	1.000	1.189
Control Mean Dep Var [below median/Had no Business/male]		0.897	1.200	0.973
F-Test: Treatment + Interaction = 0 (<i>p</i> -value)		0.941	0.881	0.225

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. The dependent variable is the sum of the following variables: knows VAT law (Q4), knows what the credit registry is (Q5), and understands diversification (Q7). The specification in column 1 is given by $Y_{1i} = \text{Treatment}_i + \text{Strata}_i + Y_{0i} + \text{Wave2}_i + \varepsilon_i$, and columns 2, 3 and 4 add interaction terms, i indexes individuals. Treatment_i is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{1i} refers to values at follow-up, and Y_{0i} refers to values at baseline. Wave2_i is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Finally, column 4 controls for an indicator variable equal to 1 if client has a business at baseline. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

and financial knowledge is positive and statistically significant for individuals with below median financial literacy at baseline. For these individuals, the training increased the business and financial knowledge score by 0.239 compared to the control group mean of 0.897. On the other hand, for individuals with above the median financial literacy at baseline, the training appears to have had no effect on our measure of business and financial knowledge. This does not necessarily imply that individuals with above median financial literacy at baseline did not learn anything in the training, since the course content was much richer than what is captured by the three business and financial knowledge questions included in our follow-up survey. In particular, the course discussed business practices, such as account keeping and use of bank accounts, the impact on which we examine in the following section.

Finally, we test whether the training had differential effects on men and women and also of individuals who had a business at baseline and who did not.¹⁶ The results in Columns 3 and 4 of Table 6 do not show statistically significant differences in the effect of the training on business and financial knowledge across these groups.

6.4. Evaluation results – effects on business outcomes

This section examines the effects of the training on business outcomes, including survival, practices and performance.

6.4.1. Business creation and survival. First, we ask whether the training had an effect on business creation and survival. Our follow-up data show that only one of the individuals, who did not have a business at baseline, started a business during the study period.¹⁷ We can thus conclude without further analysis that the training did not have a significant effect on business creation. For individuals who had a business at baseline, the regressions in Table 7 examine whether the training promoted business survival. We do not find this to be the case, with survival rates being about 61 per cent in both the control and treatment group. Overall, we thus find no evidence that the training had an effect on business entry and survival.

6.4.2. Business performance. The remainder of this section analyses the effect of the training on business outcomes for individuals who had a business at baseline and at follow-up. We start by examining the impact on business performance, as measured by one-month profits. The profit variable is quite noisy with a standard deviation of 3787, and thus we trim profits at the top 5 percentile to ensure that the results are not driven by outliers. This specification detects no effect on average profits (Column 4 of Table 8), but the heterogeneous treatment regression by gender shows a positive increase in profits for female entrepreneurs. The size of this effect is large ($-567 + 1587 = \text{KM } 1020$) compared to the average level of profits in the control group (KM 559), corresponding to an 82 per cent increase in profits. This effect is statistically significant, as indicated by the p -value (0.057) in the last row of Table 8.

About one-third of the clients did not provide profit data, which is why the sample size in Columns 1 through 3 is low. To supplement the profit data, we asked business owners

Table 7. Impact on business survival and business entry.

	Business survived		
	(1)	(2)	(3)
Treatment	0.013 (0.063)	0.063 (0.099)	0.072 (0.070)
Treatment \times above median baseline financial literacy		-0.089 (0.123)	
Treatment \times female			-0.197 (0.123)
R -squared	0.123	0.125	0.133
N	267	267	267
Control mean dependent variable	0.611	0.611	0.611
Control mean Dep Var [above median/female]		0.712	0.563
Control mean Dep Var [below median/male]		0.488	0.635
F -Test: Treatment + Interaction = 0 (p -value)		0.741	0.258

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. The specification in column 1 is given by $Y_{1i} = \text{Treatment}_i + \text{Strata}_i + Y_{0i} + \text{Wave2}_i + \varepsilon_i$, and columns 2, 3 and 4 add interaction terms, i indexes individuals. Treatment_i is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{1i} refers to values at follow-up, and Y_{0i} refers to values at baseline. Wave2_i is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Finally, column 4 controls for an indicator variable equal to 1 if client has a business at baseline. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 8. Impact of business performance.

