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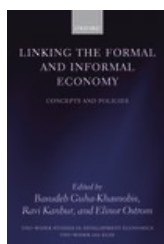
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CHAPTER

8 Financial liberalization in Vietnam: impact on loans from informal, formal, and semi-formal providers

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Abstract

Since 1986, Vietnam has gone through a process of economic reforms — a so-called ‘doimoi’, which included the liberalization of the financial sector. The most profound financial sector reform came in 1995, when commercial banks were allowed to freely set deposit rates to enhance competition in raising funds. This paper commences with an overview of the Vietnamese financial sector and a survey of the main reforms to this sector implemented since the late 1980s. A descriptive analysis is then provided, which compares some key characteristics of pre- and post-financial reform borrowing and savings activities using the *Vietnam Living Standard Surveys* of 1992/93 and 1997/98. The paper then provides an econometric analysis of the determinants of loans from different types of lenders, examining the extent to which this was affected by the financial reforms.

Keywords: [Vietnam](#), [liberalization](#), [financial sector](#), [loans](#), [borrowing](#), [saving](#)

Subject: [Economic Development](#), [Economic Development and Growth](#)

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8.1 Introduction

Since 1986 Vietnam has gone through a process of economic reforms—a so-called *doimoi*. One of the targets of this transformation is to build a strong and efficient financial system that can play an active role in mobilizing resources and allocating them to investments. The financial sector has been diversified in terms of type, size, and ownership. In 1988–89 the government initiated banking reforms that transformed the mono-bank system into a two-tier banking system including the State Bank of Vietnam (SBV, henceforth) and a system of commercial banks. During the 1990s, the government stimulated the entry of new players into the financial sector. This policy led to a substantial increase in the number of joint-stock commercial banks as well as branches of foreign banks and joint-venture banks. Non-bank financial institutions, such

as finance and insurance companies, have also come to exist. The stock market establishment in July 2000 is still elementary. In line with other developing economies, Vietnam also has a vibrant informal financial sector, in the form of, for example, moneylenders and rotating savings and credit associations (ROSCA), and a substantial semi-formal financial sector.

p. 146 The most important financial sector reform in Vietnam took place in 1995. Since 1995, commercial banks are allowed to freely set deposit rates to enhance competition in raising funds. In the literature on financial liberalizations, the effectiveness of interest rate deregulations is an important point of discussion. The standard references are McKinnon (1973) and Shaw (1973) who are strongly in favour of interest rate deregulations. They argue that interest rate deregulations will lead to an increase in savings, and consequently higher investments. There are, however, also several papers by so-called neostructuralists, in which it is argued that financial liberalization may not be that positive. An important reason for this may be the existence of an informal financial sector. It may then be the case that the increase in savings in the formal financial sector is nullified by a decrease in savings in the informal financial sector, so that the total supply of funds will stay constant or may even decline (see e.g. Van Wijnbergen 1983a, b; Buffie 1984). Bencivenga and Smith (1992), who plea for financial liberalizations, show that the neostructuralists' results hold if financial liberalization is not expansionary.

This chapter contributes to the small empirical evidence on the effectiveness of financial reforms in the presence of informal lenders. We take a closer look at financial liberalizations in Vietnam by presenting a descriptive survey of the main liberalizations. Moreover, and more importantly, we examine to what extent the interest rate deregulations have affected loans from formal, informal and semi-formal lenders. We perform a descriptive analysis to compare some key characteristics of borrowing and savings activities pre and post-financial reforms, using the *Vietnam Living Standard Surveys* of 1992/93 and 1997/98. In addition, we conduct an econometric analysis of the determinants of loans from different types of lenders, and examine to what extent this has been affected by the financial reforms.

8.2 The Financial System in Vietnam and the Financial Liberalizations

8.2.1 Overview of the Vietnamese Financial System

The Vietnamese financial system can be divided into formal, informal, and semi-formal financial sectors. In September 2002 the formal financial sector contained:

- (1) 4 state-owned commercial banks (SOCBs);
- (2) 36 joint-stock banks (JSBs);
- p. 147 (3) ↪ 60 branches and representative offices of 27 foreign banks;
- (4) 4 joint-venture banks (JVBS);
- (5) 9 financial lease companies (FLCs);
- (6) a lesser number of securities and insurance companies; and
- (7) one stock exchange, established in July 2000 in Ho Chi Minh city.

The informal sector contained:

- (1) moneylenders, relatives, friends, and neighbours;
- (2) rotating savings and credit associations (ROSCA); and
- (3) agricultural input shopkeepers.

The semi-formal sector contained:

- (1) Vietnam Bank for the Poor (VBP) (currently known as the Vietnam Bank for Social Policy (VBSP));
- (2) credit operatives;
- (3) various national development programmes (such as the poverty alleviation programme and the job creation programme); and
- (4) savings and credit schemes supported by NGOs and donors.

