

# Household sector and monetary policy implications: Thailand's recent experience

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## Introduction

Monitoring house price inflation and the build-up of household debt is important for the conduct of Thailand's monetary policy. Although the Bank of Thailand (BOT) does not directly take into account the level of household debt or house price movements when it decides to change short-term interest rates, it recognises that changes in the policy rate could strongly affect house prices, household borrowing and overall consumption.

A reduction in the policy rate could lead to an unsustainable increase in debt, thereby raising the risk of undershooting the target inflation rate in the future. At times of easy monetary policy, a rise in both household disposable income and housing prices could encourage households to consume more and build up debt. A boom in house prices could be of great concern to policymakers because it might enable households to increase their consumption by betting on higher expected future incomes, which could affect economic stability.

Higher debt levels could make things substantially worse if there is a shock to the economy and people are unable to get their loans renewed. If they become unemployed and cannot obtain loans, they will significantly reduce consumption because they will be, or will have the prospect of being, unable to service their debts. In the face of excessive debt, tighter monetary policy could induce greater precautionary saving and a larger drop in consumption.

It is hard to predict whether higher debt levels would lead to a significant additional cutback in consumption that would not respond to an easing of monetary policy. The impact would depend primarily on the structure of the household sector, the ability of households to service debt, the availability of credit and financing conditions.

This paper attempts to examine the above issues by looking at the structure of household balance sheets, the build-up of household debt and the roles of housing prices and housing finance in Thailand. The BOT's monetary policy stance since the adoption of an inflation targeting framework is also discussed in order to provide some perspective on the linkages between monetary policy and the household sector. In the following sections of this paper, we discuss Thailand's monetary policy framework, the relevant literature, current conditions in Thailand's household sector, current consumption and household debt, housing prices and mortgage financing and the role of monetary policy and housing price movements in explaining output fluctuations. We present our conclusions in the final section.

## Thailand's current monetary policy strategy

It may be useful to begin by putting the BOT's current monetary policy strategy into perspective. The development of Thailand's monetary policy framework can be divided into three periods. First, from the end of World War II to June 1997, Thailand had a pegged

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exchange rate regime. During this time the baht was pegged to gold, the US dollar or a basket of currencies. The peg to a basket of currencies was in place from November 1984 to June 1997. Under the pegged exchange rate regime, the Exchange Equalization Fund (EEF) would announce and defend the baht's value against the US dollar daily.

However, with the speculative attack on the baht at the onset of the Asian financial crisis, the peg was abandoned and the baht allowed to float on 2 July 1997. The BOT adopted a monetary targeting regime deemed to be consistent with the move to a managed float. The monetary targeting regime was in place until May 2000. During this time Thailand received financial assistance from the IMF, and the BOT targeted the domestic money supply by setting the daily and quarterly monetary base targets.

The third period began on May 23, 2000 when the BOT announced the adoption of an inflation targeting regime, which is still in place today as Thailand's monetary policy framework. The BOT switched to inflation targeting because the relationship between the money supply and output growth had become less stable.

There are four dimensions to Thailand's current monetary policy formulation under the inflation targeting regime:

1. The Monetary Policy Committee (MPC) sets out monetary policy in order to attain price stability conducive to sustainable economic growth. With its most recent *Inflation Report*, the MPC also began to monitor factors contributing to external stability and financial imbalances.
2. The monetary policy instrument used by the MPC as the key policy rate to signal the monetary policy stance is the one-day repurchase rate (RP).
3. The MPC's policy target is core inflation (excluding raw food and energy) of between 0 and 3.5% (quarterly average). In the event the target is missed, the MPC is required to explain the reasons to the public.
4. The BOT has developed a macroeconomic model to forecast economic conditions and the inflation outlook.

Under the inflation targeting regime, one of the most critical responsibilities of the BOT is the achievement of price stability. Indeed, since the adoption of inflation targeting in 2000, the BOT has never once missed its core inflation target (see Graph 1). Before the current regime was adopted, core and headline inflation appeared to track each other, with their means relatively close. Core inflation was chosen as the target due to its lower volatility (Table 1).

However, given that increases in oil and food prices are no longer a temporary phenomenon, core and headline inflation appear to be diverging more than before, and so the target for inflation is now under review.

Despite its stated objective of targeting inflation, the BOT also monitors financial imbalances that may bring instability to the Thai economy. In each of its meetings, the MPC considers seven areas where financial imbalances could occur: the household sector, the real estate sector, external stability, financial institutions, the financial status of the corporate sector, financial markets and government finance and public debt.

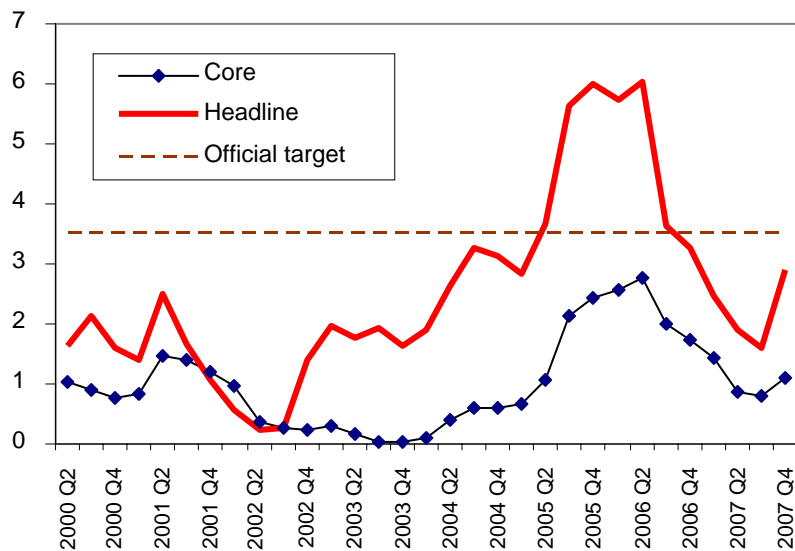
Table 1  
Development of core and headline inflation

In per cent	Before inflating targeting		After inflation targeting	
	Q1 1986–Q1 2000		Q2 2000–Q4 2007	
	Headline	Core	Headline	Core
Mean	4.66	4.59	2.52	1.01
Standard deviation	2.17	1.68	1.56	0.77

Source: Author's estimates.

Graph 1  
Core versus headline inflation

In per cent



Source: Bank of Thailand.

The BOT recognises that booms and busts in asset prices, especially housing prices, should be seen as part of a broader set of symptoms that normally also include a build-up of debt. During an upswing, household balance sheets may look healthy as the appreciation in asset values offsets the build-up of debt. But if the prevailing mood is one of pessimism, rather than optimism, leading to a correction in asset valuations and a sharp deterioration in net worth, financial distress may result. The MPC therefore takes account of various indicators of financial imbalances in making decisions about interest rates.

## Relevant literature

The life cycle hypothesis of saving and consumption, first developed by Modigliani and Brumberg (1954) and later augmented by Ando and Modigliani (1963), stated that all sources of an increase in wealth, whether from stocks, real estate or any other assets, should have the same positive effect on household consumption.

However, it has been argued that the consumption effect of changes in housing wealth should be larger than that of changes in other assets, such as stocks, because housing wealth is held by a larger proportion of households. Since only rich people have excess savings to invest in the stock market and since the marginal propensity to consume out of wealth is lower for the rich, as economic theory and empirical evidence suggest (Lusardi (1996), Souleles (1999)), then changes in housing wealth might have a larger effect on consumption than changes in stock market wealth. Moreover, because house prices are much less volatile than stock prices, changes in housing wealth might be viewed as much longer-lasting than changes in stock market wealth, another reason that housing wealth should have a greater effect on consumption.

Given that some households might be credit-constrained, the existence of additional credit channels that work through effects on housing prices may be quite significant. Credit-constrained households are affected by current cash flows – that is, by the difference between income and expenses. When short-term rates or a variable rate on a mortgage increase, households will have higher interest payments and reduced cash flow.

One of the reasons households become credit-constrained is the problem of asymmetric information in the credit market, ie adverse selection and moral hazard problems. For this reason, collateral is used to reduce these information problems. Good collateral can decrease lenders' losses if borrowers default and reduces the incentives for borrowers to take on excessive risk because they have something to lose.

Given the importance of collateral in reducing the problem of asymmetric information in the credit market, where residential mortgages are readily available to homeowners, then a rise in house prices enhances the value of the collateral for the homeowner. This in turn improves both the amount and the terms of credit available to homeowners. This situation can also be expressed in terms of the financial accelerator framework of Bernanke and Gertler (1995) and Bernanke et al (1999). According to this theory, higher house prices reduce the gap between the default-free interest rate and the effective interest rate facing the homeowner, the so-called external finance premium. A rise in house prices, which improves a household's balance sheet, then leads to a decline in the external finance premium or effective cost of borrowing.

Higher house prices can also have the effect of relaxing credit constraints. When house prices rise, homeowners have additional collateral against which they can borrow. This provides a channel through which rising house prices can stimulate consumption spending. Many economists see this channel as playing a very important direct role in determining spending (Greenspan and Kennedy, (2005), Hatzius (2005), Benito et al, (2006)).

Monetary policy can affect household spending by easing/tightening credit conditions and increasing/reducing housing prices. Expansionary monetary policy in the form of lower interest rates could stimulate the demand for housing, which leads to higher house prices. The resulting increase in total wealth will stimulate household consumption. Standard life cycle wealth effects operating through house prices are thus an important element in the monetary transmission mechanism.

In terms of the appropriate monetary policy response to asset prices, economists hold rather different views. Some economists, such as Cecchetti and others (2000), Borio and Lowe (2002) and White (2004), argue that central banks should occasionally raise interest rates to stop asset price inflation from getting out of control. Other economists, however, contend that monetary policy aimed only at stabilising inflation is more likely to produce good outcomes for the economy (Bernanke and Gertler (2001)).

## Household sector

### Household balance sheet

An examination of the household balance sheet yields some information about the state of household finances in Thailand. According to a recent survey by Thailand's National Statistical Office (NSO) and the BOT, household assets in Thailand equal approximately 228% of GDP and significantly exceed household debt, which equals around 27% of GDP.<sup>2</sup> This implies that if household liabilities are redeemed, households will remain solvent as they hold sufficient assets to cover their liabilities. It should be noted, however, that the majority of household assets in Thailand are not liquid and may be subject to price declines during distress selling.

