



Full length article

## The role of ICT in reducing information asymmetry for financial access



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### ARTICLE INFO

#### Article history:

Received 14 March 2016

Accepted 25 April 2016

Available online 26 April 2016

#### JEL classification:

G20

G29

I96

O40

O55

#### Keywords:

Financial access

Information asymmetry

ICT

### ABSTRACT

This study assesses the role of ICT in complementing private credit bureaus (PCB) and public credit registries (PCR) in reducing information asymmetry for financial access. The empirical evidence is based on Generalised Method of Moments with 53 African countries for the period 2004–2011. The following findings are established. First on financial access: (i) the marginal effects from interactions between ICT and PCR (PCB) are consistently positive (negative); (ii) net effects from interactions are negative with the higher magnitude from PCR and (iii) only thresholds corresponding to interactions between PCR and internet penetration are within range. Second, findings on financial allocation efficiency reveal positive marginal and net effects exclusively for mobile phones and PCR. Third, allocation efficiency may be constrained by increasing financial deposits. Overall, the complementarity between information offices and ICT in boosting financial access is still very limited. Policy implications are discussed with emphasis on improving the engaged complementarity and fighting surplus liquidity.

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### 1. Introduction

There are at least four reasons for positioning an inquiry on the role of information and communication technology (ICT) in reducing information asymmetry for financial access in Africa, notably: (i) the growing need for investment to finance the continent's growing ambitions; (ii) greater scope for ICT penetration; (iii) substantially documented concerns of surplus liquidity and scarce literature on financial efficiency and (iv) limited financial access owing to information asymmetry.

First, the African business literature has been consistent with the need for alternative investment sources after failed projects of privatisation over the past decades (Rolfé and Woodward, 2004; Bartels et al., 2009; Tuomi, 2011; Darley, 2012).

Second, the growth potential of ICT in Africa is higher compared to other continents. In essence, while high-end markets in Asia, Europe and North America are currently experiencing stabilization in the growth of ICT, business opportunities related to mobile phones and the internet are still substantial in Africa (Asongu, 2015a). Furthermore, as maintained by Penard et al. (2012), the continent has been witnessing an uneven penetration in the internet, compared to the mobile phone. According to the authors, as of 2010, whereas penetrations of the internet and the mobile phone had reached points of saturation in developed economies, there was still much room for their developments in Africa, notably, with: 9.6% and 41% for internet penetration and mobile phone penetration respectively.

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Third, in response to the concerns about financial inefficiency in African financial institutions (see [Saxegaard, 2006](#); [Fouda, 2009](#); [Asongu, 2014a](#); p.70), the available literature has not focused on the fundamental mission of banking institutions which is to transform mobilised deposits into credit for economic operators (see [Ataullah et al., 2004](#); [Al-Obaidan, 2008](#); [Kiyota, 2009](#); [Kablan, 2010](#)). Consistent with [Asongu and Tchamyou \(2015\)](#), available measurements of financial efficiency that have been employed include: profit efficiency ([Hauner and Peiris, 2005](#)); cost efficiency ([Chen, 2009](#); [Mensah et al., 2012](#)) and Data Envelopment Analysis (DEA) for technical efficiency (see [Kablan, 2009](#)).

Fourth, there is an evolving stream of literature maintaining that limited financial access has been due to information asymmetry ([Triki and Gajigo, 2014](#); [Asongu et al., 2015](#)). In response to the policy syndrome, over the past decade, information sharing offices (ISO) or public credit registries (PCR) and private credit bureaus (PCB) have been introduced across the continent in an effort to reduce information asymmetry between lenders and borrowers in the banking sector.<sup>1</sup> In essence, the introduction of ISO has been motivated by the idea that lack of financial access is constrained by factors that can be explained by information asymmetry, namely: eligibility to bank lending, physical access and affordability (see [Batuo and Kupukile, 2010](#); [Allen et al., 2011](#)). Apart from serving as brokers between lenders and borrowers in financial institutions, ISO improve capital allocation efficiency, mitigate credit constraints and boost market competition ([Jappelli and Pagano, 2002](#)). In spite of these appeals, recent evidence suggests that: (i) there is still excess liquidity in African financial institutions (see [Fouda, 2009](#)) and (ii) ISO are having a negative effect on financial development on the continent ([Asongu et al., 2015](#)). This may not be surprising because the nexus between reducing information asymmetry and bank lending has remained an open debate in the literature: “On the whole, all three models agree on the prediction that information sharing (in one form or another) reduces default rates, whereas the prediction concerning its effect on lending is less clear-cut” ([Jappelli and Pagano, 2002](#); p. 2020).

