


# Bank Borrowing and Financing of Medium-sized Firms in Indonesia

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The improvement of financial intermediation functions is crucial for a robust banking system. When lending, banks have to cope with such problems as information asymmetry and adverse selection. In order to mitigate these problems, banks have to product information and improve their techniques of lending. During the 1998 financial crisis, Indonesia's banking system suffered severe damage and revealed that the country's banking intermediation functions did not work well. This paper examines the financial intermediation functions of banks in Indonesia and analyzes the importance of bank lending to firms. The focus is on medium-sized firms, and "relationship lending", one of the bank lending techniques, is used to examine financial intermediation in Indonesia. The results of logit regressions show that the relationship between a bank and a firm affects the probability of bank lending. The amount of borrowing and collateral are also affected by a firm's relationship with a bank. When viewed from the standpoint of relationship lending to medium-sized firms, Indonesian banks cannot be criticized for any malfunction of financial intermediation.

**Keywords:** relationship lending, financial intermediation function, medium-sized firms, Indonesia,

**JEL classification:** G21, N25, G30

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# **Bank Borrowing and Financing of Medium-sized Firms in Indonesia**

**Miki Hamada<sup>†</sup>**

## **Abstract**

The improvement of financial intermediation functions is crucial for a robust banking system. When lending, banks have to cope with such problems as information asymmetry and adverse selection. In order to mitigate these problems, banks have to produce information and improve their techniques of lending. During the 1998 financial crisis, Indonesia's banking system suffered severe damage and revealed that the country's banking intermediation functions did not work well. This paper examines the financial intermediation functions of banks in Indonesia and analyzes the importance of bank lending to firms. The focus is on medium-sized firms, and "relationship lending", one of the bank lending techniques, is used to examine financial intermediation in Indonesia. The results of logit regressions show that the relationship between a bank and a firm affects the probability of bank lending. The amount of borrowing and collateral are also affected by a firm's relationship with a bank. When viewed from the standpoint of relationship lending to medium-sized firms, Indonesian banks cannot be criticized for any malfunction of financial intermediation.

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## **1. Introduction**

Financial systems in development economies are often perceived as fragile. The fragility can be attributed to the immaturity of banking financial intermediation functions such as a deficiency of screening ability, banks' poor risk management, and undeveloped legal and accounting systems. Improvement of financial intermediation is one of the most crucial issues in the development of a country's financial system.

When providing loans, banks have to cope with problems of asymmetric information and adverse selection, therefore collecting information on clients and the production of information are most important for banks. A rapid increase in non-performing loans is one of the consequences of massive lending based on the production of insufficient information. Indonesia is a case in point.

This paper examines the financial intermediation functions in the Indonesian banking sector and analyzes the importance of bank lending to firms. It seems that the vulnerability of the banking sector aggravated the situation in Indonesia during the financial crisis in 1998, as indicated by the fact that the rate of nonperforming loans rose to 58.7% in 1999. In this paper the financial intermediation functions of banks will be evaluated from the standpoint of the relationship between firms and banks with the focus of examination being on medium-sized firms.

## **2. Bank Lending to Medium-sized Firms in Indonesia**

### **2.1 Why medium-sized firms?**

During and after the 1998 financial crisis, Indonesia's banking sector suffered serious damage. The large depreciation of the Indonesian rupiah made the net worth of most commercial banks inadequate. Non-performing loans rose rapidly, and the average rate for such loans at foreign exchange banks increased to 76.9%. Major commercial banks were bailed out through capital

