THE PROPERTY MARKET AND THE MACRO-ECONOMY

In the wake of the Asian financial crisis, property prices in Hong Kong dropped sharply relative to prices of other goods and services — by close to 50% between the last quarter of 1997 and the last quarter of 2000. The net housing wealth in the private residential sector is estimated to have declined from about 2¾ times GDP to 1½ times.

Changes in property prices can affect other parts of the economy through a number of channels. Our empirical analysis suggests that the decline in the property price reduced private consumption growth — through wealth and balance-sheet effects — by about 3½% in 1998, accounting for about half of the overall decline. Taking into account the effects on private investment, the decline in property prices is estimated to have reduced real GDP by 1¼%, compared with the overall contraction of around 5%.

The decline in property prices has had negative effects on the fiscal balance, as land and other property-related income has declined. The banking sector was also affected, but its overall financial position has remained healthy.

I. Introduction

The property market plays an important role in the Hong Kong economy. Housing is the most important form of savings for many households. In the banking sector, currently about half of domestic credit comprises mortgage loans for the purchase of private residential properties and loans for building and construction, property development and investment. Changes in property prices and rents influence consumer price inflation, and affect Hong Kong's competitiveness. Land sales and stamp duties on property transactions have also been a significant source of government revenue.

The property price fell sharply in the wake of the Asian financial crisis and has remained weak, notwithstanding the strong recovery in the overall economy. This paper examines the impact of the weak property market on the rest of the economy. The remainder of this paper is organised as follows. The next section provides an overview of developments in the property market in recent years. Section III discusses the various channels through which developments in the property market influence other parts of the economy, and assesses the effects of the property price decline in recent years. The final section presents some concluding remarks.

II. Developments in Recent Years

Historical trends in property prices provide a context for the recent developments. Private residential property prices have been on an upward trend in the past two decades, with two notable exceptions — in 1994-95 and the last years of the 1990s (Chart 1).[1] Adjusted for changes in prices of other goods and services, the real property price rose by more than 1½ times during 1984-1993, before dropping by 12% during 1994-95. Price increases resumed from 1996, and accelerated in the first part of 1997. In the subsequent correction in the wake of the Asian financial crisis, real property

1 Prices of office and retail properties share similar trends, although the retail property price appears to be more stable. In the following analysis, we focus on the private residential property sector, in part because of its wider and more significant influences on the rest of the economy.

prices dropped by more than 40% between the last quarter of 1997 and the last quarter of 1998, returning to their levels in the early 1990s. Residential property rents also fell, by 27% in real terms during the same period (Chart 2). Real property prices were broadly stable in the subsequent period, but weakened further in the latter part of 2000. Reflecting the weakness of the

