



**Does financial literacy “grease the wheels” of the loans market? A note\***

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## Abstract

### Purpose

What is the impact of financial literacy on the lending activity of banks? Based on the results of the S&P Global FinLit Survey for an extensive sample of countries, the paper provides the first global test for the impact of country level financial literacy on the lending activity of commercial banks.

### Design/methodology/approach

We use data on financial literacy by country from the S&P Global FinLit Survey that was completed in 2014, and lending activity and macroeconomic control variables data from the World Bank from 2015 to 2017 to estimate the cross sectional effect of financial literacy on the importance of loans and of non-performing loans, using different estimation methods.

### Findings

The results show that, first, financial literacy favors lending activity, contributing to enhance the importance of credit in the economy. Second, financial literacy prevents bad loans from building up, thus reducing credit risk and favoring the quality of the credit portfolio of banks. These results are robust to several controls for macroeconomic conditions and the quality of institutions. They are also robust to different estimation methods.

### Originality

The paper extends to an international and country level the available evidence of the consequences of the existence (or lack of) financial literacy for the lending activity of commercial banks, focusing on the amount of credit granted and the quality of such credit.

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3 Thus, the paper provides an exploratory analysis of the impact of country level financial  
4 literacy on the lending activities of commercial banks.  
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#### 10 Research limitations/implications

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12 Our evidence of the positive (negative) impact of population financial literacy on the quantity  
13 (poor quality) of loans suggests that the efforts to enhance the financial literacy of the  
14 population contributes to the sustainable development of the financial sector and economic  
15 growth.  
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24 Keywords: financial literacy, loans, non-performing loans, commercial banks, financial  
25 development  
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31 JEL classification: G21, F30  
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#### 45 **Introduction**

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47 Only one in three adults are financially literate globally (Klapper and Lusardi, 2020). The lack  
48 of understanding of basic financial concepts varies significantly between advanced economies  
49 and emerging countries and even within economic regions such as the EU. Financial literacy  
50 is an important matter for governments and organizations. According to the OECD (2018),  
51 financial literacy is “a combination of awareness, knowledge, skill, attitude and behavior  
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3 necessary to make sound financial decisions and ultimately achieve individual financial  
4 wellbeing” (p. 4).  
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8 The lack of financial knowledge is currently a serious issue at a time when strong  
9 deregulation of financial activities has contributed to the development of new and complex  
10 financial products and markets. Financial literacy influences the ability to process economic  
11 information and make informed decisions (Lusardi and Mitchell, 2014; Lusardi, 2019). The  
12 behavior of people and the decisions they take concerning savings, investments, wealth  
13 accumulation, pensions and debt depend on their ability to process financial information and  
14 determine their well-being. Financial literacy is a requirement for the development of digital  
15 services and financial inclusion. These services represent a major role in a crisis like Covid-  
16 19, since they contribute to financial inclusion, to increase savings, deposits and the liquidity  
17 of banks, and to contain non-performing loans (Banna and Alam, 2021).  
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31 The aim of this paper is to analyze the relationship between financial literacy and the  
32 lending activity of commercial banks. The decision to borrow, the cost of debt service and the  
33 ability to reimburse debt can depend on the financial knowledge of those involved in  
34 financial decisions. Klapper *et al.* (2015) argue that people who have financial skills can easily  
35 use financial services, such as credit. Klapper *et al.* (2013) find evidence on Russia during the  
36 Global Financial Crisis (GFC) that financial literacy is positively related to the use of bank  
37 accounts and formal bank credit. Inversely, less financially literate individuals are more likely  
38 to use informal credit. Looking at the MENA countries, Lyons and Kass-Hanna (2021) find  
39 that people living in countries with a higher literacy rate are more likely to hold an account in  
40 a financial institution, to have saved in the past and are more prone to formal borrowing  
41 (however, they are less likely to borrow, especially informal borrowing).  
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56 Financial illiteracy carries costs, such as running up debt (Klapper *et al.*, 2015) and  
57 incurring in debt distress, and judging debt as excessive or appropriate (Lusardi and Tufano,  
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3 2015). Also, college students with low literacy levels underestimate the future payments of  
4 their student debt and expect lower starting salaries than their literate peers (Artavanis and  
5 Karra, 2020), which impairs their payment-to-income ratio and undermines their ability to  
6 service debt in the future. During the COVID-19 crisis, Poles with higher levels of financial  
7 literacy had relatively low levels of debt distress (Kurowski, 2021). In contrast, more financially  
8 literate Japanese households tend to overborrow and to engage in other financially risky  
9 behavior (Kawamura *et al.*, 2021).