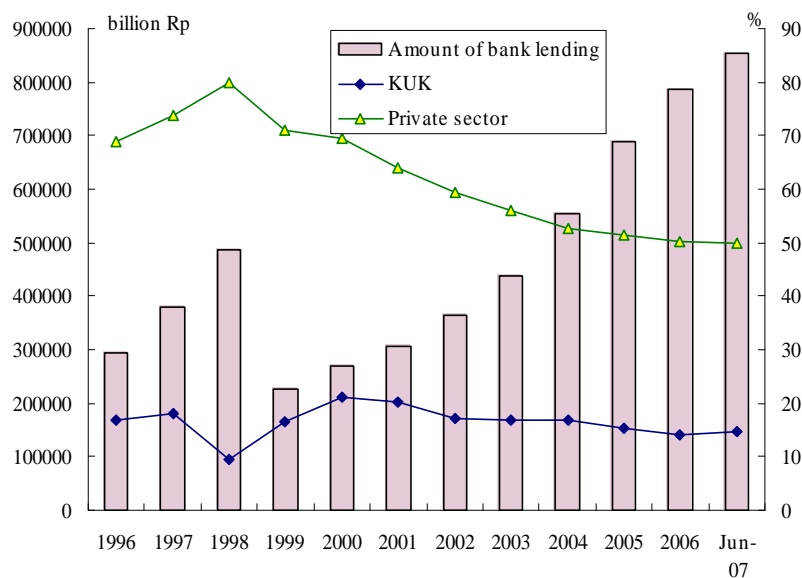
injections from the government and nationalization. At that time it was reported that 70% to 90% of bank loans had been channeled to related companies (September 29, 1998, *Jakarta Post*). This fact raises doubts about the financial intermediation functions of Indonesian banks. Before the financial crisis and nationalization, major private banks belonged to conglomerates or business groups. Indonesian conglomerates had many large blue-chip companies operating in various sectors. Therefore Indonesian banks did not need to product information for channeling loans to related parties because information asymmetry did not exist within the business group. Thus if there were no information problems when banks allocated loans to related companies, it is difficult to affirm whether or not Indonesian banks have financial intermediation functions. However, how about when lending to small and medium-sized firms? Unlike large companies, small and medium-sized firms are not related to conglomerates, and their information varies. Thus small and medium-sized firm lending seems to be meaningful for examining and evaluating banks' financial intermediation functions.

Although most bank lending is allocated to large companies, these companies have various funding sources in addition to domestic bank borrowing. Issuing stocks and bonds on capital markets and borrowing on international markets are other alternatives. For small and medium-sized firms, however, financing is a major difficulty, and bank borrowing, while difficult, is the most important external financial source for them. This is another reason for focusing on lending to small and medium-sized firms.

Another reason lies within the context of Indonesia. Lending to small firms is not so difficult for banks because such lending is given preferential treatment. Loans to small firms are regulated by the central bank, and commercial banks in Indonesia are obligated to allocate 20% of their total loans to small-scale business, up to Rp500 million (= US\$56,000) per client. This preferential treatment is called KUK (Kredit Usaha Kecil [Small Business Credit]). If a bank does not conform

to this regulation, it is penalized. On the other hand, if a bank follows the regulation, it gets a bonus. Thus banks have incentives to lend to small firms: they avoid penalties and get bonuses (Hamada-Takeda [2000]). Figure 1 shows that the percentage of KUK loans does not exceed 20% of total bank loans, which indicates that bank lending behavior to small firms is not based on self-motivated decisions. Under the KUK regulation there is no need for banks to voluntarily improve their techniques for lending to small firms.

**Figure 1 Value and Percentage of Bank Loans**



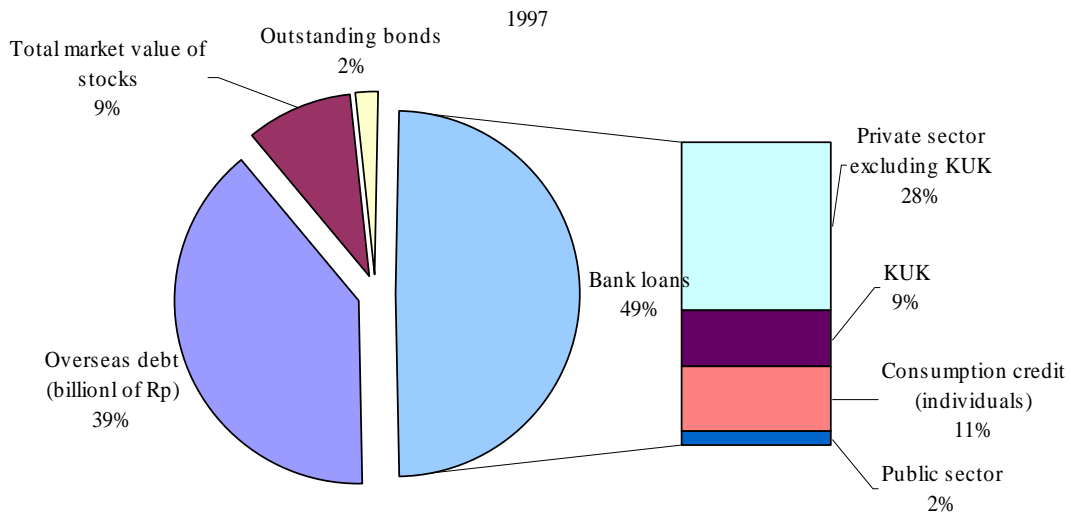
As there is no government intervention, focusing on lending to medium-sized firms seems the most suitable for examining the financial intermediation functions of Indonesian banks. When lending to such firms, banks have to collect information and make lending decisions on their own.