Assets such as real estate, for example, are difficult to liquidate. As a result, households with positive wealth may face cash flow problems, even though they may be solvent. Despite the fact that the value of total household assets is far greater than that of household debt, the household sector is still potentially vulnerable to shocks because the ratio of liquid assets (ie financial assets) to GDP – 30% – is only slightly higher than the ratio of household debt to GDP, while real estate assets amount to approximately 164% of GDP. This suggests that the financial position of the household sector might be rather less resilient than it appears to be in the aggregate balance sheet data.

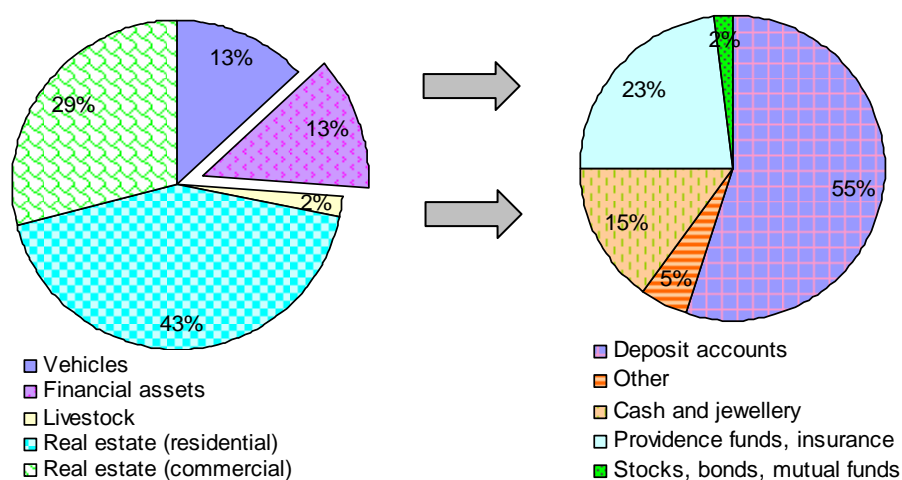
Graph 2 shows the extent to which household assets are dominated by real estate holdings. Financial assets account for only 13% of total assets. Bank deposits account for 55% of total financial assets, while securities – stocks, bonds and mutual funds – account for a much less significant portion, around 2%. The current structure of financial assets indicates that Thai households still rely more on banks than on capital markets. This is consistent with the fact that Thailand has a largely bank-based financial system, in terms of both deposits and lending.

And in terms of types of asset holdings, equities are much less significant in wealth creation than real estate. Residential and commercial real estate accounts for more than two thirds of total assets in Thailand. Since 99.5% of Thai enterprises are small and medium-sized, it is not surprising that households hold the largest share of commercial real estate (29%). This pattern is consistent with international experience, in that real estate accounts for a large portion of household assets in most countries.

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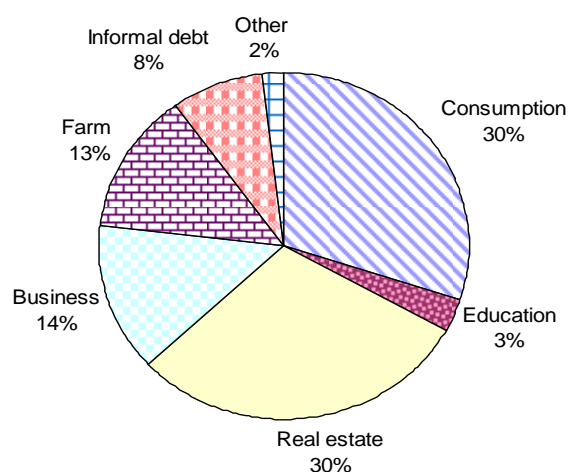
<sup>2</sup> This survey, the outcome of a joint project between the BOT and the NSO, is a first attempt to measure household debt and assets across Thailand. The survey involves 11,162 households from all regions; 6,980 of the households live in urban areas and 4,182 in rural areas. Sample weights are calculated by the NSO to obtain statistics at the national level. Ariyaprichya et al (2007) based their analysis of the current state of the wealth and debt of Thai households on the survey.

Graph 2  
**Composition of household assets**



Source: NSO.

Graph 3  
**Composition of aggregate household debt**



Source: NSO.

The importance of real estate in Thai households' asset portfolios derives from the fact that the first risky asset in which young households invest is usually real estate. As households age and become richer, they invest in other risky assets, such as stocks. In terms of the composition of household debt, Graph 3 shows that real estate also accounted for a large part of household debt (30%) in 2006, the same as consumption (30%), followed by business and agricultural debts (14% and 13%, respectively).

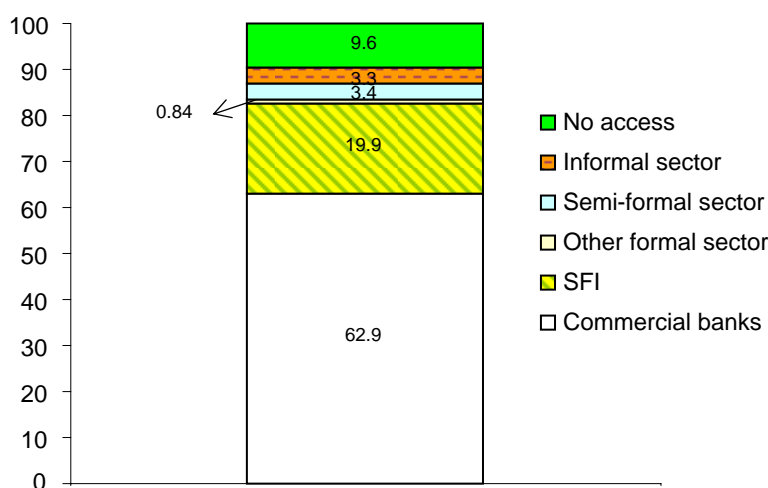
The large share of real estate in the asset and debt portfolios of Thai households indicates that households are likely to be quite vulnerable to volatility in real estate prices. In addition, the ratio of debt to assets is higher for low-income than for high-income households, suggesting that the former are more vulnerable to shocks. Higher debt is not necessarily a bad thing because it provides households with ways to smooth consumption. The risk is that high debt levels could force lower-income households to reduce consumption and defer payments on loans in the event of a shock.

## Household financial access

Households that have adequate liquid assets or access to credit markets would not need to make large cuts in consumption were household members to become unemployed. Instead, they would simply run down their savings or borrow more. On the other hand, households that have no liquid assets and cannot borrow would be forced to cut back spending in line with their reduced incomes.

Using data from the NSO's *Household socio-economic survey* and the newly designed questionnaire for measuring financial access and literacy that is attached to it, Ariyapruhya et al (2007) find that 90.4% of households have access to financial services; 83.65% are served by the formal sector, while the rest are served by the semi-formal and informal sectors. Thus, households with no financial access account for only 9.61% of the population.<sup>3</sup>

Graph 4  
**Household financial access structure**  
 As a percentage of households



Source: NSO-BOT, *Household socio-economic survey*, Q4 2006.

In this study, households are divided into five income groups of equal size, with the highest incomes falling in the fifth quintile and the lowest in the first. The majority of households using the services of commercial banks and bank-like institutions in the formal sector are from the third, fourth and fifth quintiles – 13.13%, 16.39% and 18.81%, respectively.<sup>4</sup> In contrast, the majority of those served by specialised financial institutions (SFIs) are from the first and second quintiles – 6.41% and 5.73%, respectively – while the share of households

<sup>3</sup> The formal sector consists of formal financial institutions with clear legal status that are supervised or examined by the BOT – commercial banks, specialised financial institutions (SFIs), finance companies, credit fonciers, credit card and personal loan companies. The semi-formal sector consists of financial institutions that have legal status but are not supervised or examined by the BOT – cooperatives, credit unions and village funds. The informal sector consists of financial institutions that have no legal status and are not overseen by the Thai authorities – savings groups, moneylenders and other unspecified financial providers, such as pawnshops.

<sup>4</sup> The average monthly income in each group, starting with the bottom quintile, is THB 3,860.32, THB 7,765.35, THB 12,283.92, THB 20,090.05 and THB 55,180.88, respectively.

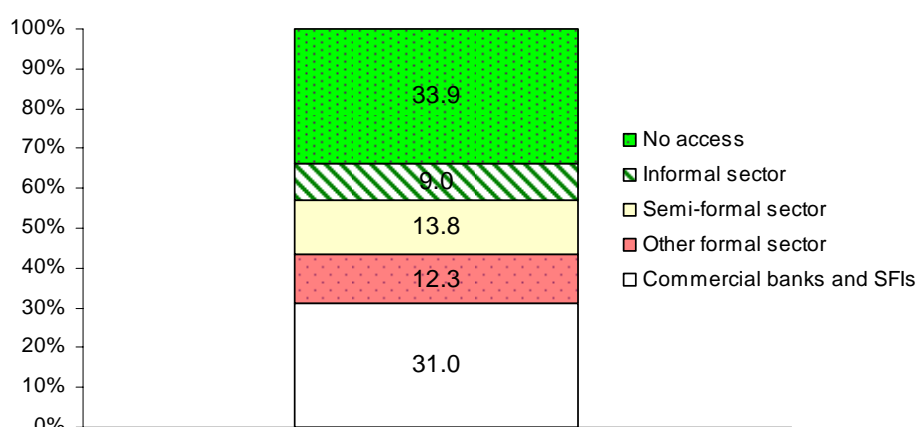
in the middle, high and highest income groups using the services of SFIs is 4.12%, 2.68% and 0.98%, respectively.

Thus, lower-income households obtaining financial services from the formal sector but unable to gain access to commercial banks and bank-like institutions rely mainly on SFIs.

Despite the relatively high proportion of households that have access to financial services, the story of household credit access is different. Approximately 33.93% of households do not use loans or other credit products from any financial institution (Graph 5). About 43.35% of households obtain loans and credit products from the formal sector, 31.02% of them from commercial banks and SFIs and the other 12.33% from finance companies, credit fonciers and credit card and personal loan companies.