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The lack of financial knowledge also contributes to the higher cost of loans, as less  
financially-literate consumers pay more fees and financing charges (Lusardi and Tufano, 2015;  
Lusardi and de Bassa Scheresberg, 2013; Disney and Gathergood, 2013; Tahir *et al.*, 2020).  
Gerardi *et al.* (2013) find that low numerical ability was a strong predictor of subprime  
mortgage defaults in USA. Individuals with low numerical ability take out mortgage loans in  
unfavorable terms that strongly impact mortgage default, contributing therefore to the US  
subprime mortgage crisis of 2007. However, van Ooijen and van Rooij (2016) estimate that  
higher levels of debt literacy are positively related to riskier mortgages and that homeowners  
with lower levels of financial literacy are more likely to underwrite traditional, less risky  
mortgage loans.

Moreover, financially literate individuals are less likely to experience a negative income shock  
and are more likely to report higher levels of unspent income (Klapper, Lusardi and Panos,  
2013; Kurowski, 2021), which are important factors in the ability to pay debts.

Literature on the business sector is scarce. Xu *et al.* (2020) find a positive relationship  
between financial literacy of owners of informal businesses in China and access to formal  
credit. The relationship is not significant in the case of formal businesses, since the law requires  
them to hire financial experts. The influence of financial literacy on SME borrowing is studied  
by García-Pérez-de-Lema *et al.* (2021) who, focusing on a sample of 310 SMEs, find that the

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3 financial literacy of executives helps to provide better access to credit, reducing financial  
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5 constraints, thus allowing for technological innovation.  
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8 In sum, on the one hand, higher financial literacy influences positively access to credit  
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10 by small businesses and households, although it can contribute to excessive debts. On the other  
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12 hand, evidence suggests that financial literacy relates negatively to borrowing costs, which may  
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14 signal a negative link with the probability of failing to service the debt, favoring less impaired  
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16 loans.  
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19 This paper seeks to test the effect of financial literacy on two measures of banks'  
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21 lending activity: the quantity and quality of loans. The banking sector provides loans to the  
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23 economy, offering the funds that households and companies need to finance their projects.  
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25 Credit risk relates to the inability of debtors to fulfil their debt service obligations. It is  
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27 important to study the quality of loans, because the poor quality of loans can deteriorate the  
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29 soundness of the banking sector and endanger economic growth. Moreover, we extend to an  
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31 international and country level the available evidence of the consequences of existing (or lack  
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33 of) financial literacy for the lending activity of commercial banks, focusing on the amount of  
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35 credit granted and the quality of such credit.  
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40 Other studies on financial literacy at country level include, for example, Klapper and  
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42 Lusardi (2020), who test the aggregate determinants of financial literacy, and Japelli (2010),  
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44 who relates human capital and financial literacy indicators. Grohmann *et al.* (2018) study the  
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46 relationship between financial literacy and financial inclusion and find evidence that financial  
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48 literacy contributes positively to the ownership and use of the credit card, therefore to the  
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50 demand of formal credit.  
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54 We expect a positive relationship between financial literacy and the amount of  
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56 commercial bank borrowing. Higher levels of financial literacy are associated with better-  
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58 informed decisions taken by households and companies, facilitating the holding of bank  
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3 accounts (Grohmann *et al.*, 2018; Klapper *et al.*, 2013) and access to credit granted by the  
4 banking sector (Klapper *et al.*, 2013). Klapper and Lusardi (2020) state that holders of bank  
5 accounts have, generally speaking, stronger financial skills than the population as a whole and  
6 that in the emerging markets many borrowers depend on informal lenders. This relationship is  
7 compatible with the findings of Xu *et al.* (2020) and García-Pérez-de-Lema *et al.* (2021), who  
8 argue that the financial literacy of owners and executives of small business foster access to  
9 credit.