**2.2 What is the scale of lending to medium-sized firms?**

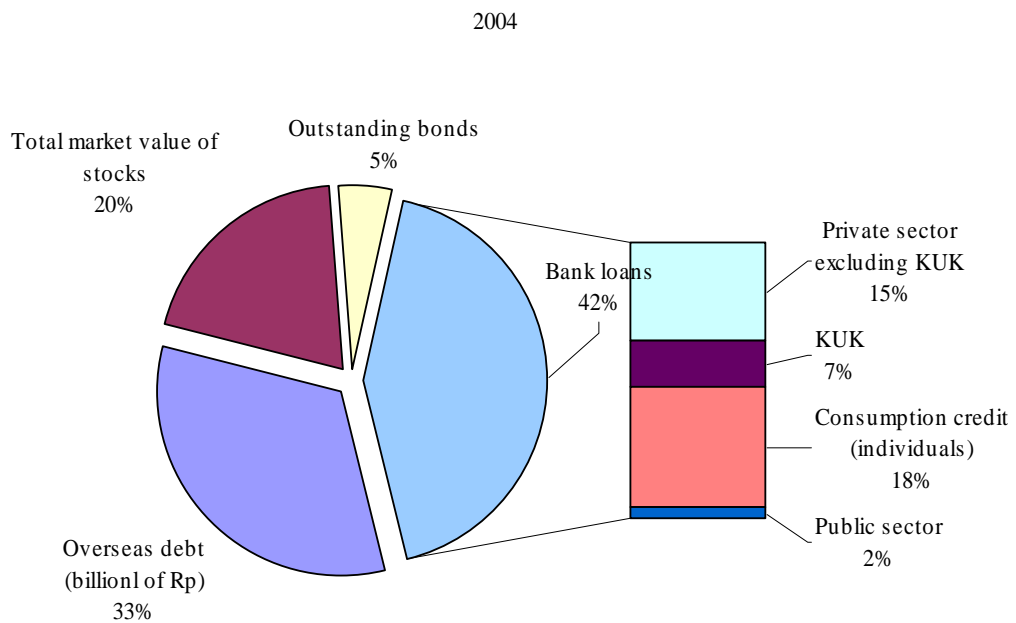
It is difficult to identify the scale of lending to medium-sized firms, however it is possible to estimate by comparing the sources of funds for large and medium-sized firms. Figures 2-a and 2-b

describe the sources of funds for the private sector. From these figures we can see a shift in the sources of funds.

**Figure 2-a Private-Sector Sources of Funding in 1997**



**Figure 2-b Private Sector Sources of Funding in 2004**



Source: Author



Before the financial crisis in 1997, massive amounts of foreign capital flowed in: 39% of private sector capital was overseas debt; 49% was lending from domestic banks, and capital markets accounted for 11%. After the crisis overseas debt decreased to 33%: domestic bank loans fell to 42%, while capital markets increased to 25%.

In the two figures, “private sector excluding KUK” is regarded as bank lending to large and medium-sized firms. The “private sector excluding KUK” decreased between 1997 and 2004 from 28% to 15% as a percentage of total sources of funds, while utilization of capital markets increased from 11% to 25%. Conjecturing that large firms for the most part shifted from domestic bank loans to capital markets, the current domestic bank-loan market would then be composed by and large of medium-sized firms and some large firms unable to shift to capital markets. Thus it can be argued that the 15% “private sector excluding KUK” lending in 2004 was mostly to medium-sized firms.

### **3. Relationship Lending Versus Transaction Lending**

In the previous section we estimated the present scale of bank lending to medium-sized firms. In this section we will look at bank lending techniques to these firms. Boot defined the provision of financial services by a financial intermediary as the: 1) investment in obtaining customer-specific information, often proprietary in nature; and 2) evaluation of the profitability of these investments through multiple interactions with the same customer over time and/or across products (Boot[1999]). Thus information is key to a financial intermediary.

