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SIN WORKING PAPER SERIES

THE IMPORTANCE OF INFORMAL FINANCE IN KENYAN MANUFACTURING

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Working Paper No 5
May 2002

Statistics and Information Networks Branch of UNIDO

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Abstract: This paper investigates the importance of informal finance for Kenyan manufacturing firms. The results indicate that informal borrowing is not an important alternative to other forms of finance. The main clients of informal finance are informal firms and relatively small formal ones, although informal credit is to some extent demanded by firms of all sizes. Most important among the informal financial sources are relatives and friends. The principal reasons for using informal finance are low interest rates, easier formalities, and the fact that no collateral is required.

Keywords: Informal finance, Angels, Africa, Kenya, Manufacturing sector

JEL Classification: G30; G32; O16; O17

1. Introduction

Access to external finance is important to all enterprises. For instance, investment in fixed capital often requires a large lump sum of funds. The adoption and installation of new and better technology might demand external finance. Some firms need access to working-capital financing to smooth out fluctuations in income due to differences in the timing of production and sales. In many Sub-Saharan African (SSA) economies, however, financial and legal systems do not operate efficiently and, therefore, credit may not be forthcoming.[1] In such a situation, a firm has to seek alternative sources of finance.

The alternative source of external finance considered in this paper is the informal financial sector. Historically, SSA financial systems have been highly fragmented into dual markets, namely, a formal and an informal financial market (e.g. Seibel and Marx, 1987; Nissanke, 1992). Traditionally, the formal financial sector has been seen to serve the government, while the informal one serves the private sector.

There are two main views explaining the existence of informal finance. One is that informal finance is a reaction to policy distortions, or financial repression (e.g. Fry, 1995; Taylor, 1983). Since the informal financial sector is not subject to regulation, it is more efficient than the formal one. The remedy for the relative inefficiency of the formal credit market may be seen in financial liberalization.

The second view maintains that the informal sector has a comparative advantage in some market segments, notwithstanding financial liberalization (e.g. Adams, 1992; Wai, 1992). While it is costly for formal institutions to acquire information, informal agents can utilize local personal information, resulting in monopoly power. It is well known that a weak legal system inhibits contract enforcement, which results in credit rationing of potential borrowers without collateral. Informal agents can fill such

market segments and collateral can be replaced by reputation, group responsibility, and interlinked transactions (Steel *et al*, 1997).

While informal financial markets in Asia are often vibrant and relatively efficient, there are few indications that informal finance is an important alternative to formal credit in SSA.[2] A study by Biggs *et al* (1994), using Kenyan data for one year, finds that informal finance is used to a limited extent only, with the preferred informal source being that of relatives and friends (angels). It is interesting to note, however, that those few firms that do use informal finance can be of any size. Based on enterprise surveys in seven SSA countries, Biggs, Raturi and Srivastava (1996) argue that informal financial markets are severely limited in scope.

While most of the literature stresses the limited role of informal finance in SSA, an exception is the Ghana-study by Cuevas *et al* (1993), which finds that informal financial activities are of significant importance to small- and medium-sized firms. The dominant informal source is borrowing from angels. Fafchamps, Pender and Robinson (1995) show that informal finance constitutes 34 per cent of total debt for small firms in Zimbabwe. For other size categories, the corresponding figure was less than 10 per cent. Another result from these authors is that informal credit is used on average by 17 per cent of the firms, and 23 per cent of the large firms.[3] Moreover, the work by Bigsten *et al* (2001) covering six SSA countries shows that formal financial markets are inefficient and biased against lending to small firms. This bias impels small firms often to turn elsewhere for external finance — quite possibly to some informal financial lender.

In the present study, attention is paid to the role of the informal financial sector in providing external finance to manufacturing firms in Kenya. Although the Kenyan financial system is quite sophisticated by SSA standards, it seems unable to provide

adequate external finance to support firm growth. McCormick, Kinyanjui and Ongile (1997), for example, argue that one principal obstacle to firm growth in Kenya is lack of external finance. Instead of coming from the formal financial sector, initial capital tends to source from own savings and angels.

Using three consecutive years of Kenyan manufacturing plant-level data, the paper asks three questions: First, can the informal financial market be viewed as a serious alternative to the formal financial market? Second, what kinds of firms are most likely to demand and receive informal credit? And third, what are the reasons for using informal financial sources? Answers to these questions could say something about the functioning of the formal financial market. They might also point to specific problems that could draw the attention of policy analysis.

The descriptive analysis suggests that informal finance is used mainly by informal firms and by relatively small formal firms. Compared with other ethnic groups, formal firms owned by Africans appear slightly more likely to borrow from informal sources. As regards the share of informal loans in total loans, African ownership is more important. Firms with ownership status other than African hold only negligible amounts of informal loans as a share of total borrowing. In the formal sector, only micro and small firms borrow any significant amounts of money from informal sources. As can be expected, it is mainly informal firms that rely on informal borrowing.

The reasons for borrowing from informal sources differ. Of the firms with informal financing, formal firms stress the relatively low cost (compared with formal borrowing) of such loans and the lesser formality as reasons for turning to informal sources, while an overwhelming amount of informal firms single out the lesser formality. Pooled regression analysis on the probability of having an informal loan

suggests that other modes of financing, including internal finance, considered preferable to resorting to informal sources. The regression results also confirm that the typical user of informal credit is relatively small.