	Net profits			Increased or maintained profits		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-217.162 (346.829)	-414.591 (444.541)	-566.978 (411.404)	0.121 (0.085)	-0.011 (0.129)	0.100 (0.098)
Treatment \times above median EL Fin lit		389.455 (765.289)			0.212 (0.169)	
Treatment \times female			1587.148** (684.806)			0.093 (0.173)
R-squared	0.224 99	0.228 99	0.268 99	0.144 170	0.153 170	0.146 170
Control mean dependent variable	1445.625	1445.625	1445.625	0.500	0.500	0.500
Control mean Dep Var [above median/female]		1491.667	559.091		0.405	0.444
Control mean Dep Var [below median/male]		1386.429	1910.000		0.667	0.525
F-Test: Treatment + Interaction = 0 (<i>p</i> -value)		0.965	0.057		0.072	0.197

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. The specification in columns 1 and 4 is given by $Y_{1i} = Treatment_i + Strata_i + Y_{0i} + MissingY_{0i} + Wave2_i + \varepsilon_i$, and the rest of columns add interaction terms, i indexes individuals. $Treatment_i$ is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{1i} refers to values at follow-up, and Y_{0i} refers to values at baseline. When the value at baseline is missing, $Wave2_i$ is equal to one and missing value Y_{0i} is replaced with zero. $Wave2_i$ is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

whether they had maintained, increased or decreased monthly profits compared to one year earlier. All entrepreneurs, who had a business at baseline and at follow-up, answered this question. The regressions in Columns 4 through 6 of Table 8 use an indicator dummy for having increased, maintained profits as the outcome variable.¹⁸ Column 4 shows that, on average, entrepreneurs in the treatment group were not significantly more likely to have said that they maintained or increased profits over the past year, compared to the control group. However, entrepreneurs with above median financial literacy at baseline were 20.1 per cent more likely than their peers in the control group to have stated that they maintained or increased profits over the past year (compared to a base of 40.5% in the control group). This effect is statistically significant at the 7.2 per cent level.

Overall, Table 8 provides some evidence that the training increased business profits for female entrepreneurs and for entrepreneurs with above median financial literacy at baseline, although the results vary across different specifications.

6.4.3. Business growth. Next, we examine whether the training promoted business growth among existing firms. We consider three different measures of business size, as reported in Table 9. First, similar to our question regarding profits, we asked entrepreneurs whether they had maintained, increased or decreased sales, compared to one year ago. We find that entrepreneurs in the treatment group are 15.5 per cent more likely to report that they increased or maintained sales compared to the control group (Column 1). This increase is equivalent to a 33 per cent increase in the percentage of entrepreneurs who said that they increased or maintained sales compared to one year ago, going from 46.6 to 62.1 per cent. Columns 2 and 3 of Table 9 show that this effect is statistically significant only for individuals with above median financial literacy at baseline and for female entrepreneurs (as indicated by the *p*-values in the last row of Table 9).

Our second measure of business size is number of employees. We do not find a statistically significant effect of the training on this variable on average (Column 4). For female entrepreneurs, we see a negative and statistically significant effect of training on employment. Combined with the previous finding that female entrepreneurs are more likely to report that they increased or maintained sales, this result could indicate that the training led to an increase in productivity and a re-optimisation of the labour/capital ratio in female-owned firms. Finally, we asked respondents whether their firm expanded its installations during the past year. As shown in Columns 7, 8 and 9, the training did not cause firms to expand their installations.

To summarise, the results in Table 9 indicate that the training helped entrepreneurs increase or maintain sales. On average, we do not find an effect on number of employees or expansion of business installations. However, female entrepreneurs decrease their number of employees due to the training, which as discussed in Section 2, may be due a re-optimisation of the labour/capital ratio.

6.4.4. Business practices and investments. In order to gain a better understanding of the channels through which the training affected business decisions, we examine the impact on a number of self-reported business practices and investments (Tables 10 and 11). First, we find that treatment group entrepreneurs were 16.5 per cent more likely to have implemented new production processes than control group entrepreneurs (compared to a mean of 12%). On the other hand, Table 10 does not show a significant effect of the training on

Table 9. Impact on business growth.

	Increased or maintained sales			Log no. of employees			Expanded installations in past year		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.155* (0.086)	0.108 (0.138)	0.128 (0.099)	-0.011 (0.120)	-0.116 (0.239)	0.086 (0.139)	-0.024 (0.074)	-0.002 (0.113)	-0.005 (0.089)
Treatment \times above median baseline financial literacy		0.074			0.169			-0.035	
Treatment \times female		(0.176)			(0.274)			(0.148)	
R-squared			0.115 (0.167)			-0.415** (0.209)			-0.082 (0.142)
N	0.133 169	0.134 169	0.136 169	0.306 170	0.308 170	0.320 170	0.233 170	0.234 170	0.235 170
Control mean dependent Variable	0.466	0.466	0.466	0.681	0.681	0.681	0.276	0.276	0.276
Control mean Dep Var [above median/female]		0.432	0.389		0.657	0.558		0.324	0.111
Control mean Dep Var [below median/male]		0.524	0.500		0.724	0.737		0.190	0.350
F-test: Treatment + Interaction = 0 (<i>p</i> -value)		0.098	0.092		0.689	0.061		0.700	0.454