Chart 1
Nominal and Real Residential Property Price

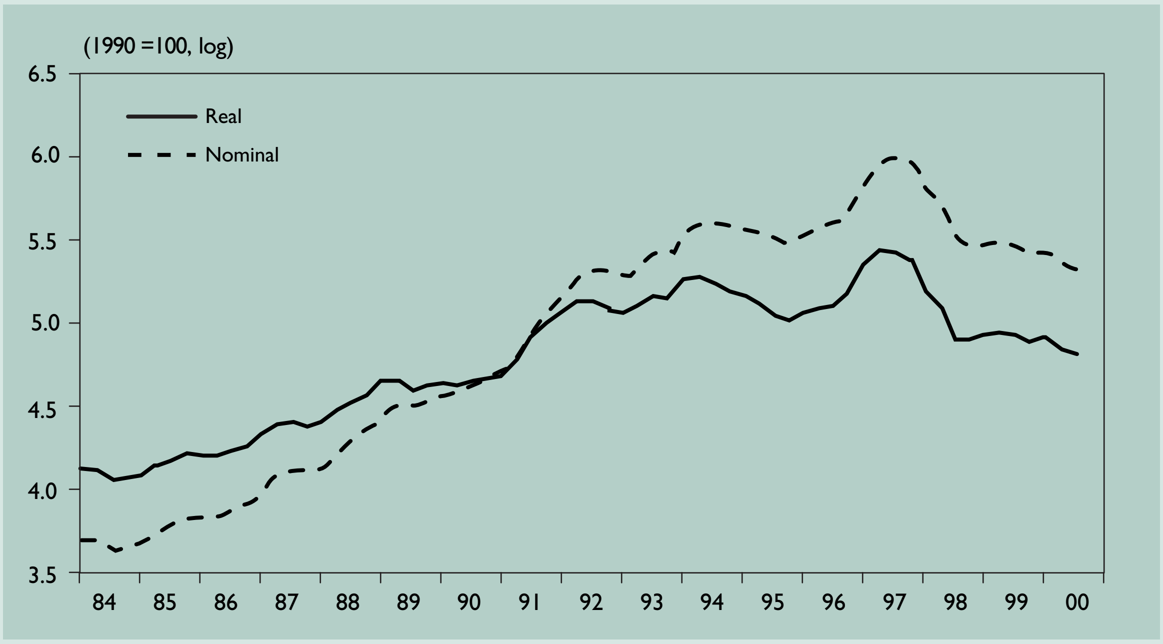
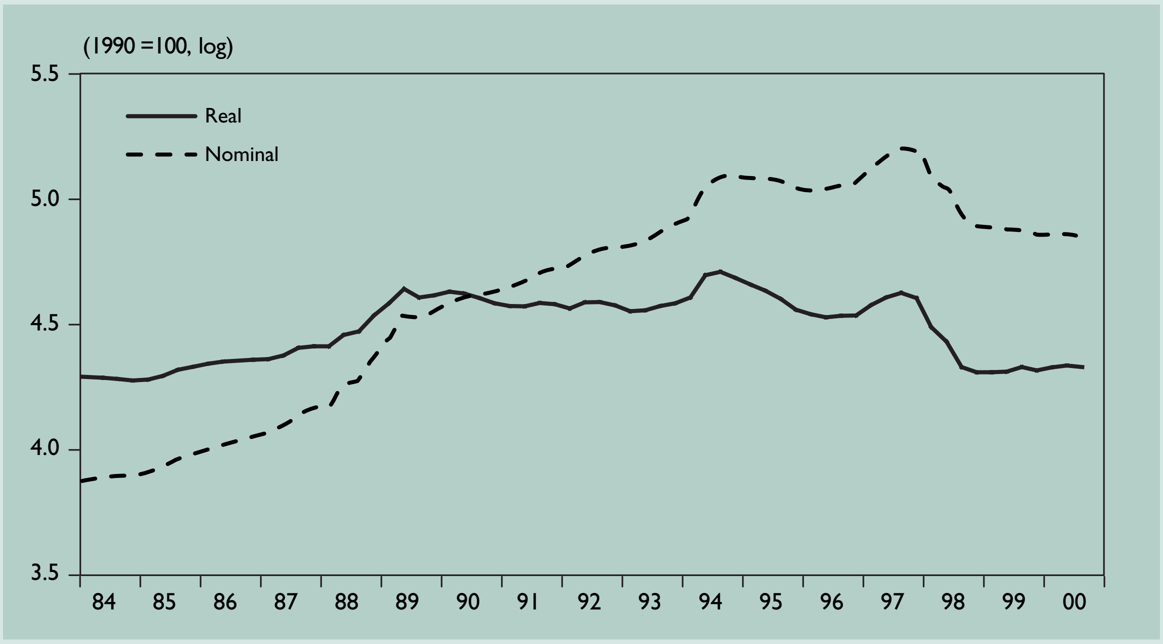


Chart 2
Nominal and Real Residential Rent



market, the transaction volume also dropped sharply, with the number of sale and purchase agreements falling from over 200,000 in 1997 to less than 86,000 in 2000.

Reflecting the decline in the property price, net housing equity in the private residential sector is estimated to have dropped by 53% from HK$3.7 trillion in 1997 to HK$1.8 trillion in 2000.[2] As a ratio to nominal GDP, net housing wealth dropped from 2.8 times GDP in 1997 to 1.4 in 2000, back to the level in the early 1990s (Chart 3). For some households, the fall in property prices has resulted in the value of their properties falling below the size of their outstanding mortgages — the problem of *negative equity*. Negative equity has become a special and significant factor affecting the impact of property price changes on the rest of the economy, as will be discussed below.