Graph 5  
**Household credit access structure**

As a percentage of households



Source: NSO-BOT, *Household socio-economic survey*, Q4 2006.

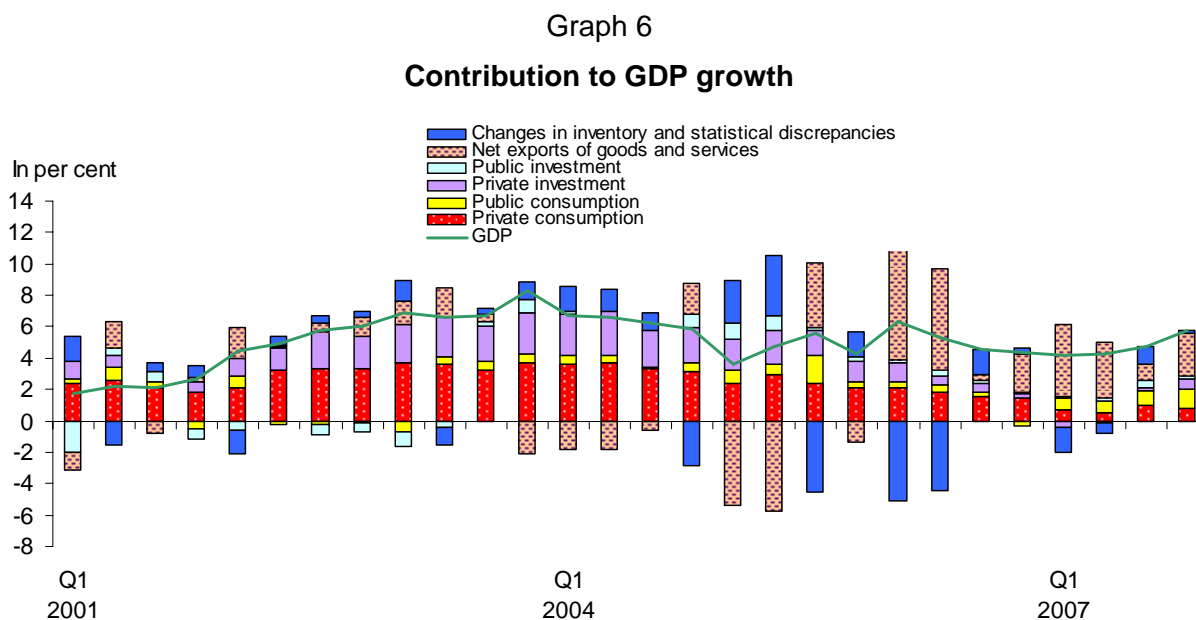
It is interesting to note that although only 9.61% of households do not have access to financial services, a much larger percentage of households do not have any access to credit. Most of the households that do not have credit access are in the two lowest income groups (the first and second quintiles), and inadequate collateral has been identified as the major obstacle to access.

In summary, this section gives a bird's-eye view of the characteristics of Thailand's household sector. It remains relatively healthy in terms of the ratio of aggregate debt to assets, which is over 8:1. However, it should be noted that this broadly healthy household balance sheet masks the vulnerability of households to changes in housing prices. Real estate accounts for a large proportion of both the asset and the debt portfolios of the household sector, making it quite sensitive to shocks such as unemployment or rising interest rates. Households may face an increased debt burden and be unable to liquidate their assets in time to cover increased debt servicing costs. Combined with the fact that 33.93% of Thai households do not have access to credit, shocks could be exacerbated as a result of credit constraints, ultimately leading to reduced consumption and slower economic growth.



## Consumption and household debt

A key feature of the Thai economy since the adoption of inflation targeting has been relatively stable household spending, in both real and nominal terms. The ratio of consumption to GDP has held steady at roughly 50% since 2000. GDP growth was driven primarily by consumption growth before 2006, when the contribution of consumption growth to GDP growth dropped (Graph 6).



Source: National Economic and Social Development Board.

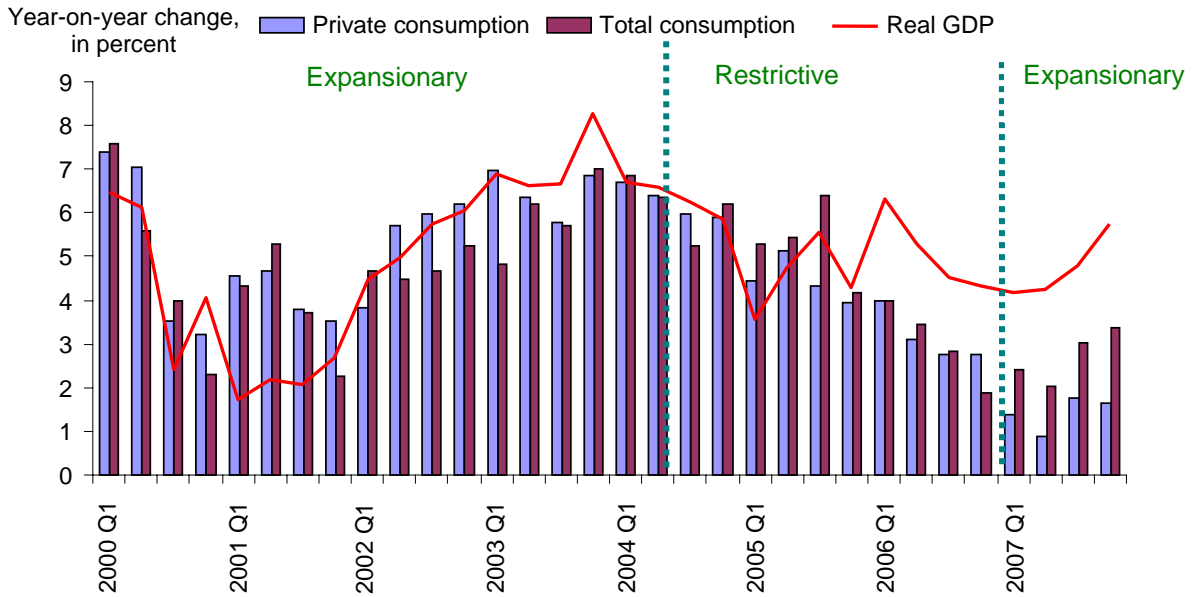
The slowing or acceleration of consumption growth, however, appears to be consistent with the monetary policy cycle. When inflation targeting was first adopted in 2000, economic growth remained weak because of the legacy of the 1997 crisis, so monetary policy easing was used to support economic recovery. During the expansionary phase (May 2000–July 2004), private consumption growth averaged around 5.2% a year. During the period of monetary tightening (August 2004–December 2006), consumption growth also began to slow. Private consumption growth during this period decreased to around 4.2% annually. The BOT adopted an accommodative monetary policy at the beginning of 2007, lowering the policy rate by 1.75% in the first half of 2007 and then maintaining it at 3.25% for the rest of the year. As a result, consumption growth, along with GDP growth, started to pick up in the second half of 2007 (Graph 7), indicating that household consumption is quite sensitive to changes in short-term interest rates.

The decline in private consumption growth in 2006 has been associated with a decline in household debt, which has been rising more slowly than income since 2006 (Graph 8), leading to a slight drop in the ratio of debt to disposable income, which stood at 52.1% at end-2007 (Graph 9).

It is interesting to note that the household debt cycle appears to be correlated with the housing price cycle. An increase in household debt is associated with an acceleration in housing price inflation and vice versa. Given the current benign housing market environment, Thailand's debt-to-income ratio remains at a low level by international standards. For the past few years, the slowdown in the housing market has been accompanied by reductions in both household indebtedness and consumption.

Graph 7

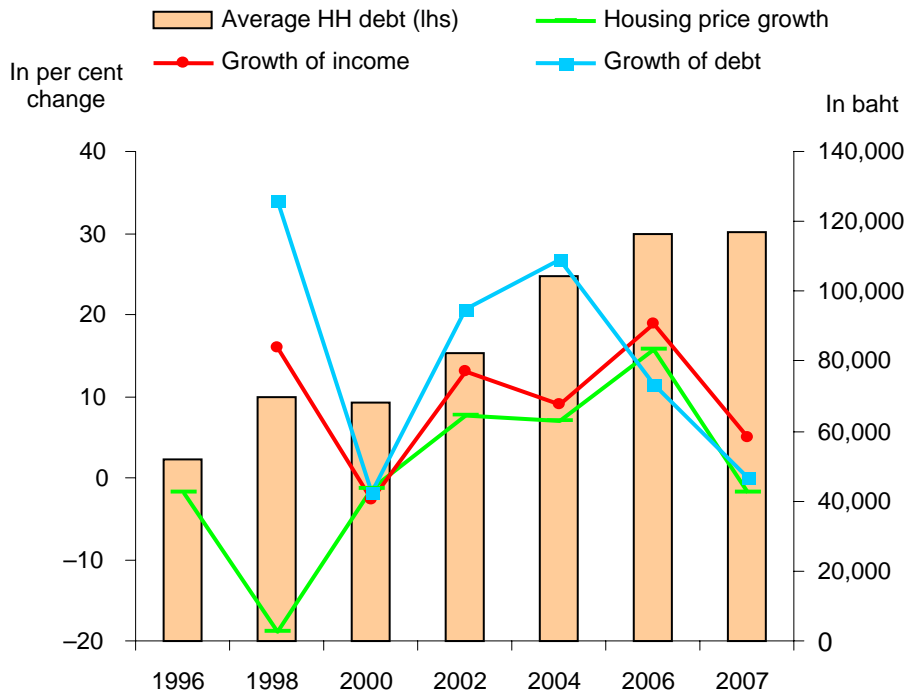
**Monetary policy stance and consumption growth**



Source: Bank of Thailand.

