Inflation Report

October 2007

The *Inflation Report* is prepared quarterly by staff of the Bank of Thailand with the approval of the Monetary Policy Committee (MPC). It serves two purposes: (1) to provide a clear forward-looking framework for economic and inflation forecasting to assist the MPC in making monetary policy decisions and (2) to give the MPC an opportunity to present the explanation for their decisions on various policy issues to the public.

Although individual MPC members may have differing opinions regarding the assumptions on which the forecasts are based, as a group they are in agreement with the forecasts on the outlook for inflation and output as well as the risk factors involved as illustrated in the fan charts.

The Monetary Policy Committee:

Mrs. Tarisa	Watanagase	Chairman
Mrs. Atchana	Waiquamdee	Vice Chairman
Mr. Bandid	Nijathaworn	Member
Mr. Aran	Thammano	Member
Mr. Chakramon	Phasukavanich	Member
Mr. Ampon	Kittiampon	Member
Mr. Karun	Kittisataporn	Member

Thailand Monetary Policy Strategy

Monetary Policy Formulation

- The Monetary Policy Committee (MPC) sets monetary policy in order to attain price stability conducive to sustainable economic growth. The MPC also monitors factors contributing to external stability and financial imbalances.

The Monetary Policy Instrument

- The MPC utilizes the 1-day repurchase rate as the key policy rate to signal the monetary policy stance.

The Target

- The MPC uses core inflation (excluding raw food and energy) as its policy target with the range of 0-3.5 per cent (quarterly average). In the event that the target is missed, the MPC is required to explain the reasons thereof to the public.

Forecasting Tools

- To assist the MPC in making monetary policy decisions, the Bank of Thailand has developed a macroeconomic model to forecast economic conditions and inflation outlook. The model is also employed to evaluate the impact of various factors on the economy and to offer guidelines for appropriate monetary policy responses.

Contents

1. Overview

In the first half of 2007, Thailand's economic growth registered an average rate of 4.3 per cent year-on-year, a moderation from 5.0 per cent growth in 2006. This was in line with the assessment of the Monetary Policy Committee (MPC) in the previous *Inflation Report*. Considering the components of economic growth, domestic demand slowed down by more than expected. The slowdown was particularly apparent in private investment, which contracted year-on-year in both quarters as a result of various sources of uncertainty in the economy, including uncertainty in government economic policies. In addition, growth of private consumption was weaker than expected, given that continued fragile consumer confidence had a negative impact on the purchase of durable goods. On the other hand, exports expanded by more than previously projected, partly due to a stronger global economic environment than was previously anticipated by the MPC. In addition, most exporters were able to adjust their operations and sales strategies in finding new export markets, thus cushioning the impact of the appreciation of the baht on overall export performance. Export growth therefore helped to compensate for the slowdown in private demand and was an important driver of economic growth throughout the first half of the year, while the acceleration of government spending also helped stimulate economic growth compared to end-2006.

Table 1.1 GDP at 1988 prices

Unit: %Δyoy	2006	2006			2007	
		Q2	Q3	Q4	Q1	Q2
Domestic demand[1/]	**3.4**	**3.8**	**3.1**	**1.8**	**1.5**	1.3
Private consumption	3.1	3.3	2.8	2.5	1.3	0.9
Private investment	3.9	3.3	2.9	2.3	-2.3	-0.8
Public expenditure	3.4	5.7	4.3	-4.2	11.1	7.4
Net exports of goods and services	**46.9**	**147.0**	**3.1**	**30.4**	**32.9**	**22.6**
Exports of goods and services	8.6	9.0	4.7	7.0	6.9	6.7
Imports of goods and services	1.6	-1.7	5.2	1.0	-0.2	3.7
Gross domestic product	**5.0**	**5.0**	**4.7**	**4.3**	**4.2**	**4.4**

Note: %Δyoy = percentage change from the previous year
[1/] Domestic demand excludes changes in stocks
Source: National Economic and Social Development Board

In spite of the lower than expected growth in private spending in the first half of the year, latest economic indicators in 2007 Q3 showed signs of a gradual but continued recovery in both the private consumption and private investment indices. Factors supporting the recovery included greater clarity in the political direction following the referendum on the new Constitution, and an acceleration of public spending which helped to stimulate economic activity. In addition, low inflation helped to preserve consumers' purchasing power, while monetary policy continued its easing cycle. Fragile confidence remained a negative factor that kept the recovery at a gradual pace. The MPC therefore assessed that the recovery of private consumption and investment would continue, but was likely to expand at a slower than previously expected pace for the rest of the year, compared to the previous *Report.* However, the recovery would strengthen and become more apparent in 2008, following the general election scheduled for the end of this year and increased political certainty.

While private domestic demand recovered gradually, government spending played a role in supporting overall economic growth. External demand was expected to expand robustly as previously anticipated, but on a gradually moderating trend in line with the expected slowdown in the global economy. The baht was expected to continue to appreciate in line with regional currencies. Increased concerns in the US subprime market since the end of 2007 Q2 would be an important risk to US economic growth going forward, but so far had not affected trading partners' growth in 2007. In addition, the readiness of central banks in many countries to pause their tightening stanre of monetary policy to lighten the impact from the subprime problems further cushioned the impact on world growth in 2008. The export trend, along with a slow down in Thai imports given the slowdown in private domestic spending, was likely to lead to higher than previously expected growth in net exports.

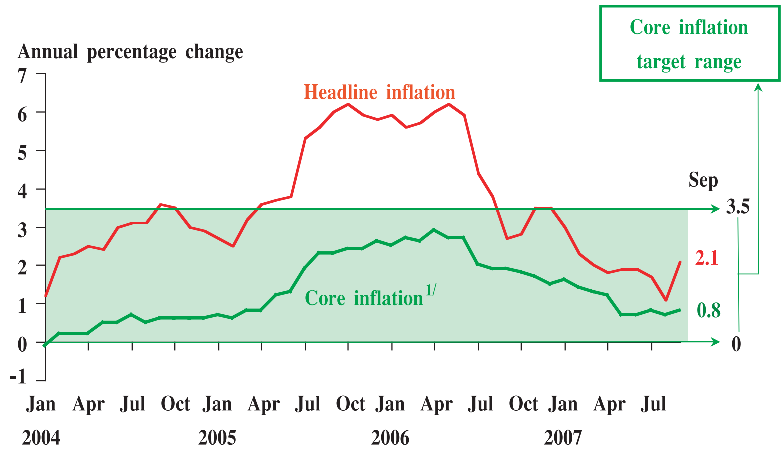
The assessment of economic conditions and initial forecasts led the MPC to maintain its growth projections for 2007 and 2008 for the baseline scenario. However, the MPC viewed that going forward, there were increased uncertainties from the previous forecast as a result of continued concerns that problems in the subprime market could be more widespread. Therefore, the fan chart for economic growth in 2008 became wider, compared to the previous *Report*, reflecting this increasein uncertainty. The fan chart for growth was also skewed downwards throughout the forecast range, reflecting negative risks from concerns in the US subprime market. However, the forecast remained within the previous forecast range of 4.5-6.0 per cent in 2008. As for 2007, the MPC narrowed the forecast range to 4.3-4.8 per cent to reflect actual data from the first half of the year.

The slowdown in economic activity in the previous period had no significant impact on the balance sheets of firms and households. However, the corporate sector's ability to make profits declined, while households' ability to service their debts worsened somewhat. At the same time there were signs that households began to adjust their behaviour, such as practicing greater caution in their spending habits, making the overall situation less of a concern. As for the banking sector, credits to the corporate sector continued to contract year-on-year, particularly credits for investment purposes, in line with the downtrend in investment in previous periods. Credits to the household sector grew at a satisfactory pace, however, and continued to drive overall credit growth. In any case, the overall moderation in credit extension did not have any significant impact on the balance sheets of commercial banks. Commercial bank reserves remained at a high level compared to international standards, and the ability to earn profits remained robust. However, there were signs that non-performing loans would increase and would need to be monitored going forward.

Inflationary outlook and monetary policy

Over the previous periods, inflation moderated in line with the MPC's forecasts, even though inflation in 2007 Q3 decelerated by more than the MPC expected, as a result of the slow recovery in domestic demand which led to limited room for price increases. Price increases were initially expected to be more widespread, given the lifting of the 8th statement of the Administrative Reform Council under the Democratic System on 6 April 2007, which had earlier prohibited the increase in prices for all goods and services. In addition, in the months of July and August 2007, price pressures from higher global oil prices were subdued, owing partly to the stronger baht.

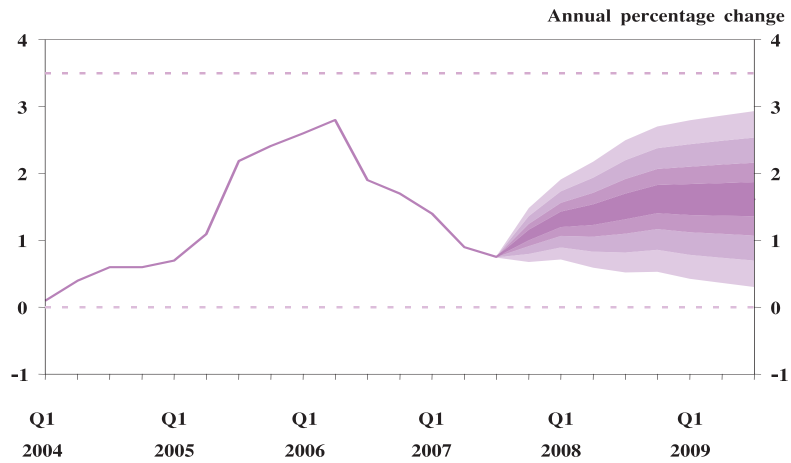
Chart 1.1 Consumer price index



Note: 1/Consumer price index excluding raw food and energy items
Source: Trade and Economic Index Bureau, Ministry of Commerce

Going forward, pressures to inflation from the supply side were likely to rise, both from oil and commodity prices, as well as from the proposed increase in the price of cooking gas (LPG) and the ceiling of excise tax on cigarettes and alcohol. At the same time, demand side pressures remained minimal, given that recovery of domestic demand was at an early stage. The MPC therefore assessed that the forecast for core inflation would not change significantly from the previous *Report*, while the upside and downside risks to growth were quite balanced both in 2007 and 2008. The forecast range for average core inflation in

Chart 1.2 Core inflation forecast



Note: The fan chart covers 90 per cent of the probability distribution

2007 was narrowed down to 0.8-1.3 per cent, given actual data up to 2007 Q3, while the forecast for 2008 was unchanged at 1-2 per cent. There were increased risks to headline inflation, however, from supply side factors. The forecast range for average headline inflation in 2008 was therefore increased to 1.5-2.8 per cent, but was narrowed down for 2007 to 1.8-2.3 per cent given actual data up to 2007 Q3.

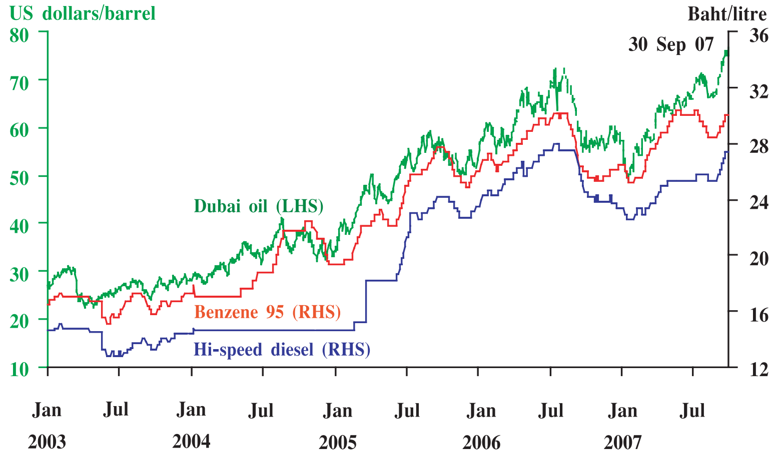
Compared to the previous period, risks to inflation increased slightly but remained at a low level, while risks to growth remained. But given that there had been considerable accommodation of monetary policy since early 2007, along with continued signs of recovery in domestic private demand, as well as continued uncertainty with regards to concerns in the US subprime market which would need to be monitored closely going forward, the MPC decided to maintain the policy interest rates at 3.25 per cent per annum at both MPC meetings on 29 August and 10 October 2007.

2. Recent Developments in Inflation and Economic Conditions

Inflation trends

World oil prices edged higher in 2007 Q3, with the average price of Dubai crude oil rising from 64.80 US dollars per barrel in 2007 Q2 to 70.00 US dollars per barrel. A combination of demand-side factors, supply-side factors, and market confidence all resulted in the surge in oil prices. Among the most important contributors were high demand for gasoline in the US during the tourist season, a reduction in world crude oil inventories and concerns regarding the effect of hurricanes in the Gulf of Mexico on US oil pipelines. In addition, speculation in the oil market increased as a result of the weakening of the US dollar following concerns in the subprime market.

Chart 2.1 Dubai oil price and domestic retail oil prices



Source: PTT Public Company Limited

Despite the increase in world oil prices, pressure on domestic retail oil prices remained limited, given the appreciation of the baht that helped to offset higher world prices. Nevertheless, domestic retail oil prices picked up in September 2007 as world oil prices increased, while the baht remained stable with respect to the US dollar.

World oil prices edged higher in 2007 Q3, while baht appreciation helped ease inflationary pressure from higher energy prices.

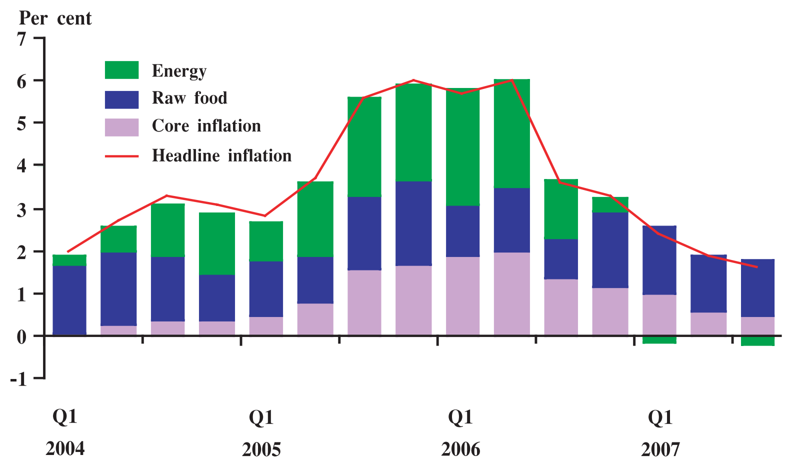
A decline in pressure both from energy and raw food prices caused headline inflation to fall from 1.9 per cent in 2007 Q2 to 1.6 per cent in 2007 Q3, lower than the MPC previously anticipated.

Table 2.1 Quarterly inflation

Unit: Per cent	2006	2006		2007		
		Q3	Q4	Q1	Q2	Q3
Percentage change from the previous year (%Δyoy)						
- Headline consumer price index	4.7	3.6	3.3	2.4	1.9	1.6
• Core consumer price index	2.3	1.9	1.7	1.4	0.9	0.8
• Raw food	7.5	4.8	10.0	8.9	7.2	7.4
• Energy	15.0	11.4	2.4	-1.0	-0.2	-1.4
- Producer price index	7.0	6.2	3.4	2.6	1.8	1.5
Percentage change from the previous quarter (%Δqoq)						
- Headline consumer price index	-	0.3	0.1	-0.4	1.8	0.1
• Core consumer price index	-	0.4	0.1	0.1	0.3	0.2
• Raw food	-	-0.2	5.9	-2.6	4.1	0.0
• Energy	-	0.9	-7.5	-0.2	7.1	-0.2
- Producer price index	-	-0.7	-1.4	0.5	4.3	-1.8

Source: Trade and Economic Index Bureau, Ministry of Commerce

Chart 2.2 Contribution to headline inflation



Source: Trade and Economic Index Bureau, Ministry of Commerce

Core inflation fell from 0.9 per cent in 2007 Q2 to 0.8 per cent in 2007 Q3, in line with the MPC's expectations. Although prices of cigarettes and liquor rose by more than previously anticipated as a result of an increase in excise taxes, price adjustments following the lifting of the 8th Statement of the Administrative Reform Council under the Democratic System[1/] were limited, given the slow recovery of domestic demand.

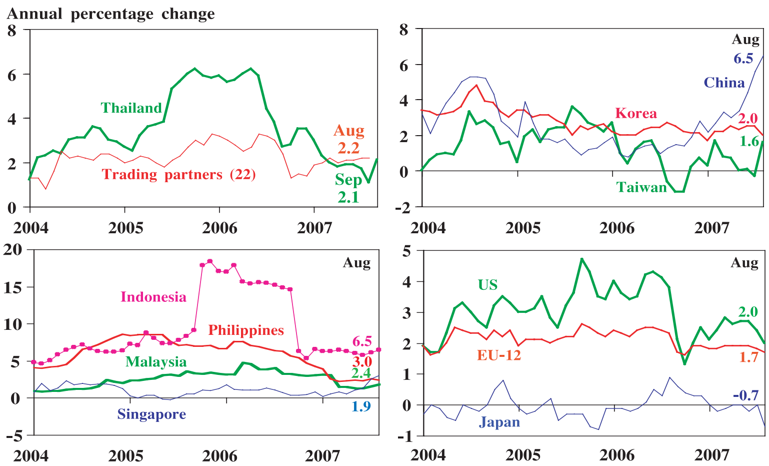
Core inflation in 2007 Q3 was consistent with the MPC's earlier projections.

The producer price index (PPI) inflation in 2007 Q3 increased by 1.5 per cent year-on-year, a moderation from 1.8 per cent in 2007 Q2. The slowdown in PPI inflation resulted from lower prices of industrial products, such as petrochemical products, which benefited from lower import prices, due to the appreciation of the baht.

Most of the economies in the region also recorded low inflation in 2007 Q3, with the exception of China and Singapore. Robust expansion of domestic demand in China along with rising food prices from a wide-spread disease found in swine caused inflation in the country to accelerate sharply. In Singapore, the increase in the VAT rate from 5 per cent to 7 per cent in July 2007 caused inflation to accelerate.

US headline inflation for the first 2 months of 2007 Q3 averaged at 2.2 per cent. Despite a moderation from the previous quarter, inflation in the US remained relatively high compared to other industrialized

Chart 2.3 World inflation



Source: Various official sources and Bloomberg

[1/] The 8th Statement of the Administrative Reform Council Under the Democratic System prohibited the increase in prices for all goods and services.

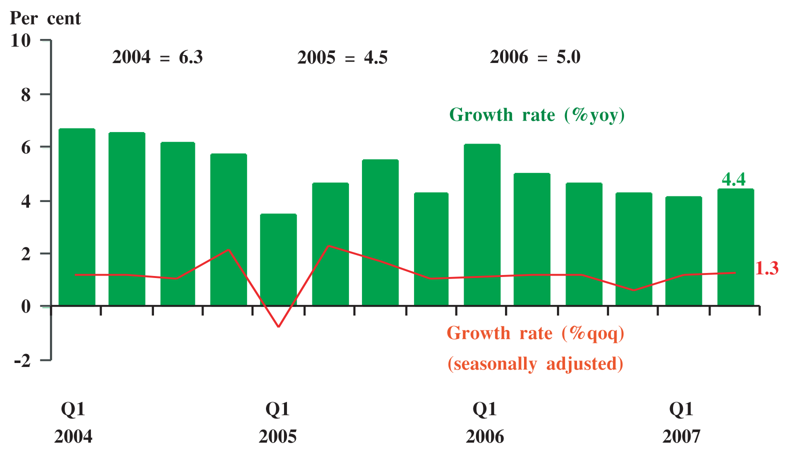
countries, suggesting that price pressures still persisted. On the other hand, the euro area HICP inflation fell slightly to 1.7 per cent, while inflation in Japan remained at a very low level, occasionally turning negative in some months. The latter was because the appreciation in the Japanese yen prevented inflation from rising, in spite of the increase in oil prices.

Aggregate demand in 2007 Q2 [2/]

In 2007 Q2, private domestic demand was weaker than expected, while exports performed well above expectations, resulting in overall expansion of the Thai economy at a rate of 4.4 per cent year-on-year.

The Thai economy in 2007 Q2 grew by 4.4 per cent year-on-year, in line with the MPC's expectations. However, contribution to GDP growth differed from the MPC's projections. Private expenditure, both in consumption and investment, softened by much more than expected, partly as a result of continued weak consumer confidence and business sentiment. Exports slowed down, but by less than previously anticipated. Exports of goods and services continued to be the main driver of economic growth, with net exports contributing up to 2.5 per cent of overall GDP growth. Contribution from consumption and investment registered at only 1.2 per cent and 0.0 per cent respectively.

Chart 2.4 Real GDP growth at 1988 prices

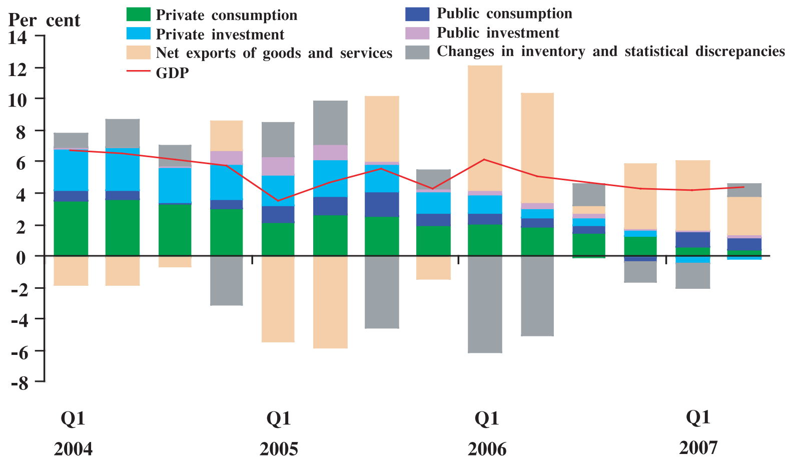


Source: National Economic and Social Development Board

[2/] Data used to analyse aggregate demand in 2007 Q2 was obtained from the NESDB. Economic indicators used for analysing 2007 Q2 and the outlook for 2007 Q3 were obtained from the BOT, except for the Consumer Confidence Index, which was produced by the University of the Thai Chamber of Commerce, and data on government expenditure, which originated from the Comptroller General's Department and was compiled by the Fiscal Policy Office.

On a seasonally adjusted basis, the Thai economy in 2007 Q2 displayed a promising quarter-on-quarter growth of 1.3 per cent, up from 0.6 per cent and 1.2 per cent in 2006 Q4 and 2007 Q1, respectively. This showed a good indication of a gradual but steady recovery.

Chart 2.5 Contribution to GDP growth

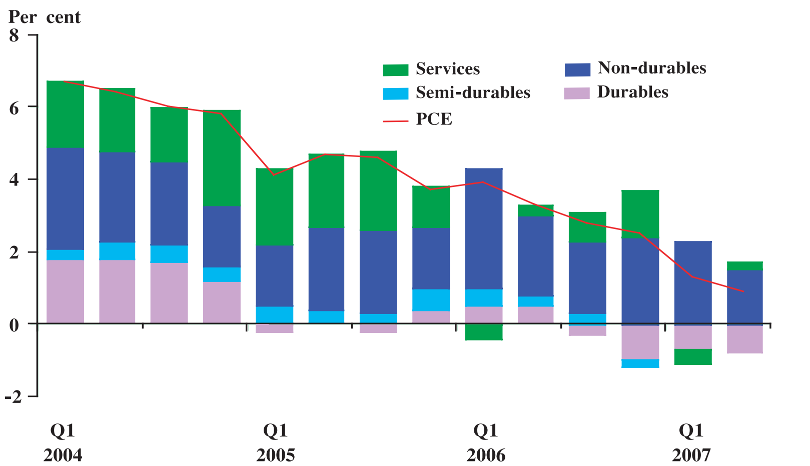


Source: National Economic and Social Development Board

A closer look at the components of aggregate demand in 2007 Q2 revealed the lowest year-on-year growth of private consumption since 2002 Q3 (0.9 per cent). The continued contraction in the consumption of durable goods, along with the slowdown in consumption of non-durable goods reflected increased caution in consumer spending,

Consumer confidence and business sentiment which remained low caused consumers to be cautious in their spending behaviour, while investment was deferred.