The formal financial sector is characterized by the dominance of SOCBs. They account for more than 70 per cent of the total assets of the whole system. Not surprisingly, SOCBs dominate the credit market with 73.5 per cent of total lending to the economy as of 2002 (ADB 2003). The dominance is also mirrored in the mobilization of funds where the SOCBs captured 76 per cent of all resources mobilized through formal institutions. In addition, SOCBs have advantages in providing banking services and credit to customers, given their better technical equipment, highly qualified staff, and better means of communication. The main customers of SOCBs are the state-owned enterprises (SOEs) which contribute 75 per cent of the economic output and hold 53 per cent of the banks' loans (*Vietnam Investment Review* 2003). The heavy credit concentration on SOEs exposed SOCBs to a high credit risk due to great volumes of bad loans and soft budget constraint problems. In addition, this lending policy effectively crowded out the private sector, which comprises primarily small and medium-sized enterprises and individual households. Recently, SOCBs have been more inclined to shift their loan portfolio to household borrowing in line with the policy of boosting the private sector.

p. 148 JSBs are supposed to fill the gap in serving the private sector. However, their position appears to be modest. Despite a considerable growth in number, JSBs were exposed to high competition and high risk due to their characteristics: low capital base, a small number of branches, inadequate banking services and concentration in two host business centres. With 15 per cent of the lending market, JSBs primarily serve the private sector, particularly local businesses and small enterprises. However, rapid loan growth and weak capacity to assess credit risk could result in non-performing loan problems, and JSBs may not have adequate access to external sources of recapitalization.

Foreign banks in Vietnam are far from becoming full fledged participants in the Vietnamese financial sector due to the current regulatory structures and costly acquisition of information. As a result, they are mainly engaged in lending to foreign-invested enterprises.

In general, SOCBs tend to keep their traditional trend in lending. Loans to SOEs capture a high share of total loan portfolio. However, SOCBs have recently exerted efforts to shift their credit focus to the private sector, especially SMEs (small to medium enterprises) and households. JSBs concentrate on SME lending and individual consumers whereas JVBs primarily serve foreign-owned firms and joint-ventures. The formal sector appears to be underdeveloped and cannot fully serve the credit needs of the economy.

In developing countries, informal financial sectors exist mainly because of the underdevelopment of the formal financial sector. Likewise, Vietnam has a relatively large informal financial sector. It is, however, difficult to exactly measure the size of this sector in terms of financial services provided. The informal financial sector in Vietnam is estimated to account for around 60–70 per cent of total credit in the early 1990s. As implied, the major actors of the informal financial sector include moneylenders, relatives, friends, rotating savings and credit associations (ROSCA), and agricultural input shopkeepers.

Moneylenders are usually wealthy families who live in the communities or villages where their clients reside. This gives moneylenders an advantage in acquiring intimate knowledge about clients. As a result, they often do not need any collateral but have mutual trust. Loans can be made in both cash and kind, typically of short duration and at enormously high interest rates.

Households in Vietnam also rely on a credit source coming from relatives and friends, and neighbours. An interest free loan is typically provided if a household suffers from difficulties due to for example, disease or floods, or if a household is facing a major event such as a wedding or building a house.

p. 149 Another alternative of informal credit comes from ROSCAs, which are known in Vietnam as *hois* in the North and *huis* in the South. Like other forms of ROSCA, a *hoi/hui* refers to a setting in which a group of individuals who know and trust each other get together to formulate simultaneously the saving and the borrowing process. *Hois/huis* are a way of circumventing the difficulties in getting access to other sources of finance in Vietnam. According to an estimate, around 60 per cent of credit in the urban areas was provided by *hois/huis* (*Far Eastern Economic Review*, 4 March 1993).

Agricultural input shopkeepers are currently a very popular form of rural credit in Vietnam. Lenders are agricultural input shopkeepers. They sell agricultural input such as pesticides, fertilizers, and seeds on credit, and receive payment after the harvest. Interest rates vary, depending on the relationship between buyers and shopkeepers.

Generally, all forms of the informal credit sector currently fill in part of the credit gap left by the formal credit sector. Although they are subject to resource constraints, high default risks, and the lack of legal protection, they continue to play a role in the Vietnamese financial system, especially serving individuals, households, and small private enterprises.

The semi-formal financial sector is important in Vietnam, providing subsidized credit to target groups of borrowers. By 2002, as a dominant actor in the semi-formal sector, VBP has offered credit at a substantial outreach, totalling US\$452 million, to some 2.7 million households (World Bank 2002a). In March 2003, VBP has been recognized as a new policy bank, Vietnam Bank for Social Policy (VBSP).