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. The sample includes all individuals who had a business at baseline and still have it at the time of the follow-up survey. The specification in columns 1, 4 and 7 is given by $Y_{1i} = Treatment_i + Strata_i + Y_{0i} + Missing Y_{0i} + Wave2_i + \varepsilon_i$, and the rest of columns add interaction terms, i indexes individuals, $Treatment_i$ is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{1i} refers to values at follow-up, and Y_{0i} refers to values at baseline. When the value at baseline is missing, $Missing Y_{0i}$ is equal to one and the missing value in Y_{0i} is replaced with zero. $Wave2_i$ is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 10. Impact on business practices and investments.

	Developed new products in past year			Implemented new production processes in past year			Started new marketing campaign in past year		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.067 (0.064)	0.091 (0.093)	0.078 (0.079)	0.165*** (0.061)	0.156** (0.077)	0.193*** (0.068)	0.002 (0.059)	0.068 (0.093)	-0.017 (0.072)
Treatment \times above median BL fin lit		-0.039 (0.127)			0.014 (0.115)			0.110 (0.118)	
Treatment \times female			-0.049 (0.115)			-0.121 (0.137)			0.081 (0.090)
R-squared	0.243	0.244	0.244	0.227	0.227	0.230	0.131	0.137	0.134
N	170	170	170	170	170	170	170	170	170
Control mean dependent variable	0.155	0.155	0.155	0.121	0.121	0.121	0.121	0.121	0.121
Control mean Dep Var [above median/female]		0.189	0.000		0.162	0.167		0.108	0.000
Control mean Dep Var [below median/male]		0.095	0.225		0.048	0.100		0.143	0.175
F-Test: treatment + Interaction = L > (p-value)		0.548	0.734		0.049	0.552		0.567	0.325

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. The sample includes all individuals who had a business at baseline and still have it at the time of the follow-up survey. The specification in columns 1, 4 and 7 is given by $Y_{1t} = Treatment_i + Strata_i + Y_{0t} + MissingY_{0t} + Wave2_i + \varepsilon_i$, and the rest of columns add interaction terms, i indexes individuals. $Treatment_i$ is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{1t} refers to values at follow-up, and Y_{0t} refers to values at baseline. When the value at baseline is missing, $MissingY_{0t}$ is equal to one and the missing value in Y_{0t} is replaced with zero. $Wave2_i$ is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 11. Impact on business practices and investments.

	Uses personal account for business			Invests savings in business			Average Z score		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	-0.218*** (0.079)	-0.278** (0.137)	-0.231*** (0.088)	0.106*** (0.044)	0.087* (0.047)	0.100* (0.052)	0.223** (0.102)	0.147 (0.167)	0.228* (0.120)
Treatment \times above median BL Fin Lit		0.095 (0.166)			0.029 (0.079)			0.122 (0.210)	
Treatment \times female			0.056 (0.164)			0.026 (0.103)			-0.021 (0.205)
R-squared	0.287	0.289	0.287	0.190	0.190	0.190	0.232	0.233	0.232
N	169	169	169	169	169	169	170	170	170
Control mean dependent variable	0.655	0.655	0.655	0.017	0.017	0.017	-0.000	-0.000	-0.000
Control mean Dep Var [above median/female]		0.676	0.556		0.027	0.000		0.060	-0.198
Control mean Dep Var [below median/male]		0.619	0.700		0.000	0.025		-0.105	0.089
F-test: treatment + interaction = 0 (<i>p</i> -value)		0.058	0.239		0.071	0.155		0.040	0.236

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. The sample includes all individuals who had a business at baseline and still have it at the time of the follow-up survey. The specification in columns 1, 4 and 7 is given by $Y_{it} = Treatment + Strata_i + Y_{0i} + MissingY_{0i} + Wave2_i + \varepsilon_i$, and the rest of columns add interaction terms. Columns 7–9 present a z-score of the two variables in this table and the three variables of table 10. i indexes individuals. $Treatment_i$ is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{it} refers to values at follow-up, and Y_{0i} refers to values at baseline. When the value at baseline is missing, $MissingY_{0i}$ is equal to one and the missing value in Y_{0i} is replaced with zero. $Wave2_i$ is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

developing new products and on starting new marketing campaigns. Improvements in production processes are distinct from development of new products and services, or capital expansions. Instead, these improvements refer to a more efficient use of existing capital and labour resources. An example of an improved production process would be the adoption of a careful itemised stock management system where inputs and outputs are systematically recorded and where raw materials are replenished before they run out to ensure continuity in production.