The rest of the paper proceeds as follows: In Section Two a "typicalá informal financial sector is sketched, highlighting a few key concepts. The data are described in Section Three and, thereafter, it presents the average debt portfolios of the firms and the frequency of using informal loans. The Section also shows how access to informal borrowing has evolved over time and charts some reasons for borrowing from informal sources. In Section Four, a regression analysis is undertaken with the aim of explaining the probability that a firm has an informal loan. Section Five concludes the paper and provides some policy advice.

2. A sketch of the informal financial market

The informal financial sector can be described as that part of the economy in which financial activities take place which are not the officially regulated or monitored. This unofficial activity should, however, not be dismissed as unimportant and marginal. There are countries where the informal economy accounts for as much as 20-30 per cent of GDP. Thus, it is clear that informal sector activities could even have macroeconomic effects.[4] In some countries informal activities are illegal, while in others they are legal to various degrees (Bolnick, 1992).

The principal reason for the emergence of an informal financial market is the unwillingness of the formal financial sector to lend to some (relatively risky) categories of borrowers. Increased risk often stems from the difficulty to obtain accurate and reliable information about borrowers. Examples that hinder the flow of accurate information are geographical remoteness or illiteracy. Small clients are also

effectively shut out from the formal market due to high collateral requirements and high minimum deposit requirements, but there is some evidence that small enterprises seldom turn to informal financial sources. Two reasons for not drawing on informal finance are expected high costs or the smallness and unreliability of lenders (e.g. Levy, 1992; Parker, Riopelle, and Steel, 1995).

Another reason for the emergence of informal financial activities is that some firms may turn to informal sources in case of liquidity shocks. Yet another explanation for using informal sources may be that more funds can be raised at a lower cost and without collateral when the source is a relative or friend (henceforth called "angelá).

Interest rates in the informal financial sector tend to be higher than in the formal financial sector, although among informal lenders, interest rates are seldom used as a discrimination device to screen borrowers. Aleem (1990) argues that lenders sometimes borrow from the informal market themselves and lend on at an even higher interest rate. The large cost of monitoring and administering informal contracts increases the cost of borrowing. Higher risks and costs of delinquency are other explanations for the relatively high interest rates, although the loan portfolios of the informal lenders compared with formal lenders had low delinquency and default rates (Steel *et al*, 1997). To these reasons, the opportunity costs of holding cash may also be added. This paper later provides indications that the interest charged on informal loans may actually be lower than that charged on formal credit.

Unlike commercial banks, informal lenders use personal, social, and business relationships to pre-select clients. Rotating Savings and Credit Associations (ROSCAs) use group membership as a selection device, traders and landlords only lend to their customers and tenants, while savings collectors tend to lend to regular

customers. Moreover, recommendations from previous clients and personal knowledge are important ingredients in the selection process.

Informal finance is sometimes taken as synonymous with moneylender activity, but Steel *et al* (1997) show (for the cases of Ghana, Malawi, Nigeria, and Tanzania) that angels are the most common informal creditors. Normally such loans bear no interest and social and economic ties replace collateral as well as ease enforcement of the loan contracts. The relationship between the borrower and the angel reduces the involved moral hazard and hence the monitoring costs. Reciprocity is not uncommon, meaning that the borrower can sometimes become the lender and vice versa. Firms engage also in reciprocal lending among themselves, often in order to smooth out short-term cash flow problems. Sometimes angels supply long-term borrowing. It is also possible that firms with excess liquidity "investá in the informal market by placing an amount for on-lending. However, in such instances, the transactions take place at market terms (Montiel, Agénor, and Ul Haque, 1993).

Moneylenders lend without tying the loans to other transactions. A moneylender, who, for instance, could be a regular moneylender, a pawnbroker, or an indigenous banker, often has intimate knowledge of the borrowers. Despite the high interest rates, small and medium-sized firms turn to moneylenders as a "lender of last resortá. Because of this, the moneylenders are sometimes in a monopolistic position. The earned rent comes from the information advantage that the moneylender has over competition. The high interest rates often charged by moneylenders are not only a monopoly rent because he also incurs information and transaction costs. And the rent also covers the opportunity cost of holding cash balances. Except for moneylenders being the last instance of credit, Bolnick (1992) argues that moneylenders promptly

provide loans to these firms. Furthermore, there are low transaction costs and no restrictions on the use of funds.[5]

Traders (tied credit) are another fairly common source of informal credit. They supply either inputs or cash advances to firms and the credit is linked to purchases of some product at a highly discounted price. Interlinked loans have some advantages compared with other types of loans because they represent a form of collateral that helps reduce uncertainty, moral hazard, and adverse selection (Udry, 1990). Loans attached to transactions tend to have lower implicit interest rates and to be of larger size (Steel *et al*, 1997).

In ROSCAs, individuals pool their savings on a regular basis to generate loanable funds, primarily for the members. The rotation of access to the funds differs among ROSCAs, but most seem to use lotteries and bidding. Without going into a detailed description of the bidding system, the outcome is lending at a market-determined interest rate. Organizational and monitoring costs of ROSCAs are very low; default rates by the very nature of ROSCAs are low as well. Members could be angels as well as traders or manufacturers.

3. Data and descriptive analysis

3.1 The data

The data used in the present analysis were collected over the period 1993 to 1995 and constitute a comprehensive panel-data set on a sample of firms in the Kenyan manufacturing sector.[6] The World Bank organized the collection of data, while a team from Göteborg University and Nairobi University undertook the actual collection.