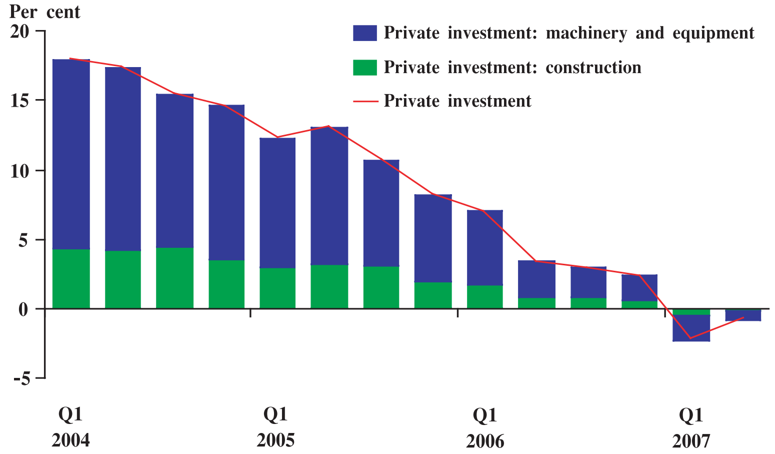
Chart 2.6 Contribution to PCE growth



Source: National Economic and Social Development Board as consumer confidence remained low. The Consumer Confidence Index (CCI) fell from 79.1 in 2007 Q1 to 77.1 in 2007 Q2. Private consumption had the lowest contribution to GDP growth in 7 years, with its contribution to GDP falling from 0.7 per cent in 2007 Q1 to 0.5 per cent in 2007 Q2.

Private investment contracted by 0.8 per cent in 2007 Q2, a relative improvement from the 2.3 per cent contraction in 2007 Q1. Investment in machinery and equipment improved slightly, while construction investment remained subdued. The weak investment climate stemmed mainly from concerns over further appreciation of the baht which affected export performance, together with political uncertainty prior to the referendum on the new Constitution on 19 August 2007 and the announcement of the date for the general election. These concerns were reflected in the decline in the Business Sentiment Index (BSI) from 43.5 in 2007 Q1 to 42.1 in 2007 Q2.

Chart 2.7 Contribution to private investment growth



Source: National Economic and Social Development Board

In 2007 Q2, public consumption expanded well, while public investment remained low.

Public consumption in 2007 Q2 expanded well, growing by 7.4 per cent, despite slowing down from the 11.1 per cent growth registered in the previous quarter. This was due to accelerated disbursement to stimulate the economy. As a result, public consumption accounted for 0.7 per cent of overall GDP growth. On the other hand, the budget for public investment was not fully disbursed, as major government projects remained under consideration by the Cabinet. Nevertheless, public investment displayed a better growth rate compared to 2007 Q1, registering at 3.1 per cent, a contribution of 0.2 per cent to overall GDP growth.

Exports maintained its role as the main engine of growth in 2007 Q2.

Despite weak domestic demand, the Thai economy did not slow down by as much as its domestic components, given a robust expansion in exports. Exports of goods and services in 2007 Q2 grew by 6.7 per cent, a similar growth rate to 6.9 per cent in 2007 Q1. Export performance was attributed to robust exports of computers and parts, vehicles, electrical appliances, petroleum products, plastic products, and agricultural products. Meanwhile, imports of goods and services picked up from an expansion of 0.2 per cent in 2007 Q1 to 3.7 per cent in 2007 Q2. This recent uptrend of imports came about as a result of higher imports of raw materials and capital goods. Growth of imports, however, remained low in line with weak domestic demand. As a result, net exports continued to be the most important source of GDP growth since 2006 Q4.

Trend of aggregate demand in 2007 Q3

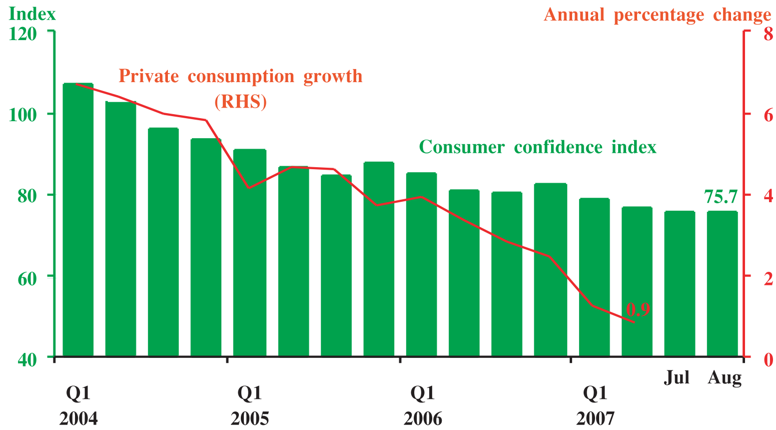
Domestic demand, both from the private and public sectors displayed an improving trend from 2007 Q2, while external demand began to moderate. Nevertheless, exports continued to be the main driver of growth.

Private consumption and private investment improved from 2007 Q2.

The Bank of Thailand's economic indicators revealed promising improvements in private consumption and private investment from 2007 Q2. The average Private Consumption Index (PCI) for July and August 2007 registered at 122.1, higher than the average of 120.5 in 2007 Q2. The PCI in these two months grew on average by 0.8 per cent year-on-year, after displaying zero growth in 2007 Q2, indicating a slow but steady recovery of private consumption. In addition, consumption of durable goods began to pick up gradually, as sales in passenger cars expanded positively for the first time during the first two months of 2007 Q3 after a continued contraction since 2006 Q4. This increase in consumption of durable goods was partly due to the lower interest rate. Indicators of non-durable goods also showed a reasonable expansion.

Despite improved signals of private consumption, consumers continued to remain cautious with regards to ongoing concerns over domestic developments, as reflected through lower consumer confidence. The Consumer Confidence Index (CCI) dropped from an average level of 77.1 in 2007 Q2 to 75.8 during the first two months of 2007 Q3. The MPC thus assessed that private consumption remained fragile.

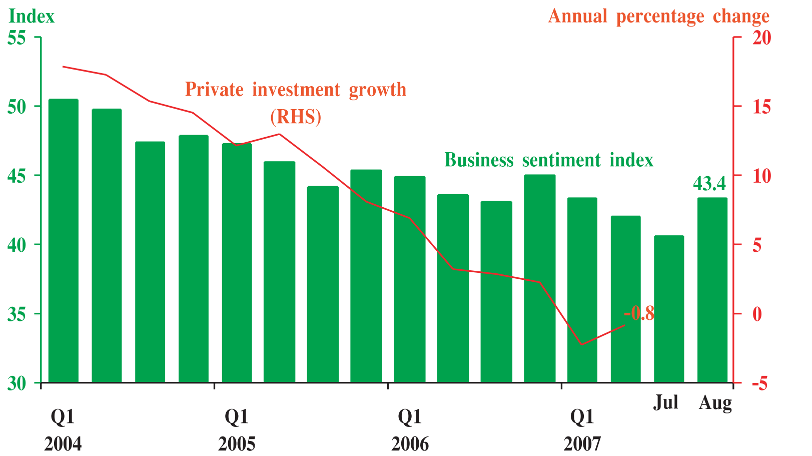
Chart 2.8 Consumer confidence index and private consumption growth



Source: The University of the Thai Chamber of Commerce and National Economic and Social Development Board

Private investment in 2007 Q3 was likely to improve from 2007 Q2. The Private Investment Index (PII) bottomed out at 165.3, which was the lowest level in 2 years since March 2007. Since then, the PII rose gradually to a level of 169.1 in 2007 Q2, and continued to increase to 170.8 and 172.3 in July and August, respectively. However, on a year-on-year basis, PII for July and August fell by 2.9 per cent on average, similar to the negative growth rates of 2.7 per cent in 2007 Q2, but better than the 3.8 per cent contraction recorded in 2007 Q1. In addition, the BSI rose to 43.4 in August from an average level of 42.1 in 2007 Q2. The 3-months expected BSI displayed a level higher than 50.0 for the first time in 6 months, indicating an improvement in the outlook as perceived by businesses, partly owing to a more stable political situation after the referendum. The MPC therefore assessed that private investment was likely to continue to improve going forward, in spite of the upward trend of oil prices that could adversely affect the investment climate.

Chart 2.9 Business sentiment index and private investment growth



Source: Bank of Thailand and National Economic and Social Development Board

On the fiscal side, during fiscal year 2007 Q4 (calendar year 2007 Q3), government revenue collection in July and August rose by 4.7 per cent on average, in line with an increase in collection of VAT, personal income tax, corporate income tax, as well as revenues from state-owned enterprises, all in line with improved economic activities in the private sector.

Government spending continued to accelerate from the previous quarter.

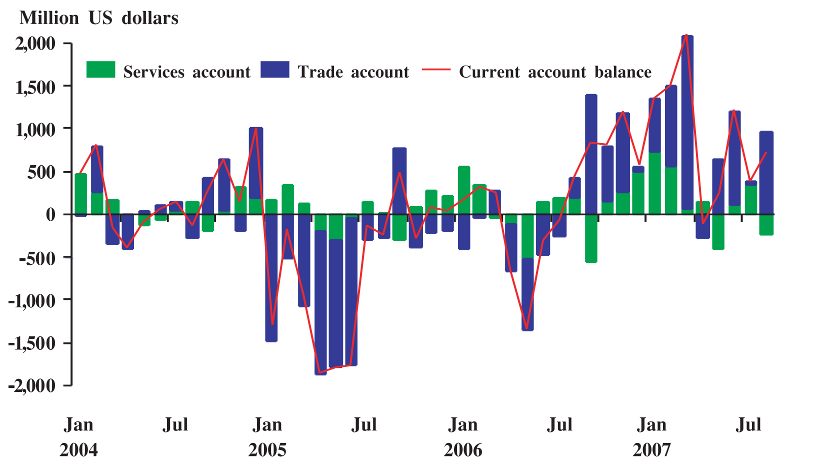
Government spending in the first two months of 2007 Q3 expanded to 26.9 per cent on average. Moreover, budget disbursement in September 2007 was expected to exceed the government's target, given higher current expenditure that included subsidies and transfers. Therefore, government spending in 2007 Q3 was expected to exceed that of 2007 Q2. For fiscal year 2007, government spending was expected to expand in line with its targeted level. In addition, the disbursement rate was expected to be higher than the previous fiscal year, reflecting an increased role for fiscal policy in stimulating the economy, particularly during the last 3 quarters of fiscal year 2007.

Exports remained robust, slowing down slightly while imports picked up in line with rising domestic demand especially from improvement in investment.

As for the external outlook, exports in the first two months of 2007 Q3 remained robust, but moderated slightly from the first half of the year as anticipated by the MPC. Exports during this period grew by 8.4 per cent year-on-year, down slightly from 13.3 per cent growth in the first half of 2007. Export products that performed well included electronic products and electrical appliances. Imports, on the other hand, trended upwards with a growth rate of 3.9 per cent during the first two months of 2007 Q3, compared to 3.2 per cent in the first half of 2007. Growth in imports was broad-based, particularly in imports of capital goods, which confirmed the improving trend of investment going forward.

Despite softer export growth and an increase in imports, the trade balance in value terms was likely to be in surplus, and higher in 2007 Q3 than 2007 Q2. Services income and transfers were likely to register a deficit, similar to 2007 Q2 as a result of softer growth in tourist incomes. Overall, the current account for 2007 Q3 was expected to register a larger surplus than 2007 Q2.

Chart 2.10 Current account balance



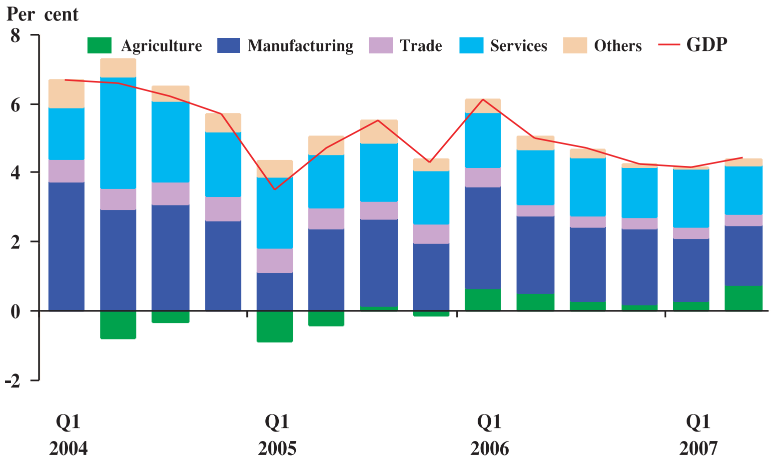
Source: Bank of Thailand

Production and supply in 2007 Q2 [3/]

On the supply side, production in the agricultural sector picked up as a result of delayed cultivation in 2007 Q2, as a consequence of the flooding which took place in late 2006. Meanwhile, activities in the manufacturing sector and the service sector slowed down slightly from the previous period.

[3/] Data used to analyse production and supply in 2007 Q1 were obtained mainly from the NESDB. Economic indicators used for analysing 2007 Q2 and the outlook for 2007 Q3 were obtained from the BOT, while data on the number of tourists and occupancy rate was in part compiled by the Tourism Authority of Thailand. Data on the labour market was obtained from the NSO.

Chart 2.11 Contribution to GDP growth



Source: National Economic and Social Development Board

Agricultural output expanded by 9.7 per cent year-on-year, a sharp acceleration from 3.3 per cent growth in 2007 Q1. The planting of second crops to replace crops damaged by flooding during 2006 Q4 resulted in yields in April and May. Moreover, favourable weather conditions also helped boost production of other crops, such as oil palm and cassava.

Agricultural output accelerated rapidly in 2007 Q2 while production in the manufacturing sector and service sector slowed down.

Manufacturing production in 2007 Q2 grew at a rate of 4.4 per cent, down from 4.6 per cent in the previous quarter. Production in the export sector continued to expand well.

Growth in the service sector moderated slightly from 5.2 per cent in 2007 Q1 quarter to 4.1 per cent in 2007 Q2. Hotels and restaurants in the northern region were affected by air pollution at the beginning of April 2007 while political demonstrations in Bangkok as well as a terrorist bomb which occurred in Hat Yai in late May 2007 affected the tourist industry.

The unemployment rate remained low.

The unemployment rate as of end-2007 Q2 remained low at 1.4 per cent, in line with employment growth of 2.5 per cent. Employment in the agricultural sector, the manufacturing sector and the service sector expanded, while employment in the trading sector contracted slightly.

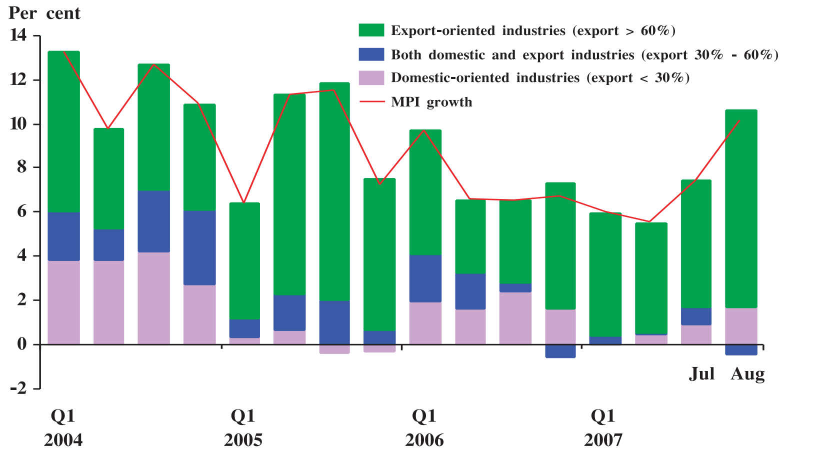
Trend in production and supply in 2007 Q3

In 2007 Q3, crop production slowed down while production in the manufacturing sector expanded well.

Crop production during the first two months of 2007 Q3 grew at 1.9 per cent, a decline from the growth rate in 2007 Q2. As stated earlier, production in 2007 Q2 expanded remarkably well, while continuous rain in the southern region slowed down rubber production. Prices of major crops continued to expand well, but at a slightly lower pace than the previous quarter due to redundant supply of certain crops. Overall, farm income slowed down from a growth rate of 22.3 per cent in 2007 Q2 to 17.0 per cent in July and August, on average.

Manufacturing production in 2007 Q3 was expected to exceed growth in 2007 Q2 as the Manufacturing Production Index (MPI) in the first two months of 2007 Q3 grew by 8.8 per cent, edging up from the growth rate of 5.6 per cent in 2007 Q2. Export-oriented industries and domestic-oriented industries were the main drivers of growth, owing to special orders in the electronics category, as well as increased production of tobacco to replace depleted inventory, along with other categories such as iron and steel products and electrical appliances which benefited from a lower base last year. However, industries which exported 30-60 per cent of their production such as sugar, textiles and passenger car industries slowed down from the previous quarter. Overall, the MPC interpreted the fast upturn in MPI as a sign of recovery in domestic demand as well as the ability of export-oriented industries to cope with the appreciation of the baht.

Chart 2.12 Contribution to manufacturing production index (MPI) growth



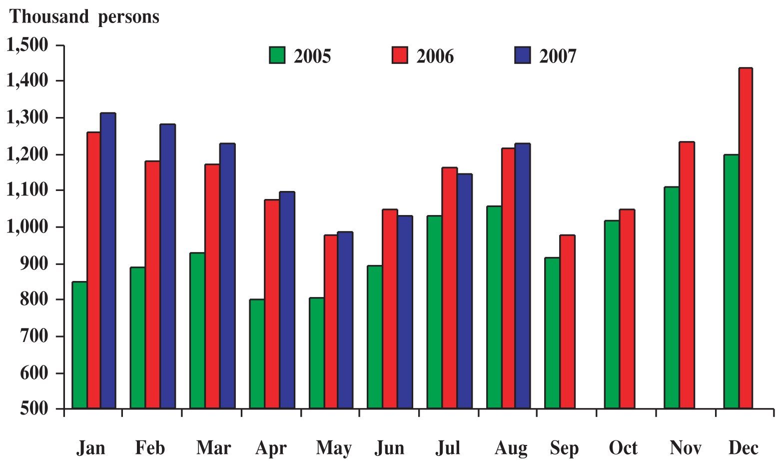
Source: Bank of Thailand

Thai industries would need to place priority on continued adjustment, however, to enhance their competitiveness going forward.

The tourism industry continued to slow down.

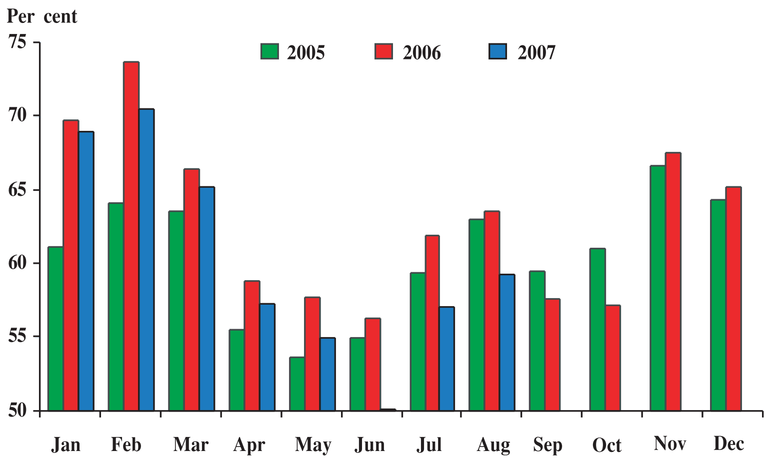
Tourism in 2007 Q3 was expected to continue to slow down in spite of positive factors such as the World University Games 2007, which was held in Thailand. Nevertheless, political uncertainty, together with unrest in the three southern provinces reduced Thailand's attractiveness as a tourist destination. In July and August 2007, the number of foreign tourists was similar to last year's level, displaying zero growth compared

Chart 2.13 Number of tourists



Source: Tourism Authority of Thailand and Bank of Thailand

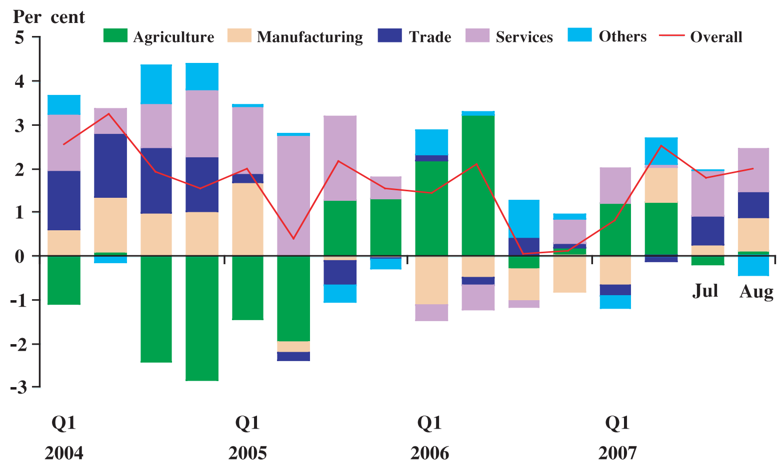
Chart 2.14 Hotel occupancy rate



Source: Tourism Authority of Thailand and Bank of Thailand to 0.4 per cent growth in 2007 Q2. Moreover, the occupancy rate was lower than the rate in the same period of last year.

Labour market conditions remained healthy during the first 2 months of 2007 Q3. Employment grew by 1.8 per cent, down from 2.5 per cent in 2007 Q2, mainly as a result of lower employment in the agricultural sector. Meanwhile employment in manufacturing expanded well, in line with increasing activities in the manufacturing sector as mentioned earlier. In addition, the unemployment rate fell slightly to 1.2 per cent, partly due to seasonal factors. The MPC has closely monitored the labour market to assess the impact of baht appreciation on employment in various sectors. Overall, the impact on employment was muted in the short run, as firms reduced working hours instead of laying off workers. Industries with a high rate of closure also saw a number of new firms opening up. Nevertheless, employment remained an issue that the MPC needed to monitor closely.

Chart 2.15 Employment growth and sectoral contributions

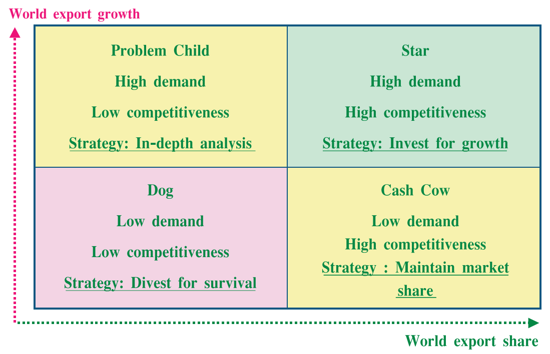


Source: National Statistical Office

Thailand's competitiveness and real sector adjustment

National competitiveness depends on a variety of factors ranging from productivity, entrepreneurs' adjustment capability, trading partners' economies, to exchange rates. One of the frameworks frequently used to assess competitiveness at the industry level is the Boston Consulting Group Growth-Share Matrix (the BCG Matrix) (Chart 1). According to this methodology, a country's products can be classified into four categories[1/] based on their relative world export share and world export growth, which reflects competition status and interest in the products, respectively. The results can then be used to form and develop product plans and policy.

Chart 1 BCG Growth - Share Matrix



In the case of Thailand's export industries, labour-intensive products (e.g. fabric, footwear and leather products), which fall in the Dog category under the BCG Matrix classification, show a deteriorating trend in both export market shares and growth rates. There is also a possibility that garments, currently in the Cash Cow category, may move to the Dog category due to labour costs that are higher than labour costs of competitors, especially China and Vietnam. On the other hand, high-technology products (e.g. computers and parts, integrated circuits (IC) and parts and electrical appliances) appear to be able to maintain their competitiveness, because in these industries multi-national enterprises (MNEs) use Thailand as a major production base. The main determinant of FDI in these industries, however, is not cheap labour costs but rather the productivity and quality of labour which allows the country to compete with low-labour-cost countries such as China and Vietnam. In the vehicles and parts industry, although Thailand does not have a high relative market share, the existence of strong supporting industries, Eco-car production, and export market expansion to the Middle East point to a continued robust outlook. Likewise, agricultural products (e.g. rice, rubber products, frozen shrimps and sugar) can maintain competitiveness because Thailand has a comparative advantage in their production and because world market demand has continued to expand steadily.

One of the important factors that influence competitiveness is export market concentration.[2/] Compared to low-market-concentration products, high-market-concentration products have a tendency to lose their competitiveness, and entrepreneurs' adjustment flexibility is even more limited if the original equipment manufacturer (OEM) strategy is employed. For Thailand, owing to a rather low concentration of export markets, high-technology products (e.g. vehicles and parts, electrical appliances and integrated circuits) can maintain competitiveness (Charts 2 and 3). At present, although computer production can also maintain competitiveness, there is a risk of losing future competitiveness as market concentration increases. At the broad level, however, Thailand's

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[1/] 1) Star: market share and growth rate are higher than average. Stimulating growth rate through investment is an appropriate business strategy to increase market share.
2) Problem Child: market share is lower than average, but growth rate is higher. Research and Development (R&D) strategies should be employed to stimulate growth rate and increase market share.
3) Cash Cow: market share is higher than average, but growth rate is lower. Such businesses should be 'milked', extracting profits and investing as little cash as possible.
4) Dog: lower market share and growth rate are expected. Such industries are candidates for divestitures; they should be moved to other locations having higher comparative advantage.