Graph 8

**Housing prices and household debt**

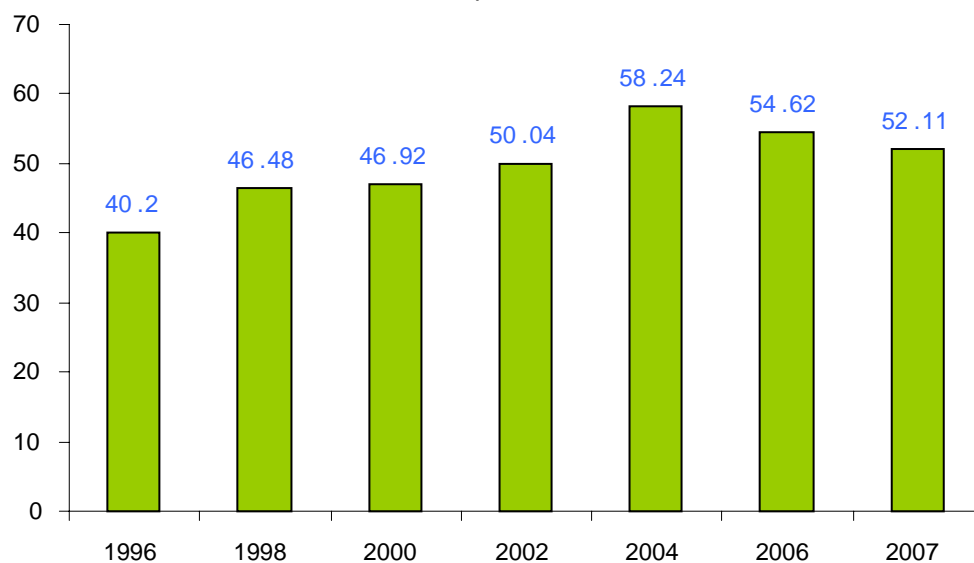


Sources: Jones Lang LaSalle; NSO.

Graph 9

**Ratio of average debt to household disposable income**

In per cent



Sources: NSO; authors' calculations.

Table 2 shows the correlation matrix of variables discussed in this section. House prices are strongly and positively associated with both household credit (0.8) and private consumption (0.7) in Thailand. In particular, house prices appear to influence the credit and consumption cycle of households. Meanwhile, the rise in household credit is associated with a rise in spending. Changes in short-term interest rates in the previous two quarters are negatively correlated with house prices, real consumption and real GDP. The channels through which monetary policy might affect spending will be further examined below, in the section “Putting it all together: monetary policy linkages”.

Table 2

**Correlation matrix: Q1 1993–Q4 2007**

	Household credit	Policy rate <sup>1</sup>	Housing prices	Lending rate	Private consumption	Real GDP
Household credit	1.00					
Policy rate	0.3242	1.0000				
Housing prices	0.8068	-0.0532	1.0000			
Lending rate	0.1966	0.8825	-0.1179	1.0000		
Private consumption	0.5005	-0.4877	0.7067	-0.7081	1.0000	
Real GDP	0.5610	-0.4620	0.8012	-0.6144	0.9491	1.0000

<sup>1</sup> RP 14-day with two quarter lags.

Another indicator of the decline in household debt can be seen in the latest *Household socio-economic survey* (NSO (2007)).<sup>5</sup> The ratio of indebted households dropped from 66.4% in 2004 to 63.3% in 2007, reflecting the improved debt servicing capacity of Thai households in recent years. It should be noted, however, that the average debt per household increased from THB 104,571 in 2004 to THB 116,681 in 2007. And although the survey found that household income exceeded household expenses in most cases, the difference between the two was only THB 4,160 per household or THB 1,300 per person, most of which is being used to pay off debts. This implies that if there is a shock to household cash flows – ie unemployment or rising interest rates – households may need to cut back consumption.

Upon further examination of the structure of household indebtedness, we see that housing-related loans dominate household borrowing (Table 3). At the end of 2007, loans from commercial banks and non-bank financial institutions to households totalled around THB 1,558 billion, of which housing, credit card and personal loans accounted for 49.5%, 11.5% and 39%, respectively. Although the growth of credit card and personal loans has slowed since 2006, that of housing loans has accelerated. In general, households' ability to repay debt has improved, as seen in the continuing decline of the ratio of non-performing household loans.

Table 3  
**Outstanding household loans, 2007**

	<b>Loans In billions of baht</b>	<b>As share of total loans In per cent</b>	<b>Ratio of non-performing loans to total household loans In per cent</b>
Household loans	1,558	100.0	4.0
Housing loans	771	49.5	4.5
Credit card loans	179	11.5	3.3
Bank	139	8.9	3.5
Non-bank	41	2.6	2.6
Personal loans	607	39.0	3.5
Bank	520	33.4	3.4
Non-bank	88	5.6	3.9

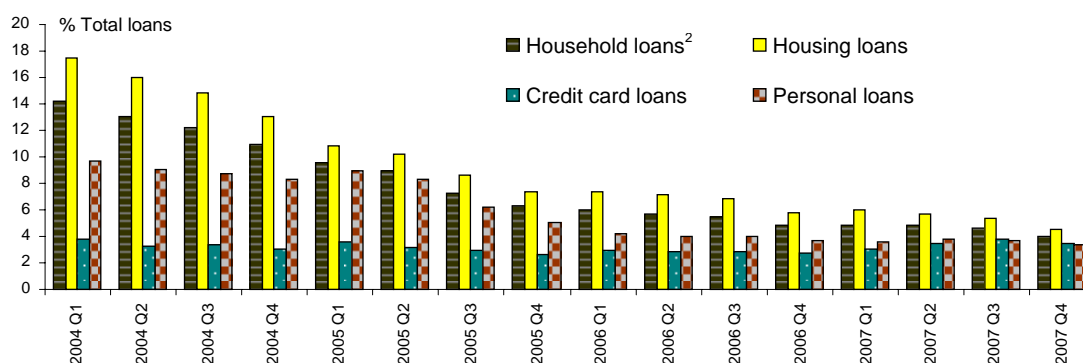
Source: Bank of Thailand.

Indicators of financial imbalances show that although the ratio of non-performing household loans from commercial banks is still low compared to the past couple of years, the ratio of special-mention loans<sup>6</sup> suggests more vulnerability in the low to medium income groups (Graphs 11 and 12). In other words, low- to middle-income households appear to be less financially robust than high-income households.

<sup>5</sup> This survey of 52,000 households was conducted in all of Thailand's provinces during January–December 2007.

<sup>6</sup> Special-mention loans are between one and three months overdue.

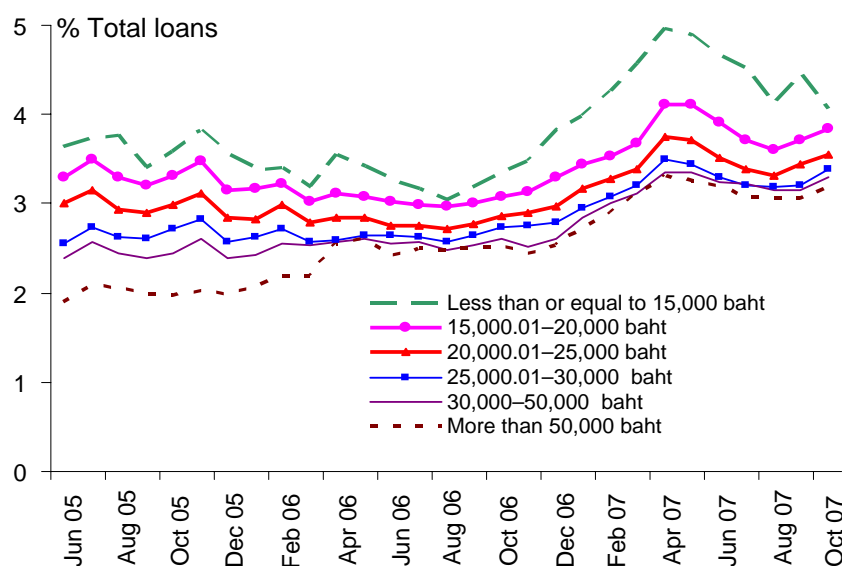
Graph 10  
**Ratio of NPLs to total loans outstanding of commercial banks<sup>1</sup>**  
 In per cent



<sup>1</sup> Thai commercial banks and branches of foreign banks. <sup>2</sup> Household loans comprise housing, credit card and personal loans.

Source: Bank of Thailand.

Graph 11  
**Past-due and non-performing credit card loans broken down by income group<sup>1</sup>**  
 As a percentage of total loans



<sup>1</sup> Bank and non-bank credit card loans under the BOT's supervision. Incomes shown here are monthly.

Source: Bank of Thailand.

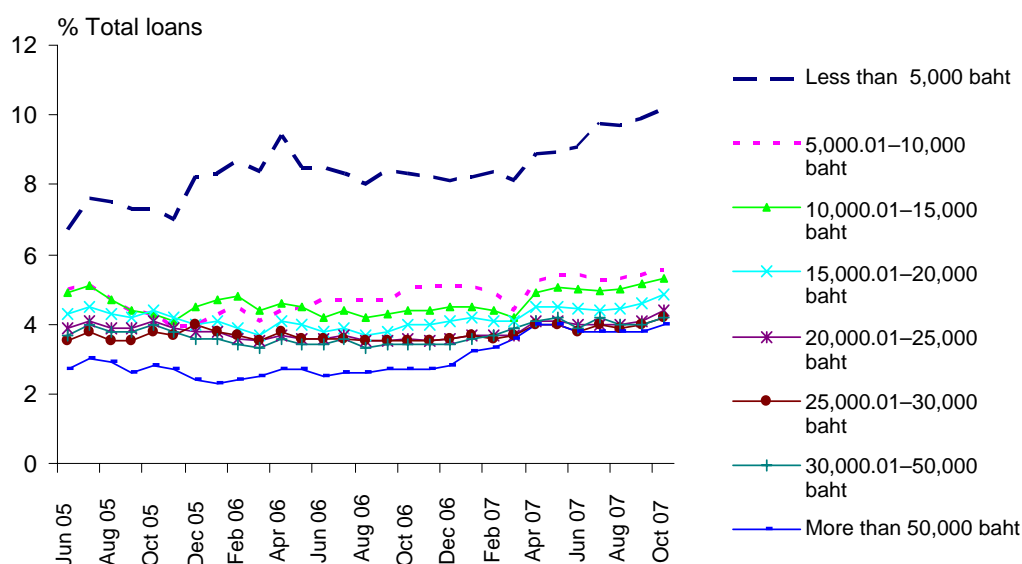
Special-mention credit card loans to households with monthly incomes below or equal to THB 15,000 account for about 4% of total loans, while those to households with incomes above THB 50,000 account for around 3.19%. The distribution of special-mention personal loans among the income groups is even more uneven. The special-mention personal loan ratio for households with monthly incomes below or equal to THB 15,000 is around 7%, compared to 4% for households with incomes above THB 50,000. Thus aggregate

non-performing loan ratios may mask the rise in household debt problems in some income groups.