The dataset consists of more than 200 firms from four different manufacturing industries: food, wood, textile, and metals. These sectors were selected because they were perceived to have the greatest likelihood of exporting. The firms are located in four different cities (Nairobi, Mombasa, Nakuru, and Eldoret). In terms of size and status, the firms range from micro-firms to multinationals and there are both informal and formal firms in the dataset. The Appendix provides more information about the dataset, while Aguilar and Bigsten (2001) in detail discuss the data collection and sampling procedure.

3.2 Results from a descriptive analysis

Table 1 presents the mean portfolios of Kenyan manufacturing firms by firm status (formal or informal). Thereafter, formal firms are divided by the ethnic origin of the owners and by firm size.[7]

< Table 1 about here>

Formal firms, as a group, borrow much more than informal ones. Among formal firms, borrowing increases with firm size. There are also noticeable differences among ethnic groups. Non-African owners borrow on average as much as African and Asian owners do together. Of informal firmsá debt portfolios, about 14 per cent come from informal sources. The corresponding figure for formal firms is only three per cent. For formal African firms, almost ten per cent of all external financing is through informal lenders. There is an inverse relationship between firm size (among formal firms) and share of informal debt, i.e. as firms get larger, they borrow relatively less

from informal lenders. Thus, the first message conveyed is that informal finance constitutes a rather small proportion of total debt.

But is the use of informal finance widespread? Table 2 contains information about the proportion of firms with different forms of external financing. Of the informal firms, 20 per cent have an informal loan, while the corresponding figure for formal firms is only about eight per cent. Regarding ethnicity, among formal firms informal loans seem to be most popular with African-owned firms, while overall the incidence of informal borrowing seems small. Almost 12 per cent of the small formal firms borrow from informal sources, whereas the other size groups show less inclination for such borrowing. Interestingly, six per cent of all large formal firms have informal debt.

While use of informal finance may not be widespread or constitute a large part of total debt portfolios, there are indications that borrowing from informal sources is of importance for some segments of the Kenyan manufacturing sector. For some firms, informal finance might even mean as much as the difference between death and survival. Moreover, the role of informal finance as a complement to other credit is worth considering.

< Table 2 about here>

The next question is how access to and costs of informal finance from angels and informal groups have evolved over time. Firmsá responses to this issue are presented in Table 3 for two years (1994 and 1995) and by firm status. It seems that among formal firms, it was felt that access to finance from an angel had become more limited over time. However, at the same time, 50 per cent of the firms perceived

access to angels to be easy. Over time, costs of informal finance seem to have decreased and in 1995 almost 80 per cent of the firms maintained that costs were low. This is consistent with expectations regarding borrowing from angels, i.e. informal finance is *relatively* easy to obtain and of low cost. Also access to informal groups seems to have diminished over time, although the costs involved in dealing with informal groups seem to have gone down.

Among informal firms, access to angel loans did not change over time, while the costs of such loans appear to have decreased substantially. It seems that it was more difficult for informal firms to obtain angel loans than it was for formal ones. This might be an indication of the perceived risk of dealing with informal firms. It is possible that the targeted informal financial source for informal firms simply does not have much money to lend. However, if this is the case, this relative scarcity of funds is not reflected in higher costs. Finally, Table 3 shows that access to informal groups diminished for informal firms, while costs remained largely unchanged.

< Table 3 about here>

Table 4 presents in more detail á for formal firms only á how access to and costs of informal finance were experienced in 1995.[8] It is shown that access to angel loans is easier for non-African owners than for African owners, while costs for such loans are viewed in a similar way by both owner-groups (but may obviously not be the same). Access to and costs of informal groups, however, seem to be somewhat easier/lower for African owners than for other ethnic groups.

When formal firms are categorized according to their size, 40 per cent of micro firms say that access to angel loans is difficult. Access seems to increase somewhat

with firm size, but is highest for small firms. Costs of angel financing were felt to be low across all size categories, although 35 per cent of the large firms say that costs are very high. In fact, costs appear to increase with firm size, which might be interpreted to mean that the cost of angel loans to some extent depends on pay ability. Larger firms to a larger extent thought that access to informal groups is easy or moderately easy. However, for micro-firms access is either very easy or very difficult. Finally, all size groups seem to regard informal groups as moderately costly.

It thus seems that firms with few assets (i.e. little collateral), and firms signaling low repayment rate, have to pay for this in terms of higher costs and/or less access to informal finance. Regarding access to informal groups, this seems easier for relatively small firms and all firms regard the associated costs to be low.

< Table 4 about here>

Why do firms borrow from informal sources? Table 5 shows that for both formal and informal firms the formalities associated with loan application are easier than when applying for formal credit. For formal firms, the lower cost of borrowing too, as compared with that of formal loans, is of considerable importance. Hence, the commonly held view that informal credit is more expensive than formal credit should not be generalized. However, the complete cost picture could still be lower for formal loans and most informal loans discussed here are those related to angels. For informal firms, the interest rate seems less important than other factors. It is possible that informal firms never even get to the point of weighing comparative loan costs; they are discouraged beforehand from applying, since they must first be *able* to formally apply and, thereafter, possibly put up collateral.

Across formal firms alone, micro-firms say that a favorable interest rate is the main reason for using informal credit, but they also note that collateral is not needed. Easier formalities are more important than low interest rates for small and medium-sized firms. Large firms put a relatively large weight on interest rates, but easier formalities and the "otherá category are also of some importance for the decision to borrow from informal sources.