8.2.2 Financial Liberalization¹

In the wave of *doimoi*, the financial sector also went through a number of remarkable reforms. This section highlights the major aspects of the financial sector reforms and anticipates the impact on the development of the formal and informal financial sectors.

p. 150 Following the establishment of a two-tiered banking system in 1988–89, a number of banking reforms have been carried out. Notably, banking regulations have been improved in both content and form to support the more distant supervision and inspection. With the main focus on recapitalization and resolving non-performance, restructuring of the commercial banks has made considerable progress. Most commercial banks have greatly increased their chartered capital. As officially estimated by the World Bank, more than 43 per cent of all non-performing loans of the banking system have been worked out, bringing the ratio of non-performing loans in total outstanding loans from 12.7 per cent (31 December 2000) to 5 per cent (31 December 2002). Gradually, policy-oriented lending is separated from the commercial credit in SOCBs.

As a core issue of the financial sector reforms, interest rate liberalization commenced in 1995 and went through various key steps. From 1990, the SBV imposed a ceiling on lending rates for both domestic and foreign currency loans, discriminating by sectors. That is, different ceilings were applied to loans for agriculture, industry, and trading and services. Different deposit rates were set for households and firms as well.

In 1993, the discrimination in lending rates between sectors was abolished, but lending rates still varied across working capital loans and fixed capital loans. However, the lending rates on fixed capital loans were lower than on working capital loans, creating a reversed structure of interest rates. This policy discouraged banks from making long-term loans.

From 1995, the SBV allowed commercial banks to freely set deposit rates to enhance competition in raising funds. However, the maximum spread between lending rates and deposit rates allowed was 0.35 per cent per month given that the SBV continuously maintained a ceiling on lending rates. The primary reason for keeping interest rate ceilings was to restrict adverse selection, or prevent the banks from over-increasing deposit rates, and then using the funds raised in risky lending. Despite a certain deregulation in deposit rates, the persistence on a ceiling-based lending rate continued to discourage formal lenders from extending small loans to the rural poor and low-income households, due to high transaction costs for small loans.

Under the 1997 Asian financial crisis, the Vietnamese banking sector started to suffer a strong (though indirect) impact on the quality of bank assets. In other words, many borrowing firms fell into difficulty due to decreased income, export, and FDI (foreign direct investment) growth, making it tricky for their loans to be collected. On the other hand, the SBV did not tighten interest rate controls in 1997 and early 1998, rather, it relaxed them. Interest rate ceilings were raised so that commercial banks, especially JSBs, were able to increase deposit rates in 1997. As a response to this policy, the 1998–99 period witnessed an explosion in domestic credit in the economy through the banking system. The government's domestic credit promotion policy aimed at two objectives: (i) helping the SOEs sustain production and employment in a difficult period; and (ii) implementing an investment stimulation policy (instead of undertaking structural reforms) with the hope that income growth would recover. As a matter of fact, the 1998–99 expansionary credit policy did not stimulate economic growth, given that the growth rates slowed down from 5.8 per cent in 1998 to 4.8 per cent in 1999.

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The year 2000 was marked by a number of further reforms concerning the interest rate policy. In August 2000, the SBV adopted a new interest rate mechanism in which the domestic currency lending rates offered by commercial banks could be adjusted according to a base interest rate announced by SBV. However, lending rates charged by commercial banks were not allowed to exceed the base interest rate plus 0.3 per cent per month for short-term loans or 0.5 per cent for medium and long-term loans.

Moving towards a full interest rate liberalization, the lending rate ceiling on foreign currency loans was abolished in November 2001. Since then domestic borrowers in foreign currencies have been allowed to negotiate interest rates with domestic and foreign banks. Interest rates were entirely liberalized in June 2002. Banks are now free to set lending rates conditional upon their own appraisal and negotiation with their customers including firms and individuals. With the official liberalization of interest rates, the base interest rate announced by the SBV has become just a reference.

8.3 The Dataset and a Descriptive Analysis of the Impact of Interest Rate Deregulations

8.3.1 The Dataset

Our data are drawn from two surveys on living standards in Vietnam, namely the *Vietnam Living Standard Surveys*—VLSS 1992/93 and VLSS 1997/98. The first survey was conducted in 1992/93 by the State Planning Committee, known now as the Ministry of Planning and Investment and the General Statistical Office (GSO). The second was conducted by the GSO in 1997/98. Both surveys were funded by UNDP and Swedish International Development Cooperation Agency (Sida) and supported with technical assistance from the World Bank.