Graph 12

**Ratio of special-mention loans to personal loans broken down by income group<sup>1</sup>**

As a percentage of total personal loans



<sup>1</sup> Bank and non-bank personal loans under the BOT's supervision. Incomes shown here are monthly.

Source: Bank of Thailand.

Table 4

**Sensitivity of special-mention loans to interest rate shocks<sup>1</sup>**

Income group <sup>2</sup>	Credit-card loans	Personal loans
Less than THB 5,000	n.a	0.66
THB 5,000–10,000	n.a	0.47
THB 10,000–15,000	n.a	0.02
THB 15,000–20,000	0.63	0.17
THB 20,000–25,000	0.65	–0.07
THB 25,000–30,000	0.76	0.27
THB 30,000–50,000	0.77	0.18
More than THB 50,000	0.80	0.70
Overall	0.74	0.02

<sup>1</sup> RP 14-day with two quarter lags. <sup>2</sup> Incomes shown here are monthly.

We further examine the interest rate sensitivity of special-mention loan ratios in various income groups. Table 4 shows that the ratio of special-mention credit card loans appears to be quite sensitive to interest rate changes (0.74). The ratio of special-mention personal loans

in the higher income group is less sensitive to interest rate changes but is still quite vulnerable to interest rate shocks in the low income groups, especially for households with monthly incomes below or equal to THB 10,000 (0.47–0.66). This is not surprising given that the average monthly necessary expenses of Thai households come to THB 14,500 (NSO (2007)). Households with monthly incomes below THB 15,000 will likely be sensitive to interest rate shocks as a result of higher debt burdens.

Currently, the BOT regards the financial delinquency of low- to middle-income households as a temporary problem, as households' income and ability to service debt should improve in the future with economic recovery supported by the authorities' accommodative monetary policy stance. However, it is necessary to continue monitoring developments in delinquency ratios for this particular income group to ensure that, going forward, overall financial stability will not be affected.

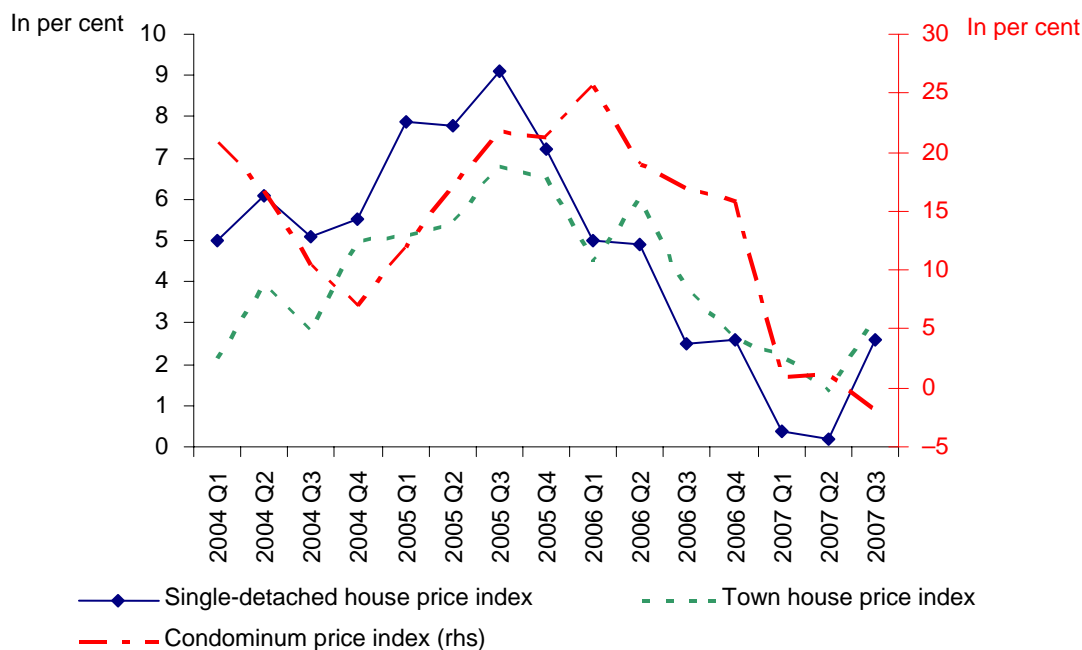
## Housing market

### Housing price development

Given that 30% of household debt and 72% of household assets are in the real estate sector, the issue of housing prices and housing finance is of critical importance for Thailand. Housing price growth in Thailand has exhibited a downward trend since the beginning of 2006, with some rebound in the third quarter of 2007 following rising construction costs. Overall, however, the housing market environment has been benign, with the prices of town houses, single-family detached houses and condominiums declining over the past few years. The prices of luxury condominiums, in particular, dropped considerably, partly owing to price reduction schemes to stimulate sales during a slump in demand (Graph 13).

Graph 13

### Housing price inflation<sup>1</sup>



<sup>1</sup> Quarterly change in house price index.

Sources: Government Housing Bank; Jones Lang LaSalle.

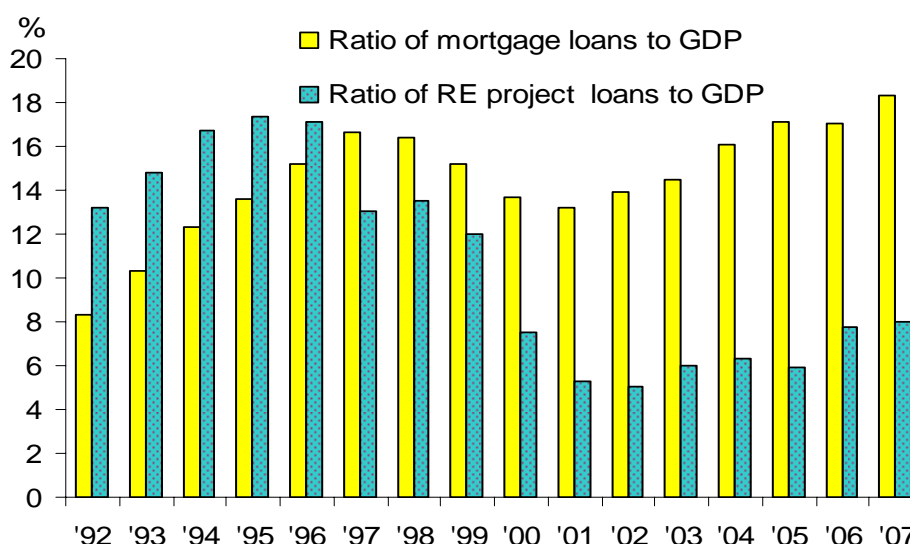
Examining the housing price bubble in nine countries in the Asia-Pacific region, Glindro et al (2008) find that the price risk in Bangkok's average housing market segment remains low, although there is some evidence of overvaluation in the luxury condominium market. This is consistent with the BOT's view that, in general, the probability of a real estate price bubble and the risks surrounding the housing sector are still low.

## Housing finance

Housing finance is an important factor in determining housing prices in Thailand. Most developers require adequate funding for construction and consumers rely on borrowed funds from financial institutions for purchasing homes.

In Thailand, residential mortgage debt represented approximately 18.32% of GDP at the end of December 2007. The mortgage market has grown to exceed the level recorded prior to the 1997 crisis. In contrast, the ratio of real estate project loans to GDP has been much lower in the post-crisis period than in the pre-crisis period because capital markets have become an important alternative source of funding for developers (Graph 14).

Graph 14  
Ratio of mortgage loans to GDP  
In per cent



Source: Bank of Thailand.

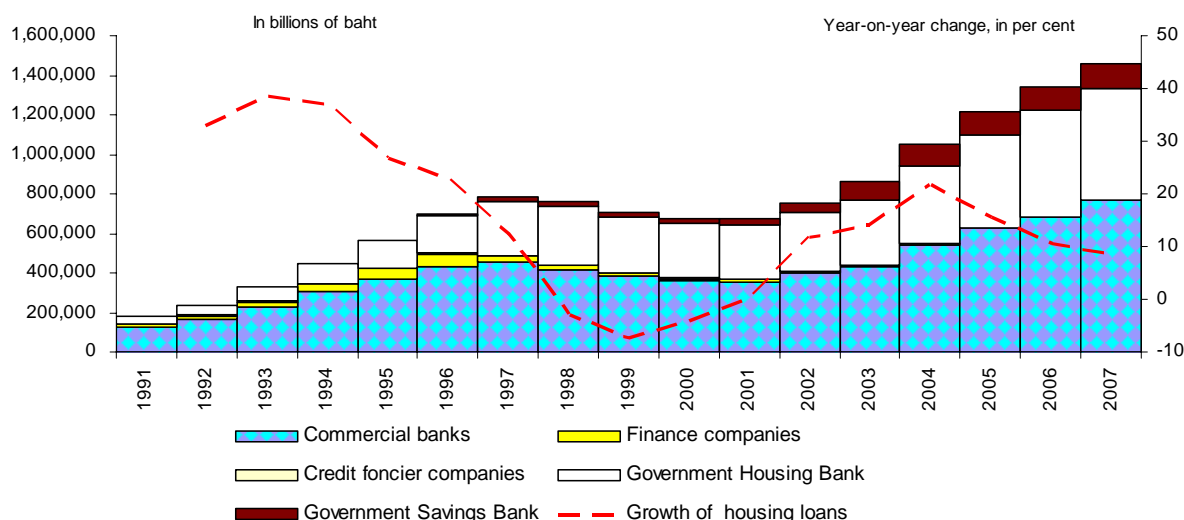
Meanwhile, financial institutions are still the major providers of residential mortgage loans because homebuyers have limited access to other sources. Mortgage loans are available to homebuyers from both public and private financial institutions. The former include the Government Housing Bank (GHB) and Government Saving Bank (GSB) and the latter include commercial banks, finance companies and credit foncier companies.