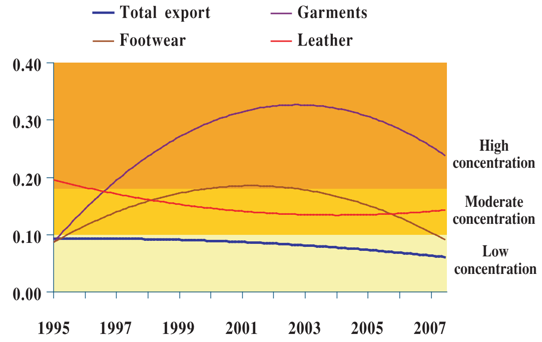
[2/] Market concentration is measured by Herfindahl Index (index < 0.1 means low concentration; 0.1 < index < 0.18 means moderate concentration; index > 0.18 means high concentration).

export market concentration has declined steadily, driven by entrepreneurs' search of new export markets to diversify their risks.

In industries with a tendency to lose competitiveness, the baht appreciation has made matters worse, forcing some factories to close down. Based on the opened/closed factory statistics (Chart 4), industries having to close down plants generally have low import content and are labour intensive. These characteristics make their adjustment rather limited, prompting certain entrepreneurs to undertake FDI abroad to improve business returns and diversify risks. Nonetheless, even in industries where several plants have been closed, new ones have opened, along with new capacity expansion. As a consequence, employment in the manufacturing sector as a whole has grown, suggesting the ability of the economy to absorb displaced labour.

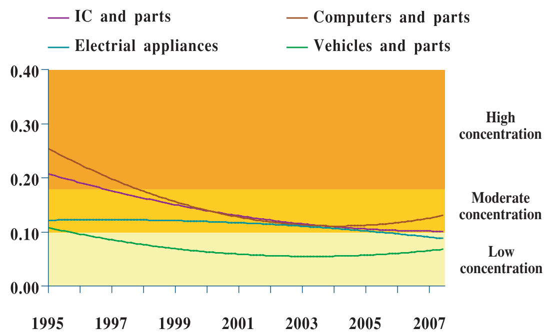
Going forward, it is imperative that both the public and private sectors establish a policy that can increase productivity continuously. Apart from stimulating productivity, skill development of workers is important to ensure that the supply of skilled labour is enough to satiate labour demand in the real sector in response to economic changes in the future.

Chart 2 Degree of market concentration (1)



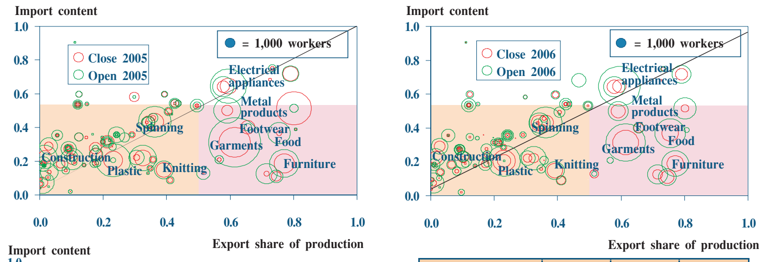
Source: Customs Department, Ministry of Finance, and calculations by the Bank of Thailand

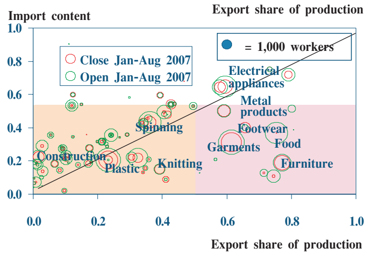
Chart 3 Degree of market concentration (2)



Source: Customs Department, Ministry of Finance, and calculations by the Bank of Thailand

Chart 4 Factory opening and closure





	2005	2006	2007 (8 Months)
Number of workers			
closed plants	67,105	52,251	32,215
opened plants	158,339	148,408	74,091
Number of factories			
closed plants	2,266	2,037	1,303
opened plants	6,116	5,222	2,946

Note: Newly opened factories are required to report data, but closed plants may delay reporting. Thus, there may be a consistent bias in the information.
Source: Ministry of Industry

3. Monetary Conditions in the Last 3 Months

Following the release of the previous *Report* in July 2007, the MPC kept the 1-day repurchase rate unchanged at 3.25 per cent per annum at both of its meetings on 29 August and 10 October 2007. The MPC deemed that domestic demand continued to show signs of improvement, while exports continued to expand well, despite an expected moderation in the second half of the year. In addition, in its meeting on 29 August 2007, the MPC noted that the concerns over the US subprime market would need to be monitored going forward. In the meeting on 10 October 2007, however, the MPC viewed that the direct impact of the problems in the US subprime market to the Thai economy were limited. Inflation was expected to continue to remain low, and despite an increased risk of price pressures going forward from higher oil prices, and the likelihood of price increases for certain essential goods and services, core inflation was expected to remain within the target range for the next 8 quarters.

Money market conditions

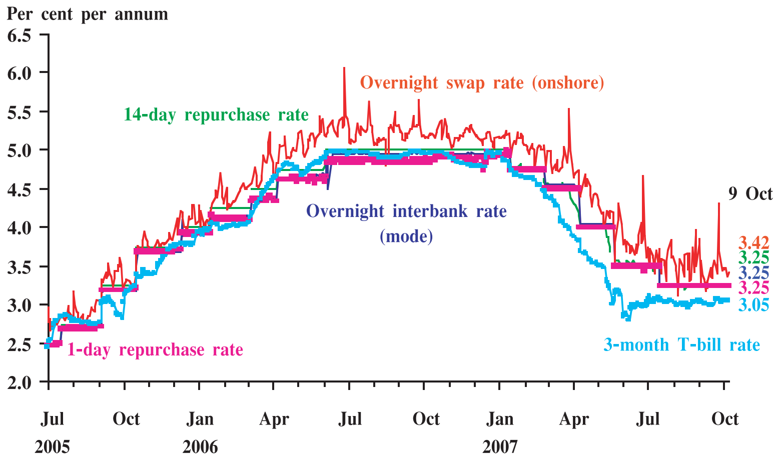
In 2007 Q3, short-term money market interest rates fell from the previous quarter, consistent with the policy interest rate. Both the 1-day repurchase rate and the overnight interbank rate averaged at 3.25 per cent per annum, a decline from an average of 3.84 and 3.88 per cent in the previous quarter, respectively.

In the third quarter, money market rates on average declined from the previous quarter, in line with the reduction in the policy interest rate.

Following a continuous decline from the first half of the year, yields on 3-month treasury bills began to stabilize in 2007 Q3, due to market expectations that the policy interest rate was unlikely to be reduced much further. Yields on government bonds, on the other hand, fluctuated throughout 2007 Q3. In July, yields on medium to long-term bonds adjusted upwards, as mutual funds switched their investments out of bonds and into equities. Short-term yields, however, declined consistent with the downward trend of the policy interest rate. In August, concerns over the US subprime market led investors to reduce their holdings of long-term government bonds and switch to shorter-term bonds

Yields on 3-month treasury bills began to stabilize, reflecting market expectations that the policy interest rate was unlikely to be reduced much further.

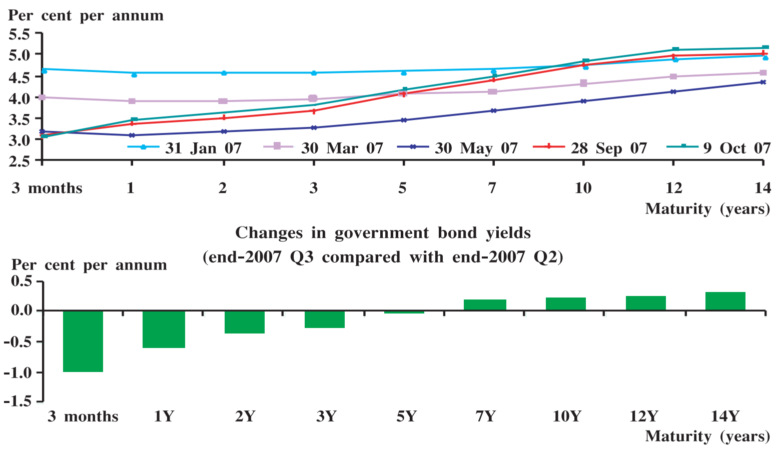
Chart 3.1 Money market interest rates



Source: Bank of Thailand

and cash. This led to a steepening of the yield curve. In September, the entire yield curve shifted upwards, with yields on short-term bonds increasing as a result of a sell-off by some funds to invest in foreign paper, which yielded higher returns. Yields on medium- to long-term bonds also increased, partly due to an auction of government bonds in the primary market that had a bid coverage ratio of less than 1, leading some market participants to view that supply had exceeded demand. On average, yields on government bonds adjusted upwards across the curve, resulting in an upward

Chart 3.2 Government bond yields

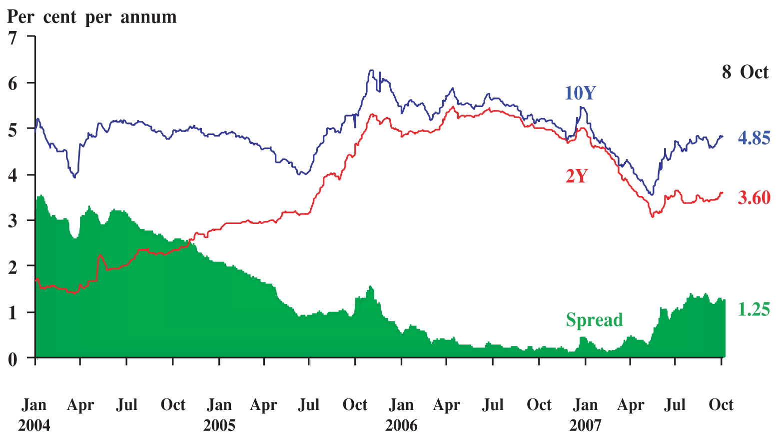


Source: Bank of Thailand

shift in the yield curve in 2007 Q3. In addition, the yield spread between 10-year and 2-year government bonds widened from 0.98 per cent at the end of 2007 Q2 to 1.27 per cent at the end of 2007 Q3.

The yield curve steepened in 2007 Q3, partly due to concerns in the US subprime market, which led investors to reduce their holdings of longer-term government bonds.

Chart 3.3 Government bond yield spread between 10-year and 2-year



Source: Bank of Thailand

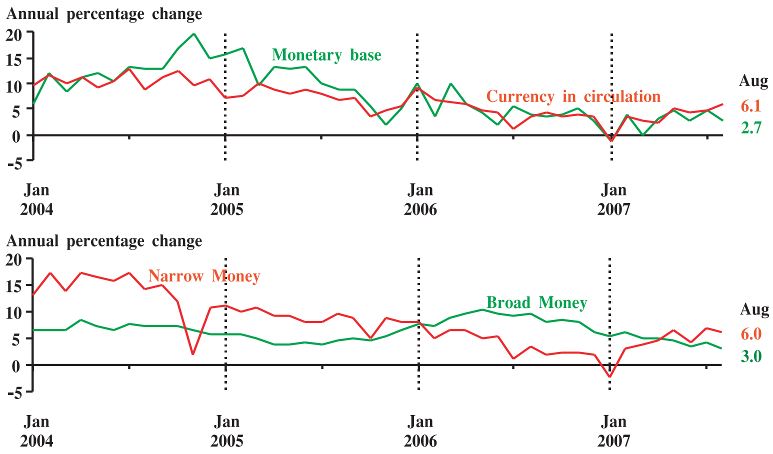
Monetary base and money supply

During July-August 2007, the monetary base expanded at the same pace as 2007 Q2, averaging 3.6 per cent year-on-year. However, the components of the monetary base indicated that growth of cash held by the private sector accelerated, growing on average by 5.5 per cent in the July-August period, higher than the average growth of 3.8 per cent in 2007 Q2. This was in line with the recovery in private domestic spending.

The monetary base expanded at the same pace as the previous quarter, but cash held by the private sector grew at an accelerated pace.

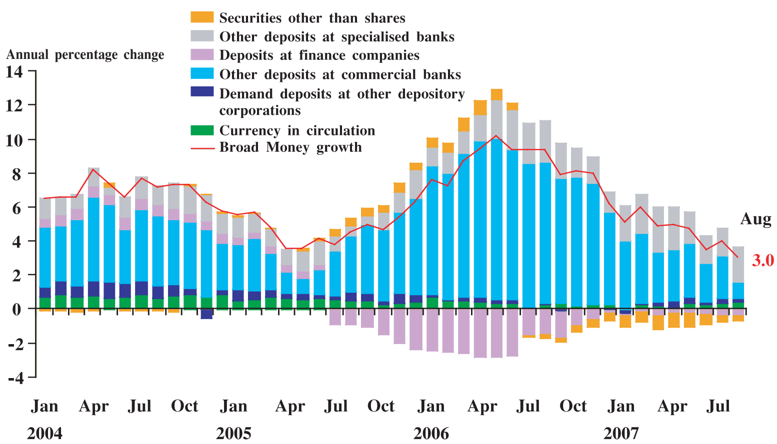
Broad Money grew at an average rate of 3.5 per cent during the July-August period, down from 2007 Q2 where average growth registered at 4.4 per cent. This slowdown resulted from a continued decline in deposits in the banking system since the middle of 2006, and was in line with the downward trend of interest rates on deposits at commercial banks.

Chart 3.4 Growth rate of money supply



Source: Bank of Thailand

Chart 3.5 Contribution to Broad Money growth



Source: Bank of Thailand

Adjustments of the banking system

Most commercial banks adjusted their short-term deposit rates downwards, in line with the policy rate. However, long-term deposit rates were adjusted differently.

After the MPC decided to lower the policy interest rate by 0.25 per cent per annum in July 2007, commercial banks adjusted their reference interest rates in different directions. Most commercial banks adjusted their short-term deposit rates downwards, resulting in a decline in the average 3-month and 6-month time deposit rates of the four largest commercial banks from 2.25 per cent per annum at the end of 2007 Q2 to 2.06 per cent per annum at the end of 2007 Q3. As for long-term deposit rates, some commercial banks increased their 12-month time deposit rates, while most banks kept their rates unchanged. Overall, however, this resulted in an upward adjustment in the average 12-month time deposit rate of the four largest commercial banks from 2.25 per cent per annum at the end of 2007 Q2 to 2.31 per cent per annum as of end-2007 Q3. This owed mainly to competition among banks to maintain their depository base and expectations that the policy rate had nearly reached the bottom of the downward cycle. Commercial banks therefore attempted to migrate the deposit structure to longer-term deposits, in anticipation of an upward trend of interest rate cycle sometime in the future.

The commercial bank lending rates decreased in line with the policy interest rate, but at a lower pace.

Meanwhile, most commercial banks continued to lower their lending rates in line with the policy rate, but at a slower pace. As of end-2007 Q3, the average MLR of the four largest commercial banks was lowered to 6.87 per cent per annum, compared to 7.00 per cent per annum, at the end of 2007 Q2.

Table 3.1 The policy rate and banks' reference retail rates*

Unit: Per cent	2005	2006	2007**				
	Dec	Dec	Jan	Mar	Apr	May	Sep
Policy rate	**4.00**	**5.00**	**4.75**	**4.50**	**4.00**	**3.50**	**3.25**
Average reference retail rates of the 4 largest banks							
Savings	0.75	0.75	0.75	0.75	0.75	0.75	0.75
3-month	2.00	3.44	3.44	3.25	2.75	2.25	2.06
6-month	2.25	3.69	3.69	3.25	2.75	2.25	2.06
12-month	2.50	4.00	3.81	3.25	2.75	2.25	2.31
24-month	3.75	4.69	4.44	3.69	3.00	2.50	2.50
MLR	6.50	7.69	7.69	7.50	7.19	7.00	6.87

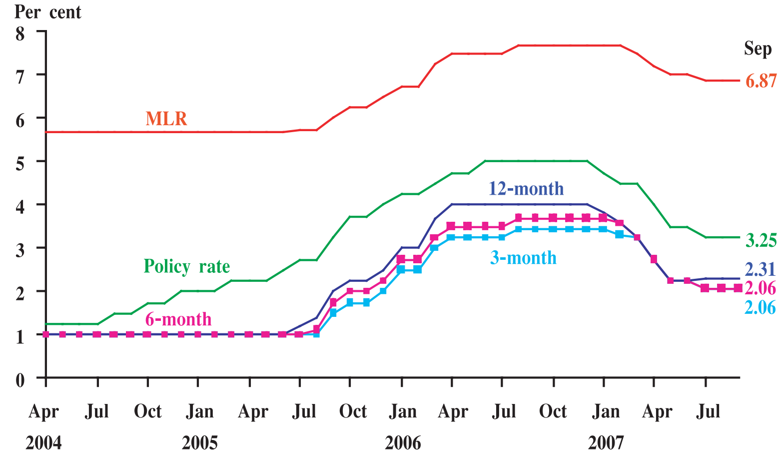
Note: *Rates at end-period
**Displaying only those with a significant change in rates
Source: Bank of Thailand

Both the real 12-month time deposit rate and the real MLR decreased from the previous quarter.

Although some commercial banks raised their 12-month time deposit rates, inflation expectation increased at a faster pace causing the real 12-month time deposit rate[1/] to decline. As of end

[1/] Real deposit rate = 12-month deposit rate - average inflation forecast 12 months forward

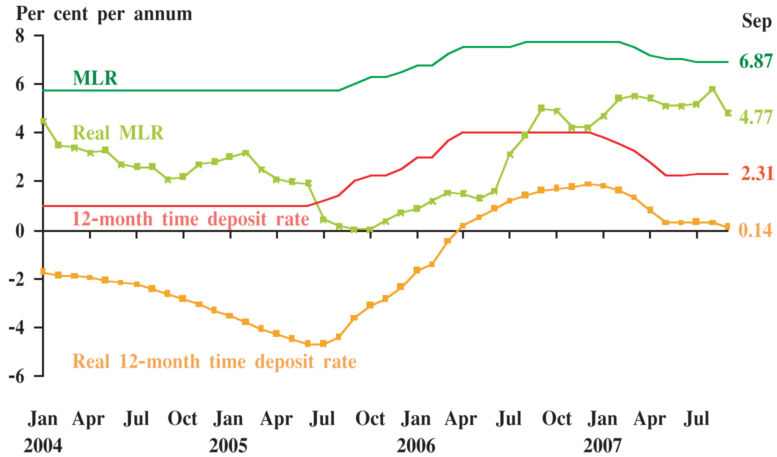
Chart 3.6 Policy rate and commercial banks' reference retail rates*



Note: *Average rate of the 4 largest commercial banks at end-period
Source: Bank of Thailand

September 2007, the real 12-month time deposit rate stood at 0.14 per cent per annum. Furthermore, the real MLR[2/] also declined to 4.77 per cent per annum, due both to the reduction of the MLR at several commercial banks, as well as the increase of contemporaneous headline inflation in September 2007.

Chart 3.7 Commercial banks' interest rates*



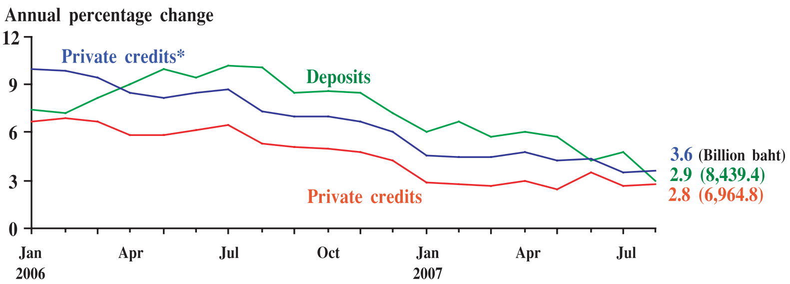
Note: *Average rate of the 4 largest commercial banks
Source: Bank of Thailand

[2/] Real lending rate = MLR - contemporaneous headline inflation

Growth of deposits of Other Depository Corporations[3/] continued to decline. In August 2007, deposits grew by only 2.9 per cent year-on-year, due to temporary factors such as the disbursement of government budgets, which had previously been deposited in accounts of commercial banks. Moreover, the downward cycle of interest rates and the issuance of bills of exchange by commercial banks were also important factors resulting in the decline in deposits of Other Depository Corporations since the latter half of 2006.

The growth of deposits of Other Depository Corporations continued to decline.

Chart 3.8 Other depository corporations' deposits and private credits



Change from end of previous period (Billion baht)	2006	2006				2007			
		Q1	Q2	Q3	Q4	Q1	Q2	Jul	Aug
Deposits	545.0	327.1	81.1	144.5	-7.8	233.6	-38.2	186.2	-66.4
Private credits	279.1	107.0	6.2	95.9	70.1	2.7	67.3	-14.3	27.7

Note: *Excluding the effects of loan write-offs and transfers to AMCs
Source: Bank of Thailand

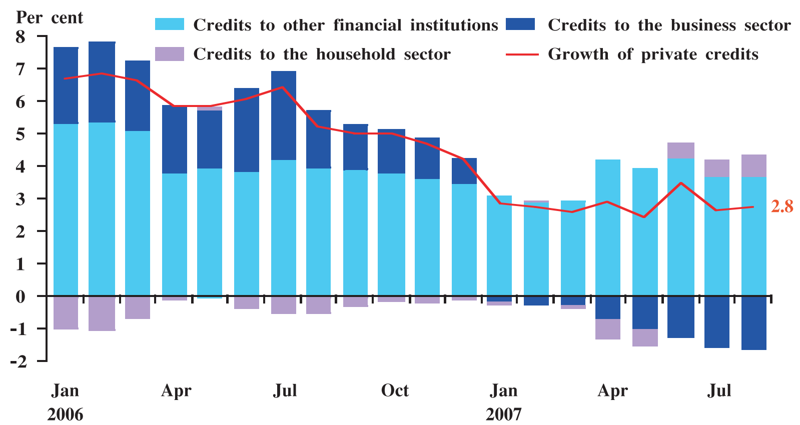
Other Depository Corporations' private credits continued to expand at a low level. In August 2007, private credits grew by 2.8 per cent year-on-year, compared to 3.5 per cent in the previous quarter. This owed mainly to the slowdown in credits to the corporate sector, particularly those for investment, whereas credits to the corporate sector for working capital continued to expand

Commercial banks' private credits continued to expand at low level due to a slowdown in private investment.

[3/] Other Depository Corporations comprise domestically registered commercial banks, branches of foreign banks, international banking facilities, finance companies, Specialised Financial Institutions (including Government Savings Bank, Government Housing Banks, Bank for Agriculture and Agricultural Cooperatives, Export-Import Bank of Thailand, Small and Medium Enterprise Development Bank of Thailand, Islamic Bank of Thailand), saving cooperatives, and money market mutual funds.

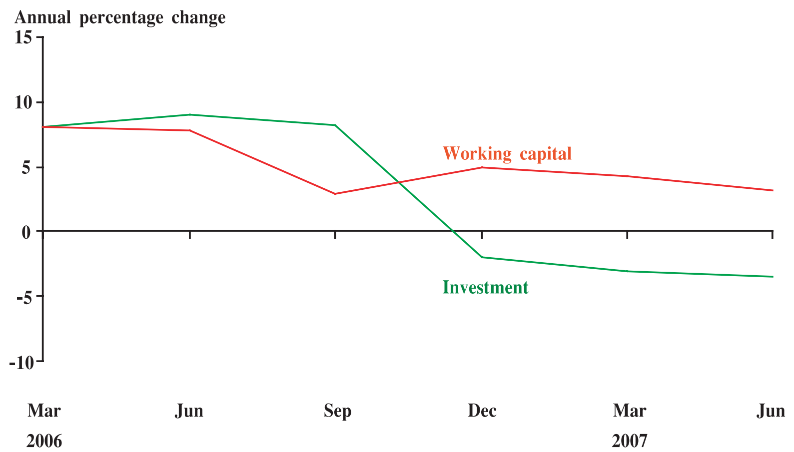
well. On the contrary, credits to the household sector continued to grow at a satisfactory level and was the major component that drove overall credit growth in the private sector. Excluding the effect of loan write-offs and transfers to AMCs, private credits grew by 3.6 per cent in August 2007 , compared to 4.3 per cent in the previous quarter.