III. Impact of Property Price Fluctuations on the Economy

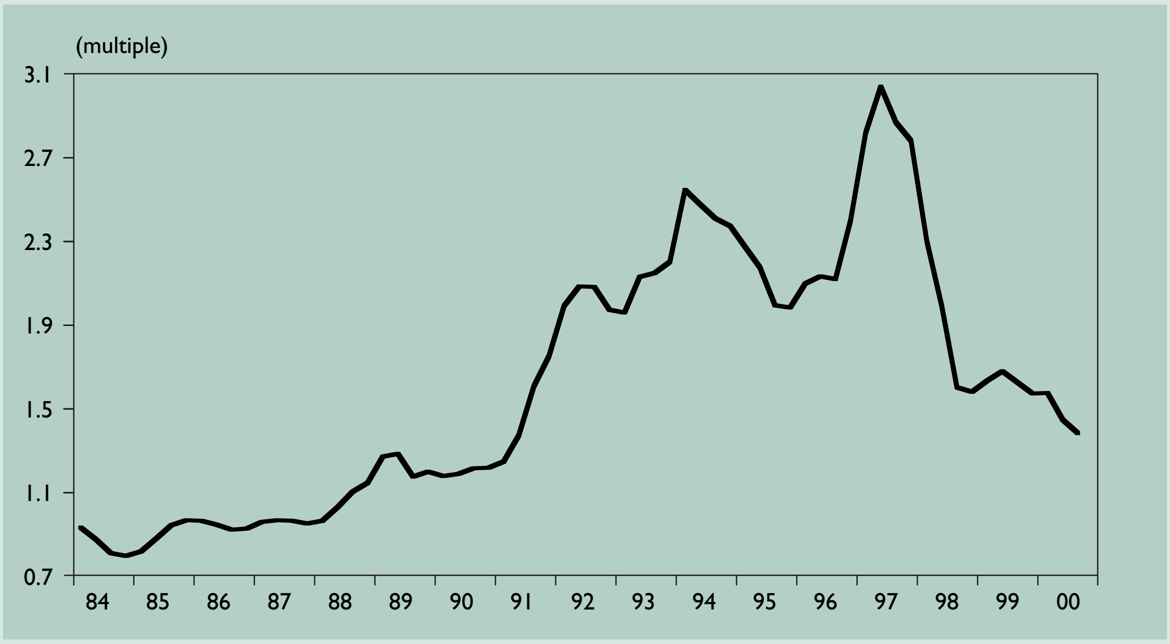
The economy can be affected by fluctuations in the property price through a variety of channels. Changes in property prices can influence private consumption and investment through wealth and balance-sheet effects. They also affect consumer price inflation via both direct and indirect channels, and can have a significant effect on Hong Kong's competitiveness as an international trade and financial centre. The banking sector is susceptible to fluctuations in the property price due to its exposure to the property market. Finally, the fiscal position of the government may be affected via the revenue channel.

This section presents an analysis of the effects of property price declines on the various sectors of the economy. To this end, we first provide analytical considerations, drawing on the existing literature as well as experiences of other economies. We then put the discussion in the context of Hong Kong, and provide some empirical evidences.

a. Property price and consumption

One much-cited mechanism through which changes in the property price influence consumption is the wealth effect. Since consumption spending

Chart 3
Ratio of Net Housing Wealth to Nominal GDP



2 Estimated as the total market value of the private housing stock minus the total outstanding mortgage balance.

depends, among other things, on households' lifetime financial resources, and housing wealth is an important part of those resources, changes in the property price can be expected to influence consumption. For example, when the property price drops, so do lifetime resources, and consumption falls. However, there are a number of qualifications to this simple view of wealth effect. In particular, one needs to take into account the response to property price movements not only of current homeowners, but also of future homebuyers. For future homebuyers, a rise in property prices is likely to have a negative effect on consumption, because savings need to be raised to meet increased down-payment.[3] Likewise, a fall in property prices may induce potential homebuyers to increase consumption, because of reduced down-payments.

For homeowners, a rise in the property price means an increase in wealth, thus weakening their saving incentives. The significance of this positive wealth effect depends importantly on the fungibility of housing wealth in an economy. Homeowners benefit from a rise in price, but they can only realise their capital gains by trading down or exiting the owner-occupied sector. To this end, there is a need to find a "matching" household wishing to trade up or a first-time buyer entering the housing market. A well-developed and liquid secondary market should help. Alternatively, homeowners may convert their capital gains into higher current consumption by taking secondary mortgages or loans on property collateral. In this respect, a well-developed financial sector would be important (Miles, 1992).

An alternative view on the effect of property price changes on private spending emphasises the so-called "balance sheet or credit channel" (Bernanke and Gertler, 1995). Because of credit market frictions, cash flows and conditions of balance sheets are important determinants of agents' ability to borrow and lend. To the extent that the market value of the assets held by households affects their borrowing capacity to finance current spending, property price fluctuations would have an influence on household consumption.