Graph 15 breaks down outstanding mortgage loans by source. It shows that the role of the public financial institutions – particularly the GHB – as a source of financing for households has grown since the crisis. This is a result of government policy measures to help low- and medium-income workers buy their own homes. At end-2007, the GHB had a market share of 38.77% and the GSB, 8.27%. Thus, the combined market shares of the GHB and the GSB represent almost 50% of outstanding mortgage debt (Glindro et al (2008)).



Graph 15

### Mortgage loans by type of financial institution



Source: Bank of Thailand.

Commercial banks, however, still dominate housing finance, with a market share of 52.9% as of end-2007. This is because of the strong competition between commercial banks, which use promotional tactics such as offering low one- to three-year fixed interest rates and longer maturities on mortgages.

The market for primary mortgage finance in Thailand is fairly segmented. Commercial banks usually compete for middle- and high-income households (many mortgage loans range from THB 1 million to THB 5 million), whereas the GHB has been serving households with more modest incomes. The increasing market share of the GHB is due largely to its low lending rates and the rapid expansion of its branch network.

The development of a secondary mortgage market in Thailand – particularly the repackaging of pools of mortgages into mortgage-backed securities – was proposed nearly two decades ago as a means of mobilising funds for the GHB. However, circumstances at that time did not permit mortgage securitisation. It was only in the early 1990s, under Thailand’s Seventh National Economic and Social Development Plan (1992–96), that securitisation was approved as an instrument for boosting long-term savings and developing capital markets. Under the plan, the GHB was given a role to play in the securitisation of mortgage assets, and it will soon issue its first mortgage-backed securities (Glindro et al (2008)).

### Mortgage rate

Thailand’s housing finance market has generally been successful in delivering funding to individual homebuyers and developers at a reasonable cost, particularly in the context of the recovery from the 1997 crisis. The predominant product is a 25- to 30-year floating rate loan with rates adjusted to each bank’s posted minimum lending rate (MLR) or minimum retail rate (MRR) (plus or minus a margin). Most lenders offer a one- to two-year “teaser” attractive fixed rate.

Some of the characteristics of housing loans today are a legacy from the past. This is due partly to government policy measures and partly to the intense competition among financial institutions, which motivates them to offer attractive terms on residential mortgages. The 1997 crisis was followed by a long period of expansionary monetary policy. Interest rates dropped to, and stayed at, low levels for a number of years. During this time, financial

institutions introduced various mortgage packages to attract customers. The competition among financial institutions has led them to raise loan-to-value (LTV) ratios from 80% to 85%, on average, of the appraised value of single-family detached houses, and from 75% to 80%, on average, of the appraised value of condominiums. In order to prevent instability in the real estate sector, in December 2003 the BOT set the LTV ratio for residences with an appraised value over THB 10 million at 70%.

In order to increase the affordability of housing, the government launched real estate stimulus packages in 1998 to enable commercial banks to offer both new and old borrowers maturities of 30 years on mortgages. The maximum repayment period for mortgage loans has, therefore, been extended from 20 years before the crisis to 30 years. The Thai government has also provided support to homebuyers, increasing the amount of mortgage interest they can deduct from their personal income taxes to THB 100,000, from THB 50,000.

In terms of performance, the quality of mortgage loan portfolios has improved, with the share of non-performing loans declining from almost 18% in early 2004 to 4.5% at the end of 2007. Banks have improved debt collection procedures (although the foreclosure process is still plagued by delays) and, in the case of old non-performing loans, have increased provisioning and write-offs, or sold the problem loans to asset management companies.

## **Putting it all together: monetary policy and its linkages**

Monetary policy could affect the housing market and, in turn, the overall economy by raising or lowering short-term interest rates. As discussed earlier, monetary policy seems quite potent in determining household consumption in Thailand. The growth of consumption and GDP appear to accelerate during periods of expansionary monetary policy and to slow when monetary policy is tighter. This pattern may be attributed to house price movements. Increases in house prices as a result of easy monetary policy may encourage households to increase their current consumption in the expectation of higher future income.

This section analyses the above hypothesis by examining the transmission mechanism of house prices in the business cycle. Here we adopt the vector autoregression (VAR) methodology and estimate certain variables – GDP, private consumption, housing prices, household credit, the lending rate and the policy rate. These variables are deemed relevant from the stylised facts discussed in the earlier sections. As is commonly done in other studies, we use the short-term policy rate<sup>7</sup> as the measure of the monetary policy stance. The estimation is done using quarterly, seasonally adjusted data from the first quarter of 1993 to the fourth quarter of 2007 with two lags. All variables except the policy rate are in log form. The VAR is identified using a “recursive” Choleski decomposition with the ordering of variables as described above. The VAR model already represents the reduced form system and the results are quite robust to alternative ordering.

There are a number of channels through which higher interest rates affect household spending, house prices being one of the most important. Other things being equal, higher interest rates would reduce the demand for housing and hence house prices. Changes in house prices in turn have a wealth effect on consumption and GDP. Increased wealth can also be used as collateral to allow intertemporal substitution.

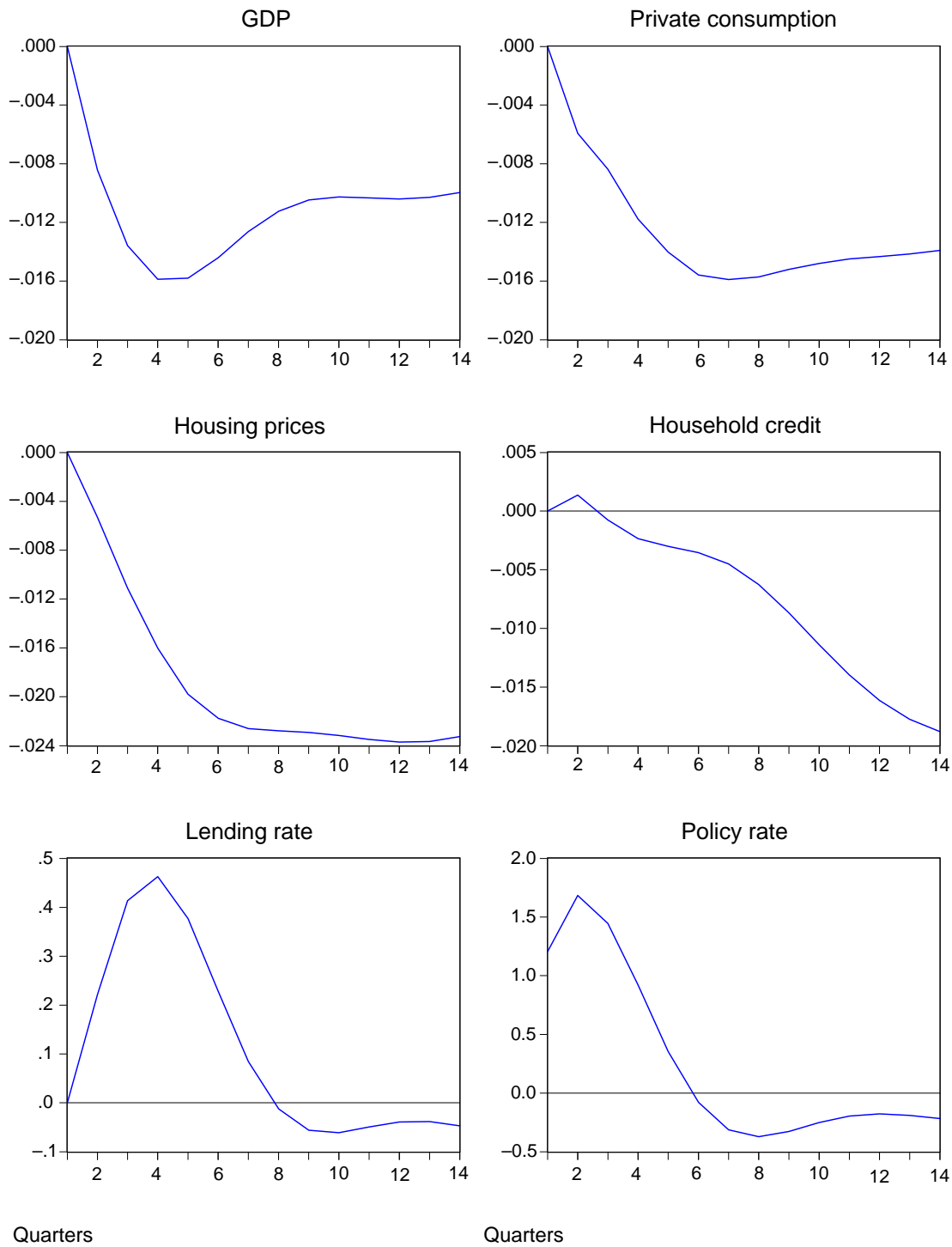
Graphs 16 and 17 show the house price transmission mechanism of monetary policy shocks. Tighter monetary policy has a negative effect on house prices as well as on consumption and

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<sup>7</sup> We use the 14-day RP rate as the policy rate variable. On 17 January 2007, the Bank of Thailand switched to using the one-day RP rate. However, the 14-day and one-day rates are fairly close.

real GDP. House price shocks, in turn, have a significant effect on consumption and GDP. The causality test in Table 5 confirms the significance of both the policy rate and house price movements in determining spending in Thailand.