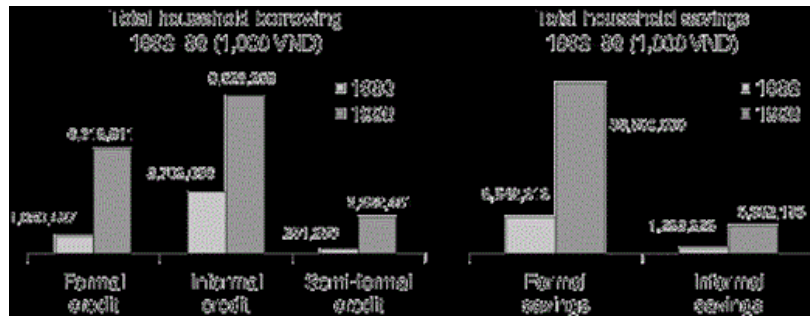
VLSS 1992/93 covered a sample of 4,799 households, of which, 3,839 were rural households, accounting for 80 per cent of the overall sample. VLSS 1997/98 was designed to provide up-to-date data on households. It covered a sample of 6,002 households, including all households surveyed in 1992/93. The proportion of rural households was 71.1 per cent (4,269 households).

p. 152 Both surveys include information on households: household expenditures and consumption; educational level of the household's members; health, fertility, and nutrition; employment and earnings; demography including migration; housing and durable assets; agricultural activities; non-agricultural self-employment; credit and saving, and general community characteristics. For our research objectives, we focus on the financing activities, that is, borrowing and saving of households. The dataset provides information on 3,837 and 5,851 households engaged in financing activities in 1992/93 and 1997/98, respectively. Among them, 2,728 households are present in both years. Our sample sketches an interesting picture of household borrowing and savings in Vietnam regarding the sources of credit, contract characteristics, and borrower-related characteristics. We define formal credit as credit supplied by the private and government commercial banks. The providers of informal credit include private moneylenders, relatives, revolving credit associations, and other individuals. The source of semi-formal credit refers to the VBP, credit cooperatives, poverty alleviation programmes, job creation programmes, and other development programmes. Similarly, informal savings refer to the amount of lending by households to relatives and friends. Formal savings of a household take one of the three following forms: real savings, liquidity savings, and financial savings.

8.3.2 Descriptive Statistics on the Quantity Effects of the Interest Rate Deregulation

Figure 8.1 and Table 8.1 depict some key characteristics of the financing activities in the periods before and after the interest rate deregulation. As shown in Figure 8.1, the year 1998 was marked with a substantial increase in both credit extension and savings compared to the year 1993, suggesting positive effects of the interest rate deregulation. The supply of funds from all lenders increased. The same holds for savings in the formal and informal financial sectors (we do not have information on savings in the semi-formal sector).

Figure 8.1.



Household financing activities in 1993 and 1998

Table 8.1. Key characteristics of household financing in 1993 and 1998

	Size of loan/household (1000 VND)			Loan interest rate/household (%/month)			Loan maturity (months)	Savings/household (1000 VND)	
	Formal credit	Informal credit	Semi-formal credit	Formal credit	Informal credit	Semi-formal credit		Formal	Informal
1992/93									
Mean	1,526.78	2,046.49	934.04	2.69	8.12	2.55	9.98	3,691.58	1,550.35
Median	635.00	500.00	250.00	2.50	7.00	2.10	6.00	830.00	500.00
Max	80,000.00	1,150,000.00	20,000.00	31.0	32.50	8.00	185.00	1,001,000.00	50,000.00
Min	16.00	2.00	1.00	0.03	0.03	0.09	0.50	1.00	20.00
SD	4,543.76	27,215.06	2,667.25	2.80	5.54	1.69	12.74	27,718.71	3,586.86
1997/98									
Mean	5,345.86	5,966.35	3,036.11	0.99	3.92	0.89	17.15	7,121.39	7,661.70
Median	3,000.00	2,000.00	1,500.00	1.20	3.00	0.80	12.00	1,050.00	2,000.00
Max	100,000.00	215,000.00	650,000.00	2.85	20.00	6.00	371.00	1,069,000.00	252,000.00
Min	100.00	2.00	70.00	0.01	0.07	0.01	1.00	–	40.00
SD	8,914.91	16,185.16	24,095.08	0.46	3.48	0.55	16.80	34,696.29	22,593.68

In both years, the informal sectors captured the largest share in household borrowing, making up 73.96 per cent and 52.73 per cent in 1993 and 1998, respectively. This reflects the important role of the informal sector in the Vietnamese credit market. In contrast, the informal sector appears minor in savings activities, given the small portion of 13 per cent and 14 per cent of total savings in 1993 and 1998, respectively.

p. 153 Table 8.1 also indicates the differences among the three financial sectors in terms of loan size, loan interest rate, loan maturity, and savings. While these figures do not reveal a strong disparity in credit volume between different credit providers, they represent substantial increases in an average amount of borrowing per household over time. By comparing medians, the average loan size is only slightly higher for formal sources than informal sources of credit, and the loan size of semi-formal credit remains at the lowest level in both years. Concerning the loan interest rate of borrowing cost, one can see the divergence of loan interest rates with respect to three credit sources and the remarkable decline over time. Interest rates are considerably lower for formal loans and semi-formal loans than for informal loans. Household savings also increase in time with respect to both formal and informal sectors. On average, informal savings/household is lower than formal savings/household in 1993 and reaches a comparable level in 1998.