When providing financial services, information asymmetry is a serious problem for banks especially in the case of small and medium-sized firms because information on large firms is relatively available. Large firms usually prepare financial statements and provide public information. According to Udell lending techniques are based on: 1) financial statements, 2) relationship between bank and firm, 3) credit-scored lending, 4) asset, 5) factoring, and 6) trading credit (Udell: 2004).

Among these techniques, transactions-based lending is the most major one, under which the lending decisions are based on “hard” information that is relatively easily available like financial statement, credit score and asset at the time of loan origination, and does not rely on the “soft” data gathered over the course of a relationship with the borrower (Berger and Udell [2002]). While the most important in lending to small firms is relationship lending which emphasizes the length of time in a relationship between a bank and a firm.

The relationship between a bank and a firm has several advantages for the firm that go beyond just borrowing. The fact of obtaining a loan from a bank improves the firm’s reputation and a longer bank-firm relationship brings more merits to the borrower. For example, at the beginning of a relationship, the interest rate on a loan is higher and much more collateral is required; however after several years, the interest rate decreases and the required collateral also decreases because of the bank’s accumulation of information on the firm. The interest rate especially is greatly affected by the length of a firm’s relationship with a bank (Berger and Udell[1995]).

It is understandable that banks product and accumulate information through their relationships with firms, and this mitigates the problem of information asymmetry. As required collateral decreases proportionally with the length of a relationship, the function of collateral comes to be regarded not as a prerequisite but a compliment of lending.

As well as being a useful technique for banks, relationship lending is also useful for small firms. The next section examines the actual conditions of financing for medium-sized firms in Indonesia, and the funding sources these firms prefer.

#### **4. Financing of Medium-sized Firms**

The BPS (Badan Pusat Statistik [Statistics of the Republic of Indonesia]) provides data on large (more than 100 employees) and medium-sized (from 20 to 99 employees) manufacturing firms

covering basic information about firms, their output, value added, expenditures on inputs, sales, investment and financing. The data are obtained through annual surveys of more than 20,000 firms. This paper uses data for 1993, 1996, 1999 and 2001 in order to examine financing for investment.

The reasons of choosing the years 1993, 1996, 1999 and 2001 are the following. In 1993 the largest number of firms responded to the annual survey, and the year 1993 is regarded as reflecting very well Indonesia's strong economy before the financial crisis. The year 1996 is expected to reflect the bubble economy just before the crisis; the year 1999 reflects the worst economic situation just after the crisis, and the year 2001 is expected to show the slight recovery from the damage of the crisis.

From 1993 to 1996 the total number of medium-sized firms increased 26.6% from 18,163 to 22,997. It was the period when the Indonesian economy grew rapidly due to the government's liberalization policies. In 1999 and 2001 the number decreased slightly. Table 1 shows the number of firms that undertook new investment in each of the examined year. In 1993, 2,583 firms undertook new investment which accounted for 14.2% of the total number of medium-sized firms. In 1996 the percentage of new investment increased to 41.6%; however in 1999 and 2001 this decreased to 19.5% and 19.0% respectively because of the financial crisis.

**Table 1 Investment by Medium-sized Firm**

	Total Number of Medium-sized Firm		survey response rate of finance sources of investment
		Number of Firms Newly Investing	
1993	18,163	2,583 (14.2%)	98.7%
1996	22,997	9,560 (41.6%)	61.6%
1999	22,070	4,311 (19.5%)	63.6%
2001	21,396	4,063 (19.0%)	54.5%

Source: BPS

The BPS surveys provide the sources of funds for investment. Table 2 shows the main sources of these funds. Respondent firms can check the categories that apply to their own situation; these

include: own funds, retained earnings, bank loans, capital markets, international markets, and government funding. In the four years examined, 30% - 40% of firms utilized bank loans, while 60% relied on their own funds, and 40% - 50% used retained earnings; only 4% - 6% of firms utilized capital markets. Thus most firms preferred to use internal sources.

**Table 2 Numbers of firms by source of funds**

	1993		1996		1999		2001	
		%		%		%		%
Bank loans	1,003	39.4	2,010	33.6	987	34.7	640	28.9
Own funds	1,587	62.4	3,700	61.8	1,735	61	1,578	71.3
Retained earnings	1,191	46.8	3,331	55.6	1,471	51.7	1,098	49.6
Stocks/bonds	111	4.4	406	6.8	191	6.7	94	4.2

Source: BPS

Although most firms use a combination of several funding sources (Table 3), a firm's own funds is the single most preferred source. In the four years examined, 25%- 30% of firms used their own funds; around 20% used retained earnings; those relying on bank loans were only 6%-12%. Clearly firms prefer to use internal funds rather than external sources. This observation fits the pecking order theory which asserts that firms prefer internal financing first, then external financing, through the issuing of debt and stock (Fama and French [2002]) .

