Economic Modelling 68 (2018) 306–317

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.elsevier.com/locate/econmod

Convergence of credit structure around the world

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A R T I C L E I N F O

JEL classification:
G01
E22

Keywords:
Convergence
Household credit
Enterprise credit

A B S T R A C T

This paper studies convergence of credit structure worldwide. We hand-collect data on credit to household and firm credit for 143 countries over the period 1995-2014. First, we separately document the existence of a convergence process of total credit, household credit and firm credit, respectively. Second, we find that convergence of household credit occurs faster than firm credit, inducing a process of convergence of the share of household credit to total credit. Third, convergence occurs faster in low-income countries and in countries with a lower initial level of total credit but slows down after the 2008 global financial crisis. Finally, our data investigation does not support the idea that convergence is driven by changing conditions in developing countries.

1. Introduction

Since the 1980s, the world has witnessed a process of financial liberalization and globalization. Financial liberalization is expected to spur financial development in developing countries and therefore to allow them to catch up with developed countries. Reducing the financial gap between developing and developed countries is essential in permitting a reduction of the income gap due to the role financial development plays in the convergence process (Aghion et al., 2005). However, only a handful of papers have scrutinized financial development convergence.[1] Antzoulatos et al. (2011) fail to provide evidence of a convergence process, while Stolbov and Veysov (2011) and Bahadir and Valev (2015) report evidence for the presence of convergence. In this paper, we extend the scope of this literature by testing the convergence of credit structure defined as the breakdown between household credit and firm credit. Studying evolution of firm credit and household credit separately is critical. Recent works have highlighted that each has different implications for economic activity and financial stability.

The convergence of credit structure in the least financially developed countries implies that household credit growth outpaces firm credit growth. Two main strands of arguments can be advanced to explain this phenomenon. One explanation is that credit structure convergence can be due to changes in conditions in developing countries that stimulate the expansion of household credit. Another argument is that convergence can be viewed as a mechanical process in the course of financial development.

To test whether credit convergence occurs, we create a new database that breaks down total credit between household credit and firm credit. Our database covers 143 countries over the period 1995-2014. In addition, we collect information on household credit breakdown and firm credit breakdown for sub-samples of countries. For 84 countries, we were able to collect data on the structure of household credit separated between home loans (mainly mortgage loans) and other loans. For another sub-sample of 104 countries firm credit is broken down into six categories (agriculture, industry, construction, transport, trade and other services).

A simple exploration of our database reveals that the ratio of household credit to total credit increased by ten percentage points (from 30% to 40%) between 2000 and 2014. More interestingly for our purposes, during this period growth of both household credit and firm credit was higher for countries with a limited level of financial development. These facts tend to suggest the existence of a process of convergence.

We then test whether there is a convergence process in credit structure. The literature distinguishes between two concepts of convergence: β-convergence and σ-convergence. β-convergence refers to a negative relationship between the growth rate of the variable of interest and its initial level, while σ-convergence refers to a decrease over time of dispersion of the interest variable. Put differently, β-convergence implies that disadvantaged economies grow faster and catch up and σ-convergence implies that differences smooth out over time. In this paper, we are interested in the catching up phenomenon and therefore focus on β-convergence. We borrow the methodology proposed by Bahadir and Valev (2015) to further attempt to confirm the existence of a (β-)convergence process.

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[1] Some studies have investigated whether bank-based financial systems adopt some market-based systems characteristics. Evidence is mixed; some articles argue for the absence of convergence (Bianco et al., 1997; Schmidt et al., 1999), while others find evidence of the existence of a convergence process (Murinde et al., 2004; Bruno et al., 2012).

http://dx.doi.org/10.1016/j.econmod.2017.07.021
Received 29 November 2016; Received in revised form 10 May 2017; Accepted 29 July 2017
Available online 24 August 2017
0264-9993/

We perform econometric tests and results suggest that a process of convergence of total does exist. We then study the convergence process of household credit and firm credit, separately. Results indicate the existence of a convergence process for both but that the convergence of household credit occurs faster than that of firm credit, in line with findings obtained by Bahadir and Valev (2017) in the case of Europe. Next, we scrutinize the convergence of components of household credit and firm credit. Results show the existence of a convergence process of both categories of household loans (mortgage loans and other loans to households). In addition, we point out that the percentage of home loans to household loans presents a process of convergence. Turning to a breakdown of firm credit, we highlight that there is a process of convergence of credit to agriculture, credit to construction and credit to trade but not of credit to industry or credit to transport.

Following previous studies, we study whether the speed of convergence is affected by a country's characteristic. Our results show that it occurs faster in the least developed countries and in countries with a limited initial level of financial development. Furthermore, we show that the pace of convergence slowed down in the post-crisis period (2009-2014).