Two important implications of the balance-sheet channel are worth noting. First, the magnitude of the balance-sheet effect depends upon initial financial conditions, that is, the initial state of household, firm and bank balance sheets. If the balance sheets are initially strong — with low leverage and strong cash flows — then even rather large declines in asset prices are unlikely to push households and firms into the region of financial distress — in which normal access to credit is jeopardised. Secondly, there can be significant feedback and magnification effects through the function of the financial intermediaries. In booming periods with rising asset prices, as the net worth of households and corporations increases, so do banks' balance sheets and lending capacity, potentially fostering a credit boom which reinforces the rise in asset prices and magnifies the effects on private spending. Conversely, under generalised asset price deflation, the negative effects on households and banks' balance sheets can become self-reinforcing, creating a credit crunch and worsening the contractionary effects triggered by the original drop in asset prices.

To put the above considerations in Hong Kong's context, the proportion of households owning private residential properties in Hong Kong is small relative to some other developed economies, implying that the wealth effect may be less significant in Hong Kong. Rough estimates based on the owner-occupation rate in the private residential sector and the latter's share in the total housing sector suggest that about 35-40% of the households in Hong Kong own a private residential property. The share is significantly lower than that of over 70% in the US and UK, for example (Kennedy and Andersen, 1994). Nevertheless, the relatively liquid secondary market for properties and the well-developed financial sector suggest that the fungibility of housing wealth in Hong Kong should be comparable to that in other developed economies. In particular, the widespread practice of

3 However, two factors may attenuate this negative effect on consumption. First, some renters might give up earlier plans to purchase a house and instead consume the share of income previously set aside to meet down-payment requirements. Secondly, some households may "scale down" earlier plans and use their savings to purchase a flat of a smaller size. Nevertheless, studies of experiences in other economies suggest that the overall effect of a rise in property prices on consumption is negative for future home buyers (Kennedy and Andersen, 1994).

using properties as collateral for consumer and business loans in Hong Kong point to the importance of the balance sheet and credit effects. The tightening of credit stance by banks in the wake of the Asian financial crisis in part reflected the much-reduced collateral value of properties, for example. Nevertheless, the relatively strong initial conditions in both the banking and non-bank private sector prior to the Asian financial crisis have helped to limit the disruptive impact of asset price declines on private spending.

A special factor that may have reinforced the wealth or balance-sheet effects on private consumption is the phenomenon of negative equity. Households with negative equity — particularly the first-time buyers — are more likely to have responded to it by increasing their savings to help repair their balance sheets. As the weakness in the property market drags on, the negative effects on the affected households' balance sheets and cash flows could become increasingly significant.

Our econometric analysis suggests that developments in the property market had significant effects on private consumption expenditure in Hong Kong in the past decades (Box 1). Specifically, a 10% drop in property prices relative to prices of other goods and services would reduce private consumption growth by about 1 percentage point.[4] In addition, there are indications for the existence of a non-linear effect of property price declines on household spending, as negative equity is found to have had a separate negative effect on private consumption.[5] [6] Putting these estimates together, the decline in the property price in 1998 reduced private consumption growth in that year by about 3$^1/_2$%. This compares with an actual drop in private consumption expenditure by close to 7$^1/_2$% in the year.[7]

b. Property price and investment

Changes in the property price can influence investment mainly via two channels. First, an increase in the property price lowers the cost of new construction relative to acquisition of existing buildings, thereby stimulating investment in the property sector. Secondly, the credit channel — as noted above — can influence investment in both the property sector and other sectors of the economy. Rising asset prices, for instance, will improve firms' and banks' balance sheets, which may in turn encourage banks to increase credit to the business sector. The significance of the effect on overall investment depends in part on the financing structure of the corporate sector, that is, the importance of bank credit in overall finance.[8]

Based on the equations presented in Box 1, it is estimated that the decline in property prices reduced private investment by 3$^1/_2$% in 1998, compared with the actual drop of about 7%. Combining the effects on private consumption and investment, and after adjusting for some import leakage, it is estimated that the drop in the property price had reduced real GDP by 1$^1/_4$% in 1998, about one quarter of the overall contraction.

c. Property price and the banking sector

Financial institutions' balance sheets can be affected by fluctuations in the property price because of their exposure to the property market. One direct channel is through valuations of banks' holdings of real estate assets. A less direct but more important channel is through changes in the net worth of the household and corporate sectors. To the extent that falling property prices affect the

4 The estimated effect is significantly higher than that for the stock market prices in Hong Kong, for which the same extent of decline would lower private consumption by about 1/4 percentage point. The difference reflects in part the relatively low number of households holding shares in Hong Kong. It is generally believed that despite significant increases in recent years, the number of households owning shares is still significantly lower than the number of households which own properties.

5 The non-linear effect means that an additional 10% decline in the price should have a larger effect than does the initial 10% drop, for example.