Column 1 of Table 11 shows that entrepreneurs in the treatment group are 22 per cent less likely than entrepreneurs in the control group to use personal accounts for their business. In addition, the training caused treatment group entrepreneurs to be 10.6 per cent more likely to invest their savings in the business than their peers in the control group (Column 4 of Table 11). As a final measure, we compute RHS aggregated *z*-scores for all outcome measures reported in Tables 10 and 11, following the methodology in Kling, Liebman and Katz (2007). These results are reported in the last columns of Table 11, and show that the aggregate impact on business practices and investments is positive and statistically significant.

The regressions with interaction effects in Tables 10 and 11 indicate that the effects on business practices and investments that are statistically significant in the whole sample are equally strong for entrepreneurs with below and above median financial literacy at baseline. However, the effects tend to be slightly smaller for female entrepreneurs than for male entrepreneurs.

Overall, the impacts discussed so far support the hypotheses laid out in Section 2. That is, we find that business training improves financial knowledge and business practices, and it also increases business profits and sales. However, not all of these effects are present for all sub-groups of entrepreneurs studied in this paper. In particular, only entrepreneurs with above median financial literacy at baseline and also female entrepreneurs reported increase in sales and profits as a result of the training.

6.5. *Evaluation results – treatment effects on loan behaviour*

Adding to our analysis on business outcomes, this section investigates whether the business training programme changed loan behaviour. In order to do so, we analyse detailed administrative data from Partner, covering the calendar year 2010. Since our sample may borrow from other sources than Partner, we supplement the administrative data with a question on the firms' overall loan portfolio from the follow-up survey.

We start by examining whether the training had an effect on the likelihood of taking out a loan from Partner in 2010. Table 12 reports treatment regressions for this outcome, first in the complete sample (Columns 1 through 3) and then for the 170 individuals who had a business at baseline and follow-up (Columns 4 through 6). The training did not have an effect on the probability of taking out a loan from Partner on average. However, in the sample of business owners, female entrepreneurs are significantly less likely to take out a loan from Partner due to the training. About 39 per cent of female entrepreneurs in the control group took out a loan from Partner in 2010, but this number drops to 12 per cent in the treatment group. The last three columns of Table 12 use follow-up survey data to investigate whether the training had an impact on having a loan from any source (including lenders other than Partner). We do not find this to be the case. Taking together, the results in Columns 6 and 9 suggest that the training caused female entrepreneurs to obtain loans from other sources instead of Partner, perhaps since it alerted them to different options and shed light on how to better compare and negotiate different financing options.

Table 12. Loan outcomes.

	Took out loan (full sample)			Took out loan (sample with baseline business)			Has outstanding business loan		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.002 (0.037)	-0.006 (0.055) 0.014	0.045 (0.044)	-0.058 (0.069)	-0.176 (0.119) 0.189	0.006 (0.079)	-0.045 (0.074)	-0.118 (0.120) 0.118	-0.059 (0.084)
Treatment \times above median baseline financial literacy		(0.075)			(0.145)			(0.152)	
Treatment \times female			-0.123** (0.062)			-0.275** (0.113)			0.062 (0.154)
R-squared	0.053 445	0.054 445	0.061 445	0.106 170	0.117 170	0.129 170	0.188 170	0.191 170	0.189 170
Control mean dependent variable	0.163	0.169	0.169	0.224	0.224	0.224	0.759	0.759	0.759
Control mean Dep Var [above median/female]		0.171	0.250		0.189	0.389		0.757	0.833
Control mean Dep Var [below median/male]		0.167	0.125		0.286	0.150		0.762	0.725
F-test: Treatment + Interaction = 0 (<i>p</i> -value)		0.873	0.149		0.883	0.005		0.998	0.980

