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Informal finance: A theory of moneylenders☆,☆☆

Andreas Madestam

Department of Economics, Stockholm University, Sweden

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ABSTRACT

I present a model that analyzes the coexistence of formal and informal finance in underdeveloped credit markets. Formal banks have access to unlimited funds but are unable to control the use of credit. Informal lenders can prevent non-diligent behavior but often lack the needed capital. The theory implies that formal and informal credit can be either complements or substitutes. The model also explains why weak legal institutions increase the prevalence of informal finance in some markets and reduce it in others, why financial market segmentation persists, and why informal interest rates can be highly variable within the same sub-economy.

1. Introduction

Formal and informal finance coexist in markets with weak legal institutions and low levels of income (Germidis et al., 1991; Nissanke and Aryeetey, 1998). Poor people either obtain informal credit or borrow from both financial sectors at the same time. Banerjee and Duflo (2007) document that 95% of all borrowers living below $2 a day in Hyderabad, India access informal sources even when banks are present.[1] Meanwhile, Das-Gupta et al. (1989) provide evidence from Delhi, India where 70% of all borrowers get credit from both sectors at the same time.[2] Such financing arrangements raise a number of issues. Why do some borrowers take informal loans despite the existence of formal banks, while others obtain funds from both financial sectors simultaneously? Also, is there a causal link between institutional development, level of income, and informal lending? If so, precisely what is the connection?

Although empirically important, the coexistence of formal and informal finance has not received as much attention as recent theoretical work on microfinance (Banerjee et al., 1994; Ghatak and Guinnane, 1999; Rai and Sjöström, 2004). In this paper, I provide a theory of informal finance, whose main assumptions can be summarized as follows.

First, in line with the literature on the effect of institutions on economic performance (Djankov et al., 2007; La Porta et al., 1997, 1998; Visaria, 2009), I view legal protection of banks as essential to ensure availability of credit. To this end, I assume that borrowers may divert their bank loan (ex ante moral hazard) and that weaker contract enforcement increases the value of such diversion, which limits the supply of funds. By contrast, informal lenders are able to monitor borrowers by offering credit to a group of known clients where social ties and social sanctions induce investment (Aleem, 1990; Ghate et al., 1992; Udry, 1990).[3]

Second, while banks have access to unlimited funds, informal lenders can be resource constrained. In a survey of financial markets

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E-mail address: andreas.madestam@ne.su.se.

[1] See Siamwalla et al. (1990) for similar findings from Thailand.

[2] See Conning (2001) and Giné (2011) for related support from Chile and Thailand.

[3] For further evidence of the personal character of informal lending see Udry (1994), Steel et al. (1997), and La Ferrara (2003) for the case of Africa and Bell (1990) for the case of Asia. As in Besley and Coate (1995), my aim is not to explain informal lenders' monitoring ability, but to understand its implications.

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in developing countries, Conning and Udry (2007) write that "financial intermediation may be held up not for lack of locally informed agents… but for lack of local intermediary capital" (Conning and Udry, 2007, p. 2892). Consequently, landlords, professional moneylenders, shopkeepers, and traders who offer informal credit frequently acquire bank funds to service borrowers' financing needs. Ghate et al. (1992), Rahman (1992), and Irfan et al. (1999) remark that formal credit totals three quarters of the informal sector's liabilities in many Asian countries.[4]

Third, less developed economies are often characterized as uncompetitive. In particular, formal sector banks typically have some market power (see Barth et al., 2004; Beck et al., 2004 for contemporary support and Rajan and Ramcharan, 2011; Wang, 2008 for historical evidence).[5]

Within this framework, I show that informal finance affects poor people's access to credit in two main ways. In the model, formal banks are restrained by borrowers' inability to commit to using funds for productive purposes. The agency problem is more acute for the poor as the benefit of diversion increases in the size of the loan. While informal lenders' monitoring advantage allows them to lend to bank-rationed borrowers they may not have the necessary resources in which case they also turn to the formal sector for additional funds.

A first set of findings considers how informal credit may improve borrowers' relationship with the banks. Informal loans increase the return to productive activities as they cannot be diverted. This lowers the relative gain of misusing formal funds, allowing banks to extend more credit. Informal finance thus complements the banks by permitting for larger formal loans to poor borrowers.

Second, informal lenders' monitoring ability also helps banks to reduce agency cost by letting them channel formal credit through the informal sector. When lending directly to poor people, banks share part of the surplus with the borrowers to keep them from diverting. Extending credit through informal lenders that are rich enough to have a stake in the outcome minimizes the surplus that banks need to share. In contrast to the first result, the credit market becomes segmented as informal finance substitutes for banks and limits borrowers' direct bank access.

I find that the extent to which informal finance complements or substitutes for bank credit depends on banks' bargaining power. If formal banks are competitive, borrowers obtain capital from both financial sectors, with poor informal lenders accessing banks for extra funds. By contrast, if formal lenders have some market power, sufficiently rich (bank-financed) informal lenders are borrowers' only source of credit. This is because borrowers' and informal lenders' joint return is maximized if both take competitive bank loans, while bank market power and subsequent credit market segmentation allows the formal monopoly to reduce agency costs.