Chart 3.9 Contribution to growth of private credits of other depository corporations



Source: Bank of Thailand

Chart 3.10 Commercial banks' corporate credits classified by purpose



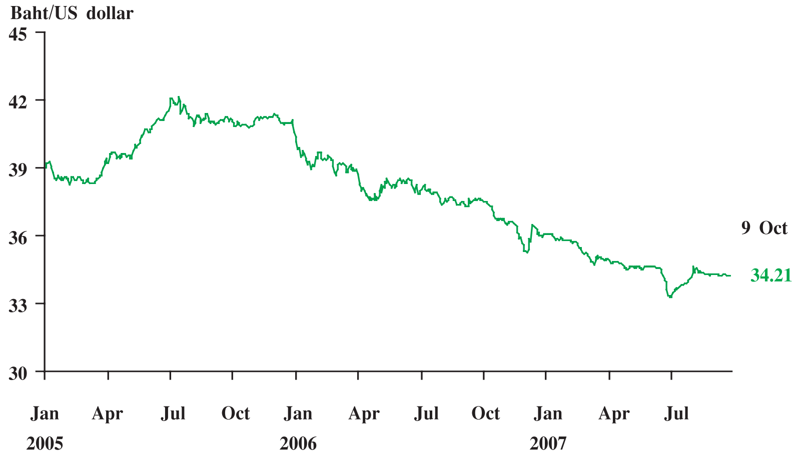
Source: Bank of Thailand

Exchange rates and capital flows

The baht vis-à-vis the US dollar was relatively volatile at the beginning of 2007 Q3, before regaining stability in September.

In 2007 Q3, the baht averaged at 34.06 per US dollar, an appreciation of 1.8 per cent from the previous quarter. The baht was relatively volatile in the first two months of the quarter. In the beginning of July, the baht appreciated rapidly, as a consequence of inflows into the Thai stock market, consistent with capital inflows into stock markets across the region in search for yield. Moreover, a current account surplus contributed to upward pressure on the baht from the continued sale of foreign currencies by exporters. Nonetheless, between the end of July and August, the baht weakened vis-à-vis the US dollar due to foreign investors' concerns over the US subprime market, which led to withdrawals of funds from the region to invest in low-risk assets such as US treasury bills, or the so-called 'flight to quality'. In September, the baht regained stability and fluctuated within a narrow range of 34.2-34.3 baht per US dollar.

Chart 3.11 Exchange rate

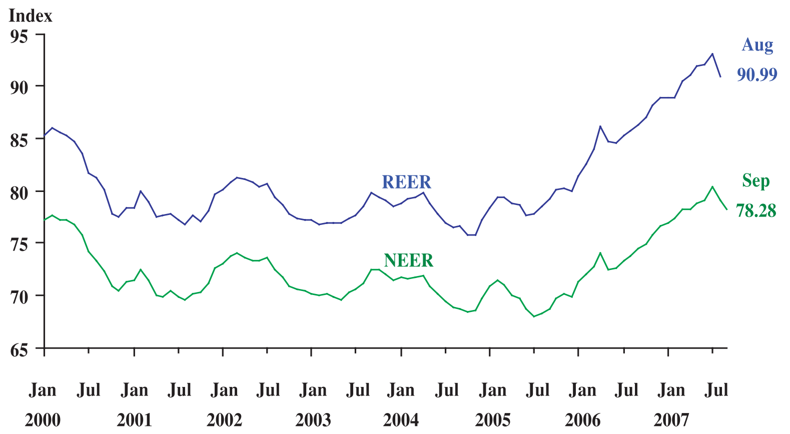


Source: Bank of Thailand

Despite an appreciation against the US dollar, the baht only mildly strengthened vis-à-vis major trading partners and competitors' currencies compared to 2007 Q2.

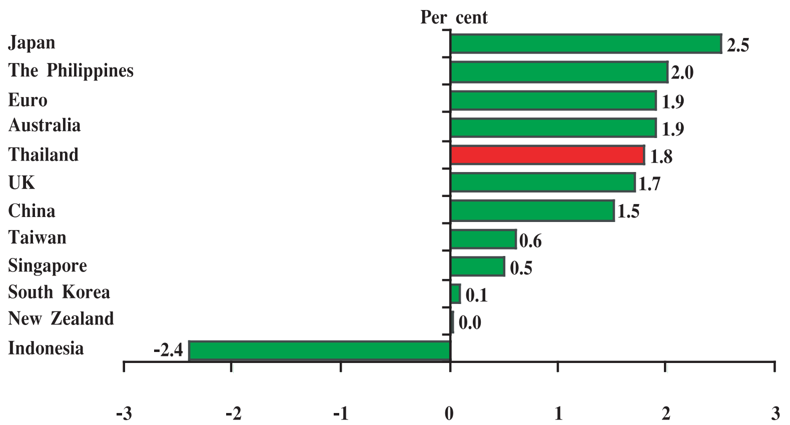
The nominal effective exchange rate (NEER), calculated as a weighted average of bilateral exchange rates between the baht and major trading partners and competitors' currencies, appreciated on average by about 0.7 per cent between 2007 Q2 and 2007 Q3. Although the baht appreciated against the US dollar and other regional currencies, it depreciated against other major currencies such as the Japanese yen and the euro. Meanwhile, the real effective exchange rate (REER), deflated by inflation to reflect Thailand's price competitiveness, appreciated by 0.4 per cent in the first two month of 2007 Q3, up from the average of 2007 Q2. The smaller appreciation of the REER relative to the NEER was due to the smaller increase in domestic prices relative to that of major trading partners and competitors.

Chart 3.12 Nominal effective exchange rate of the Thai baht (NEER)
(Trade - weighted, 1994 = 100)



Source: Bank of Thailand

Chart 3.13 Change in the values of foreign currencies against the US dollar
(average in 2007 Q3 compared with 2007 Q2)

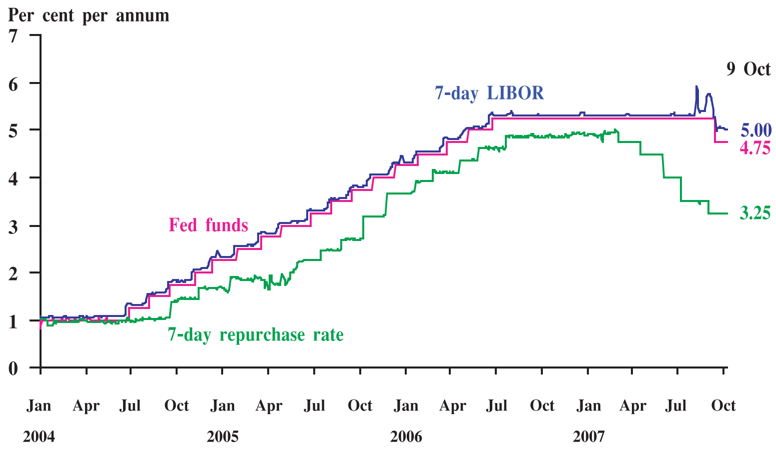


Source: Bank of Thailand

The interest rate differential between the Thai and US policy interest rates registered at 1.50 per cent at the end of 2007 Q3, down from 1.75 per cent at end-2007 Q2. At the beginning of 2007 Q3, however, the interest rate differential registered at 2.00 per cent per annum, given the MPC' s decision to lower the policy rate in July while the US policy rate was unchanged. However, the differential narrowed once the FOMC lowered the Fed funds rate by 0.50 per cent per annum in the meeting on 18 September 2007.

The interest rate differential between the Thai and US policy rates as of end-2007 Q3 was narrower than in the previous quarter.

Chart 3.14 LIBOR, Fed funds rate and Thai repurchase rate



Source: Bank of Thailand

External stability was generally favourable. The current account was persistently in surplus, totaling 1.1 billion US dollars in the first 2 months of 2007 Q3. The accumulated surplus from the beginning of the year up until August registered at 7.4 billion US dollars. Current account surplus and private capital inflows such as Foreign Direct Investment (FDI) and investment in the stock market (as appears under “Others” in Table 3.2) were important attributes to a continued appreciation of the baht, particularly in July.

Current account surplus and capital inflows were important factors that exerted upward pressure on the baht.

Table 3.2 Balance of payments

Unit: Billion US dollars	2006	2006		2007[P]				
		H1	H2	Q1	Q2	Jul	Aug	Jan-Jul
Current account balance*	2.2	-1.6	3.8	5.0	1.4	0.4	0.7	6.7
Net capital flows*	5.7	4.7	1.0	-2.7	0.9	-0.7	n.a.	-2.5
Bank of Thailand	0.4	0.3	0.1	0.2	-0.9	0.1	n.a.	-0.7
Public	-0.6	-0.2	-0.4	-1.0	-0.9	0.0	n.a.	-1.9
Bank	-7.4	-4.1	-3.3	-4.7	-1.3	-2.0	n.a.	-8.0
Others	13.3	8.8	4.5	2.8	4.1	1.1	n.a.	8.0
Balance of payments	12.7	4.7	8.1	3.3	2.3	0.2	0.2	5.9

Note: * Reinvested earnings are recorded as part of direct investment in the financial account, and its contra entry recorded as 'investment income' in the current account
P = Preliminary
Source: Bank of Thailand

The sustained surplus in the balance of payments resulted in a continued accumulation of international reserves. As of end-2007 Q3, international reserves stood at 80.7 billion US dollars, up from 73.0 billion US dollars at end-2007 Q2. When combined with the BOT's net forward position, free reserves increased to 93.5 billion US dollars. Meanwhile, external liquidity indicators remained favourable, with the ratio of international reserves to short-term external debt registering at 3.5 as of end-July 2007.

4. Financial Stability Conditions and Outlook

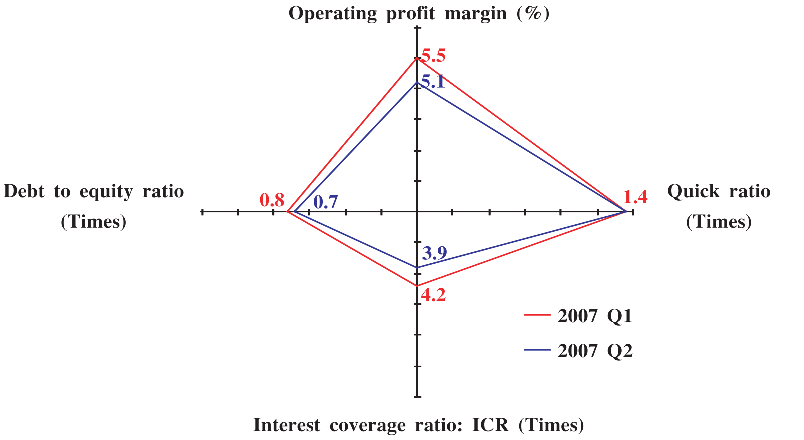
The economic slowdown during the previous period raised the financial vulnerability of the corporate and household sectors as well as of financial institutions. Despite satisfactory overall stability, the corporate sector saw a decline in their debt service ability in 2007 Q2, while the household sector witnessed a higher rate of loan delinquency among the low- to medium-income groups, which was consistent with some deterioration in the credit quality of financial institutions. At the same time, the problems in the US subprime market raised the volatility of international investment flows and the global financial system, hence adding risks to Thailand's overall macroeconomic and financial stability.

Non-financial corporate sector

A decline in profitability and the ability to service debt raised the corporate sector's vulnerability.

Judging from companies listed on the Stock Exchange of Thailand (SET) in 2007 Q2, the financial status of the overall corporate sector remained strong, as reflected by the low debt to equity ratio and ample liquidity. Nevertheless, their profitability and ability to service debt generally declined, signalling higher vulnerability. Incidentally, most firms that reported lower operating profit margins were highly dependent on exports but at the same time had low import content. With an ongoing

Chart 4.1 Corporate performance indicators*



Note: * Median of financial ratios from non-financial companies listed on the Stock Exchange of Thailand (SET)
Source: Stock Exchange of Thailand, calculations by Bank of Thailand

appreciation trend of the baht, this group of firms had to confront more intense cost and price competition while reaping modest benefits from lower costs of imported inputs.

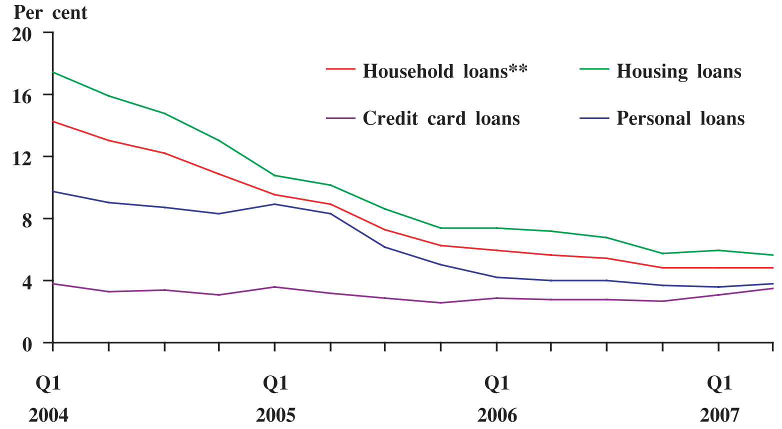
Going forward, continued volatility in the global financial market, higher oil prices, and political uncertainty, especially uncertainty surrounding the new government's policy direction following the general election in December 2007, remained major risks to the economic recovery and corporate sector profitability. However, the strong financial structure and recent monetary policy accommodation should reduce financial costs and facilitate investment decisions of the corporate sector, thus helping to boost the economic recovery.

Household sector

The NPL ratio remained low for consumer credits, and households appeared to be more cautious in their spending due to subdued confidence.

Overall stability of the household sector remained sound, as indicated by the relatively low rate of non-performing loans (NPLs) in consumer credits. At the same time, most households adopted a more cautious spending behaviour, as reflected by a deceleration in the growth rate of cash advances as well as spending through bank and non-bank credit cards, due to a lack of confidence in both the current economic conditions and future earnings. Furthermore, the slowdown in growth of outstanding credit card balances relative to total credit card spending indicated greater effort of the household sector in repaying debt as well

Chart 4.2 Ratio of households' non-performing loans to total loans of commercial banks*, classified by purpose



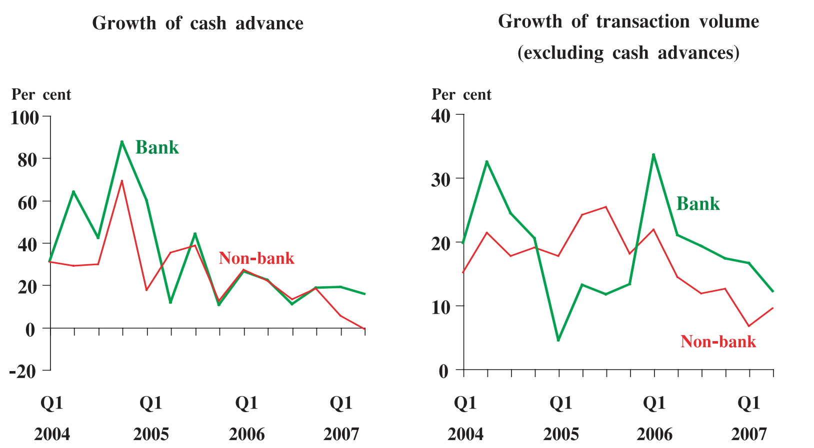
Note: *Commercial banks are Thai commercial banks and foreign bank branches.
**Household loans comprise housing loans, credit card loans, and personal loans.
Source: Bank of Thailand

as in restraining new debt accumulation, especially in the non-bank sector.

The household sector remained sound on the whole, but low-income households showed signs of increased financial fragility.

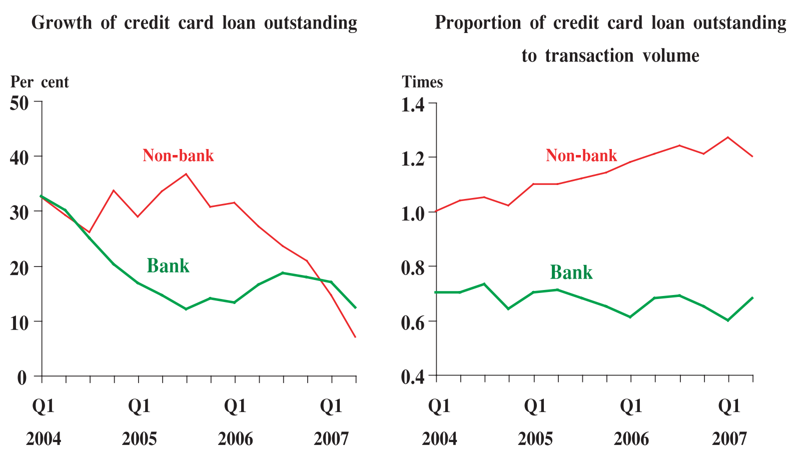
Nevertheless, some income groups showed signs of increased financial difficulty, particularly through the decrease in quality of credit card loans and personal loans. In particular, the ratio of “special-mention”[1/] loans for low- to medium-income households continued to increase from the previous quarter. At the same time, the past-due period

Chart 4.3 Credit card activities (1)



Source: Bank of Thailand

Chart 4.4 Credit card activities (2)

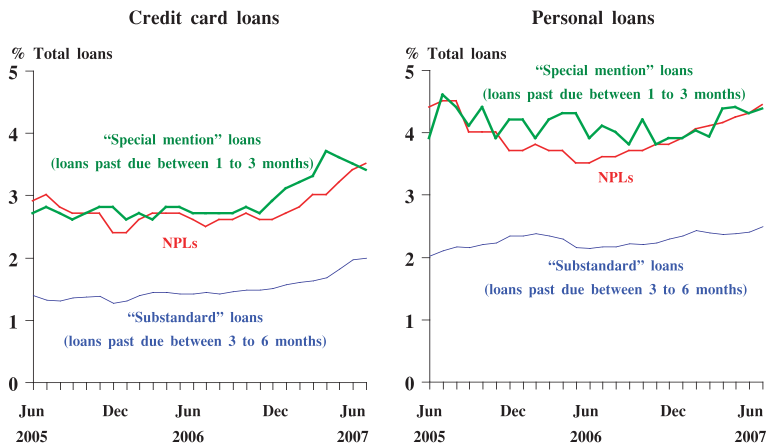


Source: Bank of Thailand

[1/] Loans past due between 1 to 3 months lengthened and the ratio of "special-mention" loans turning into sub-standard[2/] loans also rose, most evidently for households with monthly income of not more than 5,000 baht.

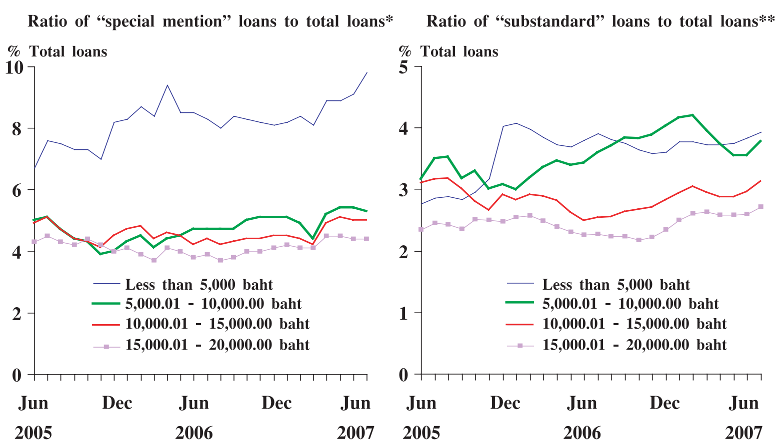
Although the ratio of past-due household loans to total loans of financial institutions remained low, a prolonged economic slump could aggravate the financial stress on households and thus the overall macroeconomic vulnerability. The MPC thus deemed it important to monitor this issue closely.

Chart 4.5 Ratio of past due loans and NPLs to total loans*



Note: *Bank and non-bank loans under the BOT's supervision
Source: Bank of Thailand

Chart 4.6 Personal loans by income group



Note: * loans past due between 1 to 3 months
** loans past due between 3 to 6 months
Source: Bank of Thailand

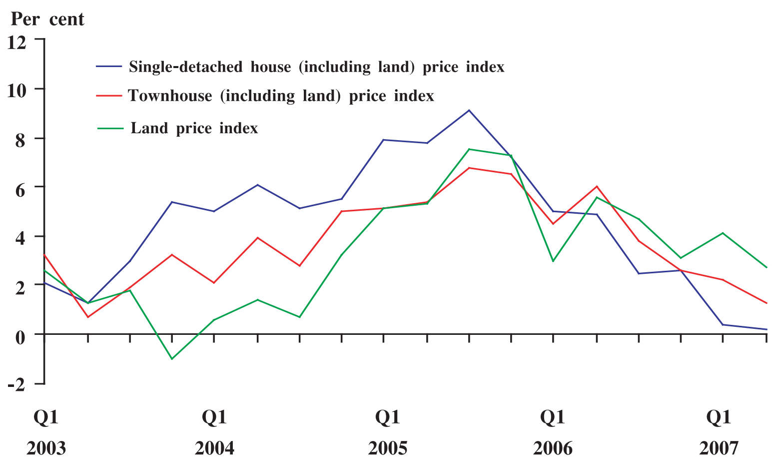
2/ Loans past due between 3 to 6 months

Real estate sector

In 2007 Q2, all property prices continued to decelerate in line with subdued real estate activities. Therefore, the MPC judged that the probability of real estate bubbles should continue to be low. Although there was burgeoning demand for condominiums in the downtown district and along both the present and future routes of the mass transit system, such demand was considered to be real demand by real estate developers, who also took the view that speculative transactions were not yet a concern.

In 2007 Q2, property prices continued to decelerate.

Chart 4.7 Housing price indices



Source: Bank of Thailand, computed using the Government Housing Bank appraisal database

Financial institutions

In 2007 Q2, the Financial Soundness Indicators in accordance with the IMF's *Financial Soundness Indicators Compilation Guide* (March 2006) suggested a strong overall position of the banking sector despite some deterioration in its credit quality. While there was also a decline in the ratio of capital to risk-weighted assets, it still stood well above the international standard. The banking sector's profitability meanwhile remained satisfactory, as reflected by favourable operating profits. However, loan loss provisions in keeping with the International Accounting Standards (IAS 39), which must be met by the end of this

A net loss of Thai commercial banks in 2007 Q2 was mainly due to loan loss provisions in keeping with the new accounting standard, which should promote stability of financial institutions in the long- run.

Table 4.1 Thailand's Financial Soundness Indicators (June 2007)[1/]

Key indicators (%)	2004	2005	2006	2007	
	Dec	Dec	Dec	Mar	Jun
1. Capital adequacy					
1.1 Regulatory capital to risk-weighted assets (8.50)[2/]	11.94	13.22	13.59	13.85	12.88
1.2 Regulatory tier 1 capital to risk-weighted assets (4.25)[2/]	8.71	9.95	10.70	11.03	10.98
2. Asset quality					
2.1 Non-performing loans to total loans	11.94	9.06	8.07	8.17	8.46
3. Earning and profitability					
3.1 Return on assets (ROA)	1.25	1.36	0.77	1.06	0.51
3.2 Interest margin[3/] to gross income[4/]	67.3	72.8	72.5	71.3	71.9
3.3 Non-interest expenses to gross income	53.9	52.7	56.8	56.0	54.3
4. Liquidity					
4.1 Liquid assets[5/] to total assets	25.0	24.3	26.2	27.8	27.1
4.2 Liquid assets to short-term liabilities[6/]	29.9	29.9	32.7	34.7	34.4
Number of banks	12	14	14	14	14

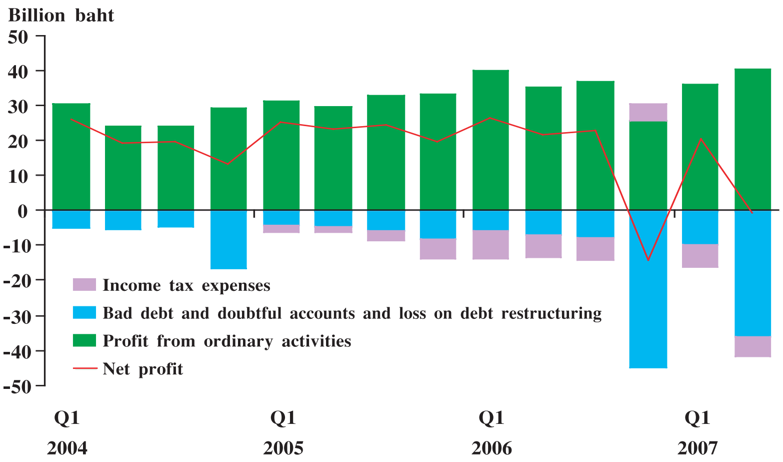
Note: [1/] Based on "Peer Group" data
[2/] Minimum regulatory capital to risk-weighted assets
[3/] Interest margin = Interest income and dividend - Interest expenses
[4/] Gross income = Interest margin + Non-interest income
[5/] Liquid assets = Cash and deposits + Securities purchased under resale agreements + Investment in securities (net)
[6/] Short-term liabilities = Deposits (Liability side)
Source: Bank of Thailand

year, as well as the slight increase in NPLs led to a small net loss in 2007 Q2. Nevertheless, the new accounting standard should foster stability of financial institutions in the long-run and help cushion risks from a deterioration in credit quality, both from the corporate and household sectors as mentioned earlier.

The problems in the US subprime market had little direct impact on Thai commercial banks, but their indirect impact could materialise and thus should be closely monitored.