Table 8.2 illustrates the access to credit of different sources in 1993 and 1998. Although the proportion of access to credit of the overall survey remains relatively stable over time, the complete access to formal credit has increased considerably, from 16.99 per cent in 1993 to 28.27 per cent in 1998. Regarding the other two financial sectors, we can also observe some transformation in credit. It appears that households tend to shift their loans from informal sources to semi-formal sources of finance. Whereas the complete access to informal credit has decreased dramatically from 61.74 per cent in 1993 to 37.19 per cent in 1998, the complete access to semi-formal credit has gone up from 5.21 per cent in 1993 to 16.22 per cent in 1998.

Table 8.2. Access to credit of different sources

	1993		1998	
	No. of households	%	No. of households	%
% access to credit of total households in survey	-	49.18	-	49.10
Access to credit	2360	100	2947	100
Complete access to formal credit	401	16.99	833	28.27
Partial access to formal of which	287	12.16	349	11.84
Access to formal and informal	233	9.87	286	9.70
Access to formal and semi-formal	27	1.14	39	1.32
Access to all the three	27	1.14	24	0.81
Non access to formal of which	1672	70.85	1765	59.89
Complete access to informal credit	1457	61.74	1096	37.19
Complete access to semi-formal credit	123	5.21	478	16.22
Access to informal and semi-formal credit	92	3.9	191	6.48

8.4 Econometric Analysis and Empirical Results

p. 154 Our interest now turns to econometrically estimating key borrowing behavioural relationships and the impact of liberalization on household \hookrightarrow

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borrowing behaviour in Vietnam. Cognizant of the data provided by the VLSS, our current objectives are therefore, confined to modelling household borrowing from providers in the informal, formal, and semi-formal sectors. We are in particular interested in the impacts of Vietnam's financial sector liberalization on this borrowing. We therefore posit the following reduced-form loan functions:

$$B_{f,i} = \alpha_0 + \alpha_1 s_i + \alpha_2 y_i + \alpha_3 c_i + \alpha_4 h_i + \alpha_5 l_i + \mu_i; \quad (8.1)$$

$$B_{n,i} = \beta_0 + \beta_1 s_i + \beta_2 y_i + \beta_3 c_i + \beta_4 h_i + \beta_5 l_i + \varepsilon_i; \quad (8.2)$$

$$B_{s,i} = \gamma_0 + \gamma_1 s_i + \gamma_2 y_i + \gamma_3 c_i + \gamma_4 h_i + \gamma_5 l_i + \nu_i; \text{ and} \quad (8.3)$$

$$B_{o,i} = \delta_0 + \delta_1 s_i + \delta_2 y_i + \delta_3 c_i + \delta_4 h_i + \delta_5 l_i + v_i. \quad (8.4)$$

p. 156 $B_{f,i}$, $B_{n,i}$, $B_{s,i}$ are the level of household i 's borrowing from the formal, informal, and semi-formal sectors, respectively, and $B_{o,i}$ is other borrowing of this household. s_i is a vector of variables measuring the amount of savings, y_i is income (proxied by expenditure), c_i is vector of measures of the amount of collateral, and h_i is a vector of household characteristics, each for household i . l_i is a vector of financial sector liberalization variables, capturing differences between the pre- and post-liberalization periods, as they apply to household i . Each of these variables is treated as exogenous. α_0 , β_0 , γ_0 , and δ_0 are constants and the remaining α_s , β_s , γ_s , and δ_s are slope coefficients, showing the relationship between each category of borrowing and their respective empirical determinants \hookrightarrow captured within equations (8.1) to (8.4). μ_i , ε_i , ν_i and v_i are residual terms and $i = 1, \dots, j$. Equations (8.1) to (8.4) do not contain interest rate variables. While there might be a case for treating formal sector interest rates during the pre-liberalization period as exogenous, we believe, on balance, that interest rates in all sectors are endogenous. Thus we depart from the assumption of our illustrative model. Since equations (8.1) to (8.4) are defined as reduced-forms (a necessary treatment—given the data at our disposal), we exclude all interest rates from these equations.

It is reasonable to assume that the amount of borrowing that household i obtains from one sector will be linked to the amount it borrows from other sectors. If that be the case, it follows that $B_{f,i}$, $B_{n,i}$, $B_{s,i}$, and $B_{o,i}$ will be jointly determined. This in turn will mean that the residual terms of (8.1) to (8.4) will be correlated. It is well-established in the econometrics literature that failing to account for this correlation in the estimation of the equations in question, will yield inefficient estimates of the standard errors for each slope coefficient. As a result, the corresponding t ratios will be underestimated and erroneous conclusions will be drawn. Equations (8.1) to (8.4) need, therefore, to be treated as a system and estimated simultaneously (equation (8.4) is the omitted equation). An appropriate estimation method, given that we treat the variables on the right hand side of (8.1) to (8.4) as exogenous, is the well-known Zellner Seemingly Unrelated Regressions (SUR) approach. This method is still valid even if the dependent variables are not jointly determined.