< Table 5 about here>

There are some interesting differences among ethnic groups to report as well. For instance, 50 per cent of the African owners of formal firms say that lower interest rates are the main reason for selecting informal financial sources. One explanation for this result could be that Africans tend to own relatively small firms that need to compensate increased risk associated with firm size by paying a higher interest rate. Other important reasons stated by this group of firms are easier formalities and flexible payback. Asian owners do not worry so much about interest rates. Instead they highlight easier formalities as the main determinant for informal borrowing. No collateral requirement is another major reason for Asian ownersá choice of financing.

To summarize, the descriptive analysis has shown that as a share of total debt, informal finance is not especially weighty in the debt portfolio. One exception is the debt portfolio of informal firms. Access to angels and informal groups has become somewhat more difficult over time, while costs associated with such loans seem to have decreased. The most important reason for borrowing from informal sources is the complicated formality involved in applying for loans from formal lending.

Although the descriptive analysis has been quite informative about the use of informal finance, it is sometimes hard to know whether, for instance, firm size captures size only or whether it also proxies for, say, firm age or the ethnic origin of the owner (e.g. large firms tend to be old or Africans tend to own relatively small firms). Therefore, attention is now directed towards a multivariate analysis to allow for better identification of factors that matter for the use of informal finance.

4. Regression analysis

This section attempts to explain the probability that a firm has an informal loan. Additionally and, if possible, the section also makes an effort to identify the typical user of informal credit. The number of regressors is deliberately sparse and reflects only basic firm characteristics as well as the hypothesis that informal borrowing is demanded only when no other borrowing is obtained.

One obvious explanatory variable excluded from the right-hand side is that of firm status (formal or informal). The reason for the exclusion of firm status is that almost all informal firms have African owners. Focusing on ethnicity seems more interesting because different ethnic groups may have different ways of increasing the probability of external finance (e.g. network effects and socialization), while some may be discriminated against (e.g. racial discrimination and statistical discrimination). Note that, since the incidence of informal credit is low, zeroes and ones of the dependent variable are highly unbalanced. Therefore, the regression results have to be viewed with some caution. But before embarking on the regression analysis, the dependent variables need to be defined and the hypotheses of the chosen explanatory variables explained.

4.1 Dependent and explanatory variables

Knowing that informal borrowing is quite uncommon among Kenyan manufacturing firms, the regression analysis is kept fairly simple. Hence, a possible sample-selection bias is assumed away and only cross-section Probit regressions are estimated.

The two variables to be explained are the probability of having an informal loan (including those from angels) and an angel loan, respectively. Both dependent variables are dichotomous, assuming the value one if the firms have responded that they have borrowed from any informal source/angel, and zero otherwise. Studying angel loans separately is interesting because they constitute the lionás share of total informal finance (60 per cent of all informal loans are from angels). The following explanatory variables are included: firm age, firm size, profit per employee, demand conditions, ethnic factors, and outstanding alternative debt.

A priori, the sign of the parameter of firm age (the logarithm of firm age +1) is ambiguous. Seen from the supply-side of loans, firm age could positively correlate with informal borrowing because relatively old firms may have established a social and business network with informal lenders. Furthermore, firm age may also proxy for repayment ability, since firms that have been in business for a long time could have acquired knowledge that is positively related to prospects of survival. However, on the demand-side it might be the case that the kind of firms that apply but are denied formal finance are relatively young firms. If the latter hypothesis dominates the former, the parameter will be negative.

Also for firm size (the logarithm of sales +1) is the expected parameter sign unknown. First, relatively large firms may have more to lose in terms of reputation in case of breach of contract than relatively small firms, which commits large firms to fulfilling promises. This, in turn, increases access to external finance, including that of

informal credit. Second, larger firms are less risky to lend to, since, for instance, they are more diversified than small ones. Third, there is most likely more and better information available for relatively large firms, which reduces asymmetric information considerations. Fourth, larger firms may have greater demand for external financing and, with a malfunctioning financial market that insufficiently covers firmsá demand for credit, they may have to turn to informal financial sources for complementary external financing. Hence, firm size may be positively associated with informal borrowing.

However, since it is easier for larger firms to obtain formal borrowing, firm size may in fact be negatively related to informal borrowing. By the same token, it is probably small firms that need to turn to informal financial sources, not large firms. On balance, given a pool of applicants, a lender probably values a large borrower more highly than a small one.

Firms with *African* owners (dummy variable with one for African-owned firms and zero otherwise) might have lower access to external finance. The first obvious reason for this is that a dummy variable indicating firm status is excluded. The rationale for excluding firm status is that in principle all informal firms are African-owned and a dummy variable for African owner could, therefore, proxy for informal firms.[9] Africans may also be subject to statistical discrimination, i.e. Africans as a group could be perceived as less reliable in repaying credit. This might happen because they receive less credit in the first place so they have fewer possibilities to smooth cash-flow fluctuations.

Moreover, racial discrimination by non-African lenders and lenders from different tribes cannot be excluded beforehand. However, to the extent that African owners only turn to their "peerá group (e.g. lenders from their own tribe), racial

discrimination is most likely of less relevance. Differences by ethnic origin with respect to socialization behavior and network effects could also affect the likelihood of obtaining informal borrowing. The second ethnic group controlled for is *Asian* owners (dummy variable with one for Asian-owned firms and zero otherwise), thus leaving "Otherá owners as the reference group.

