



Credit information, consolidation and credit market performance: Bank-level evidence from developing countries



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ABSTRACT

Paying particular attention to the degree of banking market concentration in developing countries, this paper examines the effect of credit information sharing on bank lending. Using bank-level data from African countries over the period 2004 to 2009 and a dynamic two-step system generalised method of moments (GMM) estimation, it is found that credit information sharing increases bank lending. The degree of banking market concentration moderates the effect of credit information sharing on bank lending. The results are robust to controlling for possible interactions between credit information sharing and governance.

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1. Introduction

Information asymmetry and poor contract enforcement lead to suboptimal credit market equilibrium (Stiglitz & Weiss, 1981). To the extent that these problems are endemic in underdeveloped countries, financial sector underdevelopment in these countries could be attributed to poor credit information about borrowers. Credit information sharing is therefore expected to facilitate lending decisions (Bennardo, Pagano, & Piccolo, 2010; Pagano & Jappelli, 1993), reduce loan default by increasing borrowers' incentive to repay (Padilla & Pagano, 1997, 2000), and increase competition which in turn leads to higher lending (Pagano & Jappelli, 1993). The benefits of information sharing are hypothesised to be particularly helpful in less consolidated or more competitive banking markets, where borrower credit information is dispersed (Marquez, 2002). Although recent empirical interest has been drawn to the potential benefits of credit information sharing on lending decisions, the moderating effect of banking sector consolidation has been largely ignored.

In this paper I examine the effect of credit information sharing on bank lending in African countries. I further condition this effect on the extent of banking sector consolidation. This paper focuses on African countries for a number of reasons. The region exhibits record high levels of default. This, coupled with inadequate credit information and poor

creditor rights protection, makes lending decisions within African banking markets a difficult task. Unsurprisingly, therefore, African banking markets remain dramatically underdeveloped, even compared to other developing countries (Honohan & Beck, 2007; Mylenko, 2007). Bank credit to the private sector in the region lags behind that of other regions. The region records the lowest credit penetration in the world (Mylenko, 2007) with less than 20% of households having access to formal banking services (Beck, Demirguc-Kunt, & Levine, 2009).

A key feature to which Africa's financial sector under-development may be attributed is weak contract enforcement. With rule of law, regulatory quality, and control of corruption well below the world average, it is unsurprising that it takes an extremely lengthy process to recover bad loans (Sacerdoti, 2005). The high credit risk translates into high interest spreads and margins (Beck et al., 2009).

With low banking depth and breadth, as well as high credit risk, the potential benefits of credit information have been appreciated in a few African countries. A few years ago, public credit registries and private credit bureaus were virtually non-existent. In recent times, significant efforts have been made to have operational information sharing systems in a number of African countries. In many of these countries, however, information sharing systems are in their infancy (e.g., Zambia, Nigeria and Ethiopia) and have low coverage. Several other countries are also in the process of establishing operational credit information sharing (e.g., Ghana, Tanzania and Uganda).

The effort to establish functional credit information sharing schemes in Africa is consistent with several years of financial sector reforms that

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have promoted banking competition in the region. With significant reforms across the African financial sectors over the past two decades,¹ the region has witnessed significant financial deepening and broadening in recent times (see Allen et al., 2012; Beck et al., 2009). Compared to developing countries in other regions, however, the pace of improvement is much slower (Allen et al., 2012). The years of reforms have also led to a downward trend in banking sector concentration, which has been characteristically high for the region (Fosu, 2013). Whilst the downward trend in concentration does not necessarily indicate improved competition (Boone, 2008; Boone, Griffith, & Harrison, 2005; Boone, van Ours, & van der Wiel, 2007; Demsetz, 1973), it does suggest that credit information is becoming more dispersed as the pool of borrowers per bank becomes smaller (Marquez, 2002).

In view of the above-mentioned features, this paper seeks to answer the following questions: first, how does credit information sharing affect lending in developing countries? Second, to what extent does the depth (or the characteristics) of credit information affect lending decisions? Third, to what extent is the effect of credit information sharing conditional on the degree of banking market concentration?

The results suggest that credit information sharing improves bank lending. It is also found that the depth of credit information is similarly important in increasing bank lending. Furthermore, it is found that the effect of credit information sharing is higher in less concentrated banking markets. The findings are robust to controlling for several measures of institutional quality and their possible interactions with credit information.

The paper contributes to the existing literature in several ways: first, the paper provides the first bank-level (supply side) evidence of the effect of credit information on credit allocation. Bank-level data ensures that individual banks' reactions to credit information sharing are not confounded by aggregate variation in credit allocation. In particular, bank-level data helps to isolate variations in credit allocation arising from (unobserved) heterogeneity of banks. Using aggregated credit data makes it impossible to isolate lending behaviour of specialised banks, especially those that are there to serve government motives. Second, this paper is the first to provide empirical evidence about the moderating effect of banking sector consolidation on the benefits of credit information sharing. Third, the paper further investigates the extent to which a wider range of institutional factors interacts with credit information sharing to impact on credit allocation. Finally, this is the first paper to attempt a comprehensive study of credit information sharing and bank lending in African countries.