**Table 3**

	Combination Sources			Single Sources		
	Bank loans	Own funds	Retained earnings	Bank loans	Own funds	Retained earnings
1993	39.6	52.9	46.7	12.2	27.6	18.4
1996	34.1	62.7	56.4	7.5	25.9	20.6
1999	36.0	63.3	37.5	8.8	24.5	19.5
2001	28.9	71.2	49.6	6.3	34.7	17.4

Source: BPS

## 5. Data and Empirical model

### 5.1 Data

The above discussion has showed that medium-sized firms prefer internal funding sources. The question then is how banks determine loans. This section examines determinants of bank lending using logit regression analysis. From the BPS data of large and medium-sized manufacturing firms, the data for medium-sized firms in 1993, 1996 and 1999 are used. Table 4 presents the descriptive statistics.

**Table 4 Descriptive Statistics**

<b>1993</b> Total of 2583 firms		(thousand Rp)		
	Average	minimum	maximum	Std. Dev.
Employees	45	20	99	21
Output	1,167,948	3,756	60,741,006	3,958,345
Own funds	778,059	0	666,547,444	17,819,240
Bank loans	613,302	0	795,805,182	16,412,820
Retained earnings	628,952	0	640,079,853	17,809,960
Age of firms	12	0	93	13
Assets	117,003	0	50,500,000	1,464,434

<b>1996</b> Total of 4448 firms		(thousand Rp)		
	Average	minimum	maximum	Std. Dev.
Employees	38	20	99	19
Output	737,308	3,069	101,920,749	2,754,430
Own funds	377,296	0	568,000,000	9,631,633
Bank loans	58,360	0	11,080,000	450,533
Retained earnings	74,809	0	36,800,000	750,943
Age of firms	10	0	95	10
Assets	n.a	n.a	n.a	n.a

<b>1999</b> Total of 1636 firms		(thousand Rp)		
	Average	minimum	maximum	Std. Dev.
Employees	42	20	99	21
Output	3,002,649	4,200	287,187,024	12,148,175
Own funds	954,354	0	848,250,000	21,133,012
Bank loans	430,680	0	175,000,000	5,028,543
Retained earnings	267,540	0	150,000,000	4,080,154
Age of firms	13	0	99	13
Assets	1,479,545	20	286,340,600	12,331,658

## 5.2 Model

Using the above data, we will examine the probability of firm borrowing . Firm  $i$  uses a bank loan for new investment in period  $t$ .

$$Y_{it} = \ln\left(\frac{P_i}{1 - p_i}\right)$$
$$= \beta_0 + \beta_1 loan_{i(t-1)} + \beta_2 own_{it} + \beta_3 earn_{it} + \beta_4 year_i + \beta_5 \ln output_{it} + u_i$$

$p_i$  is the probability of firm  $i$  using a bank loan.

$$Y_{it} = \begin{cases} 1, & \text{in the case of firm } i \text{ using a bank loan in } t. \\ 0, & \text{in the case firm } i \text{ not using a bank loan in } t. \end{cases}$$

$LOAN_{t-1}$ : dummy variable: if firm  $i$  used a bank loan in  $t-1$ , 1, not used a bank loan, 0.

$OWN_t$  = dummy variable: if firm  $i$  used own capital in  $t$ , 1, not used own capital, 0.

$EARN_t$  = dummy variable: if firm  $i$  used retained earnings in  $t$ , 1, not used retained earnings, 0.

$AGE$  = years for operation

$LNOUT_t$  = natural logarithm of output at  $t$

## 6. Empirical Results

The results of the analysis show that the record of past loans has a positive effect on future borrowing. The coefficients of all variables, except AGE, are significant in all three of the years examined: 1993, 1996 and 1999. The coefficients of the borrowing record and the natural logarithm of output are positive while the coefficients of own funds, retained earnings and international borrowing are negative. AGE was expected to affect bank borrowing positively, however it turns out not to be significant.