The direct impact of the problems in the US subprime market on Thai commercial banks had been modest as investment exposure to real estate-related instruments, such as Collateralized Debt Obligations (CDOs), were minimal relative to the size of total assets and the regulatory capital to risk-weighted assets of commercial banks. However, the MPC viewed that the US subprime problem could have indirect effects on Thai banks through a deterioration in credit quality, especially of loans to export-oriented sectors, should the US economy slow down more than expected and have a significant implication on exchange rate volatility. Therefore, the MPC deemed it important to monitor this channel of impact going forward.

Chart 4.8 Performance of Thai commercial banks*



Note: *Based on data of 18 Thai commercial banks
Source: Bank of Thailand

Financial markets

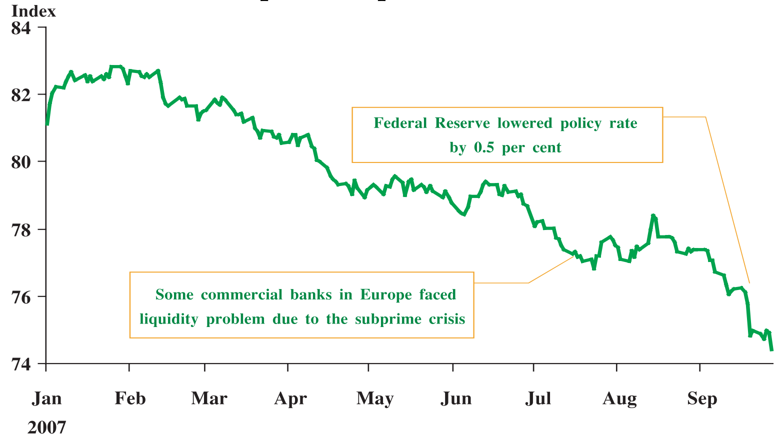
In 2007 Q3, external factors, mainly global investors' concerns over the US subprime market and the subsequent turbulence in the global financial markets, had a strong impact on Thai financial markets. At the same time, domestic factors such as political uncertainty and market uncertainty regarding the direction of the policy rate and the relaxation of capital flow measures also contributed to heightened financial market volatility.

Foreign exchange market

Movements in major currencies became more volatile as a result of the problems in the US subprime market.

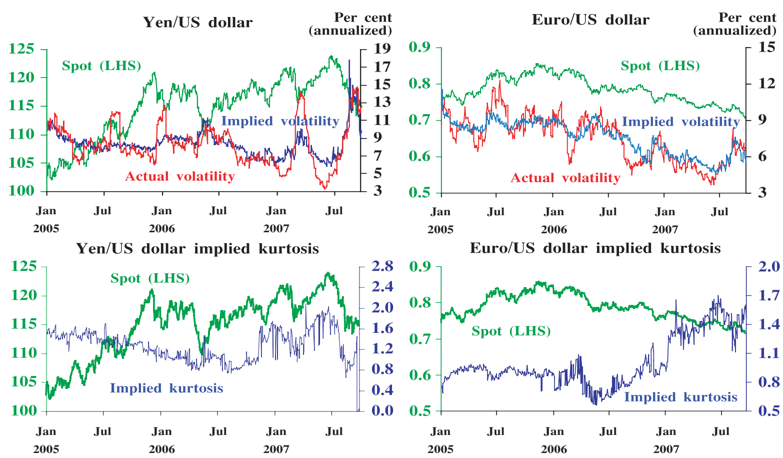
In 2007 Q3, movements in the US dollar became much more volatile owing mainly to problems in the US subprime market. Around mid-July, the US dollar rebounded from a flight to quality as foreign investments in emerging markets were withdrawn and moved back to safe havens when signs of trouble in the US subprime market escalated. However, in September investors became more fearful that the problems could result in a marked slowdown of the US economy and thus shifted their investments back to emerging markets while the US dollar resumed a depreciation trend. In addition, the decision by the Fed to lower the Fed funds rate by another 0.5 per cent per annum on 18 September 2007, to ameliorate the impact of the problems from the subprime market, caused the US dollar to weaken quickly against other currencies.

Chart 4.9 Trade weighted dollar index (up to 28 September 2007)



Source: Bloomberg

Chart 4.10 Volatility of major currencies

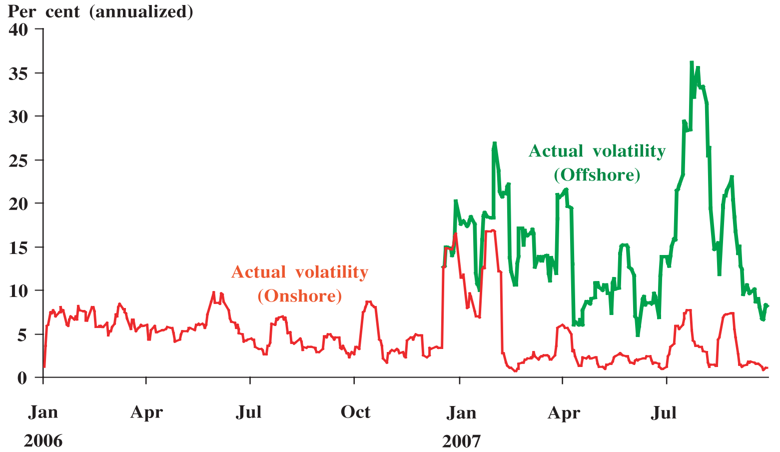


Source: Bloomberg

Actual and expected movements of the Japanese yen and the euro vis-à-vis the US dollar became more volatile in line with shifts in investors' risk appetite and international capital flows. Implied kurtosis, an indicator of the probability of drastic movements of a currency, stayed elevated for the euro as the market expected a further appreciation against the US dollar given the ongoing economic expansion in the euro area. Meanwhile, the yen was likely to remain volatile due to sharp fluctuations in carry trade transactions.

With regard to the domestic foreign exchange market, volatility of the baht in the onshore market rose significantly as the currency strengthened significantly in early July before weakening shortly after, as problems in the US subprime market intensified. Nevertheless, the fluctuation of the onshore baht subsided towards the end of the quarter, while the offshore baht continued to be volatile with a fairly thin trading volume.

Chart 4.11 Baht option-implied volatility (up to 28 September 2007)



Source: Bloomberg

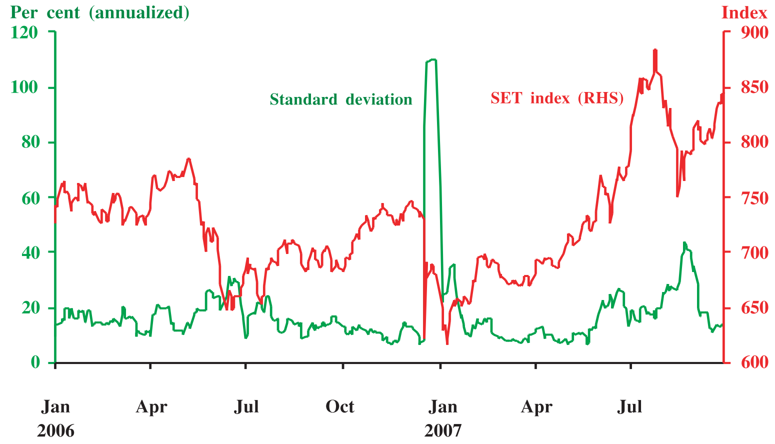
Thai equity market

The SET index rose but was a bit volatile due to capricious foreign investments.

In 2007 Q3, the SET index rose from the previous quarter, reaching a level of 884.16 points in July due mainly to net foreign purchases. Moreover, the stock market was boosted by the favourable result of the referendum on the new Constitution and the continued easing of the policy interest rate.

In early August, however, market concerns over problems in the US subprime market prompted foreign investors to sell off Thai stocks, but inflows soon resumed once the concerns subsided by September. As a result, the Thai stock market picked up gradually, but still closed the quarter below its earlier peak in July.

Chart 4.12 Volatility in the Thai stock market



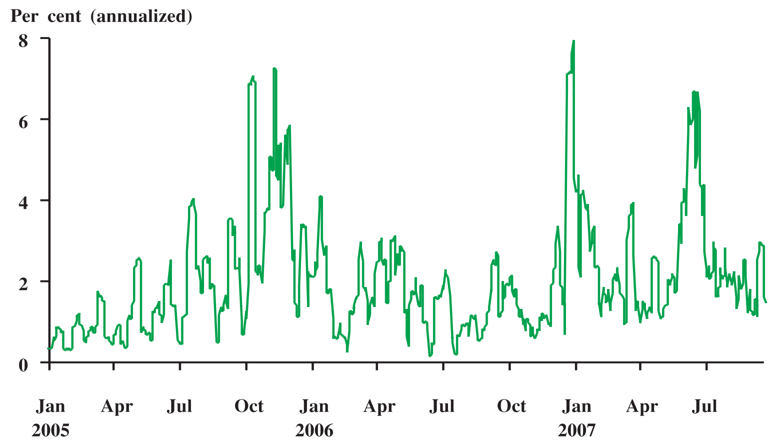
Source: Stock Exchange of Thailand, calculations by Bank of Thailand

Thai government bond market

The Thai government bond market remained volatile, in line with shifts in market expectations of the policy interest rate, as well as problems in the US subprime market.

In 2007 Q3, the Thai government bond market remained volatile due to both external and domestic factors. They included shifts in market expectations of the monetary policy direction both in Thailand and in the US, heightened concerns of investment risks in emerging markets as the problems in the US subprime market intensified, and a slightly clearer picture of the domestic political situation. On the whole, however, bond market volatility was slightly less than in the previous quarter.

Chart 4.13 Volatility in the Thai government bond market



Source: Thai Bond Market Association, calculations by Bank of Thailand

In sum, even though financial market volatility generally rose and the recent economic slowdown raised some aspects of financial fragility, the corporate and household sectors as well as financial institutions all demonstrated financial strength and resiliency in sustaining shocks. In particular, the financial position of the corporate sector was quite sound, while households' debt accumulation moderated and debt repayment accelerated. At the same time, financial institutions became more vigilant in their credit extension. As for the impact of the problems in the US subprime market, latest data indicated a limited impact on the Thai economy. Nevertheless, the MPC viewed that the issue had the potential to escalate and thus a material risk to Thai financial markets remained. The issue should thus be monitored closely, including its indirect impact on the real sector of the Thai economy via the slowdown of the US and world economies.

5. Inflation Outlook

In 2007 Q2, domestic demand expanded by less than the MPC had anticipated, particularly in private consumption. Nevertheless, private investment began to show signs of improvement after investors' concerns over uncertainties started to subside. Moreover, preliminary domestic demand indicators for 2007 Q3 showed that private consumption began to improve while private investment continued to adjust higher. The MPC thus assessed that recovery in domestic demand would continue and become more evident given various supporting factors including political clarity, continuation of economic policy, low inflation and more accommodative monetary policy. Such recovery would be in line with the assessment in the previous *Inflation Report* (July 2007).

For the rest of this year, exports of goods and services were expected to slow down along the same direction and magnitude as previously projected, in line with the assumptions on trading partners' economies that remained unchanged overall. Meanwhile, imports of goods and services were expected to be lower than previously projected due to slower-than-expected recovery in domestic demand. As a result, the current account was expected to register a slightly higher surplus in 2007 compared with the previous forecast.

To some extent, inflation that remained low and monetary policy that became more accommodative compared with the previous year would help maintain purchasing power and stimulate domestic demand, especially once a recovery in sentiment occurred. Moreover, a continued boost from public spending should gradually play a larger role in supporting growth. Overall, the MPC assessed that for 2007 and going forward next year, the economy would grow in line with the forecasts of the previous *Report*.

Price pressure continued to ease in 2007 Q3 where headline inflation came in at a lower rate than the MPC's projection. This was due to lower-than-expected prices of raw foods as a result of higher-than-expected supply of vegetables and fruits. Retail oil prices were also lower than expected, owing partly to the stronger baht which helped make oil imports cheaper and also partly to lower marketing margins. Moreover, softer-than-expected domestic demand limited price adjustments.

Going forward, supply-side pressures would increase in line with prices of oil, transport fares and farm produce as well as possible upward adjustments of cooking gas prices and excise taxes on cigarettes and alcohol. At the same time, demand-side pressures remained mild given that recovery in domestic demand had only just begun. As such, price adjustments would be gradual. Moreover, price administration measures that continued to be stringent coupled with an appreciating trend in the baht in line with regional currencies should partly alleviate the impact of rising world prices on import prices. Thus, the MPC assessed that headline and core inflation in 2007 would remain close to the previously projected trend. As for 2008, headline inflation was expected to accelerate by slightly more than previously projected.

In the economic and inflation projections for the upcoming periods, the MPC exercised caution in considering the assumptions used. The projections below are presented as fan charts, which are obtained from the macroeconometric model with the incorporation of the MPC's judgments. The fan charts reflect uncertainties surrounding a range of events and are under the assumption that the policy interest rate stays at the current level of 3.25 per cent per annum from 2007 Q4 to 2009 Q3, similar to the level assumed in the previous *Report*. The assumption is consistent with the decisions in the MPC meetings on 29 August and 10 October 2007 to maintain the policy rate.

Forecast assumptions

In forming economic and inflation forecasts for the next 8 quarters, the MPC needed to make the most plausible baseline assumptions on various factors including international economic and financial conditions, world commodity prices, and fiscal conditions. These assumptions are summarised below.

International economic and financial conditions

Overall, the global economy was expected to expand favourably in 2007, because even though the US economy was likely to slow down further due to the subprime problem, Asian economies, particularly China and India, continued to expand robustly. However, the MPC viewed that the subprime problem would prolong into 2008 and would likely lead to lower than previously anticipated output growth in the US. As a result, the MPC expected that the global economy in 2008 would decelerate only slightly from 2007, as Asian economies should continue to grow strongly.

The **US** economy grew by 1.9 per cent year-on-year in 2007 Q2, lower than previously anticipated by the MPC. Furthermore, risks to the US economy increased from the subprime problem which was expected to extend to next year (see box for further details). The MPC thus revised down the assumption on US output growth throughout the projection period.

The MPC revised down the assumption on US output growth throughout the projection period.

On 18 September 2007, the FOMC cut the Fed funds rate and Discount rate by 0.5 per cent to 4.75 and 5.25 per cent, respectively. This followed the previous Discount rate cut of 0.5 per cent on 17 August 2007. Meanwhile, even though commodity prices, particularly oil prices, were on a rising trend, the economic slowdown would likely ease price pressure in the US. This would allow the FOMC to cut the Fed funds rate further to help alleviate adverse effects from the subprime problem on the economy and financial market. The MPC thus viewed that the FOMC would cut the Fed funds rate further by 0.25 per cent in 2007 Q4 and would maintain this rate throughout the projection period.

The MPC viewed that the FOMC would slightly cut the Fed funds rate further in 2007 Q4 to help mitigate adverse effects from the subprime problem.

The **euro** area economy grew by 2.5 per cent year-on-year in 2007 Q2, slowing down from the previous quarter's growth rate of 3.2 per cent, but higher than anticipated by the MPC. Meanwhile, labour market conditions were healthy. The MPC thus assumed that for 2007, the euro area economy would grow at the same pace compared with the previous *Report*. Going forward, the MPC viewed that the euro area economy would be affected by the US subprime problem and the continued strengthening of the euro against the US dollar. As a result, the euro area economy was expected to expand more slowly in 2008 than in the previous *Report* before reverting to the same trend in 2009.

In 2008, the euro area economy was expected to expand at a lower rate than previously anticipated due the impact from the subprime problem in the US and the appreciation of the euro.

The **Japanese** economy grew by 1.6 per cent year-on-year in 2007 Q2, decelerating from 2.6 per cent in 2007 Q1, due mainly to the slowdown in private consumption and investment. Meanwhile, inflation continued to average at -0.1 per cent and was expected to remain low going forward. Due to the economic slowdown in the US, Japan's major trading partner, and the stronger yen, the MPC viewed that for the rest of 2007 and 2008 the Japanese economy would expand at a slower rate than anticipated in the previous *Report* before reverting to the previous growth assumptions in 2009.

The MPC revised down slightly the assumption on Japanese economic growth in 2007 and 2008.

The subprime problem and its impact on the economy and global financial markets

Background

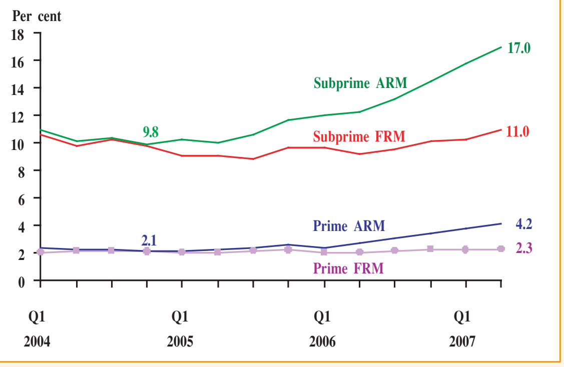
The subprime mortgage market refers to the market where borrowers with low credit scores or insufficient credit documents come to seek loans. The subprime mortgage market has grown significantly since 2004, after US monetary policy was eased to stimulate the economy. In addition, following the rising trend of house prices, lending criteria in the housing market were increasingly relaxed. A number of subprime borrowers received adjustable rate mortgages (ARMs), which accounted for approximately 60 per cent of total subprime mortgages, with a very low and fixed interest rate for the first 2-3 years. However, in subsequent years, these borrowers would then face a floating-rate interest payment.

The subprime problem in the US began to receive worldwide attention in 2007 Q1, given the rapidly rising delinquency rate of subprime ARMs, which increased from 9.8 per cent at the end of 2004 to 17.0 per cent in 2007 Q2. Despite initial concerns about the US economic slowdown, the market viewed that any impact was likely to be limited, as the subprime market was small compared to the total size of the US mortgage market. However, the repercussions from the problems in the subprime market have been felt throughout the global financial market, much more widely than previously expected. The reason for this was that a large portion of mortgage loans were securitized and transformed into more sophisticated debt instruments, such as collateralized debt obligations (CDOs) and credit default swap (CDS). At the same time, ample global liquidity and rising hedge fund activities have contributed to the widespread usage of these instruments, both inside and outside of the US.

Impact on the economy and on the global financial markets

Concern over the subprime problem was heightened towards the end of June 2007, when some hedge funds with subprime backed CDOs faced liquidity problems. Subsequently, financial markets witnessed a downgrade of bonds backed by subprime mortgage securitization and temporary suspension on the redemption of some securities backed by subprime loans. This series of events led to a fall in investor confidence and a sharp rise in financial market volatility across the globe. This resulted in a flight to quality, whereby investors sold off risky assets such as equities and switched to low-risk assets such as government bonds in an attempt to reduce their risk exposure. As a result, stock indices worldwide declined sharply and government yields dipped due to the sudden rise in demand for government bonds. Furthermore, emerging market credit

Chart 1 Delinquency rate

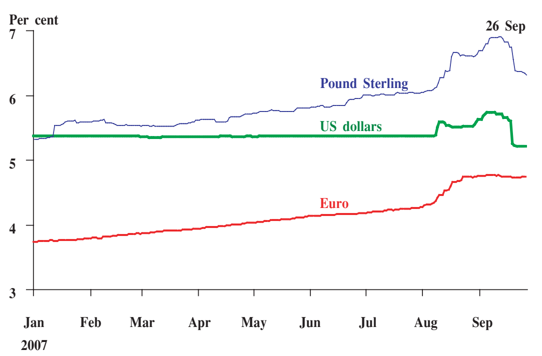


Note: FRM = Fixed Rate Mortgage, ARM = Adjustable Rate Mortgage
Source: Bloomberg

spreads widened significantly. Carry trades[1/] were unwound, causing the yen - a low interest rate funding currency - to strengthen against the US dollar, in stark contrast to the weakening trend from capital outflows experienced previously. Consequently, volatility in the foreign exchange market also increased.

Crucial factors which led to increased market volatility included the mispricing of subprime mortgage risks, and information asymmetry among asset backed financial instrument holders who were unwilling to lend to each other. In other words, the lenders preferred overnight lending to longer maturity lending, as they were unable to accurately assess and identify risk profiles and exposures of borrowers who held assets backed by subprime mortgages. Thus, a liquidity problem occurred, resulting in a rise in the interbank rate as well as a higher cost of issuing short-term notes, despite ample liquidity in the global market.

Chart 2 3-month LIBOR rate



Source: Bloomberg

Several central banks, namely the Federal Reserve Bank, the European Central Bank, the Bank of Japan, and the Reserve Bank of Australia, helped to ease liquidity frictions by entering and injecting liquidity into their money markets in the beginning of August 2007 to avoid a credit crunch. In September 2007, the Bank of England also injected liquidity to ease market conditions. Furthermore, as the lender of last resort, the FOMC cut the Discount rate in August 2007 in order to reduce borrowing costs of financial institutions. This was eventually followed by a cut in the Fed funds rate, as well as another cut in the Discount rate in September 2007 in response to higher risks to US growth. The prompt response of the central banks helped to restore investors' confidence to a certain degree.

However, the International Monetary Fund (IMF) viewed that, at present, as a result of the subprime problem, credit and liquidity risks were significantly higher than in April 2007 while macroeconomic risks were only slightly higher. The subprime problem was expected to extend to next year, as a significant number of ARM loans would enter the floating rate period and house prices were expected to continue to decline further. Therefore, looking forward, it would take a longer time for the housing market to recover. This would contribute to a further economic slowdown in the US.

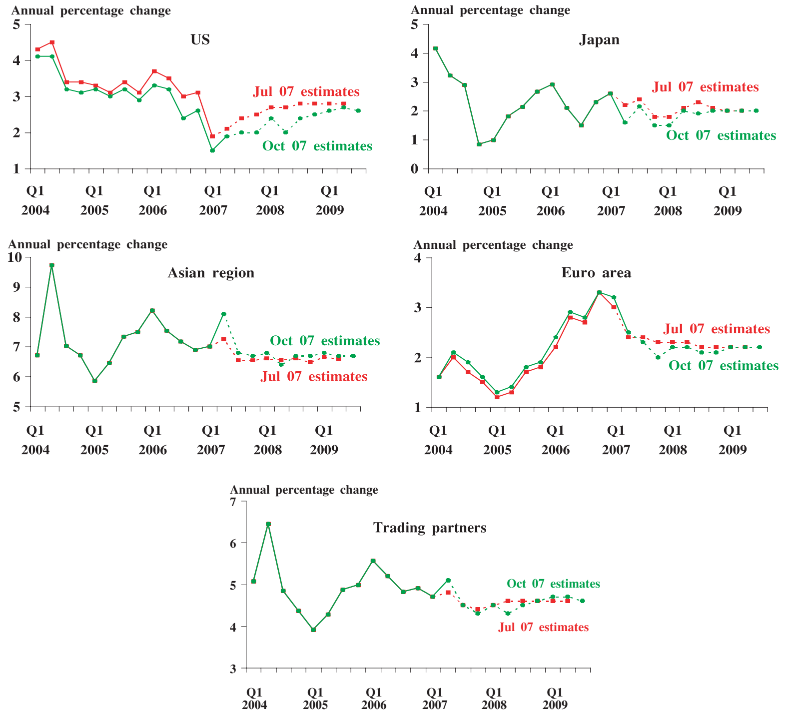
Regarding the subprime impact on other countries, the extent of the direct impact would depend on the amount of subprime assets held in each country and their export shares to the US. Asian countries' financial risk exposures were limited, given their relatively small holdings of subprime related assets, while their exports could be affected more significantly from the slowdown in US demand and foreign exchange instability. In addition, as financial markets became increasingly volatile, capital flows were likely to fluctuate and affect foreign exchange stability.

[1/] Carry trade investment refers to international investment through borrowing from source countries with low interest costs such as Japan at the present in order to invest in countries with high interest rates. This kind of financial transactions exerts currency depreciation pressures on the low interest rate countries. On the other hand, carry trade unwinding means withdrawal of funds from the high interest rate countries to repay debt in the source countries.

The MPC maintained the assumptions on Asian economies for both 2008 and 2009 compared with those given in the previous Report.

In 2007 Q2, the **Asian** economy continued to expand robustly, fostered mainly by strong growth of exports and domestic demand. Given the strong growth momentum, the MPC thus viewed that for the rest of 2007 the Asian economy would grow at a better-than-expected pace than previously anticipated. In 2008, however, the Asian economy would be affected by the slowdown in the US economy and fluctuations in financial markets due to the subprime problem. Overall, it was assessed that the negative impacts would be offset by the strong growth momentum. The MPC thus maintained its assumptions on Asian economic growth for both 2008 and 2009 compared with those given in the previous *Report*.

Chart 5.1 Assumptions on trading partners' growth



Source: Bank of Thailand estimates

Overall, the MPC assessed that in 2007, Thailand's trading partners would continue to expand at the same pace as anticipated in the previous *Report*. For 2008, the US subprime problem which spread out more than expected caused the MPC to slightly revise down growth assumptions of trading partners, but would revert to the same trend as in the previous *Report* in 2009.