Equations (8.1) to (8.3) were estimated using either the 1993 survey data alone, the 1998 survey data alone and using combined or pooled 1993 and 1998 data. The savings variable vector s_i contains i 's financial savings and liquidity savings as separate variables. The collateral variable c_i contains the value of i 's durable assets and predicated house value as separate variables. The vector of household characteristics h_i contains the following variables: the gender of the household head, the age of the household head, whether the household is a farm household, and the household size defined by the number of family members living in the house.² The gender, marital status, and farm status are each binary dummy variables. The financial liberalization vector l_i , used only in the estimates obtained from the combined 1993 and 1998 data, consists of a number of variables. The first is a financial liberalization dummy variable taking the value of 1 for 1998 and zero for 1993. It serves as an intercept dummy, and plays an important role in our econometrics, exploring further the effects of the liberalization on household borrowing. This dummy picks up the effects on borrowing of exogenous changes in the levels of the variables on the right hand side of equations (8.1) to (8.3). The liberalization, if resulting in higher interest rates, could increase household savings then, this will increase one or more of the constants in our equations. The liberalization dummy empirically captures such effects. We attribute these changes to the financial liberalization, but of course acknowledge that there could be many other causes. The remaining variables are interactive variables. They have been obtained by taking the liberalization dummy and multiplying it by the above-mentioned non-binary variables. These variables capture changes in the responsiveness of borrowing to these variables between the pre- and post-liberalization periods, evident from changes in their respective slope coefficients.

These results are shown in Table 8.3. Our main interest concerns the coefficient attached to the liberalization dummy, $\alpha_{5,1}$, $\beta_{5,1}$, and $\gamma_{5,1}$. The descriptive statistics shown in Section 8.3 reveal an increase in formal, informal, and semi-formal borrowing, following Vietnam's financial liberalization. What does our econometric analysis tell us? It tells us that the introduction of the financial liberalization programme increased the level of household borrowing from the informal sector. This conclusion is based on the significance of $\beta_{5,1}$, obtained from fitting the informal sector borrowing equation to the combined 1993 and 1998 dataset. Such an effect is not observed for the other borrowing categories, as $\alpha_{5,1}$ and $\gamma_{5,1}$ are statistically insignificant.

Another feature of our results is that, while a number of parameters appear not to be significantly different from zero when estimated using 1993 data, the opposite appears to be the case when estimated using the 1998 data. For example, the parameters attached to the financial savings, house value, household size, and farm status variables are significantly different from zero in 1998, but not in 1993. Behavioural relationships appear to have altered between the two periods, and this might be due to liberalization. We formally test for this, through the inclusion of the above mentioned interaction variables in the equations fitted to the combined 1993 and 1998 data. These interactive variables model for changes in behavioural relationships, evident from changes in slope coefficients, due to the introduction of the liberalization programme. They are constructed by multiplying the chosen dependent variable by the liberalization dummy.

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p. 160 Evidence of statistically significant structural or behavioural changes is shown for all categories of borrowing under consideration. These changes occur, for at least one of the borrowing categories, with respect to financial savings, income, durable assets, house value, and household size. These changes are however, not uniform. For instance, prior to or in absence of liberalization, there appears to be a positive relationship between income and borrowing in both the formal and informal sectors. This is based on the estimates of α_2 and β_2 , both of which are positive and statistically significant. The positive relationship between income and informal sector borrowing remains after liberalization, given $\beta_{5,4}$ is positive and significant. Moreover, since $\beta_{5,4}$ is slightly higher in value than β_2 (0.20 compared to 0.16), informal sector borrowing appears slightly more responsive to income levels in a liberalized environment. Quite different results were obtained for formal sector borrowing, with its relationship with income becoming negative after the financial liberalization. This is evident from the estimated value of $\alpha_{5,4}$, which is negative and significantly different from zero. A possible reason for this is that, households with lower incomes have turned to the formal sector after the liberalization.

Finally, we note that our assumption, that borrowing decisions are linked, and thus that the error terms of equations (8.1) and (8.4) are cross-correlated, appears valid. This is based on the Breush–Pagan (B–P) Test shown in Table 8.3. It tests for the independence of these error terms. The null hypothesis (of zero dependence) is rejected in all instances. The use of the SUR modelling approach appears valid, therefore.