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. Data in columns 1–6 comes from Partner’s administrative loan data, while data in columns 7–9 comes from the follow-up survey. The sample in columns 1–6 is also clients who took out a loan after December 2009, with columns 4–6 restricted to individuals who had a business at baseline and follow-up. The sample in columns 7–9 is also clients who had a business at baseline and still have it at the time of the follow-up survey. The specification in columns 1, 4 and 7 is given by $Y_{1i} = Treatment_i + Strata_i + Y_{0i} + MissingY_{0i} + Wave2_i + \varepsilon_i$, and the rest of columns add interaction terms, i indexes individuals. $Treatment_i$ is an indicator variable equal to 1 for clients randomly assigned to the treatment group, Y_{1i} refers to values at t of low up, and Y_{1i} refers to values at baseline. When the value at baseline is missing, $Missing_{0i}$ is equal to one and the missing value in Y_{0i} is replaced with zero. $Wave2_i$ is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Next, we examine the treatment effects on the characteristics of new loans taken out from Partner, using the sample of loans that our study participants took out after the training (80 loans). The training did not significantly change the average loan amount (Columns 1 through 3 of Table 13). However, we detect a significant treatment effect on the number of instalments. Specifically, the results in Columns 4 through 6 show that treatment entrepreneurs are more likely to obtain a larger number of instalments than control group entrepreneurs. On average, the training increased the number of instalments from 22.7 to 27.6 (a difference of about 5 months). This effect is much larger for female entrepreneurs, going from 21.2 to 39 instalments. Finally, the treatment effect on the interest rate is negative, but it is small and not statistically significant.

In Table 14, we examine loan default and restructuring. The outcome variables are dummy variables indicating whether a client paid more than 15 days late (Partner's definition of being delinquent), had a loan written off, or refinanced a loan at any time in 2010. These dummy variables cover both new loans taken out in 2010 and loans from before that were still outstanding. We find that the treatment effect on loan payments being past due and loan write-off is not statistically significant. The significant finding from Table 14 is on loan restructuring. The treatment group is 4.6 per cent more likely than the control group to refinance its loans with Partner (Column 6). This is a large effect considering that only 4.2 per cent of the control group refinanced its loans with Partner during this period. Hence, the treatment doubles the likelihood of refinancing loans. This refinancing typically takes the form of a lower interest rate or a longer loan term.

Our measured effects on loan behaviour do not confirm the hypothesis in Section 2 that training lowers default rates. However, we find evidence that the training caused female entrepreneurs to explore alternative funding sources and to obtain longer-term loans from Partner.

7. Conclusion

In this paper, we test the impact of business training for young entrepreneurs in Bosnia and Herzegovina. We find that, while the training programme did not influence business survival, it significantly improved business practices and investments among surviving businesses. Specifically, treatment businesses are significantly more likely to implement new production processes and to inject new investment into the business, consistent with the central theme of the training which was to encourage more capital growth. Further, we find that treatment businesses are more likely to separate personal and business accounts, refinance their loans for more favourable terms and obtain new loans with longer loan terms.

In contrast to the previous literature, our results are particularly strong for female-run businesses. The training increased profits of female-run firms by 82 per cent relative to the control group. Moreover, women were also significantly more likely to report having maintained or increased sales due to the training. On the other hand, female-run businesses showed a decrease in employment due to the programme, possibly because they re-optimised their capital/labour ratio as a result of the training. We also find that women were more likely to take out loans from alternative sources due to the training and that they received longer loan terms for new loans from our partnering microfinance institution.

Our results have important policy implications for business promotion and growth. First, our results indicate that lack of business acumen is not the primary constraint to business survival. Hence, while programmes aimed at promoting new business start-up should certainly consider business training as part of their promotion package, this training should

Table 13. Partner loan data.

	Loan amount			No. of installments			Interest rate		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.429 (849.055)	603.030 (1421.171)	-1095.223 (960.538)	4.939* (2.865)	7.866*** (2.918)	-2.083 (3.150)	-0.117 (0.645)	0.205 (0.581)	-0.251 (0.832)
Treatment \times above median baseline financial literacy		-1006.045			-4.886			-0.537	
Treatment \times female		(1760.976)			(5.268)			(1.165)	
R-squared			3109.016* (1721.303)			19.925*** (4.822)			0.379 (1.295)
N	0.200 80	0.205 80	0.243 80	0.537 80	0.544 80	0.643 80	0.452 80	0.453 80	0.453 80
Control mean dependent variable	4392.000	4392.000	4392.000	22.680	22.680	22.680	20.461	20.461	20.461
Control mean Dep Var [above median/female]		4500.000	3923.077		23.429	21.154		21.383	21.528
Control mean Dep Var [below median/male]		4254.545	4900.000		21.727	24.333		19.288	19.306
F-Test: Treatment + Interaction = 0 (<i>p</i> -value)		0.699	0.163		0.493	0.000		0.743	0.899

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. Data comes from Partner's administrative loan data, and the sample consists of new loans that were disbursed starting January 2010. The specification in columns 1, 4 and 7 is given by $Y_{1i} = Treatment_i + Strata_i + Y_{0i} + MissingY_{0i} + Wave2_i + \epsilon_i$, and the rest of columns add interaction terms, i indexes individuals. $Treatment_i$ is an indicator variable equal to 1 for clients randomly assigned to the treatment group. Y_{1i} refers to values at follow-up, and Y_{0i} refers to values at baseline. When the value at baseline is missing, $MissingY_{0i}$ is equal to one and the missing value in Y_{0i} is replaced with zero. $Wave2_i$ is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation, and columns 4-9 control in addition for the loan amount. Strata are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors, clustered at the client level, in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 14. Partner loan data.