In the past periods, most regional currencies appreciated against the US dollar at a slower pace than anticipated in the previous *Report* due to concerns regarding the US subprime problem. These concerns caused international investors to sell off their emerging market assets and shift to low-risk assets in the US and euro markets in order to reduce their risk exposures. The MPC thus assumed that in 2008 and 2009, regional currencies would appreciate at a slower pace than anticipated in the previous *Report*.

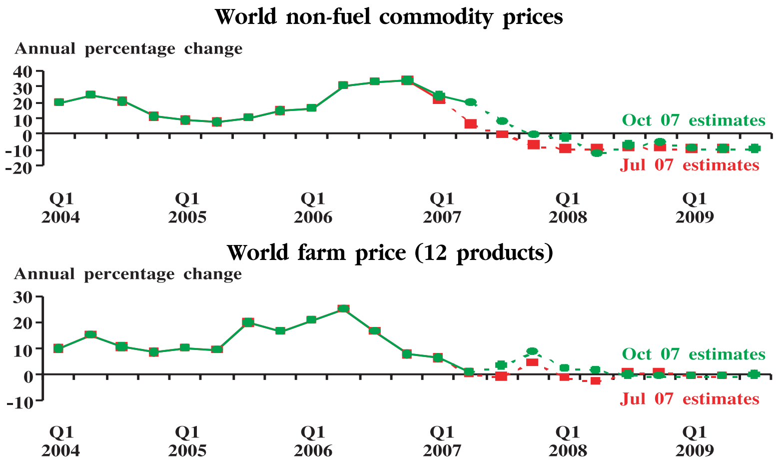
The MPC viewed that regional currencies would appreciate at a slower pace against the US dollar than anticipated in the previous Report.

World commodity prices

Recently, the prices of world non-fuel commodities, both foods and base metals, were at higher levels than previously anticipated due to higher demand for bio-fuel production inputs as well as base metals from China and India. The MPC thus revised up the assumptions on world non-fuel commodity prices and the World Farm Prices Index, consisting of 12 Thai major products, from that assumed previously.

The MPC revised up the assumptions on world non-fuel commodity prices and the World Farm Price Index, consisting of 12 Thai major products.

Chart 5.2 Assumptions on world commodity prices



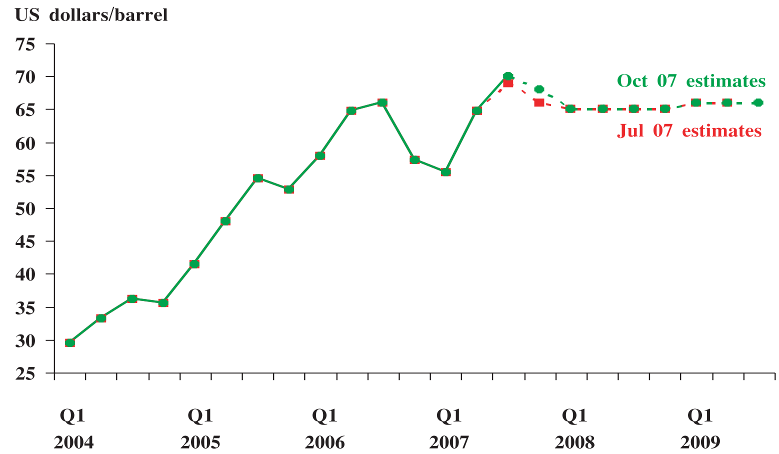
Source: Bank of Thailand estimates

Although world crude oil prices had recently risen significantly, especially due to concerns that the hurricane in the Gulf of Mexico would damage US crude oil pipelines, the MPC viewed that the surge in oil prices would only be temporary. The MPC thus revised up the assumption on oil prices only for 2007 Q4 and maintained the previous assumption for the rest of the projection period. In line with world crude oil price assumptions, the MPC revised up the assumption on

The MPC revised up the assumption on crude oil prices only for 2007 Q4, reflecting the most recent trend. Going forward, the MPC maintained the previous assumption for the rest of the projection period.

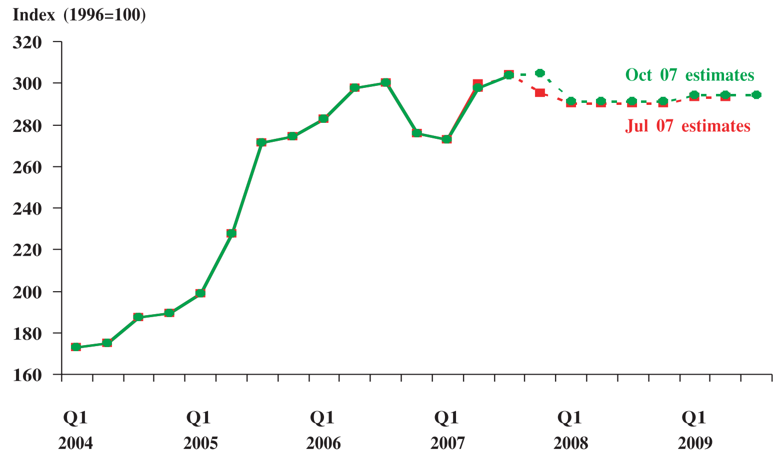
domestic retail oil prices in 2007 Q4 and reverted back to the previous trend in the following periods.

Chart 5.3 Assumptions on Dubai oil price



Source: Bank of Thailand estimates

Chart 5.4 Assumptions on the domestic retail petroleum price index[1/]



Note: [1/]The Retail Petroleum Price Index is calculated from the weighted average of benzene, diesel, LPG fuel, oil and kerosene prices. The weights used are 18, 43, 8, 24 and 0.2 per cent, respectively.

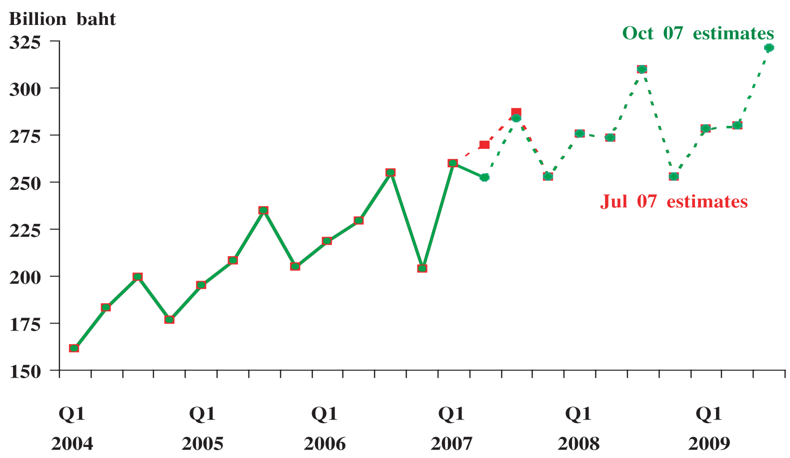
Source: Bank of Thailand estimates

Fiscal conditions

The MPC assumed general government consumption for fiscal years 2007-2009 to be 998.8, 1,111.0 and 1,131.9 billion baht, respectively.

The MPC assessed that in the 2007-2008 fiscal years, general government consumption would reach 998.8 and 1,111.0 billion baht, respectively. The figure for fiscal year 2007 was revised downwards by 21.0 billion baht owing to higher-than-expected subsidies and transfers to various funds which caused current government expenditure to be less than the level assumed in the previous *Report*. However, general government consumption for fiscal year 2008 remained unchanged. As for fiscal year 2009, the MPC expected that general government consumption would reach 1,131.9 billion baht, increasing from the previous fiscal year.

Chart 5.5 Assumptions on general government consumption



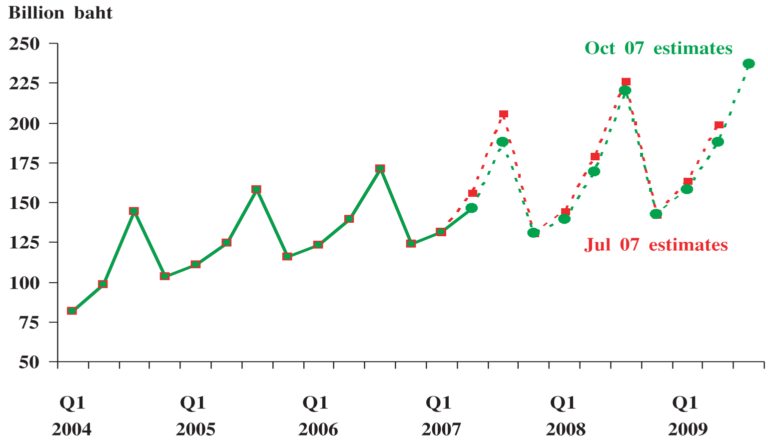
Source: Bank of Thailand estimates

The MPC expected public investment for fiscal years 2007-2009 to be 587.5 659.4 and 725.4 billion baht, respectively.

With regards to public investment, consisting of investments by the general government and state-owned enterprises, the MPC revised the assumptions on general government investment in fiscal year 2007 slightly downwards to 307.5 billion baht, declining by 29.5 billion baht as a result of lower-than-expected disbursements from carry over. However, general government investment for fiscal year 2008 was expected to remain unchanged at 373.0 billion baht. As for fiscal year 2009, the MPC assumed a level of general government investment of 410.4 billion baht.

As for investment by state-owned enterprises, the MPC used the assumptions of 280.0 and 286.4 billion baht for fiscal years 2007 and 2008, respectively. While the figure for fiscal year 2007 was unchanged, that of fiscal year 2008, which was previously assumed to grow according to trend, was revised downwards by 21.6 billion baht in line with the new state-owned enterprises budgetary framework approved by the Cabinet on 11 September 2007. This new information was also used to arrive at the fiscal year 2009 assumption on investment by state-owned enterprises of 315.0 billion baht.

Chart 5.6 Assumptions on public investment



Source: Bank of Thailand estimates

As a result, overall public investment for fiscal years 2007 and 2008 stood at 587.5 and 659.4 billion baht, respectively, declining in both years compared with the previous assumptions of 617.0 and 681.0 billion baht, respectively. As for fiscal year 2009, public investment was expected to be around 725.4 billion baht.

Assumptions on minimum wages

The MPC revised assumptions on minimum wages for 2008 downwards.

Assumptions on minimum wages were revised downwards consistent with preliminary information that the Central Wage Committee would approve an increase in the minimum wage for Bangkok and its surrounding provinces in 2008 from the current rate of 191 baht to 193 baht, or equivalent to a 1.1 per cent growth rate. Such an increase was lower than the previously assumed rate of 2.1 per cent, which was consistent with the headline inflation forecast for 2007. As for 2009, the MPC assumed that minimum wages would increase by a further 1.6 per cent, which was consistent with the headline inflation forecast for 2008.

Assumptions on inventory accumlation

Despite signs of improvement in manufacturing production which should lead to inventory accumulation in order to support recovery in domestic demand going forward, previous patterns suggested that a run-down would normally occur in the third quarter due to seasonal factors. The MPC thus assumed that a run-down would continue from the first two quarters of this year into 2007 Q3. However, from 2007 Q4 onwards until the end of the projection period, the MPC assumed that inventory accumulation would begin to reflect an economic recovery, in particular recovery in domestic demand. As a result, there would be inventory accumulation in some quarters. Under this assumption, inventory accumulation would have a positive contribution to GDP in some quarters.

Output and inflation projections

Output projection

Latest data from the NESDB showed that the Thai economy in 2007 Q2 grew by 4.4 per cent year-on-year, a slight acceleration from the 4.2 per cent year-on-year growth recorded in 2007 Q1 and in line with the MPC's expectations. Exports continued to expand well and acted as the main engine of growth for the economy together with support from higher public spending. Moreover, a smaller contraction in private investment indicated a good sign for future recovery. Nevertheless, private consumption expanded slightly lower than expected, reflecting remaining concerns of consumers over various uncertainties.

Preliminary economic indicators for 2007 Q3 reflected a gradual recovery in domestic demand. However, the recovery might not be obvious because consumers remained concerned about political uncertainties and the overall economic situation, reflected by a continued decline in consumer confidence during the previous periods. As a result, consumers refrained from increasing their consumption, especially that of durable goods, even though purchasing power remained intact as a result of lower inflation. Meanwhile, private investment showed signs of continued improvement, with firm recoveries registered for some investment categories, such as machinery and parts, partly because investors seemed to be more optimistic about the unwinding of uncertainties compared to consumers. However, overall private investment was not expected to fully recover until early next year, especially businesses with large investment projects given that public spending played a smaller role in stimulating private investment than expected. As a result, during the gradual recovery in domestic demand, exports would continue to help support growth going forward.

In this *Report,* the MPC assessed that the prospects of the Thai economy would remain more or less the same as in the previous assessment. In other words, the MPC deemed that the Thai economy would slowly recover during the latter part of 2007 and would recover more fully early next year, in line with private domestic demand. However, latest data from the NESDB, which showed that some components were lower than previously expected led the MPC to revise forecasts of individual GDP components as follows.

Private consumption was expected to be lower than previously projected in 2007 but would trend towards the previous growth path in 2008. Meanwhile, private investment was expected to grow at a pace similar to the previously projected trend.

Private consumption in 2007 was expected to be lower than previously projected as a result of latest data revision. Nevertheless, greater political clarity and a stimulus on private spending from preparations for the general election at the end of this year should shore up consumer confidence going forward. This, coupled with the accomodative monetary policy stance and the continued decline in inflation which helped maintain purchasing power led the MPC to view that private consumption should continue to recover and trend towards the previously projected growth path in 2008.

Private investment in 2007 was expected to grow at a similar rate to that previously projected. This was in line with actual data for 2007 Q2 which showed a less-than-expected contraction in private investment due to improvements in investor confidence following the referendum on the draft Constitution in August. Moreover, private investment should continue to recover until the end of 2007, supported by greater political clarity following the general election. As for 2008, the formation of a new government that would lead to a more favourable investment climate, coupled with public spending which was expected to be higher than 2007, would help stimulate private investment further. The MPC thus assessed that private investment would accelerate strongly after long delays for many projects, especially those of large investment projects. Such acceleration in private investment was similar to that projected previously.

Exports of goods and services in 2007 were expected to grow at a rate similar to the previous projection but would trend slightly lower in 2008. Meanwhile, imports of goods and services were expected to be lower than previous forecasts throughout the entire projection period.

Exports of goods and services in 2007 were projected to expand at a rate similar to that previously projected, in line with assumptions on trading partners' economic growth. Despite downward revisions of the assumptions on US and Japan economic growth, prospects for Asian economies were brighter. This, coupled with a less-than-expected appreciation in the baht which would help maintain competitiveness of Thai exports, led the MPC to maintain the previous forecasts of exports of goods. Meanwhile, exports of services were expected to be lower than previously projected as some tourists were still concerned about the political situation as well as the unrest in southern provinces, as indicated by lower-than-expected growth in the number of foreign tourists in both 2007 Q2 and 2007 Q3. As for 2008, it was expected that exports would continue to slow down in line with assumptions on trading partners' economic growth which was adjusted downwards, especially that of the US, partly as a result of problems in the subprime market which could be prolonged. The slowdown in trading partners' economies together with higher assumptions on farm and commodity prices led the MPC to slightly revise down the projections on exports of goods and services from the previous projection.

Imports of goods and services were expected to grow at a slower pace than previously projected for the rest of 2007. This was in line with a downward revision in domestic demand projection and higher-than-expected import prices due to rising commodity prices and a less-than-expected appreciation in the baht. As for 2008, the MPC deemed that imports would accelerate in line with the economic recovery but at a slower pace than previously projected. This was because even though domestic demand was expected to accelerate, many large investment projects would still be in their early phases, thus imports of machinery and equipments would not expand by much. Moreover, a downward revision in the growth of exports of goods and services would also cause the imports of goods and services to grow by less than previously projected.

The current account balance in 2007 was expected to register a higher surplus than previously projected. However, the surplus was expected to decline in 2008.

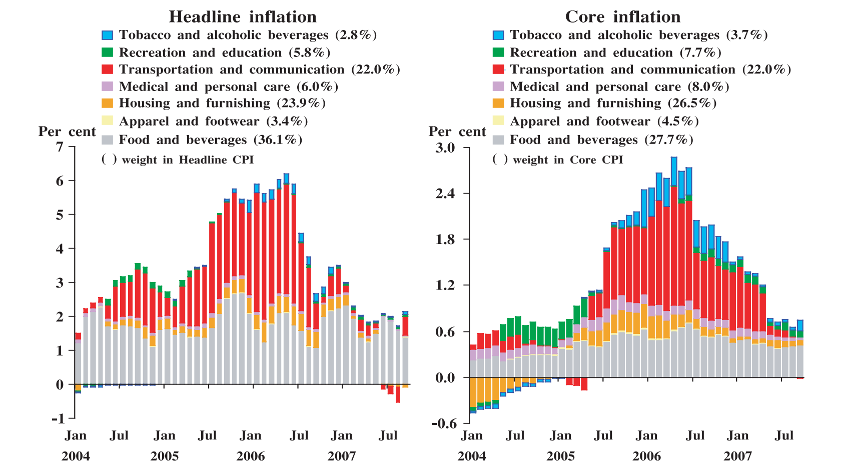
Given that exports would grow at a rate similar to that previously projected while imports were expected to be below the previous projection in 2007, the MPC assessed that the **current account balance** (including reinvested earnings) would register a slightly higher surplus than previously projected. However, the aforementioned surplus would decline in 2008 due to a slowdown in exports while imports, although lower than previously projected, were expected to accelerate from the previous year.

Inflation projection

Headline inflation in 2007 Q3 averaged at 1.6 per cent, slowing down by more than the MPC's expectations in the previous *Report*. Meanwhile, core inflation stood at 0.8 per cent as projected. The lower-than-expected headline inflation resulted mainly from lower-than-expected prices of raw foods and oil. Moreover, month-on-month seasonally adjusted headline inflation was negative during the first two months of this quarter, indicating that inflationary pressure declined from the previous quarter. Nevertheless, month-on-month seasonally adjusted headline inflation became positive again in September as a result of higher domestic retail oil prices and excise tax increases on cigarettes and alcohol.

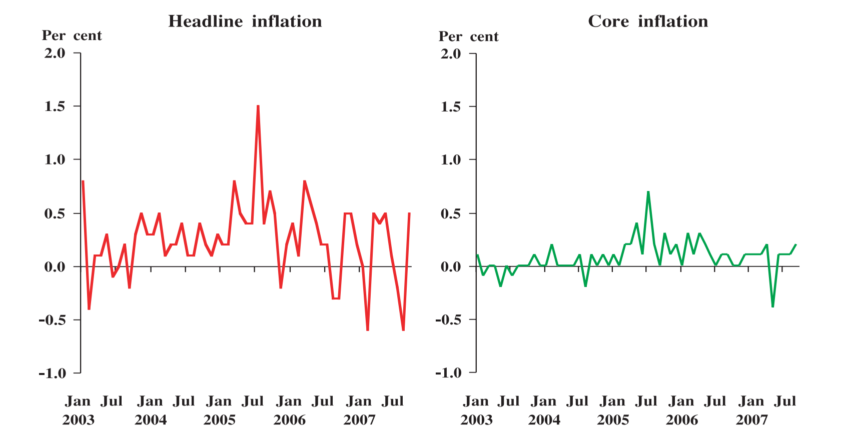
At the same time, month-on-month seasonally adjusted core inflation averaged around 0.1 per cent except in September where it increased to 0.2 per cent as a result of the aforementioned increase in excise taxes. Thus, such a rise in core inflation was more a result of government policy rather than underlying price pressure in the economy. Overall, the MPC viewed that price adjustments remained limited due to weak domestic demand and rather stringent price admistration measures.

Chart 5.7 Contribution to headline and core inflation



Source: Trade and Economic Index Bureau, Ministry of Commerce, calculations by the Bank of Thailand

Chart 5.8 Month-on-month seasonally adjusted headline and core inflation



Source: Calculations by the Bank of Thailand

On top of this, the stronger baht, which helped lower costs of raw materials and imports, meant that businesses also had less reasons to rationalize any upward price adjustment.

Going forward until the end of the projection period, upward pressures on inflation would arise mainly from supply-side factors, namely oil prices especially that of diesel oil, which would be a key determinant of increases in public transport fares and freight, as well as farm and commodity prices that were expected to be higher in line with their new assumptions. In addition, possible increases in cooking gas prices towards the end of 2007 would also have an impact on prices of transportation and food, at and away from home. Meanwhile, demand-side factors such as salary increases of civil servants and state enterprise employees that would be effective in October 2007, as well as a possible minimum wage rise at the beginning of next year, were not expected to have a significant impact on inflation through higher spending because domestic demand would still be in the early phase of recovery. Moreover, the related psychological effect of wage rises on upward price adjustments of goods and services should be minimal under current economic conditions.

Downward price pressures that could cause inflation to be lower in the short-term could come from domestic demand that remained subdued and only began to recover slowly, as well as from the continued appreciation of the baht, which would help alleviate the impact from accelerating world prices. As for next year, the solid recovery of domestic demand was expected to result in a higher pass-through of costs to retail prices compared to this year. Nevertheless, the Ministry of Commerce's price administration measures that continued to be quite stringent would help ensure that any acceleration in inflation would not be significant.

Both headline and core inflation in 2007 were expected to be close to the rates previously projected and would likely converge in 2008.

Therefore, the MPC assessed that headline inflation would accelerate in 2007 Q4 largely as a result of higher oil prices. Moreover, core inflation was also expected to increase modestly during the remaining of this year as a result of upward adjustments of public transport fares and freight, as well as the gradual recovery in domestic demand. However, this year's inflation rates would remain close to the previous projections.

As for 2008, the MPC assessed that headline inflation would be slightly higher than previously projected. Moreover, headline and core inflation were still expected to gradually converge. While the rise in core inflation would come from higher demand-side pressures consistent with an economic recovery, a slowdown in headline inflation would be a result of a slight decline in domestic retail oil prices compared to this year. Such a converging trend of headline and core inflation would be considered normal when supply-side pressures gradually subside.

Assessment of risks

The output and inflation projections given above were based on assumptions that the MPC considered most plausible. However, these assumptions were subjected to domestic and external uncertainties. In the assessment of economic outlook in the next 8 quarters, the MPC gave consideration to risk factors that could affect the projections under various scenarios.

Risk factors in the output projection

The MPC deemed it possible that uncertainty with regards to world oil prices could still lead to a different picture of economic growth than in the baseline projection. Although assumptions for Dubai oil prices at 64.6 and 65.0 US dollars per barrel in 2007 and 2008 respectively were deemed most probable, oil prices could rise beyond these levels as a result of various factors. Higher prices could result from tighter-than-expected supply conditions as a result of delays in increases of production capacity in both OPEC and non-OPEC oil producing countries, bombings of oil and gas pipes in Mexico that could be more severe than anticipated, and higher demand for oil should the world economy slow down by less than previously expected. Thus, the MPC revised its assumption on the Dubai oil price upwards by 1 standard deviation from the baseline assumption as the worse case scenario to an average of 67.5 and 82.3 US dollars per barrel, respectively in 2007 and 2008.

Nevertheless, the MPC also deemed it possible that demand for oil could be lower than expected if the slowdown in the world economy became deeper, especially if the impact of the problems in the subprime market on the US and other economies worsened. Thus, in the better case scenario, the MPC used the assumption that the Dubai oil price would average at 63.1 and 56.4 US dollars per barrel in 2007 and 2008, respectively, a decline from the baseline scenario by 0.5 standard deviation compared with the 1 standard deviation increase used in the worse case scenario, given that the OPEC members were unlikely to allow prices to fall by too much. Overall, the MPC assessed that the downside risk from the worse case scenario would be more likely than the upside risk.

Another important risk factor considered was the possibility that the problems in the US subprime market could worsen and create a larger-than-expected impact on trading partners' economies, causing growth to slow down by more than the baseline scenario. This would be a downside risk to Thai exports of goods and services, resulting in a slower-than expected economic recovery in 2008.

A related risk factor would be the possibility that regional currencies as well as the baht could appreciate faster than the baseline scenario if the US economy slowed down by more than expected. This would cause exports to be lower than the baseline projection, thus presenting a downside risk to overall growth.

In addition, the MPC also deemed it possible that the government would not be able to meet the targeted disbursement rate. In this case, budget disbursement would be below the baseline assumption, which would be a likely scenario if there was a delay in the formation of a new government. Such an event would imply weaker stimulus on private consumption and investment, resulting in a slower recovery of domestic demand than the baseline projection.