Graph 16  
**Response to policy rate shocks**



Graph 17  
**Response to housing price shock**

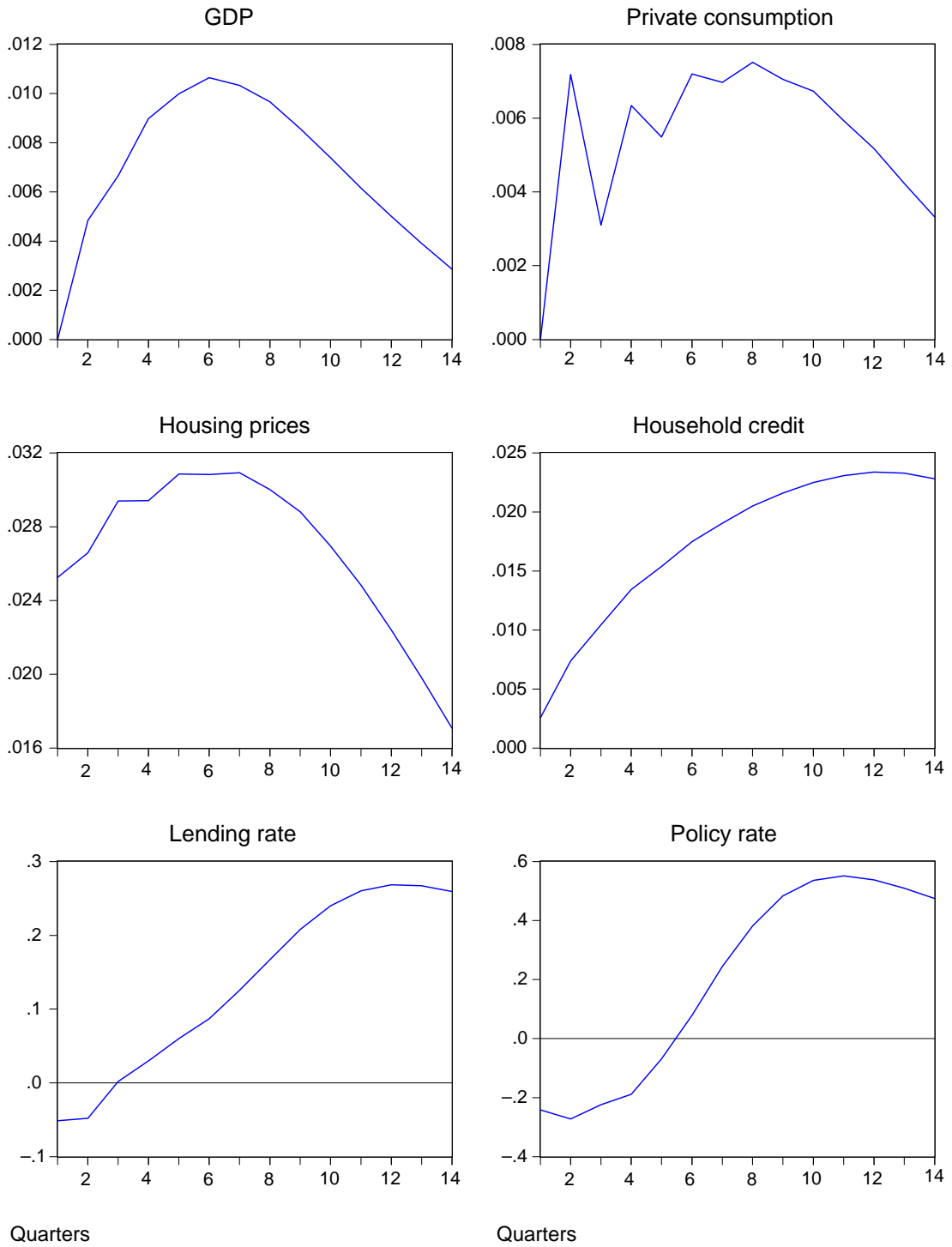


Table 5  
Granger causality tests

Dependent variable	GDP	Private consumption	Housing prices	Mortgage credit	Lending rate	Policy rate
GDP			***			***
Private consumption			***	*		***
Housing prices				***		**
Household credit			***			***
Lending rate			***			***
Policy rate			*			

\* Significant at 10% level. \*\* Significant at 5% level. \* Significant at 1% level.

To have an idea of the share of the fluctuations in aggregate GDP and housing prices that is caused by different shocks, Graphs 18 and 19 present variance decompositions for GDP and housing prices at forecast horizons up to 14 quarters. The graphs give the percentage of the variance due to each shock. The results indicate that after six quarters, short-term interest rate shocks account for about 20% of the fluctuation in house prices. At the same time, house prices and interest rate shocks account for about 20% and 40%, respectively, of the fluctuations in output.

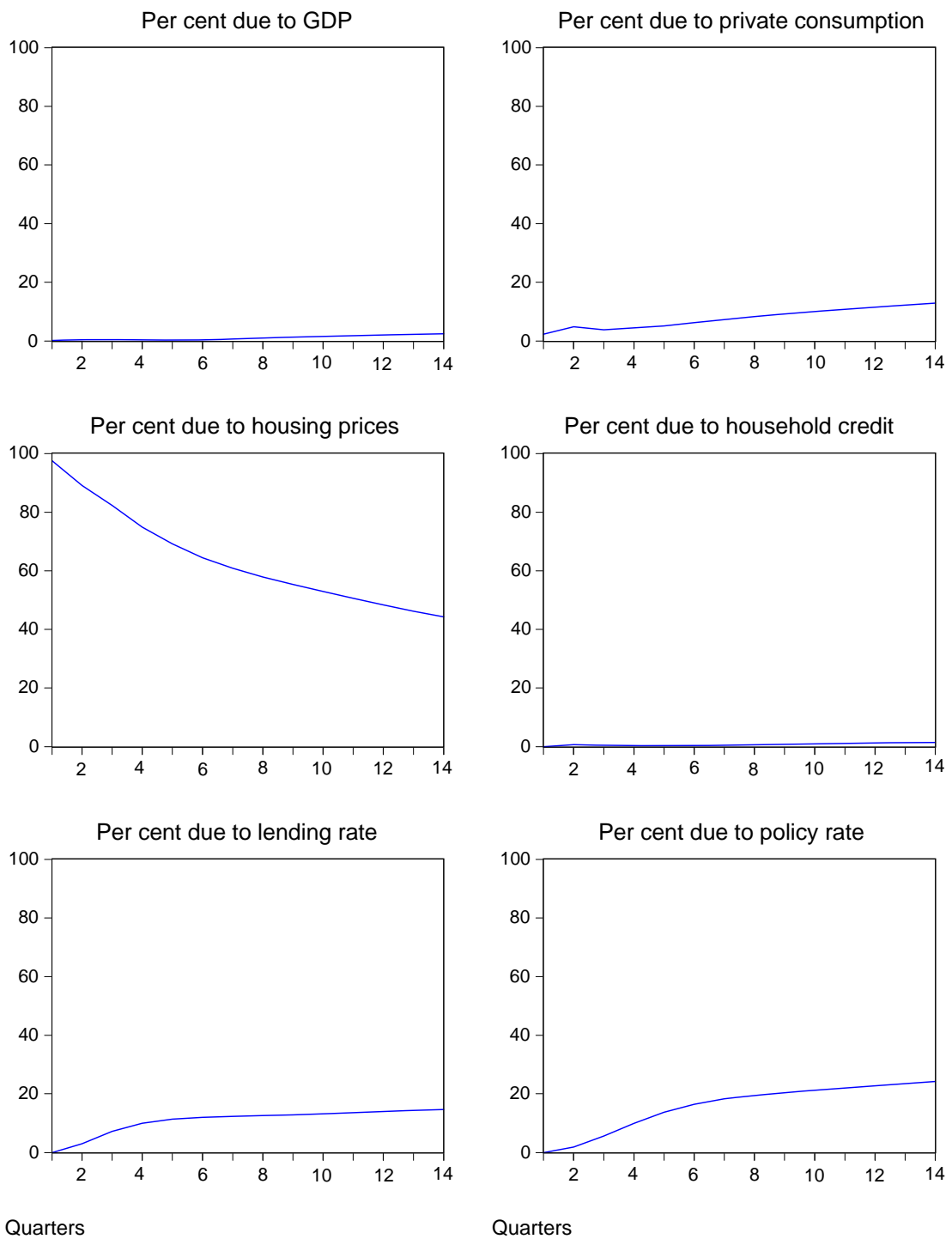
The magnitude of the output response to monetary policy and house price shocks in our analysis is due partly to the characteristics of the mortgage market in Thailand. Given the predominance of variable rate mortgage loans, house prices are particularly sensitive to movements in short-term rates. A reduction in the short-term rate can significantly depress mortgage rates and increase housing demand, resulting in higher house prices.

Collateral has also been identified as an important factor in household credit access in Thailand. Household consumption capacity could therefore increase as a result of the wealth effect of higher home prices, which could relax household borrowing constraints. The loan-to-value ratio has increased from 80% before the 1997 crisis to around 85–90% since the crisis. With greater wealth and declining down payment requirements and refinancing costs for housing loans, the effect of monetary policy on aggregate spending is enhanced. The potency of the housing price channel of monetary policy is also the result of several government-supported measures in terms of providing both housing loans and tax incentives for the real estate sector.

Because the BOT is responsible for managing the level of aggregate demand in the economy to achieve optimal outcomes for both inflation and employment, it is sensible for the BOT to respond to home prices to the extent that these prices affect aggregate spending. The issue of how the BOT might respond to house price movements is not whether or not it responds but whether its response is over and above what is called for in terms of achieving the objective of stabilising inflation and employment.