Table 8.3. SUR estimation results

		Formal sector loans			Informal sector loans			Semi-formal sector loans		
		1993	1998	1993 and 1998	1993	1998	1993 and 1998	1993	1998	1993 and 1998
Constant	$(\alpha_0, \beta_0, \text{or}\gamma_0)$	-706.28	-1960.30	-1252.42	-1937.54	3176.36	-750.20	-81.38	-5499.5 [*]	-2804.35
		(-0.65)	(-0.23)	(-1.05)	(-0.32)	(1.10)	(-0.27)	(-0.38)	(-2.33)	(-1.46)
Financial savings	$(\alpha_{1,1}, \beta_{1,1}, \text{or}\gamma_{1,1})$	-0.04	-0.03 [*]	-0.03	-0.20	0.07 [*]	-0.22	-0.01	0.87 [*]	-0.00
		(-0.94)	(2.01)	(-0.40)	(-0.88)	(2.07)	(-1.12)	(-1.17)	(30.68)	(-0.03)
Liquid savings	$(\alpha_{1,2}, \beta_{1,2}, \text{or}\gamma_{1,2})$	-0.05	0.34 [*]	-0.06	18.51 [*]	0.47 [*]	18.46 [*]	-0.01	0.06	-0.02
		(-0.69)	(16.57)	(-0.43)	(50.65)	(11.42)	(58.68)	(-0.80)	(1.63)	(-0.07)
Income	$(\alpha_2, \beta_2, \text{or}\gamma_2)$	0.16 [*]	0.03	0.16 [*]	0.16	0.37 [*]	0.17 [*]	-0.01 [*]	-0.23 [*]	-0.01
		(9.26)	(1.58)	(4.38)	(1.68)	(11.28)	(2.04)	(-1.97)	(-8.80)	(-0.20)
Durable assets	$(\alpha_{3,1}, \beta_{3,1}, \text{or}\gamma_{3,1})$	0.07 [*]	0.84 [*]	0.06	-0.34 [*]	-0.41 [*]	-0.32 [*]	0.02, [*]	-0.34 [*]	-0.00
		(2.93)	(14.44)	(1.20)	(-2.60)	(-3.54)	(-2.84)	(4.45)	(-3.56)	(-0.05)
House value	$(\alpha_{3,2}, \beta_{3,2}, \text{or}\gamma_{3,2})$	-1.63	-11.54 [*]	-1-14	106.74 [*]	35.27 [*]	106.52 [*]	-0.07	103.69 [*]	0.89

		(-0.73)	(-4.71)	(-0.24)	(8.62)	(7.17)	(9.97)	(-0.16)	(25.79)	(0.12)
Gender	($\alpha_{4,1}$, $\beta_{4,1}$, or $\gamma_{4,1}$)	135.10	261.19	273.32	4807.89*	662.68	1584.12*	46.45	588.97	545.35
		(0.49)	(0.75)	(0.99)	(3.16)	(0.95)	(2.49)	(0.86)	(1.04)	(1.23)
Age	($\alpha_{4,2}$, $\beta_{4,2}$, or $\gamma_{4,2}$)	-59.13	54.04	27.42	-91.92	-56.01	-41.13	2.71	102.84	71.13
		(-1.20)	(0.89)	(0.57)	(-0.34)	(-0.46)	(-0.37)	(0.28)	(1.04)	(0.92)
Age ²	($\alpha_{4,3}$, $\beta_{4,3}$, or $\gamma_{4,3}$)	0.69	-0.59	-0.30	1.36	0.95	0.12	-0.03	-0.93	-0.64
		(1.35)	(-0.97)	(-0.61)	(0.48)	(0.08)	(0.11)	(-0.27)	(-0.93)	(-0.82)
Marital status	($\alpha_{4,4}$, $\beta_{4,4}$, or $\gamma_{4,4}$)	-31.86	-304.07	-264.73	-4101.5*	-1469.90	-2170.0*	16.06	142.90	108.88
		(-0.09)	(-0.73)	(-0.79)	(-2.18)	(-1.76)	(-2.82)	(0.24)	(0.21)	(0.20)
Household size	($\alpha_{4,5}$, $\beta_{4,5}$, or $\gamma_{4,5}$)	32.25	204.10*	659.13*	-262.34	-396.64*	-131.14	-2.74	283.27*	-56.77
		(0.67)	(3.13)	(3.35)	(-0.99)	(-3.03)	(-0.61)	(-0.29)	(2.65)	(0.37)
Farm	($\alpha_{4,6}$, $\beta_{4,6}$, or $\gamma_{4,6}$)	-53.97	606.21*	15.27	536.87	-1018.4*	-737.39	59.50	1900.68*	1493.62*
		(-0.27)	(2.68)	(0.16)	(0.48)	(-2.07)	(-1.63)	(1.51)	(4.72)	(4.74)