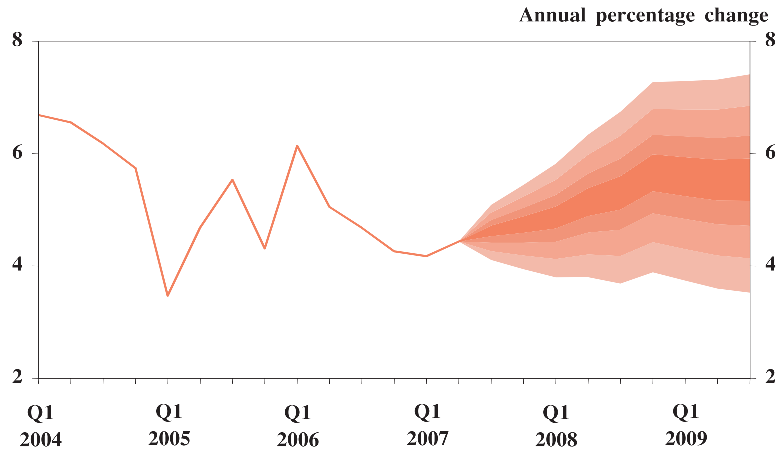
Nevertheless, the MPC viewed that once political uncertainties unwind after the general election at the end of 2007, consumer confidence could rebound faster than assumed in the baseline scenario. Together with investor confidence which already started to improve, domestic demand could recover faster than the baseline projection. Thus, the MPC assessed that confidence would be an upside risk to growth, consistent with the view expressed in the previous *Report.*

The MPC deemed that the consecutive policy rate decreases since the beginning of the year, totaling 1.75 basis points did not generate a substantial impact on domestic demand, given other factors that affected consumption and investment decisions. But once these uncertainties declined, the low interest rate environment would rapidly propel consumption and investment decisions, going forward. This would be another upside risk to growth.

Overall, the MPC gave more weight to the downside risk than the upside risk. Furthermore, uncertainties increased from the previous *Report* given that the extent of the problems from the US subprime market remained to be determined. As a result, the fan chart for output growth is wider to reflect such uncertainties and is skewed downwards throughout the entire forecast period.

The fan chart for GDP growth is wider to reflect an increase in uncertainties compared with the previous projection, and skewed downwards throughout the forecast period given that downside risks were more likely than upside risks.

Chart 5.9 GDP growth forecast



Note: The fan chart covers 90 per cent of the probability distribution

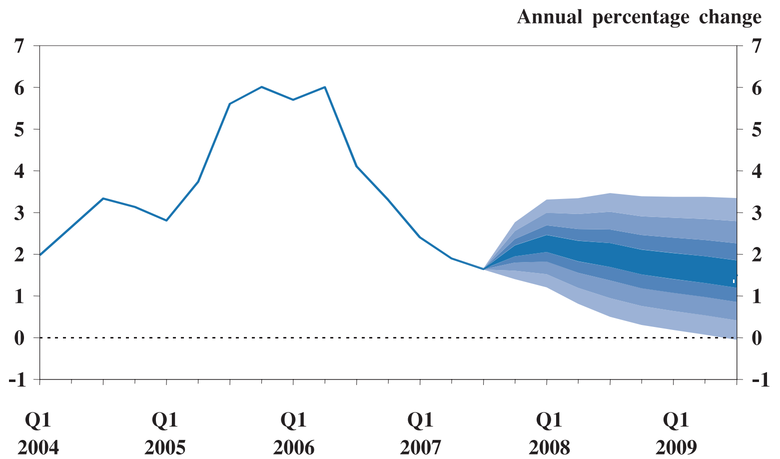
Risk factors in the inflation projection

The MPC considered that upside risks that would cause inflation to be higher than the baseline projection could result mainly from higher-than-expected oil prices. In the event that oil prices accelerated markedly, such as in the worse case scenario, inflationary pressure would increase through higher costs of production, transportation and freight as well as higher inflation expectations. Meanwhile, risks could also arise from increases in cooking gas prices that were faster than anticipated in the baseline scenario, which was expected to increase only gradually. As for price adjustments for goods which producers had previously absorbed higher production costs, although the current pass-through remained limited, pressure could increase next year given a more solid economic recovery. In particular, should domestic demand rebound stronger than expected, the magnitude of price adjustment could also increase. In addition, there was also a possibility that farm prices would be higher than the baseline scenario should there be unexpected severe weather conditions, which would result in a supply shortage and exert an upside risk to inflation. Other upside risks to inflation included the impact of excise tax increases for cigarettes and alcohol, once the new ceilings were enforced, and a possible increase in the value added tax rate that had long remained at 7 per cent. Despite the clarity of details and sequencing of these tax increases, should they be implemented, the effect on inflation would be considerable.

Meanwhile, downside risks that may lead to tamer than expected price pressures included softer-than-expected recovery in domestic demand, lower-than-expected trading partners' growth and a stronger-than-expected baht, which would not only result in lower exports and overall economic growth but also lower import prices, exerting pressure on domestic producers to keep prices low to maintain competitiveness. Moreover, it was also deemed possible that oil prices could be lower than assumed in the baseline projection, in line with the aforementioned better case scenario. As a result, both the direct pressure on headline inflation and the indirect pressure on core inflation through production cost adjustments would decline.

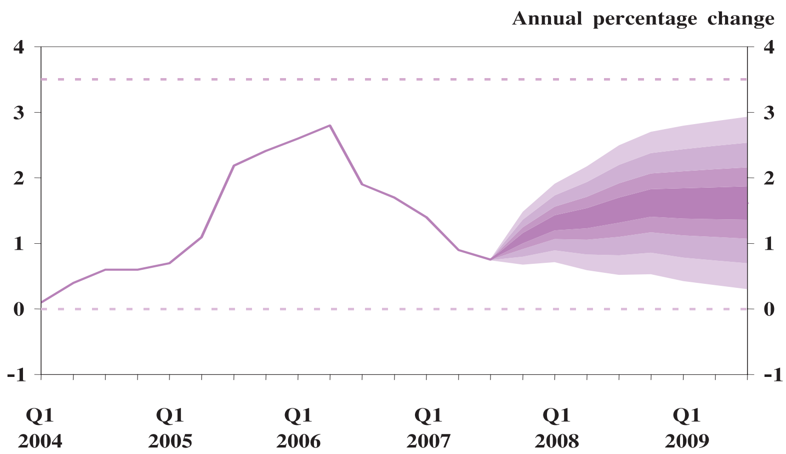
The fan chart for headline inflation is skewed slightly upwards while that of core inflation is balanced.

Chart 5.10 Headline inflation forecast



Note: The fan chart covers 90 per cent of the probability distribution

Chart 5.11 Core inflation forecast



Note: The fan chart covers 90 per cent of the probability distribution

Overall, the MPC deemed that in the short-term the upside and downside risks to both headline and core inflation were balanced. However, the upside risk to headline inflation was likely to increase in 2008 as a result of supply-side factors. Thus, the fan chart for headline inflation is skewed slightly upwards while that of core inflation is balanced.

Output growth for 2007 and 2008 was projected to lie in the ranges of 4.3-4.8 and 4.5-6 per cent, respectively.

With regards to the forecast probability distribution, the output growth forecast for 2007 and 2008, obtained from averaging the darkest forecast range of each quarter, was projected to be in the ranges between 4.3-4.8 and 4.5-6 per cent, respectively, with a probability of approximately 92.2 and 91.7 per cent, respectively.

Table 5.1 Probability distribution of GDP growth forecast

Unit: %	2007		2008				2009		
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
< 2	0	0	0	0	0	0	0	0	0
2.0 - 2.5	0	0	0	0	0	0	0	0	0
2.5 - 3.0	0	0	0	0	1	1	1	1	1
3.0 - 3.5	0	1	2	2	3	2	2	3	3
3.5 - 4.0	3	6	8	6	6	4	5	6	6
4.0 - 4.5	34	26	20	14	12	8	9	10	10
4.5 - 5.0	55	41	31	22	18	13	14	14	14
5.0 - 5.5	9	22	26	25	21	18	17	17	16
5.5 - 6.0	0	3	11	18	19	19	18	17	16
6.0 - 6.5	0	0	2	8	12	16	15	14	14
6.5 - 7.0	0	0	0	2	6	11	10	9	10
> 7	0	0	0	1	3	8	8	8	10

Headline inflation for 2007 and 2008 was projected to lie in the ranges of 1.8-2.3 and 1.5-2.8 per cent, respectively.

Headline inflation in 2007 was projected to average between 1.8-2.3 per cent with a probability of approximately 98.2 per cent. As for 2008, the MPC deemed it more appropriate to use a larger range for headline inflation forecast of 1.5-2.8 per cent with a probability of approximately 86.9 per cent to reflect the volatility of headline inflation, particularly from oil prices.

Core inflation for 2007 and 2008 was projected to be in the range of 0.8-1.3 and 1-2 per cent, respectively.

Meanwhile, the MPC projected core inflation in 2007 to average in the range of 0.8-1.3 per cent, with a probability of approximately 100 per cent. As for 2008, the MPC used the same projection range of 1-2 percent, with a probability of approximately 92.9 per cent.

Table 5.2 Probability distribution of headline inflation forecast								
Unit: %	2007	2008				2009		
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
< 0	0	0	0	1	2	3	4	6
0.0 - 0.5	0	0	2	4	5	6	7	8
0.5 - 1.0	0	2	6	9	11	12	13	14
1.0 - 1.5	8	9	15	16	18	18	18	18
1.5 - 2.0	34	23	23	21	21	20	19	18
2.0 - 2.5	42	30	25	21	19	18	16	15
2.5 - 3.0	14	23	18	15	13	12	11	10
3.0 - 3.5	1	10	8	8	7	7	6	6
3.5 - 4.0	0	2	3	3	3	3	3	3
> 4	0	0	1	1	1	1	1	1

Table 5.3 Probability distribution of core inflation forecast								
Unit: %	2007	2008				2009		
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
< 0	0	0	0	1	1	1	2	2
0.0 - 0.5	1	1	3	4	4	5	5	6
0.5 - 1.0	36	18	18	15	13	14	14	14
1.0 - 1.5	59	50	38	30	25	24	23	22
1.5 - 2.0	4	28	31	30	29	27	25	24
2.0 - 2.5	0	3	9	16	19	19	18	18
2.5 - 3.0	0	0	1	4	7	8	9	9
3.0 - 3.5	0	0	0	1	2	2	3	3
> 3.5	0	0	0	0	0	0	1	1

Forecasts by research houses

Output growth projections for 2007 and 2008 from various research houses polled by Reuters (Thailand) averaged at 4.1 and 5.0 per cent, respectively, similar to the previous quarter's poll. Most research houses maintained their forecasts because even though political uncertainties began to unwind and investor confidence started to improve, the recovery of domestic demand was gradual while external risks increased.

Meanwhile, headline inflation forecasts for 2007 and 2008 averaged at 2.2 and 2.8 per cent, respectively. The forecast for 2007 was revised downwards slightly from the previous forecast.

Table 5.4 GDP growth forecasts by various research houses

	27 Jun 07		26 Sep 07	
	2007	2008	2007	2008
DBS Bank	4.4	5.1	4.3	5.6
Kasikorn Research	4.3	5.3	4.3	5.3
TISCO Securities	4.2	4.8	4.2	4.8
Capital Nomura	4.2	5.0	4.2	5.0
JP Morgan	4.2	5.1	4.2	5.1
Phatra Securities	3.7	4.6	4.0	4.6
Goldman Sachs	n.a.	n.a.	4.0	4.5
Lehman Brothers	3.5	5.5	3.8	5.0
Stanchart	n.a.	n.a.	3.8	4.8
ING	4.5	5.0	n.a.	n.a.
Average	4.1	5.0	4.1	5.0
NESDB	4.0-4.5[1/]	n.a.	4.0-4.5[2/]	n.a.

[1/] Estimated on 4 June 2007 when preliminary GDP figures for 2007 Q1 were released
[2/] Estimated on 3 September 2007 when preliminary GDP figures for 2007 Q2 were released
Source: Reuters and NESDB

Table 5.5 Headline inflation forecasts by various research houses

	27 Jun 07		26 Sep 07	
	2007	2008	2007	2008
Phatra Securities	2.5	2.5	2.6	2.7
Goldman Sachs	n.a.	n.a.	2.6	2.5
TISCO Securities	2.5	2.8	2.5	2.8
Lehman Brothers	2.8	3.5	2.4	3.6
JP Morgan	1.8	2.4	2.3	2.7
Stanchart	n.a.	n.a.	2.0	3.1
Capital Nomura	2.4	2.4	1.9	2.2
Kasikorn Research	2.3	2.5	1.7	2.3
DBS Bank	1.8	3.9	1.7	2.2
ING	2.4	2.5	n.a.	n.a.
Average	2.3	2.8	2.2	2.8
NESDB	2.0-2.5[1/]	n.a.	2.0-2.5[2/]	n.a.

[1/] Estimated on 4 June 2007 when preliminary GDP figures for 2007 Q1 were released
[2/] Estimated on 3 September 2007 when preliminary GDP figures for 2007 Q2 were released
Source: Reuters and NESDB

6. Conclusion

Although private domestic demand expanded by less than expected in 2007 Q2, higher-than-expected export growth, coupled with an acceleration in public spending enabled the Thai economy to grow in line with the MPC's projection during the first half of this year. For the rest of 2007, the MPC viewed that private domestic demand indicators began to show signs of improvement, given support from numerous factors, including improvements in investor confidence due to greater political clarity, continued fiscal stimulus, low inflation that helped maintain consumers' purchasing power, and a more accommodative monetary policy stance conducive for economic activities. Meanwhile, net exports were expected to be higher than previously projected, largely as a result of a weaker-than-expected growth of imports. Thus, the MPC assessed that the Thai economy in 2007 would grow at a rate similar to that previously projected, and the forecast range of output growth was narrowed to 4.3-4.8 per cent, given actual data for the first half of this year. As for 2008, the MPC maintained the same forecast range of 4.5-6 per cent.

Price pressures remained low but were slightly higher than previously projected, mainly from supply-side factors, including the rise in world oil and commodity prices, as well as upward adjustments in prices of goods and services previously subjected to price administration measures. However, pressures from the demand-side remained low. The MPC thus assessed that core inflation would still remain within the target range during the next 8 quarters where it was expected to average between 0.8-1.3 per cent in 2007, before slightly increasing next year to average within the previously projected range of 1-2 per cent.

Overall, prospects for the Thai economy did not change significantly from the previous *Report*. On the other hand, price pressures rose slightly. The MPC thus decided to maintain the policy rate at 3.25 per cent per annum at its meetings on 29 August and 10 October 2007. The MPC also deemed that uncertainties arising from the problems in the US subprime market could affect the Thai economy and would need to be closely monitored, going forward.

Report: "Economic/Business Information Exchange Programme between the Bank of Thailand and the Business Sector"

As of 30 September 2007

From the Economic/Business Information Exchange Programme between the Bank of Thailand and 148 business firms throughout the country during 2007 Q3, most businesses revealed that business performance remained unchanged from the previous quarter. Business costs continued to increase while adjustments of retail prices of goods and services were limited, owing to the marginal recovery in domestic demand and weak consumer confidence. Towards the end of this quarter, however, some businesses witnessed signs of improvement in both consumption and investment and believed that the Thai economy would show clearer signs of recovery after the general election scheduled for the end of the year.

- **Private consumption.** Overall sales of goods and services expanded at the same rate as the previous quarter. Passenger car sales improved while motorcycle sales declined, which subsequently resulted in a minor slowdown in the car leasing business. However, most businesses expected that domestic sales should improve in 2007 Q4 following the unwinding of political uncertainties and brighter prospects in the stock market. Moreover, condominium sales improved while single detached house and townhouse sales decelerated, due partly to the changing lifestyle of urban people.

- **Private investment.** Most businesses still postponed their investment plans while waiting for greater clarity regarding government direction and polices after the general election. Nevertheless, most of these businesses indicated their readiness to invest if the situation was calm and peaceful after the general election. This was clearly reflected by an increase in investment demand in industrial parks, as well as plans for raising capital through the stock exchange market of some large enterprises.

- **Exports.** Overall export conditions slowed down in line with the slowdown in global demand and the loss of competitiveness in some industries, especially apparels. However, exports of textiles and plastic products continued to expand well. Furthermore, towards the end of this quarter, some exporters received higher book-orders from abroad in response to higher demand during year-end, a positive sign that Thai exports should be able to expand continuously throughout 2007 Q4.

- **Manufacturing sector.** Given the positive signal from pre-orders, businesses assessed that manufacturing conditions should improve for the remaining of the year. Rubber products, metals, and plastic products used in the automobile industry still expanded favourably. This was in line with the automobile industry outlook which was expected to expand favourably in 2007 Q4.

- **Prices of goods and services.** In 2007 Q3, business costs increased from rising oil prices and other operating costs such as wages. Furthermore, marketing costs to boost sales also rose substantially. Meanwhile, price adjustments were limited due to severe competition in the domestic market. As a result, profit margins of businesses declined, a situation businesses expect would continue for some time, at least in the near term.

- **Labour market and employment.** Some businesses were still faced with a labour shortage problem, both in skilled and unskilled labour, due partly to workers moving to workplace with a better environment and higher pay. As a result, some firms had to either hire alien workers or substitute labour with sophisticated machinery. Moreover, some businesses moved their production bases to other provinces where labour was abundant. The recent shutdown of some factories also helped relieve the labour shortage problem.

- **Financial sector and financial institutions.** Demand for corporate and personal loans slowed down. The amount of credit card usage also decelerated compared to the previous quarter. Even though non-performing loans (NPLs) in the corporate sector remained low, there was a sign of rising NPLs in some household groups. This prompted financial institutions to be more prudent in their credit approval policy. Nevertheless, financial institutions expected that demand for loans would improve marginally in 2007 Q4 due to the typical spending season.

- **Business limitations and risk factors.** Most businesses indicated that political uncertainties and economic conditions were the two main factors affecting consumer and business confidence. Meanwhile, the appreciation of the baht and the subprime problem in the US were secondary factors affecting business operation. Thus, the clearer political situation, particularly after the new Constitution was approved by public referendum, should stimulate consumption and investment in the coming periods.

Appendix: Macroeconometric model[1/]

The Bank of Thailand's macroeconometric model (BOTMM) is an economic forecasting tool, consisting of 25 behavioural equations and 43 identities. The BOTMM presents to the Monetary Policy Committee (MPC) an important tool for economic forecasting. The model is used to analyse the response of the economy to various exogenous shocks and policy changes. It also assists the MPC in formulating an optimal policy to achieve the goals of price stability and sustainable economic growth in the long run.

Improving the model

In this *Report,* the BOTMM was revised by incorporating the most recently published data, particularly the quarterly GDP figure of 2007 Q2 released by the NESDB on 3 September 2007. Other notable changes made to the model since the July 2007 *Report* are as follows.

1. The equation for private durable goods consumption at 1988 constant prices (equation 1.1) was adjusted such that the townhouse (including land) price index (PLANDTH) was added to the long-run equation in addition to asset value (WEALTH), which only represents financial wealth. These two variables were then removed from the short-run equation.

2. The equation for the three-month time deposit rate (equation 4.1) was revised to contain only the short-run relationship. In the new short-run equation, changes in the three-month time deposit rate are determined by the change in the 1-day repurchase rate, which is the policy rate, as well as its own lag. Such a revision was made given the excessive persistence in the error correction term, causing forecasts to adjust more slowly than actual data.

[1/]The Bank of Thailand's macroeconometric model was first published in the July 2000 *Report*. Revisions to the model were noted in subsequent *Reports*.

3. The equation for the minimum lending rate (equation 4.2) was adjusted such that the first lag of change in the minimum lending rate was removed to reduce persistence in the equation.

4. The equation for private credits (equation 4.3) was revised such that the change in non-performing loans was used in place of the outstanding amount. Moreover, the change in the minimum lending rate was replaced with its level, given that businesses were more likely to be concerned about the actual cost of financing, rather than the change in such costs. In addition, the constant term was replaced with the change in private credits in the previous period.

5. The equation for money supply (equation 4.5) was revised so that Broad Money replaced M2A as the dependent variable due to discontinuation of the M2A series. The coverage of Broad Money that extends beyond commercial banks to include other depository institutions would better represent the changing financial institutions framework. In the new equation, real money demand (MBROAD) in the long-run is determined by two explanatory variables - namely real GDP and real interest rate - and is calculated by subtracting expected inflation from the three-month time deposit rate. Such a relationship reflects real money demand for both transaction and speculative purposes. A constant term is also present.

6. The equations for private investment and public investment deflators (equations 5.10 and 5.11) were adjusted so that the producer price index was used in place of the consumer price index, given that the former better reflects costs. Moreover, the exchange rate index (FX 88) was replaced with the nominal effective exchange rate (NEER), where the former compares the value of the baht against the US dollar, while the latter compares it against all major trading partners' currencies.

Effect of variations in the exchange rate and crude oil price on the Thai economy

The model in this *Report* was used to analyse the effects of variations in the exchange rate and the crude oil prices on the Thai economy. Table A.1 shows that a one-percentage depreciation in the exchange rate (baht per US dollar) would increase core inflation, headline inflation, and economic growth by 0.05, 0.05, and 0.27 per cent, respectively.

Moreover, a one-percentage increase in the Dubai crude oil price (US dollars per barrel of Dubai crude oil) would affect core inflation, headline inflation, and economic growth by 0.01, 0.05, and -0.04 per cent respectively.

Table A.1 Summary of the effect of variations in the exchange rate and crude oil price

(%)

	Effect on the Thai economy in the 4th quarter ahead	
	A 1% depreciation in the exchange rate	A 1% increase in crude oil price
Core inflation	0.05	0.01
Headline inflation	0.05	0.05
Economic growth	0.27	-0.04

Source: Macroeconometric model, Bank of Thailand

Corporate and household sector models

The corporate and household sector models are tools developed by the BOT to help assess the financial conditions of the Thai corporate and household sectors. The assessment is part of an effort to ensure financial stability, which itself, in turn, is closely intertwined with monetary stability and long-term economic growth, the main objectives of monetary policy under inflation targeting. In this *Report*, the BOT has revised the corporate and household sector models using the latest released data, especially those pertaining to listed companies, household credits, and GDP.

Bank of Thailand's Macroeconometric Model (Core Model)[2/]

1. Real sector

1.1 Private durable goods consumption at 1988 constant prices

$$\Delta\ln(CPR1sa) = \underset{(-2.88)}{-0.021}*\Delta(MLR-CINFEX) + \underset{(3.90)}{0.765}*\Delta\ln(GDPRsa(-1)*(1-RH(-1))) - \underset{(-1.87)}{0.212}*ecmCPR1(-1)$$

Adjusted R-Squared = 0.43 S.E. of regression = 0.0252 LM(2) : 1.81 (0.18)

ecmCPR1 = ln(CPR1sa) - (0.290*ln(GDPRsa*(1-RH)) - 0.041*(MLR(-1)-CINFEX(-1)) + 0.230*ln(WEALTHsa*100/COREsa)) + 0.264*ln(PLANDTHsa*100/COREsa))

1.2 Private non-durable goods consumption at 1988 constant prices

$$\Delta\ln(CPR2sa) = \underset{(4.34)}{0.010} + \underset{(6.20)}{0.423}*\Delta\ln(GDPRsa*(1-RH)) - \underset{(-3.57)}{0.662}*\Delta\ln(CPIsa) - \underset{(-5.42)}{0.446}*ecmCPR2(-1)$$

Adjusted R-Squared = 0.65 S.E. of regression = 0.0097 LM(2) : 1.56 (0.22)

ecmCPR2 = ln(CPR2sa) - (0.864*ln(GDPRsa*(1-RH)) - 0.006*(RD3M-CINFEX))

1.3 Total private consumption at 1988 constant prices

CPR = CPR1 + CPR2

1.4 Asset value

WEALTH = MBROAD + BMCAP

1.5 Private investment at 1988 constant prices

$$\Delta\ln(IPRsa) = \underset{(6.29)}{2.193}*\Delta\ln(GDPRsa/GDPR\_HSM) + \underset{(5.41)}{1.526}*\Delta\ln(GDPRsa(-1)) - \underset{(-3.73)}{0.276}*\Delta\ln(FX88) - \underset{(-3.15)}{0.098}*ecmIPR(-1)$$

Adjusted R-Squared = 0.86 S.E. of regression = 0.0291 LM(2) : 0.02 (0.98)

ecmIPR = ln(IPRsa) - (5.581- 0.114*(MLR(-1)-CINFEX(-1)) + 3.463*Δln(PCREDITsa/CPIsa))

1.6 Government consumption at 1988 constant prices

CGOVR = CGOVN/PGCON

1.7 Public investment at 1988 constant prices

IPUB = IPUBN/PIFX

1.8 Exports of goods and services at 1988 constant prices

$$\Delta\ln(XRsa) = \underset{(7.99)}{2.595}*\Delta\ln(TPGDPsa) - \underset{(-4.02)}{0.643}*\Delta\ln(REER) - \underset{(-4.89)}{0.684}*ecmXR(-1)$$

Adjusted R-Squared = 0.61 S.E. of regression = 0.0211 LM(2) : 1.40 (0.26)

ecmXR = ln(XRsa) - (-2.086 + 2.187*ln(TPGDPsa) - 0.260*ln(PX$sa) - 0.122*ln(REER))

1.8.1 Exports of goods at 1988 constant prices

XGR = RXGR*XR

1.8.2 Exports of services at 1988 constant prices

XSR = RXSR*XR

[2/] ln = natural logarithms
sa = seasonally adjusted
ecm = error correction term
The numbers in parentheses below coefficients are the t-statistics.
LM(2) is the test for second-order serial correlation in the residuals (with *p*-value in parentheses).