In the light of the above, the literature on information asymmetry and financial development (which is discussed in Section 2) leaves room for improvement in at least three areas, notably, the need to: (i) position inquiries on scopes where the issue of financial access is very severe; (ii) assess the effect on financial access by engaging the fundamental role of financial institutions in transforming mobilised deposits into credit for economic operators and (iii) examine the role of ICT in boosting ‘information sharing’ for allocation efficiency.

First, with regard to the scope of study, in spite of the substantially documented concerns of surplus liquidity in the banking sector of Africa, to the best of our knowledge, scholarly focus on addressing the policy syndrome has been limited within the framework of information asymmetry. In other words, the continent with one of the most severe issues of limited access to finance has not been thoroughly engaged or given the scholarly attention it deserves. Furthermore, studies that have focused on Africa have been limited in scope by focusing on a restricted number of countries. To put this point into perspective: [Galindo and Miller \(2001\)](#) have engaged no country on the continent; [Love and Mylenko \(2003\)](#) have focused on four countries while [Barth et al. \(2009\)](#) have engaged nine. Whereas [Triki and Gajigo \(2014\)](#) have positioned their inquiry on 42 nations for the period 2006–2009, the present study focuses on 53 African countries for the period 2004–2011. In the light of the above, the scope of this inquiry is motivated by the scarce literature on Africa, in spite of: recommendations for more scholarly research on the nexus between ISO and financial access ([Singh et al., 2009, p. 13](#)) and evolving policy questions about whether the advent of ISO on the continent has been accompanied with increasing financial intermediary efficiency and activity ([Triki and Gajigo, 2014](#)).

Second, ‘information asymmetry’ and ‘financial development’-specific literatures have failed to engage the concept of financial development in the light of the fundamental role of banking institutions which is to transform mobilised deposits into credit for economic operators. On the one hand, both general and African-related information asymmetry and information sharing literatures have engaged for the most part, measurements of constraints in financial access (see [Ivashina, 2009](#); [Houston et al., 2010](#); [Tanjung et al., 2010](#)). On the basis that the fundamental role of introducing ISO in Africa has been to enhance financial intermediation efficiency and activity, we measure financial access as the ability of banks to transform deposits into credit. Hence, we measure financial development in terms of financial allocation efficiency (credit/deposit ratio) and financial activity (credit) because ISO have been documented to enhance competition and reduce informational rents, with anticipated results of higher financial activity (lending) and allocation efficiency ([Pagano and Jappelli, 1993](#); p. 2019).

On the other hand, in the African financial development literature, the conception and definition of financial efficiency has not been tailored towards the fundamental mission of financial institutions which is to transform deposits into credit. Consistent with [Asongu and Tchamyou \(2015\)](#), two mainstream measurements have been used, notably: (i) DEA to assess the efficiency of decision making<sup>2</sup> and (ii) Overall Economic Efficiency (OEE) within the frameworks of technical and scale efficiencies<sup>3</sup> as well as profitability- and cost-related perspectives.<sup>4</sup> We steer clear of this stream of literature by employing

<sup>1</sup> We use ‘PCB and PCR’ interchangeably with ISO throughout the study.

<sup>2</sup> We invite the interested reader to refer to [Kablan \(2009\)](#) and [Ataullah et al. \(2004\)](#) who have employed the DEA approach in Africa and Pakistan respectively. These authors are concerned with technical and scale efficiencies.

<sup>3</sup> We also invite the interested reader to consult [Al-Obaidan \(2008\)](#) who employs a composite indicator of banking system efficiency to assess the outcome of globalization on technical efficiency.

<sup>4</sup> This is in line with recent studies on financial efficiency on the continent (see [Kablan, 2010](#); [Kiyota, 2009](#)). Consistent with [Asongu \(2013a\)](#), four main indicators on financial efficiency are apparent in the literature. “They include: the ratio of bank deposits (which measures the extent to which savings can fund private credit), the net interest margin (which is the accounting value of a bank’s net interest revenues as a share of its total assets), overhead cost (or the accounting

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