Gross profit (the logarithm of gross profit per employee) is meant to capture future expected profitability as well as the overall well-being of the firm. Profitable firms are hypothesized to obtain external finance, including informal finance more easily. However, pecking-order behavior would suggest that internal finance is preferred to external finance (Myers, 1984). One may also suspect that, everything else being equal, formal borrowing is chosen before informal credit. But Table 5 in section 3 showed that everything else is not equal. Factors like formalities and collateral requirements could lead a firm to choose an informal loan before a formal one. To the extent that relatively profitable firms have more internal financial resources, a negative relationship between profitability and access to informal credit might be expected.

The demand situation is captured by the inverse of the level of capacity utilization. A high degree of slack demand should be negatively related to chances of obtaining credit, since the probability of repayment is lower in such a case. But it might just be firms in trouble that have to borrow from informal sources.

While it may be the case that informal finance substitutes for formal credit only when the latter cannot be obtained, it is also possible that informal credit is used for short-term purposes only. In other words, informal credit is used when short-term credit (like overdraft facilities) has not been acquired. The level of the outstanding stock of short-term formal borrowing (overdraft facilities as a share of total debt) is

included to capture such substitution. Another short-term credit alternative included in the regression is trade credit (as a share of total debt), which is hypothesized to be preferred to informal credit.

Informal finance may also substitute for long-term borrowing (formal credit from commercial banks and non-bank financial institutions in total debt). The working hypothesis here is that since formal short- and long-term credit, as well as trade credit, most likely is preferred to informal borrowing, firms that already have obtained formal borrowing will less likely turn to informal sources.[10] Therefore, the expected signs of the parameters are negative. Positive parameter signs could be justified if outstanding debt signals creditworthiness or if informal credit is used as a complement to formal credit.[11]

Finally, dummy variables for the food, wood and textile sectors, respectively, leaving the metal sector as the reference sector, are included to control for sector-specific effects. Time dummy variables (with 1993 as the reference year) could capture macroeconomic shocks or the effects of financial liberalization on the supply of informal credit.

4.2 Estimation results

The estimation results are presented in Table 6. Columns two and three show the coefficients and their respective marginal effects obtained from a pooled Probit regression, attempting to explain the probability of obtaining "Any informal loaná (including angel loans). Columns four to six contain the same information, but focus on angel loans only. Since it helps when assessing the importance of a change in one of the explanatory variables on the dependent variables, it is worth noting from the

beginning that the incidence of "Any informal loaná and "Angel loansá is only about 11 and seven per cent, respectively.

Before reviewing the estimation results, a few specification test results are summarized. First, the hypothesis that the errors are homoscedastic and normally distributed cannot be rejected. Second, since the parameters of the sectors were all individually statistically insignificant, it was tested whether they were also jointly zero. This hypothesis could not be rejected and the estimations were undertaken without the sector dummy variables.

Turning to "Any informal loaná first, it is shown that firms that have obtained credit from other sources are less likely to have informal loans, i.e. such firms do not demand informal loans to the same degree as firms that have been denied formal loans. The parameters are statistically significant at the 10 per cent level and their negative signs suggest that informal finance is a substitute, not a complement, for other forms of credit. However, substitution is not for short-term credit like overdraft facilities, but for long-term loans and advance payments from clients. On average, the likelihood that a firm has an informal loan decreases by 0.11 percentage points if there is an increase by one unit in long-term borrowing from a formal institution (an increase by 6.7 per cent). If the average firm increases its loan from clients by a one-percentage point (7.7 per cent), the probability that it will hold informal credit decreases by about 0.09 percentage points.

Bearing in mind that just over 11 per cent of the firms have borrowed from an informal source, the striking result is that informal borrowing and formal long-term borrowing, on one hand, and informal borrowing and advance payments from clients, on the other, are near perfect substitutes (when long-term borrowing and advance payments are evaluated at their means).

Relatively profitable firms are less likely to turn to informal finance. A 100 per cent increase in profit per employee is associated with a decrease in the likelihood of having an informal loan by 0.008 percentage points (or 7.2 per cent). Together with the results on outstanding debt, this result seems to support the hypothesis that informal financial sources are sought only in the very last instance when all other possible sources have been exhausted.

There is also some evidence that it is relatively small firms that go for informal credit. The parameter is statistically significant at the 10 per cent level and suggests that a 100 per cent increase in size is associated with a decrease in the probability by 0.01 percentage points (nine per cent) that a firm has borrowed from an informal financial source. The parameters of firm characteristics, such as firm age and ethnicity have little statistical association with having "Any Informal Loaná. Thus, the typical borrower of informal credit seems to be relatively small, not very profitable, and it has probably been denied credit from other sources.

< Table 6 about here>

A very interesting difference occurs when turning to angel borrowing. For instance, none of the marginal effects of debt is statistically significant at conventional levels (10 per cent). Furthermore, the point estimates are smaller in the case of angel loans. Firm age and demand now enter the specification.

As for "Any informal loaná, relatively profitable firms tend not to seek informal finance, although again the effect is economically tenuous (a 100 per cent increase in profit is associated only with about a six per cent decrease in the likelihood that a firm holds credit from an angel). Again, it is relatively small firms that seek angel credit. A

100 per cent increase in firm size decreases the probability of having an angel loan by 0.08 percentage points (nine per cent). Firms facing poor demand are also less likely to obtain angel loans. This means that also angels are concerned about how well the business is doing before extending credit, i.e. also angels calculate in business terms.