1.9 Imports of goods and services at 1988 constant prices

Δln(MRsa) = 1.124*Δln(DDsa) + 0.597*Δln(XRsa) - 0.223*Δln((PM$sa*FX88)/CPIsa) - 0.263*ecmMR(-1)
(11.04) (6.47) (-3.14) (-2.94)

Adjusted R-Squared = 0.78 S.E. of regression = 0.0264 LM(2) : 0.94 (0.40)

ecmMR = ln(MRsa) - (-3.571 + 0.998*ln(DDsa) + 0.487*ln(XRsa) - 0.198*ln((PM$sa*FX88)/CPIsa))

1.9.1 Imports of goods at 1988 constant prices

MGR = RMGR*MR

1.9.2 Imports of services at 1988 constant prices

MSR = RMSR*MR

1.10 Gross domestic product at 1988 constant prices

GDPR = CPR + CGOVR + IPR + IPUB + (XR - MR) + OTHGDP

1.11 Gross domestic product at current market prices

GDPN = ((CPR*CPI) + (CGOVR*PGCON) + (IPR*PIP) + (IPUB*PIFX) + ((XR*PX$*FX88/100) - (MR*PM$*FX88/100))
+ (OTHGDP*POTHGDP))/100

1.12 Domestic demand

DD = GDPR - XR + MR

2. Government sector

2.1 Government revenue

GREV = TAXREV + OTHREV

2.2 Tax revenue

TAXREV = TD + TIND

2.3 Direct tax

TD = TH + TC
TH = RH*GDPN
TC = RC*GDPN

2.4 Indirect tax

TIND = TVAT + TEXC + OTHTIND
TVAT = RVAT*(CPR*CPI/100)
TEXC = REXC*(CPR*CPI/100)
OTHTIND = ROTHTIND*(CPR*CPI/100)

2.5 Government cash balance

GCB = GREV - (GCURRENT + GCAPITAL) + NONBUDGET

3. External sector

3.1 Current account

CURRENT$ = (((XGR*PXG$) - (MGR*PMG$)) + ((XSR*PXS$) - (MSR*PMS$)))/(25.29[3/]*100)
CURRENTB = CURRENT$*FX

[3/] The Baht/USD exchange rate in 1988 is 25.29.

3.2 Capital and financial account

CAPITAL\$ = CAPITAL\$PRI + OTHCAP\$

CAPITALB = CAPITAL\$*FX

3.3 Balance of payments

BPB = CAPITAL\$*FX + CURRENT\$*FX + OTHBP

BP\$ = BPB/FX

3.4 International reserves

RESERVE = BP\$ + RESERVE(-1)

3.5 Net foreign assets

NFA = NFA(-1) + BPB + OTHNFA

3.6 Exchange rate

ln(FX88) = ln(FX88(-1)) + (ln(1+FEDFUND/400) - ln(1+RP1D/400)) + PRESSURE

PRESSURE = 1.228*Δln(REGIONFX) - 0.407*Δ(CURRENTB(-1)/GDPN(-1))

FX = (FX88*25.29[3/])/100

NEER = TPFX*100/FX94

REER = NEER/(TPCPI/CPI*100/73.43)

3.7 Net flows of private financial account

CAPITAL\$PRI = 0.664*Δ(RP1D(-1)-FEDFUND(-1)) - 0.372*CURRENT\$ + 38.21*Δln(GDPRsa(-1)) + 0.469*CAPITAL\$PRI(-1)

(3.25) (-3.36) (2.15) (4.22)

Adjusted R-Squared = 0.68 S.E. of regression = 1.1427 LM(2) : 0.38 (0.69)

4. Monetary sector

4.1 Three-month deposit rate

ΔRD3M = 0.509*ΔRP1D + 0.513*ΔRD3M(-1)

(3.79) (3.51)

Adjusted R-Squared = 0.60 S.E. of regression = 0.2451 LM(2) : 2.48 (0.10)

4.2 Minimum lending rate

ΔMLR = 0.654*ΔRD3M

(9.18)

Adjusted R-Squared = 0.74 S.E. of regression = 0.1498 LM(2) : 0.01 (0.99)

4.3 Private credit

Δln(PCREDITsa) = -0.002*MLR(-2) + 0.550*Δln(GDPNsa(-1)) - 0.046*Δln(NPL(-2)) + 0.688*Δln(PCREDITsa(-1))

(-3.15) (3.33) (-3.40) (7.07)

Adjusted R-Squared = 0.74 S.E. of regression = 0.0134 LM(2) : 1.41 (0.26)

4.4 Net claims on government

ΔCLAIMG = - 0.504*(GCB-FINB)

(-7.16)

Adjusted R-Squared = 0.54 S.E. of regression = 40.39 LM(2) : 0.13 (0.88)

[3/] The Baht/USD exchange rate in 1988 is 25.29.

4.5 Money supply

$MBROAD^S$ = NFA + CLAIMG + PCREDIT+ OTHMBROAD

$\Delta\ln(MBROAD^D sa*100/CPIsa)$ = 5.239 + 0.442*ln(GDPRsa) - 0.010*(RD3M - CINFEX)
(23.65) (13.62) (-4.00)

Adjusted R-Squared = 0.92 S.E. of regression = 0.0208 LM(2) : 26.19 (0.00)

4.6 Securities value

Δln(BMCAP) = 0.0004*Δ(CAPITAL$*FX) + 2.261*Δln(GDPRsa) - 0.107*Δ(MLR) - 0.513*ecmBMCAP(-1)
(1.98) (2.29) (-2.67) (-3.37)

Adjusted R-Squared = 0.35 S.E. of regression = 0.0783 LM(2) : 0.94 (0.40)

ecmBMCAP = ln(BMCAP) - (-15.436 + 0.0003*(CAPITAL$*FX) + 3.568*ln(GDPRsa) - 0.005*MLR)

5. Price index

5.1 Core consumer price index

CINFLAT = 2.541*ln(GDPRsa/GDPR_HSM) + 0.829*CINFLAT(-1) + 0.140*(((PPI/PPI(-4)-1)*100)*DUMMY_PRE00Q3)
(2.45) (30.41) (7.86)
+ 0.058*(((PPI/PPI(-4)-1)*100)*DUMMY_POST00Q3)
(3.51)

Adjusted R-Squared = 0.96 S.E. of regression = 0.4697 LM(2) : 0.13 (0.88)

5.2 Producer Price Index

Δln(PPIsa) = 0.145*Δln(RPPIsa) + 0.227*Δln(FARMPRICEsa) + 0.075*Δln(PM$sa) - 0.254*ecmPPI(-1)
(5.67) (5.99) (2.75) (-2.98)

Adjusted R-Squared = 0.66 S.E. of regression = 0.0105 LM(2) : 1.31 (0.28)

ecmPPI = ln(PPIsa) - (0.149*ln(RPPIsa) + 0.245*ln(FARMPRICEsa) + 0.146*ln(PM$sa) + 0.136*(lnAVGEARNsa))

5.3 Average earnings

Δln(AVGEARNsa)= 0.294*Δln(MINWAGE) + 0.872*Δln(CPIsa) - 0.196*ecmAVGEARN(-1)
(3.07) (5.53) (-2.34)

Adjusted R-Squared = 0.32 S.E. of regression = 0.0120 LM(2) : 0.52 (0.60)

ecmAVGEARN = ln(AVGEARNsa) - (2.486 + 0.747*ln(MINWAGE(-1)) + 0.546*ln(CPIsa))

5.4 Energy price index

Δln(CPIENsa) = 0.563*Δln(RPPIsa) - 0.209*ecmCPIEN(-1)
(14.82) (-3.17)

Adjusted R-Squared = 0.73 S.E. of regression = 0.0174 LM(2) : 0.56 (0.57)

ecmCPIEN = ln(CPIENsa) - (1.114 + 0.787*ln(RPPIsa))

5.5 Retail petroleum price index

Δln(RPPIsa) = 0.369*Δln(DUBAIsa) + 0.452*Δln(FX88) + 0.161*Δln(RPPIsa(-2)) - 0.298*ecmRPPI(-1)
(9.44) (6.33) (2.38) (-4.25)

Adjusted R-Squared = 0.70 S.E. of regression = 0.0302 LM(2) : 0.72 (0.49)

ecmRPPI = ln(RPPIsa) - (-0.345 + 0.596*ln(DUBAIsa) + 0.697*ln(FX88))

5.6 Raw food price index

Δln(CPIRFOODsa) = 0.007 + 0.357*Δln(FARMPRICEsa) - 0.073*ecmCPIRFOOD(-1)
(2.82) (5.80) (-1.74)

Adjusted R-Squared = 0.37 S.E. of regression = 0.0174 LM(2) : 0.88 (0.42)

ecmCPIRFOOD = ln(CPIRFOODsa) - (1.207 + 0.791*ln(FARMPRICEsa(-2)))

5.7 Farm price index (12 main products)

$$\Delta\ln(FARMPRICE\_12sa) = \underset{(9.20)}{1.034}*\Delta\ln(WFP\_12sa) + \underset{(8.12)}{0.613}*\Delta\ln(FX88) - \underset{(-3.69)}{0.322}*ecmFARMPRICE\_12(-1)$$

Adjusted R-Squared = 0.68 S.E. of regression = 0.0316 LM(2) : 0.42 (0.66)

ecmFARMPRICE_12 = ln(FARMPRICE_12sa) - (-5.657 + 1.180*ln(WFP_12sa) + 1.062*ln(FX88))

5.8 Farm price index

FARMPRICE = (WFARMPRICE_12*FARMPRICE_12) + (WFARMPRICE_OTH*FARMPRICE_OTH)

5.9 Headline consumer price index

CPI = ((1-WEN-WRFOOD)*CORE) + (WEN*CPIEN) + (WRFOOD*CPIRFOOD)

5.10 Private investment deflator

$$\Delta\ln(PIPsa) = \underset{(4.90)}{0.733}*\Delta\ln(PPIsa) - \underset{(-3.86)}{0.351}*ecmPIP(-1)$$

Adjusted R-Squared = 0.43 S.E. of regression = 0.0211 LM(2) : 0.51 (0.60)

ecmPIP = ln(PIPsa) - (2.005 + 0.951*ln(PPIsa) - 0.278*ln(NEER))

5.11 Public investment deflator

$$\Delta\ln(PIFXsa) = \underset{(5.75)}{0.551}*\Delta\ln(PPIsa) - \underset{(-3.98)}{0.304}*ecmPIFX(-1)$$

Adjusted R-Squared = 0.32 S.E. of regression = 0.0139 LM(2) : 0.67 (0.52)

ecmPIFX = ln(PIFXsa) - (1.891 + 0.907*ln(PPIsa) + 0.205*ln(NEER))

5.12 Government consumption deflator

$$\Delta\ln(PGCONsa) = \underset{(4.28)}{0.792}*\Delta\ln(CPIsa) + \underset{(5.53)}{0.035}*\Delta SALARY - \underset{(-2.31)}{0.162}*ecmPGCON(-1)$$

Adjusted R-Squared = 0.32 S.E. of regression = 0.0156 LM(2) : 0.07 (0.93)

ecmPGCON = ln(PGCONsa) - (0.283 + 0.980*ln(CPIsa) + 0.067*SALARY)

5.13 Export price deflator

$$\Delta\ln(PX\$sa) = \underset{(2.91)}{0.196}*\Delta\ln(PM\$sa) + \underset{(3.48)}{0.712}*\Delta\ln(TPGDPsa) - \underset{(-5.28)}{0.219}*\Delta\ln(FX88) - \underset{(-3.63)}{0.224}*ecmPX\$(-1)$$

Adjusted R-Squared = 0.68 S.E. of regression = 0.0164 LM(2) : 1.66 (0.20)

ecmPX$ = ln(PX$sa) - (3.199 + 0.380*ln(PW_NONFsa) + 0.180*ln(MUVsa) - 0.202*ln(FX88))

5.13.1 Export price deflator for services

PXS$sa = PXS$sa(-4)*((CPIsa/FX88)/(CPIsa(-4)/FX88(-4)))

5.13.2 Export price deflator for goods

PXG$sa = (PX$sa - RXSR*PXS$sa)/RXGR

5.14 Import price deflator

$$\Delta\ln(PM\$sa) = \underset{(3.48)}{0.355}*\Delta\ln(PW\_NONFsa) - \underset{(-4.56)}{0.537}*ecmPM\$(-1)$$

Adjusted R-Squared = 0.37 S.E. of regression = 0.0297 LM(2) : 0.67 (0.52)

ecmPM$ = ln(PM$sa) - (1.449 + 0.270*ln(PW_NONFsa(-1)) + 0.413*ln(MUVsa(-1)) + 0.080*ln(DUBAIsa))

5.14.1 Import price deflator for services

PMS$sa = PMS$sa(-4)*((TPCPIsa*FX94/NEER)/(TPCPIsa(-4)*FX88(-4)/NEER(-4)))

5.14.2 Import price deflator for goods

PMG$sa = (PMS$sa - RMSR*PMS$sa)/RMGR

5.15 GDP deflator

PGDP = GDPN / GDPR*100

5.16 Inflation expectations

CINFEX = 0.25*CINFLAT(-1) + 0.25*CINFLAT + 0.50*CINFLAT(4)

5.17 Housing Price Index

ln(PLANDTHsa) = - 0.006*(MLR(-1) - CINFEX(-1)) + 0.519*ln(PLANDTHsa(-1)) + 0.490*ln(PLANDTHsa(-2))
(-2.90) (3.17) (2.97)

Adjusted R-Squared = 0.96   S.E. of regression = 0.0124   LM(2) : 1.20 (0.32)

6. Corporate Sector Model

6.1 Sales, cost of goods sold, profits

6.1.1 Sales

ln(SALESsa) = -2.582 + 0.618*ln(GDPNsa) - 0.020*(MLR - CINFEX) + 0.724*ln(SALESsa(-1))
(-2.60) (2.93) (-4.30) (8.35)

Adjusted R-Squared = 0.99   S.E. of regression = 0.042   LM(2) : 0.04 (0.96)

6.1.2 Cost of goods sold

ln(COGSsa) = -1.860 + 0.934*ln(SALESsa) + 0.431*ln(PPIsa)
(-4.04) (25.70) (2.99)

Adjusted R-Squared = 0.99   S.E. of regression = 0.0340   LM(2) : 0.68 (0.52)

6.1.3 Operating profits

EBIT = SALES - COGS - OTHER

6.1.4 Net profits

NI = EBIT - INT - TAX - EXTRA

6.2 Assets, equity, liabilities

6.2.1 Assets

ln(ASSETsa) = 0.225*ln(GDPNsa) + 0.843*ln(ASSETsa(-1)) - 0.070*ln(FX88(-1))
(6.62) (27.01) (-3.25)

Adjusted R-Squared = 0.99   S.E. of regression = 0.0280   LM(2) : 0.85 (0.43)

6.2.2 Equity

Δln(EQUITYsa) = 0.723*Δln(GDPNsa(-2)) - 0.613*Δln(FX88) + 0.001*Δ(NI) + 0.036*DUM01Q4 - 0.169*ecmEQUITY(-1)
(2.13) (-4.62) (7.42) (2.73) (-2.53)

Adjusted R-Squared = 0.63   S.E. of regression = 0.0523   LM(2) : 1.18 (0.32)

ecmEQUITY = ln(EQUITYsa) - (1.668*ln(GDPNsa) + 0.404*DUM01Q4 + 0.014*(MLR(-1) - FEDFUND(-1)) - 1.086*ln(FX88))

6.2.3 Liabilities

DEBT = ASSET - EQUITY

6.3 Debt burden and debt-service ability

6.3.1 Debt to equity ratio

DE = DEBT/EQUITY

6.3.2 Interest expenses

$\ln(INTsa) = -7.326 + 1.372*\ln(DEBTsa(-1)) + 0.028*MLR(-2) - 0.495*DUM01Q4$

6.3.3 Interest coverage ratio

$ICR = EBIT/INT$

7. Household Model

7.1 Liabilities

7.1.1 Banks' lending to household

$$\Delta\ln(LOANHHTsa) = \underset{(-2.04)}{-0.009*\Delta MLR(-1)} + \underset{(2.76)}{0.407*\Delta\ln(CPRsa(-4))} + \underset{(11.09)}{0.798*\Delta\ln(LOANHHTsa(-1))}$$

Adjusted R-Squared = 0.66 S.E. of regression = 0.0187 LM(2) : 1.64 (0.21)

7.2 Debt Repayment Capacity

7.2.1 Household Interest Payments

$INTHH = (MLR/100)*LOANHHT$

7.2.2 Ratio of Interest Payments to Income after Tax

$IGEARHH = INTHH/(GDPRsa*(1-RH))*100$

List of variables

Dependent variables

AVGEARN	Average earnings (baht/month)
BMCAP	Securities value (billion baht)
BPB, BP$	Balance of payments (billion baht, billion US dollars)
CAPITALB, CAPITAL$	Capital and financial account (billion baht, billion US dollars)
CAPITAL$PRI	Net flows of private financial account (billion US dollars)
CGOVR	Government consumption at 1988 constant prices (billion baht)
CINFEX	Inflation expectations
CLAIMG	Net claims on government (billion baht)
CORE, CINFLAT	Core consumer price index (CPI excluding raw food and energy prices) (2002 = 100), Core inflation (per cent)
CPI	Headline consumer price index (2002 = 100)
CPIEN	Energy price index (2002 = 100)
CPIRFOOD	Raw food price index (2002 = 100)
CPR	Total private consumption at 1988 constant prices (billion baht)
CPR1	Private durable goods consumption at 1988 constant prices (including transport equipment, electrical machinery, machinery and equipment, furniture, rubber products, and glass and plastic products) (billion baht)
CPR2	Private non-durable goods consumption at 1988 constant prices (including food products, beverages, energy, and services) (billion baht)
CURRENTB, CURRENT$	Current account balance (billion baht, billion US dollars)
DD	Domestic demand at 1988 constant prices (billion baht)
FARMPRICE	Farm price index (1995 = 100)
FARMPRICE_12	Farm price index (12 main products of Thailand) (1995 = 100)
FX	Exchange rate (baht/US dollar)
FX88	Exchange rate index (1988 = 100)
FX94	Exchange rate index (1994 = 100)
GCB	Government cash balance (billion baht)
GDPN	Gross domestic product at current market prices (billion baht)
GDPR	Gross domestic product at 1988 constant prices (billion baht)
GDPR_HSM	Gross domestic product trend at 1988 constant prices, estimated from Hodrick-Prescott and exponential smoothing methods (billion baht)
GREV	Government revenue (billion baht)
IPR	Private investment at 1988 constant prices (billion baht)
IPUB	Public investment at 1988 constant prices (billion baht)
$MBROAD^{D}$, $MBROAD^{S}$	Money supply (billion baht)
MGR	Imports of goods at 1988 constant prices (billion baht)
MLR	Minimum lending rate (per cent per annum)
MR	Imports of goods and services at 1988 constant prices (billion baht)
MSR	Imports of services at 1988 constant prices (billion baht)
NEER	Nominal effective exchange rate (1994 = 100)

NFA	Net foreign assets (billion baht)
OTHTIND	Other indirect taxes (billion baht)
PCREDIT	Claims on private sector (including securities holdings by the private sector) (billion baht)
PGCON	Government consumption deflator (1988 = 100)
PGDP	GDP deflator (1988 = 100)
PIFX	Public investment deflator (1988 = 100)
PIP	Private investment deflator (1988 = 100)
PLANDTH	Townhouse (including land) price index (1991 = 100)
PM$	Goods and services import price index (US dollars, 1988 = 100)
PMG$	Goods import price index (US dollars, 1988 = 100)
PMS$	Services import price index (US dollars, 1988 = 100)
PPI	Producer price index (2000 = 100)
PRESSURE	Pressure on exchange rate
PX$	Goods and services export price index (US dollars, 1988 = 100)
PXG$	Goods export price index (US dollar, 1988 = 100)
PXS$	Services export price index (US dollars, 1988 = 100)
RD3M	Three-month deposit rate (per cent per annum)
REER	Real effective exchange rate (1994 = 100)
RESERVE	International reserves (billion US dollars)
RPPI	Retail petroleum price index (1996 = 100)
TAXREV	Tax revenue (billion baht)
TC	Corporate income tax (billion baht)
TD	Direct tax (billion baht)
TEXC	Excise tax (billion baht)
TH	Personal income tax (billion baht)
TIND	Indirect tax (billion baht)
TVAT	Value added tax (billion baht)
WEALTH	Asset value (M2A and securities value) (billion baht)
XGR	Exports of goods at 1988 constant prices (billion baht)
XR	Exports of goods and services at 1988 constant prices (billion baht)
XSR	Exports of services at 1988 constant prices (billion baht)

Independent variables

CPIUS	Consumer price index of the United States (1990 = 100)
CGOVN	Government consumption at current prices (billion baht)
DUBAI	Dubai crude oil price (US dollars/barrel)
FARMPRICE_OTH	Other items of farm price index (1995 = 100)
FEDFUND	Federal funds rate (per cent per annum)
FINB	Government bond issuance for financial sector restructuring (billion baht)
GCAPITAL	Government capital expenditure (billion baht)
GCURRENT	Government current expenditure (billion baht)
IPUBN	Government investment at current prices (billion baht)

MINWAGE	Minimum wage (baht/day)
MUV	Manufacturing unit value index (2000 = 100)
NONBUDGET	Government non-budgetary balance (billion baht)
NPL	Non performing loans (billion baht)
OTHBP	Other items of balance of payments (billion baht)
OTHCAP$	Other items of capital and financial account (billion US dollars)
OTHGDP	Other items of gross domestic product at 1988 constant prices (billion baht)
OTHMBROAD	Other items of MBROAD (billion baht)
OTHNFA	Other items of net foreign assets (billion baht)
OTHREV	Non-tax revenue (billion baht)
PW_NONF	World non-fuel commodity price index (1995 = 100)
POTHGDP	Other items of gross domestic product deflator (1988 = 100)
RC	Corporate income tax rate (per cent)
REGIONFX	Regional exchange rate index (China, Singapore, Indonesia, Korea and the Philippines) (1994 = 100)
REXC	Excise tax rate (per cent)
RH	Personal income tax rate (per cent)
RMGR	Imports of goods to imports of goods and services ratio
RMSR	Imports of services to imports of goods and services ratio
ROTHTIND	Other indirect tax rate (per cent)
RP1D	1-day repurchase rate (per cent per annum)
RVAT	Value added tax rate (per cent)
RXGR	Exports of goods to exports of goods and services ratio
RXSR	Exports of services to exports of goods and services ratio
TPCPI	Trading partners consumer price index (Asian region economies, United States, Japan, euro area economies and United Kingdom) (2002 = 100)
TPGDP	Trading partners gross domestic product index (Asian region economies, United States, Japan, euro area economies and United Kingdom) (2002 = 100)
TPFX	Trading partners exchange rate per US dollar (Asian region economies, United States, Japan, euro area economies and United Kingdom) (1994 = 100)
WEN	Energy weight in CPI basket (proportion)
WFARMPRICE_12	Weight of 12 main products in farm price index basket (proportion)
WFARMPRICE_OTH	Weight of other items in farm price index basket (proportion)
WFP_12	World farm price index (12 main products of Thailand) (1995 = 100)
WRFOOD	Raw food weight in CPI basket (proportion)

Dummy variables

POST2000Q3	represents periods since 2000:Q3 where 2000:Q3 onwards = 1, other = 0
PRE2000Q3	represents period before 2000:Q3 where 2000:Q3 onwards = 0, other = 1
SALARY	represents periods where there were changes in the civil servants' salary structure, where 1994:Q4 2004:Q2 and 2007:Q1 = 1, other = 0

Corporate variables

ASSET	Assets (billion baht)
COGS	Cost of goods sold (billion baht)
DE	Debt to equity ratio (times)

DEBT	Liabilities (billion baht)
DUM01Q4	Represents debt restructuring period, where 2001 Q4 to present = 1, other = 0
EBIT	Profit (Loss) before interest and income tax expenses (billion baht)
EQUITY	Shareholders' equity (billion baht)
EXTRA	Other expenses (billion baht)
ICR	Interest coverage ratio (times)
INT	Interest expenses (billion baht)
NI	Net profit (loss) (billion baht)
OTHER	Other expenses (billion baht)
PPI	Producer price index (2000 = 100)
SALES	Revenue from sale of goods (billion baht)
TAX	Corporate income tax (unit: billion baht)

Household Model

LOANHHT	Banks' lending to households (billion baht)
INTHH	Interest payments (billion baht)
IGEARHH	Ratio of interest payments to income after tax (per cent)