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19 Moreover, we expect a negative relationship between financial literacy and the weight  
20 of non-performing loans. Financial literacy contributes to informed financial decisions of  
21 households and companies, to a better evaluation of the cost of debt and the capacity to pay  
22 debts, thus influencing the quality of loans. This relationship is compatible with the findings  
23 of Klapper *et al.* (2013), Lusardi and Tufano (2015), Lusardi and de Bassa Scheresberg (2013),  
24 Disney and Gathergood (2013), and Gerardi *et al.* (2013). The study of the macroeconomic  
25 determinants of the quality of loans is the subject of extended literature (Castro, 2013;  
26 Dimitrios *et al.*, 2016; Louzis *et al.*, 2012; Beck *et al.*, 2015; Radivojević *et al.*, 2019),  
27 following the Global Financial Crisis and the Sovereign Debt crisis in Europe.

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40 We contribute to the literature in several ways. To our knowledge, we are the first to  
41 test the direct influence of financial literacy on the quantity and quality of banking sector credit  
42 to the private sector. The questions raised herein contribute to the study of financial literacy as  
43 a factor of demand driving the lending activity. Second, we use data on country-level financial  
44 literacy, which is in its early stages of analysis at the aggregate level. Third, we contribute to  
45 the literature on the determinants of loans and non-performing loans, shedding light on a  
46 possible determinant of wealth of the financial sector. Financial literacy can “grease the  
47 wheels” of bank loans, promoting and facilitating lending and the quality thereof.



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3 The paper is organized into the following sections next: section 2 presents the data, the  
4 variables and the methodology; section 3 describes the results and the discussion; and section  
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8 4 is the conclusion.  
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### 10 11 12 13 14 15 **Data, Variables and Methods**

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17 Does financial literacy influence the lending activity of commercial banks? To answer this  
18 question we start by collecting data on financial literacy by country from the S&P Global FinLit  
19 Survey (Appendix B in Klapper and Lusardi, 2020). This is a wide coverage survey; it was  
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completed by more than 150,000 adults selected randomly from more than 140 economies in  
2014.<sup>1</sup>

As shown by Klapper and Lusardi (2020), the S&P Global FinLit Survey measures financial literacy as the percentage of adults who answer correctly to at least three out of four questions on core financial concepts: numeracy (interest), compounding, inflation, and risk diversification. Overall, just one out of three adults are considered financially literate. Moreover, gender and education gaps in financial literacy are found in both developing and developed countries.

From the World Bank' Global Financial Development database we collect data on the importance of lending activity (Loans) and the quality of loans (NPL – non-performing loans). Loans consist of the ratio of private credit granted by deposit money banks to GDP. NPL is the ratio of non-performing loans (typically loans whose debt service is 90 days or more past due) to total loans.

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<sup>1</sup> We prefer this data to other estimates of financial literacy (e.g. OECD/INFE survey data) due to its wider coverage. The OECD/INFE International Survey of Adult Financial Literacy covers only 30 countries and economies (OECD, 2016), followed by a newer round for the developed world, covering 19 countries (from the G20 group) and 2 guest countries (OECD, 2017).

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3 As in Weill (2011), we take the average of the period 2015-2017 to smooth out business  
4 cycle effects.  
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7 Moreover, we control for a series of factors (variables) known to influence the level of  
8 bank lending activity. Specifically, we control for overall economic conditions including GDP  
9 growth, inflation and unemployment (e.g. Weill, 2011; Park, 2012; Bougatef, 2016). Since the  
10 S&P Global FinLit Survey includes a range of countries from different parts of the world and  
11 in different stages of development, we include latitude to control for financial development  
12 (e.g. Beck *et al.*, 2003). Except for latitude, we measure each control variable over the 3-year  
13 period between 2015 and 2017. Finally, we include two variables that control for institutional  
14 quality: (i) depth of credit information index that measures rules affecting the scope,  
15 accessibility, and quality of credit information available from public or private credit registries,  
16 and; (ii) strength of legal rights that measures the degree to which collateral and bankruptcy  
17 laws protect the rights of borrowers and lenders and thus facilitate lending (e.g. Bougatef, 2016;  
18 Djankov *et al.*, 2007). We collect this data from the World Bank's Global Development  
19 Indicators Database, except for latitude that is retrieved from the CIA World Fact Book. We  
20 also took into consideration the availability of data when selecting the variables, to keep the  
21 cross-section as large as possible. Table I presents the definition of variables and Table II  
22 includes descriptive statistics.  
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44 For estimation, we begin with the following simple cross-sectional OLS regression:

$$45 Y_i = \alpha + \beta_1 \text{FinLit}_i + \beta_2 X_i + v_i \quad (1)$$

46  
47 Where  $Y_i$  refers either to Loans or non-performing loans of country  $i$ ,  $\text{FinLit}_i$  is our  
48 variable of interest, the index of financial literacy of a given country  $i$ ,  $X_i$  is a vector of control  
49 variables (see Table I for details), and  $v_i$  is the error term.  
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## Results and Discussion

Table III presents our main results. Financial literacy is statistically significant in all of the estimates performed. As can be seen in column (2), an increase of one percentage point in the financial literacy index is associated with a statistically significant increase of 1.1 percentage points in the ratio of loans to GDP, after controlling for the other effects in the model. Also, as can be seen in column (4), an increase of one percentage point in financial literacy is associated with a decrease of 0.11 percentage points in the ratio of non-performing loans to total loans.

These results show that financial literacy does contribute to a healthier credit market, either by enlarging the importance of credit in the economy or by reducing credit risk.

Concerning macroeconomic controls, inflation exerts a negative and significant effect on loans, as expected (Weill, 2011), since it contributes to lower productivity levels, with an adverse effect on loan markets and bank loan reduction. The availability of credit information exerts a positive and significant effect on loans and a negative and significant effect on poor quality loans (Bougatef, 2016). This result is expected since the depth of credit information reduces information asymmetry and credit risk. Latitude is seen to have a positive and significant (10% level) coefficient for NPLs. This result suggests that the quality of loans of the countries furthest away from the equator is poorer. All other coefficients estimated have the expected sign, but they are not significant.

Our literacy data refers to a survey implemented in 2014 and our credit market data refers to a later period, the 3-year average between 2015 and 2017. Nevertheless, to gain further insight on the causality effect of financial literacy on credit market dimensions, and to control for potential mismeasurement errors or endogeneity effects resulting from the effect on financial literacy of already higher credit in 2014, we re-estimate our model using the instrumental variable approach. This procedure is usually found in the literature and the instruments selected vary, for example: numeracy in primary school (Grohmann *et al.*),

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3 mathematical abilities measured by PISA test scores (Japelli, 2010) and number of newspapers  
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5 and number of universities (Klapper *et al.*, 2013)<sup>2</sup>.  
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8 Finding appropriate instruments for financial literacy is particularly difficult due to data  
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10 availability. As an example, relying on the data available from the World Bank on comparative  
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12 mathematical literacy at the end of primary school around 2014 reduces our sample to about  
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14 half of its size. As such, taking into consideration data availability, we use as external  
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16 instruments for financial literacy the Individuals who use the Internet (as a percentage of  
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18 population), averaged for the 2012 to 2014 period, and the Human Capital Index for 2010<sup>3</sup>,  
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20 both from the World Bank. The use of the internet represents access to information and  
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22 opportunities for knowledge. The Human Capital Index ranges from 0 to 1 and measures the  
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24 productivity of a future worker who is a child born today, relative to full health and education  
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26 that it is expected to accomplish<sup>4</sup>. Human capital consists of the knowledge, skills and health  
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28 that people accumulate. Therefore, both variables measure the exposure of population to  
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30 information and knowledge and can be positively related to financial literacy. Also, the  
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32 population used for these measurements is not the same as that which applied for loans, thus  
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34 we can expect these and loan variables to not be related.  
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40 Table IV summarizes the results. We use two estimation methods: two-stage least  
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42 squares (TSLS) and the more efficient generalized method of moments (GMM) estimator. Our  
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44 basic conclusion for a statistically significant positive (negative) effect of financial literacy on  
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46 the amount of loans (quality of loans) remains valid and reinforces its economic significance.  
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48 An increase of one percentage point in the literacy index fosters an increase of almost 3.5  
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55 <sup>2</sup> Lusardi and Mitchell (2014) present a summary of the instruments used in the literature about financial literacy.