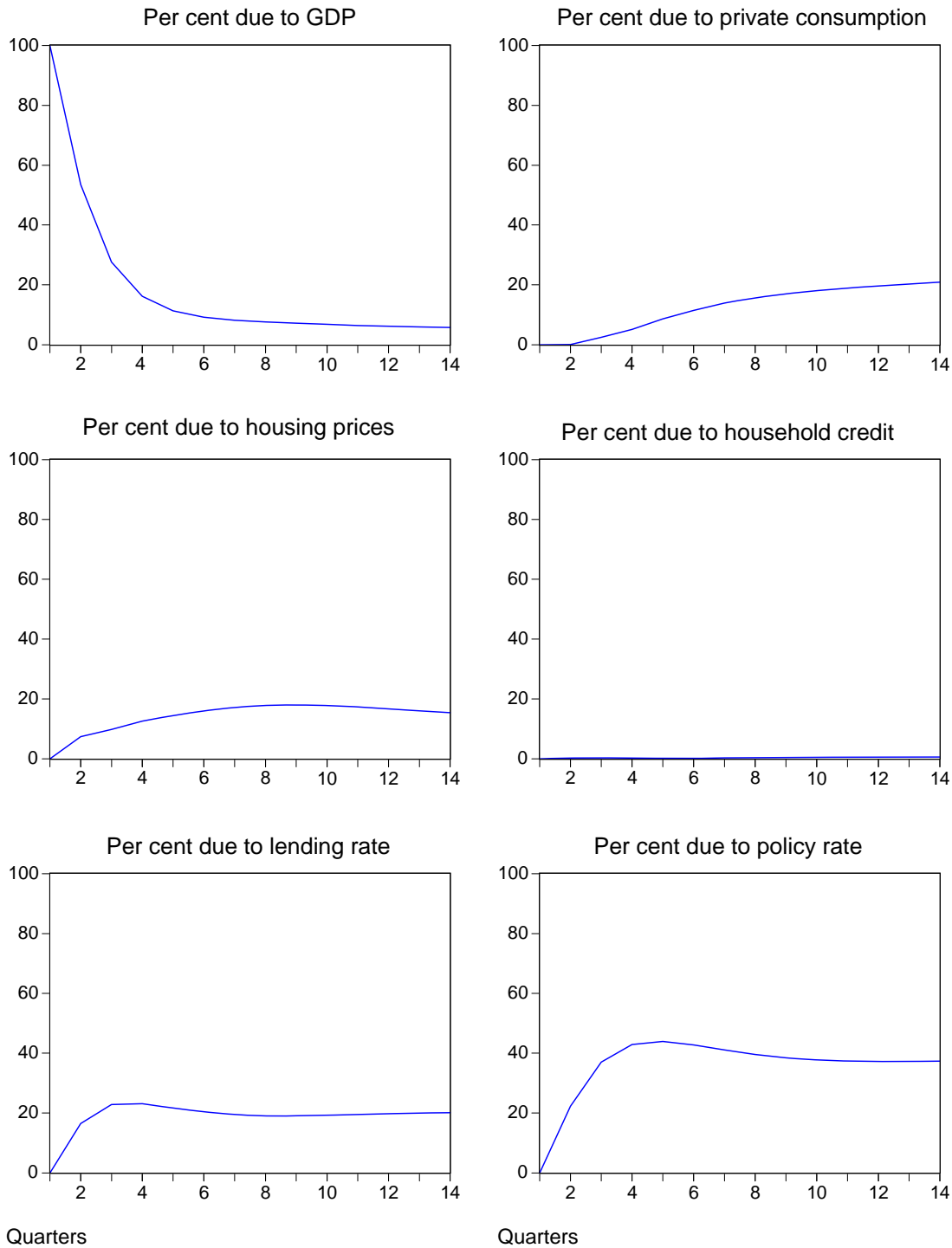
Graph 18

Variance decomposition of housing prices



Graph 19

**Variance decomposition of GDP**



Our analysis suggests that when the BOT raises interest rates, households in Thailand might be harmed by falling house prices, resulting in a slowdown in spending. This seems to be consistent with the financial accelerator framework, where declining house prices could weaken many borrowers, thereby raising the cost of external funding and, hence, the effective interest rate. The BOT, however, also has the ability to offset the adverse macroeconomic effects of the rise in the external finance premium by lowering interest rates

generally for all borrowers. In other words, the BOT has the tool it needs to keep the economy well balanced when households experience credit constraints.

The effect of monetary policy and housing prices on spending in the Thai economy concerns not so much new borrowing, but rather the impact of higher interest rates on existing borrowing, and on the future willingness of lenders to provide credit. In a rising interest rate environment, lenders may tighten credit standards for high-risk borrowers because of concern about these borrowers' ability to service their debt. The provision of credit is highly relevant to the consumption of groups, such as low-income households, that are generally credit-constrained. As discussed above, low-income households in Thailand have a relatively high debt burden. This possibly raises the sensitivity of the economy to interest rate changes. Low-income groups are more likely to be vulnerable to changes in interest rates because they are less likely to have other resources they can draw on to smooth consumption.

## Conclusion and policy implications

This paper discusses the household sector, housing market and monetary policy framework in Thailand as well as their relationships with each other. It finds that the household debt and housing market situation in Thailand is generally healthy. Household debt is low and mortgage arrears have decreased significantly over the past few years. The ratio of household debt to income and housing price inflation in Thailand remain low, compared with other countries. Consumption growth is subdued as a result of slow house price growth and weak household spending in general. Meanwhile the proportion of non-performing household loans has declined substantially, from almost 18% of total household loans in early 2004 to only 4% at the end of 2007.

Notwithstanding the declining ratio of non-performing household loans and the benign environment of Thailand's housing market, most households are still vulnerable to economic shocks. The special-mention loan ratio for low-income households is high compared to that for higher-income households. In terms of financial access, one third of Thai households do not have access to credit and low-income households are found to be the most credit-constrained.

In terms of household balance sheets, assets far exceed debt. However, it should be noted that a large proportion of household assets in Thailand are illiquid assets, such as real estate, while household borrowing is dominated by housing loans. Aggregate spending is therefore particularly sensitive to house price movements.

The housing-dominated structure of the household sector's balance sheet, together with a reliance on variable rate mortgages, implies that the Thai economy is particularly sensitive to interest rate and house price movements. And because of this there is a general concern that the achievement of price stability may not be consistent with the achievement of financial stability.

In a perfect world where policy measures are available to clamp down on booms at an early stage, they should be used in order to ensure future macroeconomic stability. But in the absence of such policies, the policy interest rate is another instrument that can be used to restrain house price growth, over and above its role vis-à-vis the inflation target. This suggests that interest rates could be set at a higher level during a housing boom, or at a lower level during a downturn, than is required to achieve the inflation target.

However, the BOT view is that this may not be a good idea because raising interest rates simply to contain asset price booms, or decreasing interest rates to accommodate a decline in asset prices, may reduce one of the shocks, but probably at the risk of systematically missing the inflation target. This could destabilise the economy even more. In this context,



there is greater uncertainty on how fast and for how long the BOT should tighten monetary policy.

Findings in this paper suggest that monetary policy is quite potent due to the increased sensitivity of the household sector to interest rate changes. The effect of monetary policy is transmitted via two channels. The first is the interest rate channel. When monetary policy is tightened, the cost of borrowing increases, leading to a slowdown in household borrowing and economic growth. The second is the housing price channel. Structural changes in the provision of housing loans and variable rate mortgages make this channel particularly effective. Since consumers are more likely to respond to a rate hike by cutting spending, central banks should proceed carefully when tightening monetary policy in order to assess its impact.

In general, the BOT monetary policy stance is to change the policy rate in order to keep inflation within the specified range of the core inflation target. Maintaining interest rates higher or lower than is required to hit the inflation target in an attempt to rein in or boost housing prices is not consistent with the current view. The BOT, however, does monitor many financial imbalance indicators when making decisions about interest rates.

Going forward, it may be useful to ask why consumer demand and household spending in Thailand have weakened and contribute less significantly to economic growth. One possible explanation for weak consumer spending is that households could have been revising their assessment of their permanent income downwards as a result of falling home prices. The situation is aggravated by the lack of access to credit in Thailand, especially for low-income households that need to borrow to finance consumption. With falling home prices, the value of the collateral against which owners can borrow is also reduced. In the future, more investigation is needed to achieve an understanding of how household debt and housing price misalignments interact in practice and affect the overall economy to enable us to design the appropriate monetary policy response to a shock.

## References

Ando, A and F Modigliani (1963): "The 'life cycle' hypothesis of saving: aggregate implications and tests", *American Economic Review*, vol 53, no 1, part 1 (March), pp 55–84.

Ariyapruchya, K, W Sinswat and N Chutchotitham (2007): "The wealth and debt of Thai households: risk management and financial access", *Bank of Thailand Symposium Paper*, October.

Bank of Thailand, *Inflation Reports*, various issues, available at [www.bot.or.th](http://www.bot.or.th).

Benito, A, J Thompson, M Waldron and R Wood (2006): "House prices and consumer spending", *Bank of England Quarterly Bulletin*, vol 46, summer, pp 142–54.

Bernanke, B S and M L Gertler (1995): "Inside the black box: the credit channel of monetary policy transmission", *Journal of Economic Perspectives*, vol 9, no 4 (Fall), pp 27–48.

——— (2001): "Should central banks respond to movements in asset prices?", *American Economic Review Papers and Proceedings*, vol 91, no 2, pp253–7.

Bernanke, B S and S Gilchrist (1999): "The financial accelerator in a quantitative business cycle framework", in J B Taylor and M Woodford (eds), *Handbook of Macroeconomics*, Elsevier Science-North Holland, vol 1C, pp 1341–93.

Borio, C and P Lowe (2002): "Asset prices, financial and monetary stability: exploring the nexus", *BIS Working Papers*, no 114, Basel, July.

Cecchetti, S G, H Genberg, J Lipsky and S B Wadhvani (2000): "Asset prices and central bank policy", *Geneva Reports on the World Economy*, no 2, London, July.

Glindro, E, T Subhanij, J Szeto and H Zhu (2008): "Are Asia-Pacific housing prices too high for comfort?" *BIS Working Papers*, forthcoming.

Government Housing Bank, *GH Bank Housing Journal*, various issues.

Greenspan, A and J Kennedy (2005): "Estimates of home mortgage originations, repayments, and debt on one-to-four-family residences", *Finance and Economics Discussion Series*, no 2005-41, Board of Governors of the Federal Reserve System, Washington, September.

Hatzius, J (2005): "Housing holds the key to Fed policy", *Goldman Sachs Global Economics Papers*, no 137, New York, February.

Lusardi, A (1996): "Permanent income, current income, and consumption: evidence from two panel data sets", *Journal of Business and Economic Statistics*, vol 14, no 1 (January), pp 81–90.

Modigliani, F and R Brumberg (1954): "Utility analysis and the consumption function: an interpretation of cross-section data", in K Kurihara (ed), *Post-Keynesian economics*, Rutgers University Press, pp 388–436.

National Statistical Office (2007): *Household socio-economic survey*.

National Statistical Office and Bank of Thailand (2006): *Household socio-economic survey*.

Souleles, N S (1999): "The response of household consumption to income tax refunds", *American Economic Review*, vol 89, no 4 (September), pp 947–58.

White, W R (2004): "Making macroprudential concerns operational", speech delivered at a Financial Stability Symposium organised by the Netherlands Bank, Amsterdam, 25–26 October, [www.bis.org/speeches/sp041026.htm](http://www.bis.org/speeches/sp041026.htm).