A somewhat surprising result is that angel loans are primarily sought by older firms, not young ones. A 10 per cent increase in firm age (the mean firm age is about 15 years) is associated with an increase in the probability that a firm has borrowed from a relative or a friend by 0.003 percentage points (3.3 per cent). One interpretation is that even for borrowing from angels it is necessary to build up confidence and reputation. This interpretation finds support in Biggs *et al* (1994), who show that the lender (the angel) was known to the firm for 20 years on average. Another plausible explanation for this result could be that relatively old firms have so built up skill and knowledge that the chances of survival are positively affected. The typical borrower of angel loans then seems to be a firm that has built up a reputation, is relatively small, and have problems with profit and demand.

Finally, over time, access to angel credit appears to have increased, an effect that might be attributed to worsening macro-economic conditions. A deteriorating macro-environment is more likely to affect negatively the supply of formal than of informal credit. This could have forced firms to turn to a larger extent to informal financial sources.

5. Conclusions

This paper has studied the extent to which Kenyan manufacturing firms use informal finance. The descriptive analysis showed that informal finance constitutes a very small proportion of the firmsá debt portfolios. It was also shown that it is mainly

informal firms that use informal finance, although to some degree also formal firms borrow from informal sources. In the latter cases firms tend to be small and have African ownership. However, the difference due to ethnicity was too small to show up in the regression analysis.

The main reasons for using informal sources of finance were lower interest rates, which are likely to be related to angel financing, easier formalities, and the fact that no collateral is required. Regression analysis suggested that informal finance is the last choice of external financing. Even angels appear to consider the business prospects for the borrowing firm as well as the track record for repayments before providing funding.

This paper thus agrees with the conclusions of Biggs *et al* (1994) that informal finance is limited in Kenya. The results on Kenya appear to stand in stark contrast to the results obtained by Cuevas *et al* (1993) for Ghana, who showed that informal finance is of considerable importance to manufacturing firms. Moreover, according to Fafchamps, Pender and Robinson (1995), it seems that firms in Zimbabwe hold a much larger proportion of debt in informal loans than Kenyan firms do.

The results obtained here pave the way for some policy targeting, implicitly assuming that a well functioning formal financial market is more desirable than a dual one. To increase their access to formal credit, informal firms need to learn how to apply. Clearly, being able to fill out a loan application is a screening device, albeit a crude one. This observation becomes ever more important, since formal firms as well implicitly "complainá about current loan-application formalities.

However, it needs to be acknowledged that at the individual-firm level, increased access or use of informal finance could mean the difference between firm growth or stagnancy, or even between death or survival. For firms without assets,

there will probably always be need for an informal financial market. It is equally important that firms improve the flow of information as well as their accuracy in order to reduce the risk associated with lending to them. The collateral situation requires reform in the areas of securing property rights and contract enforcement, although that would only solve the problem for firms that have assets.

A few caveats are in place. The results in this paper should be viewed as indicative rather than definitive, especially when considering the low incidence of informal borrowing. To what extent the results obtained from the regression analysis can be trusted is uncertain because only about 10 per cent of the observations have informal loans. It can also be asked to what extent the interviews were able to truly capture the incidence of informal finance. It is possible that some firms were unwilling to admit their use of informal finance as the firm might be regarded financially weak. Furthermore, access to informal loans is probably underestimated because the data show only which firms have an informal loan and which do not. If there should suddenly be need for external assistance, in many cases angels or other informal financial sources would likely provide some short-term funding.

Nevertheless, preliminary answers to the questions posed in the introduction can be given as follows: First, the informal financial market does not seem to be an important alternative to the formal one, although the possibility cannot be excluded that the small amount of informal finance that does exist makes a lot of difference to Kenyan firms. Second, it is mainly small, informal and relatively unprofitable (African-owned) firms that demand informal finance. Third, the main reasons for using informal finance are low interest rates, easier formalities, and the fact that no collateral is required.

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Appendix

Table 1 shows the proportion of formal and informal firms in different groups: industries, firm size, ethnic origin of firm owners, and location. There are a total of 654 observations (not firms) in the dataset, of which 27 per cent are informal ones. While the formal observations are evenly distributed across industries, there are relatively few informal firms in the food sector. Among the formal firms the majority are either medium-sized or large. As expected, informal firms tend to be very small. Informal firms almost exclusively have African owners, while formal ones tend to have Asian owners. The vast majority of the firms in the sample are located in Nairobi, although there are quite a few firms in Mombasa as well.

Table A1. Proportion of Firms in Various Sub-groups, Mean 1993-95

	Formal firms	Informal firms
Industries		
Food	27.50	13.40
Wood	25.20	30.70
Textile	23.70	24.60
Metal	23.70	31.30
Firm size		
Micro	8.00	74.30
Small	22.60	24.60
Medium	37.30	1.10
Large	31.70	0.00
Ethnic origin of owner		
African	22.00	96.60
Asian	68.50	1.70
Other	9.50	1.70
Location of firm		
Nairobi	67.30	55.90
Mombasa	13.60	27.40
Nakuru	10.90	8.40
Eldoret	8.80	8.40
N (=654)	**475**	**179**

Note: The size-groups are defined as follows: Micro firms have up to 5 employees, Small firms have 6-20 employees, Medium-sized firms have 21-75 employees, while Large firms have from 76 employees and more. N stands for number of observations.
Source: Own calculations.