	Ever been late by more than 15 days			Ever had loan written off			Ever refinanced loan		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.005 (0.038)	-0.035 (0.060)	-0.005 (0.044)	-0.014 (0.023)	-0.059 (0.036)	-0.019 (0.026)	0.046* (0.024)	0.032 (0.032)	0.055* (0.029)
Treatment \times above median baseline financial literacy		0.072			0.084*			0.026	
Treatment \times female		(0.077)			(0.046)			(0.046)	
R-squared			0.028 (0.072)			0.016 (0.048)			-0.026 (0.047)
N	0.113 434	0.115 434	0.114 434	0.111 434	0.120 434	0.112 434	0.114 434	0.115 434	0.115 434
Control mean dependent variable	0.148	0.148	0.148	0.056	0.056	0.056	0.042	0.042	0.042
Control mean dep var [above median/female]		0.120	0.145		0.027	0.073		0.040	0.055
Control mean dep var [below median/male]		0.179	0.149		0.090	0.046		0.045	0.034
F-Test: treatment + interaction = 0 (<i>p</i> -value)		0.436	0.716		0.390	0.931		0.083	0.441

Notes: This table reports results from a randomised experiment measuring the impact of a business and financial literacy programme. Data comes from Partner's administrative loan data and the unit of observation are the loans taken out by clients. The specification in columns 1, 4 and 7 is given by $Y_{it} = Treatment_i + Strata_i + Y_{0i} + MissingY_{0i} + Wave2_i + \varepsilon_i$, and the rest of columns add interaction terms, i indexes individuals. *Treatment* is an indicator variable equal to 1 for clients randomly assigned to the treatment group. Y_{it} refers to values at follow up, and Y_{0i} refers to values at baseline. When the value at baseline is missing, *MissingY_{0i}* is equal to one and the missing value in Y_{0i} is replaced with zero. *Wave2_i* is a dummy for the second wave of the follow-up survey. All regressions control for indicator variables of each strata used in the randomisation as well as loan amount, number of installments and nominal interest rates. *Strata* are defined by gender, financial literacy score at baseline ≥ 3 , sector, and missing profits. Robust standard errors, clustered at the client level, in parenthesis. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

not be the sole intervention. Related research has identified other important constraints to business creation, such as lack of capital (Bianchi and Bobba 2012; De Mel et al. 2008; Gertler, Martinez, and Rubio-Codina 2006). One important caveat is that our study was based in a country recovering from recent war and facing economic recession, hence the external validity of our findings should be viewed with the setting in mind. Further research in other settings and under different economic environments would certainly benefit the literature.

Our second set of results, however, shows that business training can provide the necessary motivation and entrepreneurial impetus for improving the performance of existing businesses, in particular for female entrepreneurs. These are encouraging results and identify business training as an important policy tool to help improve outcomes for youth-led businesses. Finally, our results suggest that more research is needed to understand why business training programmes seem to benefit female-run businesses only in some environments but not others.

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Notes

1. See, for example, Cole and Fernando (2008), or <http://corporate.visa.com/viewpoints/responsible-spending/financial-literacy.shtml>
2. See Xu and Zia (2012) for a recent review of the literature.
3. See Karlan and Valdivia (2011) for Peru, Drexler et al. (2011) for the Dominican Republic, Berge, Bjorvatn, and Tungodden (2011) for Tanzania, and Giné and Mansuri (2012) for Pakistan. These papers are discussed in more detail in Section 2.
4. The large proportion of firms shutting down is consistent with Demirgüç-Kunt, Klapper and Panos (2007), who find that nearly 50 per cent of new businesses in Bosnia and Herzegovina do not survive beyond their first year.
5. The purpose of this simplistic model is to provide a suitable framework to understand and derive the empirical predictions. Hence, the model is purposefully short and does not incorporate other factors such as capital constraints.
6. The study covers another treatment which provided large loans in addition to business training and this combined treatment has a positive impact on business starts.
7. We limited the sample to clients living in the municipalities of Banovici, Gracanica, Gradacac, Kalesija, Lukavac, Sebnik, Tuzla and Živinice.
8. Partner's definition of delinquent loans is either being more than 15 days late on the current payment or having a cumulative number of late payment days over 15. The reason for not including these clients in the sample is that it is Partner's policy not to offer any programmes or new loans to delinquent clients.
9. About 35 per cent of the clients who met all selection criteria were women.
10. <http://www.ilo.org/empent/units/start-and-improve-your-business/lang--en/index.htm>
11. IFC Business EdgeTM Product Fact sheet and information provided by Michel Botzung from IFC's Sustainable Business Advisory team.
12. These 445 are a subgroup of the clients who said that they were interested in the training in our screening phone calls. We provided the list of interested clients to the survey firm for the baseline survey and asked them to stop surveying after they had completed 450 interviews. For