The rest of this paper is organised as follows. Section 2 provides a review of the theoretical literature and empirical evidence that motivates this study. Section 3 outlines the research hypotheses. The data and variables used for the study are described in Section 5, whilst the empirical estimation methods are provided in Section 4. The findings of the study are discussed in Section 6. Section 7 concludes the study.

2. Literature review

This section provides a review of the theoretical and empirical literature that motivates this study. A strand of literature motivating the relationship between credit information sharing and credit market outcome (e.g., Behr & Sonnekalb, 2012; Bennardo et al., 2010; Brown, Jappelli, & Pagano, 2009; Djankov, McLiesh, & Shleifer, 2007; Love & Mylenko, 2003; Padilla & Pagano, 1997, 2000; Pagano & Jappelli, 1993) is reviewed first. This is then followed by a body of literature that suggests that banking market concentration or competition is of importance in the relationship between credit information sharing and bank lending decisions (e.g., Cetorelli & Peretto, 2000; Jappelli & Pagano, 2002; Marquez, 2002; Pagano & Jappelli, 1993; Petersen & Rajan, 1995).

¹ Financial sector reforms are in the form of interest rate liberalisation, removal of credit ceilings, and privatisation of financial institutions, among others (see Allen et al., 2012).

2.1. Theory of credit information sharing and bank lending

Theory shows that credit information sharing impacts on credit market performance by reducing adverse selection in lending (Pagano & Jappelli, 1993), reducing moral hazard on the part of borrowers, thereby increasing borrower efforts (Padilla & Pagano, 1997, 2000), and reducing credit rationing in multiple bank lending (Bennardo et al., 2010).

Pagano and Jappelli (1993) show that credit information sharing reduces adverse selection in bank lending. In their model, credit information sharing helps increase the bankable population and possibly expand lending. In the absence of credit information, banks cannot distinguish between new pools of potential borrowers who are likely to repay and those who are likely to default. The authors show that in such a situation, since the new loan applicants might have borrowed from other banks in the past, information sharing can help the bank in question make the right decision to lend safely to credible new applicants. The overall impact on lending, however, depends on the extent to which increased lending to safe borrowers compensates for the reduced lending to risky borrowers. As information sharing also reduces informational rent in contestable banking markets, the resulting increase in competition can increase lending.

Information sharing may also induce more bank lending by reducing borrower hold-up problems. Credit information acquired by a bank today confers informational advantage, which permits it to extract higher interest rates from borrowers in the future. Padilla and Pagano (1997) show that, when banks commit to sharing credit information, the extraction of informational rent is restrained. This increases borrower effort and makes repayment more likely. With reduced default risk, interest rates decrease and lending, in turn, increases.

It is also argued that sharing default information may serve as a disciplinary device to encourage borrowers to repay their debt. Among other moral hazard situations, borrowers may prioritise potential returns from risky investments over incentives to repay (Myers, 1977). It is shown in Klein (1992), Vercammen (1995) and Padilla and Pagano (2000) that sharing default information encourages repayment. This is because sharing credit information allows borrowers who default to be blacklisted. As blacklisted borrowers may have difficulty getting credit in future, borrowers thus have an incentive to avoid default. The resulting reduction in default rates could reduce borrowing cost and increase lending. Padilla and Pagano (2000), however, argue that sharing only default information has the potential to increase lending; sharing information about borrower quality cannot increase lending since borrowing cost cannot be reduced any further due to the elimination of informational rent.

Moreover, credit information sharing may help reduce over-borrowing and its associated credit rationing in multiple bank lending (Bennardo et al., 2010). Aside from the higher implicit cost in multiple bank lending (Petersen & Rajan, 1994), borrowing from multiple banks induces opportunistic behaviour among borrowers, causing them to over-borrow. This behaviour can be costly to lenders. Hence, their natural response to this opportunistic behaviour is to ration credit, raise interest rates or deny credit. Bennardo et al. (2010) show that credit information sharing permits lenders to assess the outstanding debts of each borrower and lend safely. This mitigates the need for credit rationing and higher interest charges. Therefore, bank lending is expected to be higher in the presence of credit information sharing.

The above review shows that credit information can have a positive effect on bank lending, although borrower composition (Pagano & Jappelli, 1993) and the type of information shared (Padilla & Pagano, 2000) may also have a role to play. In the following sections, the literature that links the banking market concentration to the relationship is reviewed.

2.1.1. Interaction of competition and credit information sharing

The theoretical literature explains that, by reducing adverse selection, borrower hold-up problems and moral hazard, credit information sharing may help reduce default rate and increase lending. However,

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