Table 1. Outstanding balances (Ksh '000), mean, average of 1993-95

Inflow of Funds	African	Asian	Other	Micro	Small	Medium	Large	Formal	Informal
Gross outstanding Balances	19588	23694	33794	1169	1558	7046	61610	24195	117
Of which in per cent:									
Short-term formal loans	19.20	42.00	23.04	28.84	29.24	40.49	36.87	36.25	6.94
Long-term formal loans	32.22	17.87	20.17	26.63	18.60	20.74	20.04	20.35	9.96
Informal loans	8.73	1.53	2.77	7.42	7.71	1.80	1.07	3.08	13.85
Owed to Suppliers	25.63	34.58	43.03	13.75	35.61	32.27	37.40	33.78	18.53
Owed to Clients	14.22	4.02	10.99	23.76	8.84	4.70	4.63	6.54	50.72
N	**74**	**257**	**36**	**19**	**75**	**142**	**122**	**359**	**63**

Note: Included in the Table are only firms that had any external finance in at least one of the three years examined and that have data for all categories of inflows. Furthermore, lack of data on Firm size and Status of firms (i.e. Formal vs. Informal) produces a sum of observations for these two categories less than the sum of observations for Ethnicity. The Size groupings [Micro (1-5 employees), Small (6-20), Medium (21-75), and Large (76+)] and Ethnic [African, Asian, and Other] refer to formal firms only. Informal firms almost exclusively consist of microenterprises. N stands for number of observations.

Source: Own calculations.

Table 2. Proportion of Firms with External Finance and Financial Assets, 1993-95

Prop. of firms with:	African	Asian	Other	Micro	Small	Medium	Large	Formal	Informal
Overdrafts	44.12	71.29	50.00	33.33	43.69	67.86	79.02	63.27	7.56
Formal loans	48.04	38.71	39.58	35.00	29.13	38.69	53.85	40.27	13.37
Informal loans	10.78	7.74	6.25	8.33	11.65	7.14	6.29	7.96	20.35
Owed to Suppliers	46.08	64.52	66.67	22.22	53.40	61.90	71.33	59.96	16.28
Owed to Clients	26.47	15.81	35.42	33.33	21.36	16.07	19.58	19.69	39.53
N	**102**	**310**	**48**	**36**	**103**	**168**	**143**	**452**	**172**

Note: Since a firm can finance its operations from a combination of sources the number in the table do not add up to 100 per cent. Furthermore, lack of data on Ethnicity and Status of firms (i.e. Formal vs. Informal) produces a sum of observations for these two categories less than the sum of observations for Firm size. N stands for number of observations.

Source: Own calculations.

Table 3. Access and Costs of Angels and Informal Groups, 1994 and 1995

	Formal		Informal	
	1994	1995	1994	1995
Access to angel is	**N=39**	**N=60**	**N=31**	**N=42**
- very easy/easy	51.30	53.30	38.70	38.10
- moderate/difficult	28.20	13.30	38.70	38.10
- very difficult/impossible	20.50	33.30	22.60	23.80
Cost of angel is	**N=38**	**N=49**	**N=27**	**N=33**
- very low/low	73.70	79.60	66.70	87.90
- moderate/high	0.00	12.20	14.80	12.10
- very high/prohibitively high	26.30	8.20	18.50	0.00
Access to informal groups is	**N=23**	**N=30**	**N=24**	**N=35**
- very easy/easy	52.20	46.70	66.70	42.90
- moderate/difficult	30.40	13.30	16.70	42.90
- very difficult/impossible	17.40	30.00	16.70	14.30
Cost of informal groups is	**N=19**	**N=28**	**N=33**	**N=34**
- very low/low	10.30	46.40	33.30	29.40
- moderate/high	89.70	53.60	66.70	70.60
- very high/prohibitively high	0.00	0.00	0.00	0.00

Note: N stands for the number of observations (in bold).

Source: Own calculations.

Table 4. Better or worse access to Angels and Informal Groups, 1995

	Formal firms						
	African	Asian	Other	Micro	Small	Medium	Large
Access to angel is	**N=24**	**N=68**	**N=6**	**N=12**	**N=30**	**N=34**	**N=23**
- very easy/easy	41.70	54.40	66.70	41.70	60.00	50.00	52.20
- moderate/difficult	20.80	19.10	16.70	16.70	13.30	20.60	26.10
- very difficult/impossible	37.50	26.50	16.70	41.70	26.70	29.40	21.70
Cost of angel is	**N=19**	**N=62**	**N=11**	**N=11**	**N=26**	**N=30**	**N=20**
- very low/low	78.90	75.80	80.00	90.90	80.80	83.30	55.00
- moderate/high	10.50	6.50	0.00	0.00	7.70	6.70	10.00
- very high/prohibitively high	10.50	17.70	20.00	9.10	11.50	10.00	35.00
Access to informal groups is	**N=18**	**N=30**	**N=4**	**N=8**	**N=15**	**N=17**	**N=13**
- very easy/easy	61.10	40.00	50.00	50.00	66.70	29.40	53.80
- moderate/difficult	11.10	26.70	25.00	0.00	13.30	23.50	38.50
- very difficult/impossible	27.80	33.30	25.00	50.00	20.50	47.10	7.70
Cost of informal groups is	**N=27**	**N=49**	**N=9**	**N=9**	**N=27**	**N=29**	**N=21**
- very low/low	25.90	22.40	11.10	33.30	14.80	17.20	33.30
- moderate/high	74.10	77.60	88.90	66.70	85.20	82.80	66.70
- very high/prohibitively high	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: N stands for the number of observations (in bold).

Source: Own calculations.