Finally, we test whether convergence is due to changing conditions in developing countries. In doing so, we extend the model by adding some variables that capture potential drivers of convergence (institutions, education or internationalization). Our findings are largely unchanged when we add these additional control variables, suggesting that convergence is likely due more to a mechanical process rather than to changing conditions in developing countries. Our results are robust to multiple sensitivity tests including a replication test using the BIS dataset.

Our work directly contributes to a scant strand of literature on financial development convergence. Recent papers have investigated convergence of a sample of developing and developed countries (Antzoulatos et al., 2011; Stolbov and Veysov, 2011; Bahadir and Valev, 2015) but few works have focused on convergence of credit composition. One exception is Bruno et al. (2012), who investigate convergence of household financial assets in the OECD countries. The closest work to our paper is Bahadir and Valev (2017) in which the authors investigate the convergence of household credit and firm credit in 30 European countries over the period 1995-2013. The authors show evidence of convergence for both household credit and firm credit and find that it occurs faster for household credit. We extend this work by considering a large range of countries from all continents. Indeed, the fact that we observe a convergence process of credit structure within Europe is a first step but does not prove that a convergence process occurs in different contexts. According to the club convergence hypothesis (Durlauf et al., 2005), only countries that share similar characteristics present convergence over the long-run but there is no convergence on a worldwide scale. Economic and financial integration is almost complete within Europe where European countries share similar characteristics and experience common shocks (e.g. monetary policy for Euro members). Thus, observing that convergence process of credit structure within European countries does not allow us to infer the existence of a convergence process worldwide. In this work, we try to fill this gap by studying the convergence of credit structure when we consider countries from different areas and that share very different conditions. We observe that convergence occurs across the world and is not limited to European countries. In addition, convergence appears to occur faster in the least developed countries, suggesting that credit structure converges independent of initial conditions over the long term. Finally, our results show that convergence is due more to a mechanical process than to changing conditions in developing countries.

Our paper is also related to recent studies that investigate the implications of household credit and firm credit for real activity. Recent works document that household credit is detrimental to economic growth (Beck et al., 2012; Sassi and Gasmi, 2014; Mian et al., 2016; Léon, 2016) and/or financial stability (Büyükkarabacak and Valev, 2010; Jordà et al., 2015). Although literature on the subject is lacking, credit to households and credit to firms certainly affect other dimensions such as inequality, social outcomes (e.g. child labor and education) and macroeconomic stabilization (smoothing out of consumption). This paper can be viewed as a first step to shedding new light on these open questions. In particular, our work contributes to a better understanding of the evolution of both components of credit and presents a new database that could be employed to investigate new questions regarding credit structure.

The remainder of the paper is organized as follows. In Section 2, we present arguments on why we expect to observe convergence of credit structure. Section 3 describes the database and presents the methodology. Section 4 is dedicated to the presentation of the results. The final section concludes.

2. The drivers of credit structure convergence

2.1. Changing conditions in developing countries

A large body of literature has been devoted to investigating country-specific factors that affect the development of financial systems. A change in these factors could affect loan decomposition as well. One explanation for credit convergence involves improvements of institutional frameworks in developing countries (Bahadir and Valev, 2015). However, institutional improvements could also impact credit structure by benefiting households more than (large) firms. In countries with weak legal systems, banks may rely on informal tools (such as long-term relationships or reputation) to mitigate default risks of large firms. However, banks cannot rely similar mechanisms for households to assess risks and insure repayment. As such, an improvement in property rights, judicial efficiency or contract enforcement mechanisms should improve household access to credit, without strongly impacting (large) firms. In addition, institutional development could promote a process of formalization of households. With an expansion of formal businesses a higher percentage of the population could provide the necessary documentation to get access to loans. Nevertheless, household loans remain limited and improvements in legal infrastructure might not have impact on household access to credit (because most banks refuse to pursue legal action in case of non-repayment). In addition, formalization might more favor access to loans by small firms rather than by households.

Access to education is another important changing condition that could spur the demand of credit by households. A growing body of literature has shown that the use of financial services is related to financial literacy (Lusardi and Mitchell, 2014). We therefore expect that demand for loans by households increases with the general level of education of a household (a crude proxy for financial literacy). If less developed countries have benefited more from these changes than other countries, we should observe a convergence, not only of the level of financial development, but of the share of household credit in total credit.

A final change in conditions in which developing countries operate is the internationalization of financial markets due to financial liberalization. Claessens and Horen (2014) document a substantial increase in the presence of foreign banks in emerging and developing countries since the mid-1990s. It is possible that financial integration and the entry of foreign banks have contributed to the convergence of credit structure as foreign bank branches bring expertise in lending technologies to households.[2] However, empirical evidence is less clear-cut. Beck et al. (2012) show that the percentage of foreign banks is

[2] Related to this topic, a large body of literature discusses whether foreign banks disproportionably target opaque small and medium-firm. Empirical findings remain unclear (see Claessens and Horen, 2014).