The predictions are broadly consistent with existing data on formal–informal sector interactions. (See Section 5 for an extensive discussion.) The characterization of the aggregate demand for and supply of formal and informal credit also allows me to address some additional issues. For example, weaker legal institutions increase the prevalence of informal credit if borrowers obtain money from both financial sectors, while the opposite is true if informal lenders supply all capital. Moreover, the interest rates of informal lenders rise as credit markets become segmented.

Persistence of financial underdevelopment, in the form of market segmentation, can also be understood within the model. Wealthier informal lenders (and banks) prefer the segmented outcome that arises with bank market power, as it softens competition between the financial sectors. Finally, my analysis sheds some light on credit market policy by distinguishing between the efficiency effects of wealth transfers, credit subsidies, and legal reform.

The paper relates to several strands of the literature. First, it adds to work that views informal lenders either as bank competitors (Bell et al., 1997; Jain, 1999; Jain and Mansuri, 2003) or as a channel of bank funds (Bose, 1998; Floro and Ray, 1997; Hoff and Stiglitz, 1998). While these papers share the notion that informal lenders hold a monitoring advantage over banks, there are a number of important differences. First, in earlier work it is not clear whether informal lenders compete with banks or primarily engage in channeling funds. Second, competition theories cannot account for bank lending to the informal sector. Third, channeling theories fail to address the agency problem between the formal and the informal lender.

The present paper explains why informal lenders take bank credit in each of these instances, making competition and channeling a choice variable in a framework where monitoring problems exist between banks, informal lenders, and borrowers. Allowing for both competition and channeling thus extends and reconciles existing approaches. By deriving endogenous constraints on informal lending, I am able to account for the empirical regularity that informal credit complements as well as substitutes for formal finance.

Finally, an advantage over earlier work is the tractability of the basic agency model which delivers the simple insight that less leveraged borrowers are better credit risks (as in the costly effort setup).[6] The framework presented is well suited to take on additional characteristics relevant to understand formal and informal sector interactions such as differences in enforcement capacity, the importance of legal institutions, and market power; features which are missing in earlier contributions.

The second line of related literature studies the interaction between modern and traditional sectors to rationalize persistence of personal exchange (Banerjee and Newman, 1998; Besley et al., 2012; Kranton, 1996; Rajan, 2009).[7] My results also match Biais and Mariotti's (2009) and von Lilienfeld-Toal et al.'s (2012) findings of heterogeneous effects of improved creditor rights across rich and poor agents. Finally, the paper links to research emphasizing market structure as an important cause of contractual frictions in less developed economies (Kranton and Swamy, 2008; Mookherjee and Ray, 2002; Petersen and Rajan, 1995).[8]

The model builds on Burkart and Ellingsen's (2004) analysis of trade credit in a competitive banking and input supplier market.[9] The bank and the borrower in their model are analogous to the competitive formal lender and the borrower in my setting. However, their input supplier and my informal lender differ substantially.[10] Also, in contrast to Burkart and Ellingsen, by considering credit-rationed informal lenders and bank market power, the model distinguishes whether informal lenders compete with banks or engage in channeling formal bank funds.

Section 2 introduces the model and Section 3 presents equilibrium outcomes. Section 4 deals with cross-sectional predictions, persistence

[4] Conning and Udry (2007) further write that "the trader-intermediary usually employs a combination of her own equity together with funds leveraged from less informed outside intermediaries such as banks…[leading] to the development of a system of bills of exchange…[used by the] outside creditor…as security" (Conning and Udry, 2007, pp. 2863–2864). See Harriss (1983), Bouman and Houtman (1988), Graham et al. (1988), Floro and Yotopoulos (1991), and Mansuri (2006) for additional evidence of informal lenders accessing the formal sector in India, Niger, Pakistan, Philippines, and Sri Lanka. See also Haney (1914), Gates (1977), Biggs (1991), Toby (1991), Teranishi (2005, 2007), and Wang (2008) for historical support from Japan, Taiwan, and the United States.

[5] Beck et al. report a positive and significant relation between measures of bank competition and GDP per capita.

[6] See Banerjee (2003) for a discussion of the similarity across different moral hazard models of credit rationing.

[7] While Kranton and Banerjee and Newman focus on how market imperfections give rise to institutions that (may) impede the development of markets, Besley et al. and Rajan (like this paper) show how rent protection can hamper reform.

[8] As in Petersen and Rajan and Mookherjee and Ray, I study the effects of market power on credit availability, while Kranton and Swamy investigate the implications on hold-up between exporters and textile producers.

[9] Burkart and Ellingsen assume that it is less profitable for the borrower to divert inputs than to divert cash. Thus, input suppliers may lend when banks are limited due to potential agency problems.

[10] While the input supplier and the (competitive) bank offer a simple debt contract, the informal lender offers a more sophisticated project-specific contract, where the investment and the subsequent repayment are determined using Nash Bargaining. More importantly, the informal lender is assumed to be able to ensure that investment is guaranteed, something that the trade creditor is unable to do.