56 <sup>3</sup> For those few situations where the HCI for 2010 is not available, we use the HCI 2017 rescaled by the cross-  
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58 sectional overall mean as an indicator. That is, for a given country if the value for 2010 is missing, but we have  
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60 the value for 2017, we replace the 2010 missing value with  $(\text{Country HCI}_{2017} / \text{Average HCI}_{2017}) \times \text{Average HCI}_{2010}$ .

<sup>4</sup> See World Bank (2018) for more information on this index.

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3 percentage points in the importance of loans, and a decrease of 0.22 percentage points in the  
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5 non-performing loans ratio.  
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8 The influence of inflation on loans remains significant (at 10% level), but it is now  
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10 lower and the availability of credit information maintains its influence on the quality of loans.  
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12 The coefficients estimated for Latitude are negative and significant at the 10% level in the case  
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14 of loans (similar to Weill (2011) who had negative but non-significant coefficients) and  
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16 continued to be positive and significant at 5% level for NPLs. Thus, these results suggest that  
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18 countries closer to the equator seem to have more credit to GDP and less bad loans as  
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20 percentage of total loans. Availability of data on the financial literacy of countries extended  
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22 over the years could allow for panel studies and comparative studies across groups of countries,  
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24 allowing for a better inclusion of specific characteristics of their financial development.  
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28 Additionally, for robustness, we ran a regression replacing GDP with the representative  
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30 lending interest rate for each country (also from the World Bank WDI database). This  
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32 procedure aims to test if the credit market is really driven by financial literacy and not only by  
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34 monetary policy measures (we thank the anonymous referee for pointing out the need for  
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36 checking the robustness of the GDP variable). Results are not presented to save space, but are  
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38 available upon request, and they corroborate those presented in Table III. We find evidence of  
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40 a statistically significant positive relation between financial literacy and lending activity  
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42 (coefficient 1.241, robust t-stat 2.66) and evidence of a statistically significant negative relation  
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44 between financial literacy and non-performing loans (coefficient  $-0.123$ , robust t-stat 2.63).  
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46 Moreover, in the loans model, the lending interest rate has a statistically significant negative  
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48 relation with the loans variable (coefficient  $-1.165$ , robust t-stat 2.18), as expected, and the  
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50 impact of inflation and credit information remains qualitatively similar. In the non-performing  
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52 loans model, the positive influence of inflation becomes statistically significant at the 10%  
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3 level (coefficient 0.556, robust t-stat 1.72), and the credit information and latitude variables  
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5 have a similar effect on bad loans.  
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8 We also control for the impact of the level of development, with a focus on the  
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10 developing and emerging countries (we thank an anonymous referee for suggesting this  
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12 improvement). We divide the sample in two groups, OECD countries (34 countries) and other  
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14 countries. First, we test for differences in loan activity (significantly higher among OECD  
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16 countries, t-stat = 4.11), for differences in the proportion of bad loans (significantly lower  
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18 among OECD countries, t-stat = 2.24), and for differences in financial literacy scores  
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20 (significantly higher among OECD countries, t-stat = 8.63). Next, to control for the effect of  
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22 the country group development, we add to our complete model two variables: a dummy  
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24 variable identifying non-OECD countries and an interaction variable with the financial literacy  
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26 score (equal to the product of financial literacy times non-OECD dummy). The results allow  
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28 us to corroborate the positive and statistically significant effect of financial literacy on lending  
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30 activity (coefficient 1.478, t-stat 1.93), and the negative and statistically significant effect of  
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32 financial literacy on non-performing loans (coefficient -0.164, t-stat 2.38). The dummy  
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34 variable and the interaction variable are not significant. Finally, the remaining results  
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36 concerning statistically significant control variables are qualitatively similar. In short, although  
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38 these new variables do not retain statistical significance, results corroborate our previous  
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40 finding that financial literacy “greases the wheels” of commercial bank lending activity.  
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## 54 **Conclusion**