Liberalization	$(\alpha_{5,1}, \beta_{5,1}, \text{ or } \gamma_{5,1})$			46.96 (-0.08)			2924.54* (2.06)			-1606.30 (-1.63)
Liberalization-financial savings	$(\alpha_{5,2}, \beta_{5,2}, \text{ or } \gamma_{5,2})$			0.00 (0.01)			0.29 (1.45)			0.88* (6.23)
Liberalization-liquid savings	$(\alpha_{5,3}, \beta_{5,3}, \text{ or } \gamma_{5,3})$			0.40* (2.91)			-17.99* (-56.65)			0.07 (0.33)
Liberalization-income	$(\alpha_{5,4}, \beta_{5,4}, \text{ or } \gamma_{5,4})$			-0.13* (-3.45)			0.20* (2.23)			-0.23* (-3.61)
Liberalization-durable assets	$(\alpha_{5,5}, \beta_{5,5}, \text{ or } \gamma_{5,5})$			0.78* (10.84)			-0.09 (-0.56)			-0.34* (-2.90)
Liberalization-house value	$(\alpha_{5,6}, \beta_{5,6}, \text{ or } \gamma_{5,6})$			-10.83* (-2.11)			-70.50* (-5.96)			102.00* (12.40)
Liberalization-household size	$(\alpha_{5,7}, \beta_{5,7}, \text{ or } \gamma_{5,7})$			196.77 (1.79)			-286.66 (-1.13)			359.96* (2.05)
<i>N</i>		688	2663	3351	688	2663	3351	688	2663	3351
R^2		0.18	0.24	0.24	0.90	0.23	0.73	0.04	0.47	0.47
χ^2		150.16*	828.17*	1078.34*	6355.61*	783.20*	9175.21*	27.90*	783.20*	956.7*
B-P Test		6.79*	195.99*	184.86*	6.79*	195.99*	184.86*	6.79*	195.99*	184.86*

Note:

* denotes significant at the 95 per cent level or greater. Numbers in parentheses are *t*-ratios.

8.5 Conclusion

p. 161 This chapter surveys financial sector liberalization in Vietnam during the 1990s. Using the VLSS 92/93 and 97/98, we compare loans from providers in the formal, informal and semi-formal sectors. We first show, in a descriptive analysis, that loans from all three sectors increased after liberalization—that is, household loan amounts in 1998 are higher than in 1993. These results are consistent with the view that financial liberalization has positive quantity effects. To further examine the quantity effects of financial liberalization, we simultaneously estimate the parameters of a system of reduced-form borrowing (loan amount) equations using econometric methods. These equations allow for changes in behavioural relationships due to financial liberalization. They also allow for the detection of direct effects of this liberalization on loan amounts, after controlling for a range of other effects. Evidence in support of the view that financial liberalization changes borrowing amounts was presented, with informal sector borrowing being higher after liberalization. There is an element of ‘voting with feet’ implicit to this result. That is, borrowers have responded to the liberalization by ‘walking towards’ the informal sector. Our econometric results show no evidence of borrowers ‘walking away’ from the formal sector, although implicit to these results is a decrease in the relative importance of the formal sector owing to the liberalization. Evidence of diverse change in a number of behavioural relationships, consistent with the financial liberalization, was also presented.

Finally, a brief word on future research is warranted. The data provided in the *Vietnam Living Standard Surveys* of 1993 and 1998 can facilitate much more investigation of borrowing behaviour. More exploration of these data for this purpose would appear to be warranted, including further econometric work. The fact that the amount of borrowing a household obtains from one sector, will be linked to the amount it borrows from other sectors, does very much complicate further econometric analysis. In particular, it requires a systems estimation approach and this does limit what can be done. There is still room, however, for further econometric research on a range of issues relating to household borrowing. We highlight three possible directions for future research. The first is to treat interest rates not as endogenous, as the current paper has, but to treat them as exogenous. Ultimately the status of these variables should not rest on an assumption, but on actual empirical testing. The second is to model the ratio of formal to informal borrowing, formal to semi-formal borrowing and so on, testing *inter alia* whether these ratios have changed over time, especially between the pre- and post-liberalization periods. The third is to test for differences in household borrowing behaviour between Vietnam's regions, or between farm and non-farm borrowers. In particular, it is not beyond the realms of imagination to posit that liberalization will have had a non-uniform impact on borrowing behaviour across these regions, or indeed that in certain regions these reforms have had little or no impact on such behaviour. This chapter has made a start at modelling household borrowing using VLSS; subsequent research could pick up this mantle and run with it further.

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Notes

- 1 Information presented in this sub-section is taken from World Bank (2002a, b and 2003).
- 2 Careful consideration was given to including a measure of land ownership in the collateral vector c_i and interacting that variable with the liberalization dummy. While one might expect that land ownership would, in general, increase credit availability, there is strong anecdotal evidence to suggest that this is not the case in Vietnam.