various reasons, we only ended up with 445 valid baseline interviews, which form the sample for our experiment.

13. We also estimate treatment-on-treated effects by instrumenting for attendance with invitation to trainings. Our results are consistent and coefficients larger in size than the ITT estimates, as expected.
14. The second wave was necessary as the response rate was initially very low. This initial non-response is not correlated with treatment.
15. The lack of impact on numeracy skills does not vary by gender, with both women and men scoring no better than their baseline scores.
16. As mentioned above, we did not stratify by having a business at baseline or not in the randomisation, but the variable is balanced across treatment and control groups.
17. This entrepreneur is in the treatment group. Nobody in the control group started a business during the study period.
18. We include both increased and maintained profits in the outcome indicator variable here, since our study period coincided with an economic crisis, making maintaining profits a desirable result.

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Appendix 1. Content of business and financial education training courses

Day 1

Module 1: general concepts (1 hour).

- What is entrepreneurship? – General knowledge, facts and ideas.
- Who is an entrepreneur? – General info about who is an entrepreneur.
- Advantages and disadvantages of being an entrepreneur.
- What are micro, small and medium enterprises?
- How to recognise a business opportunity?
- Types of business activities:
 - Main business activity/source of income.
 - Secondary business activity/source of income.
- Legal business types:
 - Independent businesses/sole proprietors (crafts, sales, services, and so forth.).
 - Limited liability companies (LLC).
 - Advantages of independent business and LLC.
- To register or not? Steps for registering a business.
- Making investments in the business for it to grow.
- Tax system in Bosnia and Herzegovina. What is VAT? Difference between independent businesses and mandatory VAT payers. Examples to illustrate how VAT works. VAT was introduced in Bosnia in 2008, so many are still unfamiliar with how it works.

Module 2: business plan (2 hours).

- What is a business plan?
- Importance of business planning and a business plan.
- Steps in developing a business plan.
 - Analysis of current situation.
 - Internal organisation.
 - SWOT analysis.
 - Team exercise to practice SWOT analysis for business type of their choice.
 - Defining business goals.
 - Importance of business investment.
 - Basics of marketing and market research.
 - Basics of financial planning, projecting financial performance/income.

Day 2

Module 3: marketing (1 hour).

- What is marketing and why it is important for business?
- What is market? Supply and demand. Market research (size, potential, segmentation and so forth – all in the context of the business plan).
 - Customer behaviour? What is important to know about our buyers? How to communicate through marketing?
- Marketing mix 4P.
 - (1) Product. Brand. Packaging.
 - (2) Price. Sales strategies. Discounts, and so forth.
 - (3) Promotion.
 - (4) Place (distribution).

Module 4: understanding and managing the firm's finances (1 hour 30 minutes).

- What are finances? Basics of financial analysis as related to a business plan.
- Costs. What are costs? Types of costs. Managing and cost planning.
- Income and expenses and related planning.
- Keeping household finances separate from business income and expenses.
- Basic financial reports. Balance sheet and income sheet.
- What is a cash flow? How to analyse cash flow for the needs of a business plan?

Module 5: business growth (30 minutes).

- What are investments and why are they important?
- Growth planning. What is growth and what is business development? Internal and external growth.
- How to grow healthy?
- Financing a growing venture. Internal and external sources. Personal investments and Partnerships.
- Final thoughts (for those doing only 5 modules).

Day 3

Module 6: the importance of financial literacy in times of financial crisis (3 hours).

- Financing sources (pros and cons).
 - Internal financing.
 - Loans & how to get them.
 - Purchase of an investment or appreciable asset through debt as leverage.
 - Upsides – greater returns, availability of funds, and so forth.
 - Downsides – risk, loss of investment, loan balance payment, and so forth.
 - Banks.
 - Microcredit organisations.
 - Family/Friends.
 - Government sources.
 - Funds available at Municipality, Canton and Entity level.