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56 Financial literacy does “grease the wheels” of loan markets. Our results show that, in countries  
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58 whose population is financially more literate the importance of banks loans (non-performing  
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3 loans) is higher (lower). These results corroborate and highlight, for a broad range of countries  
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5 around the world, the findings of surveys and individual behavior studies on financial literacy  
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7 that provide evidence of the more intensive use of formal credit by individuals and small  
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9 businesses that are financially literate (Klapper *et al.*, 2013; García-Pérez-de-Lema *et al.*, 2021;  
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11 Grohmann *et al.*, 2018). Moreover, our findings also sustain internationally the suggestion that  
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13 lack of financial knowledge contributes to higher costs on loans and limited ability to repay  
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15 debts (Lusardi and de Bassa Scheresberg, 2013; Disney and Gathergood, 2013; Gerardi *et al.*,  
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17 2013). Therefore, financial literacy contributes to healthier credit markets in two ways, either  
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19 by enlarging the importance of formal credit in the economy, or by improving the quality of  
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21 loans and reducing the credit risk. Financial literacy benefits the individuals, the financial  
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23 institutions that grant loans, and the economies of the countries of such credit institutions.  
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29 The policy implications of these results are straightforward: the efforts of the OECD,  
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31 central banks, governments and other organizations to increase the financial literacy of  
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33 population are welcome. Programs set up and developed for improving the financial skills of  
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35 consumers contribute to stimulate the credit market and the quality of loans, therefore fostering  
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37 economic development. Banks and credit institutions should be interested in participating in  
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39 these efforts. For instance, they may conduct surveys to evaluate the financial skills of their  
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41 clients (individuals and small enterprises) and launch workshops and other activities to promote  
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43 their financial education. More financially-educated clients benefit financial institutions and  
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45 raise the soundness and stability of the credit market.  
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50 More research on this subject is called for, especially for applying surveys with the aim  
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52 to produce measures of financial literacy comparable across countries and over the years. These  
53  
54 indicators of financial literacy could help us look into several aspects of the financial structures  
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56 and the demand for financial services, in particular the bearing on household and corporate  
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3 credit demand and savings behavior. Better informed decisions “grease the wheels” of loan  
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Table I: Definitions of Variables

The table describes the variables. Variable refers to the mnemonic used to identify each variable computed as described under Definition. Source is the database where we collect the raw data. KL is Klapper and Lusardi (2020). WB is the World Bank (Global Financial Development database for commercial banks credit data, and the World Development Indicators database for the remaining data). CIA is the CIA World Fact Book. Expected relation refers to the sign of the expected relation of the variable in each line to Loans or NPL, either positive (+), negative (-) or non-significant (non-sig). References are not exhaustive.

Variable	Definition	Source	Expected relation		References
			Loans	NPL	
Loans	Private credit by deposit money banks and other financial institutions to GDP (%)	WB			
NPL	Bank non-performing loans to gross loans (%)	WB			
FinLit	Percentage of respondents that answered correctly to 3 out of 4 financial concepts	KL	+	-	Klapper and Lusardi, 2020
GDP growth	GDP per capita annual growth (in %)	WB	+	+/-	Park (2012); Bougatef (2016)
Inflation	Consumer Price Index annual growth (in %)	WB	-	+	Weill (2011 a); Park (2012)
Unemp	Unemployment, total (% of total labor force) (modeled ILO estimate)	WB	-	+	Park (2012); Bougatef (2016)
CredInfo	Depth of credit information index (0=low to 8=high)	WB	+	-	Bougatef (2016); Djankov, McLiesh and Shleifer (2007)
LegRights	Strength of legal rights index (0=weak to 12=strong)	WB	+	-	Bougatef (2016); Djankov, McLiesh and Shleifer (2007)
Latitude	Centroid absolute latitude of countries (normalized to lie between 0 and 1)	CIA	+	-	Weill (2011); Beck et al. (2003)

Table II: Sample description

The table describes the sample. Panel A provides descriptive statistics and Panel B is pairwise (variable in row and variable in column) correlation. Variable is the mnemonic used to identify each variable (see Table I for variable definitions). N is the number of observations, Scale is the measurement scale, Mean is the cross-sectional average, and Stdev is the cross-sectional standard deviation.