**Table 5 Regression results**

Year	1993		1996		1999	
Number of observations	2280		3600		1442	
Coefficients						
(p-value in parentheses)						
Constant	-2.47	(0.000)	-3.42	(0.000)	-3.43	(0.000)
LOAN (t-1)	2.88	(0.000)	2.54	(0.000)	3.10	(0.000)
OWN(t)	-0.89	(0.000)	-0.79	(0.000)	-0.53	(0.001)
EARN(t)	-1.01	(0.000)	-0.53	(0.000)	-0.74	(0.000)
LOANf(t)	-1.01	(0.011)	-1.27	(0.007)	-0.96	(0.070)
AGE	0.00	(0.615)	0.00	(0.919)	0.00	(0.398)
LNOUT(t)	0.16	(0.000)	0.21	(0.000)	0.16	(0.001)
Log likelihood	-1076.1863		-1683.7205		-594.31267	
Pseudo R <sup>2</sup>	0.2925		0.2255		0.3325	

Being based on a logit model, the positive coefficients of this estimation show that there is a high probability of borrowing in the given year. For 1993 the coefficient of the previous year's record is 2.88 meaning that if a firm borrowed from a bank in 1992, the probability that it borrowed again in 1993 was 94.7%. Likewise for 1996 and 1999 the probability of borrowing is very high, around 92.7% and 95.7% respectively. On the other hand, if a firm had other financial sources such as its own funds, retained earnings or international markets, the probability of borrowing was low because the coefficients of these variables are negative. Thus if a firm has other funding sources, that firm is inclined not to resort to bank loans. If output increases the probability of borrowing also increases.

## 7. Relationship Lending and Collateral

Collateral is one of the important elements in assessing the relationship between a bank and a firm. In general banks require collateral for a loan regardless of whether undertaking transaction lending or relationship lending. Asset size is a good proxy for collateral; however in the BPS data set,

not all firms gave answers to the question of asset size<sup>1</sup>.

**Table 6 Comparison of Loans in 1993 to Firms That Borrowed or Did Not Borrow in 1992**

. (thousand of rupiah)

firms that	average loan amount in 1993	average assets in 1993
did not borrowed in 1992	527,961	698,823
borrowed in 92	611,446	289,393

Table 6 compares the difference in the average amount of a loan and amount of collateral between firms that borrowed in both 1992 and 1993 and those that borrowed only in 1993. The average amount of a loan to a firm that borrowed in both years was larger than for a firm that did not borrowed in 1992. This indicates that a firm's past record of borrowing affects the amount of its next loan. However, the amount of assets of firms borrowing in both years was much smaller than that of firms that borrowed only in 1993 which seems to indicate that assets complement information on a firm's past record of borrowing.

**Table 7 Amount of Borrowing and Collateral**

	Firms borrowing in 1993		Firms borrowing in 1997*		Firms borrowing in 1999	
	Borrowed in 92	Did not borrow	Borrowed in 96	Did not borrow	Borrowed in 98	Did not borrow
No. of firms in the previous year	569	312	653	178	316	128
%	64.6%	35.4%	78.6%	21.4%	71.2%	28.8%
Ave. output (1,000 Rp)	1,116,317	1,569,987	910,901	707,511	3,066,641	4,532,589
Ave. borrowing (1,000 Rp)	2,285,861	214,782	134,345	92,317	1,802,415	771,599
Ave. collateral** (1,000Rp)	110,875	288,937	39,575	42,711	1,196,403	810,926
Borrowing / Collateral amount	4.9%	134.5%	29.5%	46.3%	66.4%	105.1%

\*Data on firm assets were unavailable for 1996, therefore data for 1997 were used.

\*\* Assets are a proxy for collateral

Source: BPS

<sup>1</sup> There were 349 firms that provided assets information.



From the foregoing analysis it can be argued that for banks in Indonesia, financial intermediation functions operate from the standpoint of relationship lending. Table 7 shows that if a firm already has a relationship with a bank, the amount that can be borrowed is larger and collateral can be smaller than for a firm without a relationship.

## **7. Conclusion**

This paper examined the funding sources of medium-sized firms and the financial intermediation functions of banks in Indonesia from the standpoint of relationship lending. In order to mitigate problems of information asymmetry, banks have to produce information and improve their techniques of lending. This paper examined whether Indonesian banks produce information as a function of financial intermediation. The results of logit regression show that the relationship between banks and firms affects the probability of borrowing. The amount of borrowing and collateral is also affected by the existence of a firm's relationship with a bank. Due to the lack of information, the effect of this relationship on interest rates was not examined. However, it can be argued that in Indonesia banks perform financial intermediation functions when examined from the standpoint of relationship lending.

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