- Non-governmental sources.
- International & EU acceptance funds.
- Importance of financial responsibility.
 - CRK (Central Credit Registry).
 - What it is and how it works.
 - Credit consequences for failure to pay on time.
 - Managing your credits & loans.
- Interest rates.
 - Description of simple and compound interest.
 - Compare bank interest rates and show matrix of potential returns.
 - Basic formula to calculate simple & compound interest.
 - Rule of 70 or 72 (doubling shortcut).
 - Common types of interest charged.
 - Annual versus effective interest rate.
 - Credit cards and interest.
 - Interest on credit.
 - Interest on cash.
 - Financial help resources.
- Diversification.
- Why diversity?
 - Real life example, that is, selling umbrellas and sunscreen.
- Diversification effects & return expectations.
 - Smaller returns but smaller losses.
 - Reduction in fluctuation of income.
- Concept of correlation.
 - Income from correlated versus uncorrelated assets.
 - Example – that is, investing in crops whose yield depends on different set of preconditions.
 - Investing money in stock market vs. savings account deposits.
- Diversification strategies.
 - Spread the investment portfolio through different vehicles – in this case different sources of income.
 - By risk.
 - By industry or geography.
- Short & Long term.
 - Definition of short and long term investing in real assets & ventures.
 - Importance of seeing the entire picture.
 - Do you have necessary information to make sound decisions?
 - Compare your options on their true merits.
 - Why long term is more predictive of future performance?
 - Understanding periodic fluctuations in performance.
 - Defining investment goals.
- The Devil's in the Details.
 - Legal language.
 - Penalty clauses with loans.
 - Hidden fees.
 - Marketing traps.
- Final thoughts.
 - Managing yours and expectations of others.
 - What can you fall back on?

Appendix 2. survey questions measuring financial literacy and business knowledge

1. If you have a choice to invest 1000 KM with one of three friends, with whom would you invest? Note, there is a possibility your investment will fail and you would lose your invested money.

- 1 Friend with an investment with highest return in the past month.
- 2 Friend with an investment with the highest return in the previous year.
- 3 Friend with investment with low return and low risk.
- 4 Invest a portion with all of them.
- 997 Don't know.

2. Suppose you owe 1000 KM on a loan from Partner and the interest rate you are charged is 20 per cent per year compounded annually. Compounding means that interest for the year is calculated at the end of each year based on the total outstanding amount, inclusive of principal and interest. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double? *Read the options and mark the box in front of the indicated answer.*

-
- 1 2 years.
 - 2 Less than 5 years.
 - 3 5 to 10 years.
 - 4 More than 10 years.
 - 5 Do not know.
 - 6 Refuse to answer.
-

3. Suppose you owe 3000 KM on a loan from Partner. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12 per cent (or 1% per month), how many years would it take to eliminate your debt if you made no additional new charges? *Read the options and mark the box in front of the indicated answer.*

-
- 1 Less than 5 year.
 - 2 Between 5 and 10 years.
 - 3 Between 10 and 15 years.
 - 4 Never, you will continue to be in debt.
 - 5 Do not know.
 - 6 Refuse to answer.
-

4. All individuals & legal subjects making less than 50,000 in taxable income are obligated to pay VAT? *Listen and mark the indicated response.*

- 1 Yes 2 No 997 Do not know

5. Do you know what the Central Credit Registry is? *Listen and mark the indicated response.*

- 1 Yes 2 No

6. In difficult times businesses sometimes seek to temporarily lower prices in hope of attracting new customers. They plan to increase prices at a later day when market

conditions improve. If price of a product is 100 KM and is lowered by 30 per cent how many percent does the product price have to be increased by to return to the original 100 KM price. *Read the options and mark the indicated response.*

1	By 30%.
2	Less than 30%.
3	More than 30%.
4	Do not know.

7. Suppose you are a farmer facing unpredictable market conditions where prices are fluctuating. In order to best protect your income stream, you should: *Read the options and mark the indicated response.*

1 Specialise in one crop.

2 Grow multiple crops for which historically prices have moved in the same direction.

3 Grow multiple crops for which historically prices have moved in different directions.

997 Do not know.

8. Suppose you operate a farm and are interested in purchasing a crop processing machine. The machine costs 1000 KM. You do not have the resources to pay for the machine in cash, so the seller offers you two financing options: (a) Pay 12 fixed monthly instalments of 100 KM each; (b) Borrow \$1000 KM from the seller for a 12 month loan at a 15 per cent annual interest rate. Which is the more advantageous offer? *Read the options and mark the indicated response.*

1 Option (a) ☐ 3 They are the same

2 Option (b) ☐ 997 Do not know