Table 5. Reasons for Demanding Informal Sources of Financing, 1993-95

	African	Asian	Other	Micro	Small	Medium	Large	Formal	Informal
Lower interest rate	50.00	17.90	100.0	75.00	21.40	18.80	44.40	30.20	5.60
Easier formalities	25.00	42.90	0.00	0.00	35.70	56.30	22.20	37.20	57.40
No collateral required	0.00	17.90	0.00	25.00	14.30	12.50	0.00	11.60	14.80
Flexible payback	16.70	7.10	0.00	0.00	14.30	6.30	11.10	9.30	14.80
Other	8.30	14.30	0.00	0.00	14.30	6.30	22.20	11.60	7.40
N	**12**	**28**	**2**	**4**	**14**	**16**	**9**	**43**	**54**

Note: N stands for number of observations.

Source: Own calculations.

Table 6. Explaining the Incidence of Informal Borrowing, 1993-95

	Any Informal Loan		Angel Loan	
	Probit	Marginal Effects	Probit	Marginal Effects
Constant	-0.095	-0.016	-0.520	-0.518
	(0.140)	(0.140)	(0.661)	(0.656)
Log Firm age	0.120	0.020	0.268*	0.027*
	(0.946)	(0.951)	(1.767)	(1.779)
Log Firm size	-0.063*	-0.010*	-0.081*	-0.008*
	(1.707)	(1.719)	(1.828)	(1.822)
Log Profit/Employee	-0.048**	-0.008**	-0.053*	-0.005*
	(2.003)	(2.017)	(1.760)	(1.775)
African owner	0.324	0.056	-0.067	-0.007
	(0.895)	(0.860)	(0.175)	(0.177)
Asian owner	0.119	0.019	-0.102	-0.010
	(0.337)	(0.338)	(0.279)	(0.278)
Demand	-0.144	-0.019	-0.181	-0.018*
	(1.488)	(1.500)	(1.612)	(1.652)
Short-term formal loan	-0.290	-0.048	-0.441	-0.044
	(0.956)	(0.959)	(1.122)	(1.137)
Long-term formal loan	-0.677*	-0.111*	-0.696	-0.069
	(1.933)	(1.948)	(1.503)	(1.526)
Advance payment	-0.514*	-0.085*	-0.163	-0.016
	(1.751)	(1.754)	(0.530)	(0.530)
Year 2	0.107	0.018	0.666***	0.083**
	(0.562)	(0.547)	(2.807)	(2.358)
Year 3	-0.232	-0.036	0.263	0.029
	(1.086)	(1.160)	(1.009)	(0.930)
N / 227 firms	489	--------	489	--------
R^2 [a]	0.34	--------	0.33	--------
Log-Likelihood	-155.45	--------	-108.44	--------
Joint $\beta = 0$ [b]	28.87***	--------	29.98***	--------
Sectors jointly = 0 [c]	1.94		2.71	--------
Heteroscedasticity [d]	0.53	--------	0.44	--------
Normality [e]	1.49		0.73	--------

Note: ***, **, and * indicate significance at 1 %, 5 %, and 10 % respectively. Absolute t-values are in parentheses. N stands for number of observations. All specifications include sector and time dummy variables. Marginal effects are evaluated at variable means. Heteroscedasticity was tested with respect to firm age, profit, firm size, demand, and all kinds of alternative borrowing.

[a] Zavoina and McElveyás (1975) pseudo R^2

[b] Wald test of slope parameters jointly zero, χ^2[df]

[c] Wald test of sector parameters jointly zero, χ^2[df]

[d] Likelihood ratio test of H_0: No heteroscedasticity, χ^2[df]

[e] Wald test of H_0: Normally distributed errors, χ^2[df]

[1] Incomplete information is one major source of financial-system inefficiencies. Consequences for credit supply, borrowing costs and collateral requirement due to asymmetric information are discussed in, for instance, Stiglitz and Weiss (1981), Stiglitz (1989), Hoff and Stiglitz (1990), Ray (1998), and Bardhan and Udry (1999).

[2] Two examples of studies covering Asian countries are Ghate (1992), which covers Bangladesh, Indonesia, Philippines and Thailand, and Srivastava (1994) on India. Another study for a non-SSA and non-Asian country is that by Mohieldin and Wright (2000) on Egypt.

[3] One has to be careful in comparing countries because size groups are defined differently across countries. For instance, while micro firms in this study are firms with less than six employees, in Fafchamps, Pender and Robinson (1995) micro firms are those with less than 11 employees.

[4] A good source of macro-models incorporating the informal sector is Montiel, Agénor, and Ul Haque (1993).

[5] For a different view of moneylenders, see Adams (1992).

[6] It is not always obvious which years the data cover. While questions on outputs and inputs clearly refer to "last yeará, questions on finance refer to "the current outstanding balanceá. For that reason there is certainly a mix of years in the data so that, e.g. when explaining the probability of having an informal loan by sales, it is the case that this yeará loan is explained by last yeará sales. This is not entirely negative because potential problems with simultaneity bias are thereby rectified to some extent. Since current outstanding debt is central here, it seems appropriate to refer to the years when the interviews were undertaken.

[7] Since the vast majority of informal firms are owned by Africans and are of micro size, there is little point in presenting them in the same fashion as the formal firms.

[8] Some categories have very few observations and some of the results must, therefore, be viewed with some caution.

[9] On the other hand, 22 per cent of the formal firms have African owners and this fact makes the relationship between African ownership and informal firm status an imperfect one.

[10] To avoid a trivial regression result, trade credit from suppliers (the fifth form of external credit considered) is left out of the specification.

[11] To be sure, a too high indebtedness level should be negatively related with the probability of obtaining external finance. When tested for non-linear effects from indebtedness, no square debt terms were statistically significant. For the sake of parsimony, debt is, therefore, included in its linear form only.