	FinLit	Loans	NPL	GDP	Inflation	Unemp	CredInfo	LegRight	Latitude
Panel A: Descriptive statistics									
N	109	109	109	109	107	109	109	109	109
Scale	%	%	%	%	%	%	0 to 8	0 to 12	0 to 1
Mean	38.193	65.403	7.417	1.918	3.563	7.297	5.982	5.107	0.329
Stdev	13.644	48.927	8.198	2.713	4.465	5.317	2.311	2.850	0.194
Panel B: Correlation									
FinLit	1.000								
Loans	0.450	1.000							
NPL	-0.222	-0.145	1.000						
GDP	-0.034	0.089	-0.083	1.000					
Inflation	-0.256	-0.398	0.242	-0.273	1.000				
Unemp	-0.026	0.027	0.270	-0.071	-0.057	1.000			
CredInfo	0.165	0.264	-0.275	0.248	-0.118	0.060	1.000		
LegRights	0.108	0.110	-0.096	0.211	0.005	-0.072	0.180	1.000	
Latitude	0.482	0.309	0.031	0.204	-0.228	0.225	0.187	0.001	1.000

Table III: Lending activity and financial literacy

The table provides OLS coefficient (Coeff) estimates of the regression equation of Loans (or NPL) on the explanatory variables defined in Table I. Columns (1) and (2), under Loans, use as dependent variable the ratio of private credit by deposit money banks and other financial institutions to GDP (%). Columns (3) and (4) under NPL use the ratio of bank non-performing loans to gross loans (%) as dependent variable. All t-statistics (t-stat) are estimated with heteroscedasticity robust standard errors. Asterisks flag significance level at 10% (\*), 5% (\*\*), and 1% (\*\*\*).

Variable	Loans				NPL			
	(1)		(2)		(3)		(4)	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Constant	3.479	0.33	6.326	0.37	12.380	6.62 ***	10.994	2.73 ***
FinLit	1.621	6.22 ***	1.071	3.44 ***	-0.130	-3.33 ***	-0.114	-2.26 **
GDP			-0.936	-0.66			0.077	0.26
Inflation			-3.273	-3.88 ***			0.406	1.40
Unemp			-0.081	-0.09			0.398	1.81 *
CredInfo			3.532	2.41 **			-0.947	-2.54 **
LegRight			0.014	0.80			-0.044	-0.19
Latitude			19.643	0.91			6.744	1.74 *
N. obs.		109		107		109		107
R2(adj)		0.197		0.276		0.038		0.190
F-stat		38.74 ***		10.30 ***		11.11 ***		4.09 ***

Table IV: Robustness tests – regression on instruments

The table provides coefficient (Coeff) estimates of the regression equation of Loans (or NPL) on the explanatory variables defined in Table I. Columns under Loans use as dependent variable the ratio of private credit by deposit money banks and other financial institutions to GDP (%). Columns under NPL use as dependent variable the ratio of bank non-performing loans to gross loans (%). TSLS refer to two stage least squares estimator. Columns under GMM refer to generalized method of moments estimator. All z-statistics (z-stat) are estimated with heteroscedasticity robust standard errors. F-stat is the f statistics for the second stage estimation. K-P is the Kleibergen-Paap rk LM statistic for underidentification test. C-F is the Cragg-Donald Wald F statistic for weak identification test. Stock-Yogo critical values are 19.93 (10%), 11.59 (15%), 8.75 (20%), and 7.25 (25%). Asterisks flag significance level at 10% (\*), 5% (\*\*), and 1% (\*\*\*)

Variable	Loans				NPL			
	TSLS		GMM		TSLS		GMM	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
Constant	-59.670	-2.42 **	-59.824	-2.43 **	14.176	2.99 ***	15.604	3.41 ***
FinLit	3.462	5.17 ***	3.168	4.84 ***	-0.225	-2.18 **	-0.232	-2.26 **
GDP	2.422	1.15	1.698	0.82	-0.086	-0.24	-0.040	-0.11
Inflation	-1.640	-1.90 *	-1.670	-1.93 *	0.333	1.10	0.211	0.75
Unemp	0.861	0.86	1.658	1.80 *	0.351	1.61	0.270	1.31
CredInfo	2.125	1.03	1.976	0.96	-0.865	-2.27 **	-0.938	-2.49 **
LegRight	-0.540	-0.40	-0.044	-0.03	0.001	0.00	0.045	0.21
Latitude	-64.476	-2.01 *	-55.887	-1.75 *	10.636	2.26 **	9.573	2.08 **
N. obs.		104		104		104		104
First-stage F		28.07 ***		28.07 ***		28.07 ***		28.07 ***
K-P statistic		18.67 ***		18.67 ***		18.67 ***		18.67 ***
C-D statistic		23.46 **		23.46 **		23.46 **		23.46 **