6 In our sample, negative equity occurs mostly for properties whose prices had declined by more than 40% from their purchase levels. The negative equity variable may simply capture the larger impact on household spending as the price decline accelerates.

7 The rest of the decline in private consumption was attributable to other adverse developments, including higher real interest rates, much lower equity prices, and lower household income.

8 Experiences in other economies indicate that property prices have a more significant effect on investment in continental Europe and Japan than in the US and UK, in part because of the more widespread use of property collateral against loans and the greater role of bank credit in firms' financing in the former countries (BIS,1998).

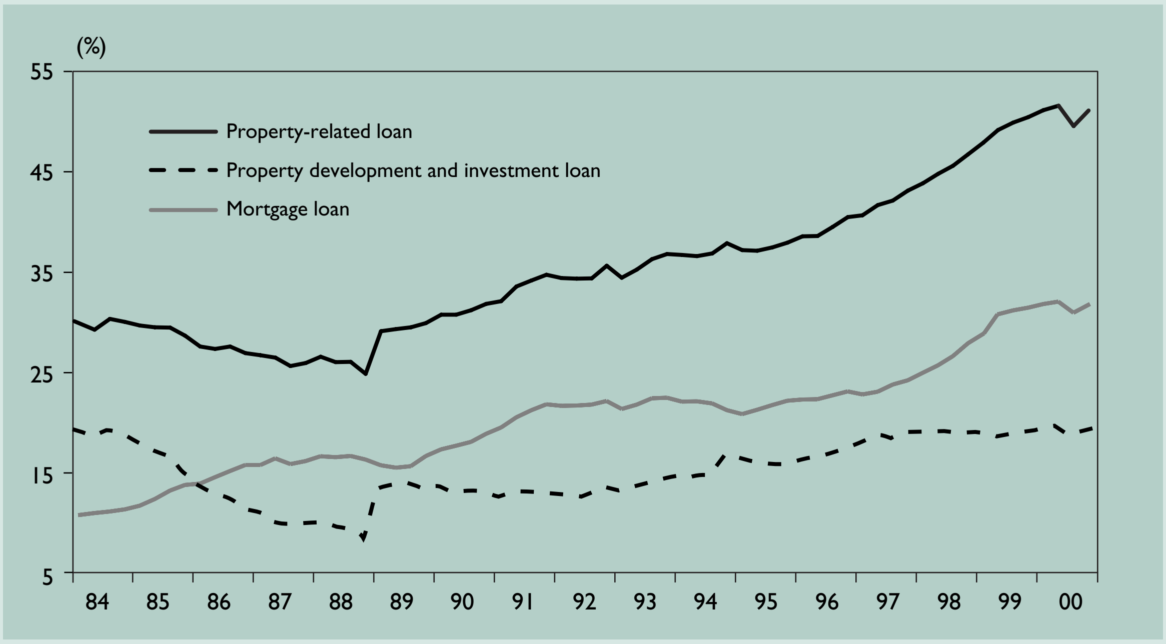
solvency of household and corporate borrowers, they tend to raise the share of non-performing loans in banks' portfolios, thereby undermining their capital position and lending capacity.[9]

How vulnerable are banks to fluctuations in property prices would in part depend on the extent of their exposure to the property market. In Hong Kong, the banking sector's exposure to the property market has increased significantly over the past two decades, as indicated by the increased share of property-related credit — including mortgage loans and loans for building and construction and real estate development — in total domestic credit (Chart 4). The ratio increased from 30% in 1984 to 51% in 2000, with the rise in recent years reflecting mainly the contraction of banks' overall loan portfolio. The actual exposure is likely to be higher than the figures shown here, which do not include other consumer and corporate loans extended against property collateral.[10] Financial indicators suggest that banks' balance sheets and profitability were affected by the downturns in economic activity and the property market in recent years. These include increases in the mortgage delinquency rate, rises in classified loans as a ratio of total loans, and declines in banks' profits (Chart 5). Nevertheless, it should be noted that the overall position of the banking sector remains healthy. The classified loans ratio has declined after reaching its peak in mid-1999. The mortgage delinquency rate remains low, despite a significant increase from 1998.

d. Property price and inflation and competitiveness

There are a number of channels through which property market developments can influence consumer price inflation. One is through the direct impact on the housing cost component of the consumer price index (CPI). Secondly, to the extent that fluctuations in property prices affect private consumption and investment as discussed above, the resulting changes in aggregate demand may have an impact on prices of other goods and services. Finally, variations in property prices may

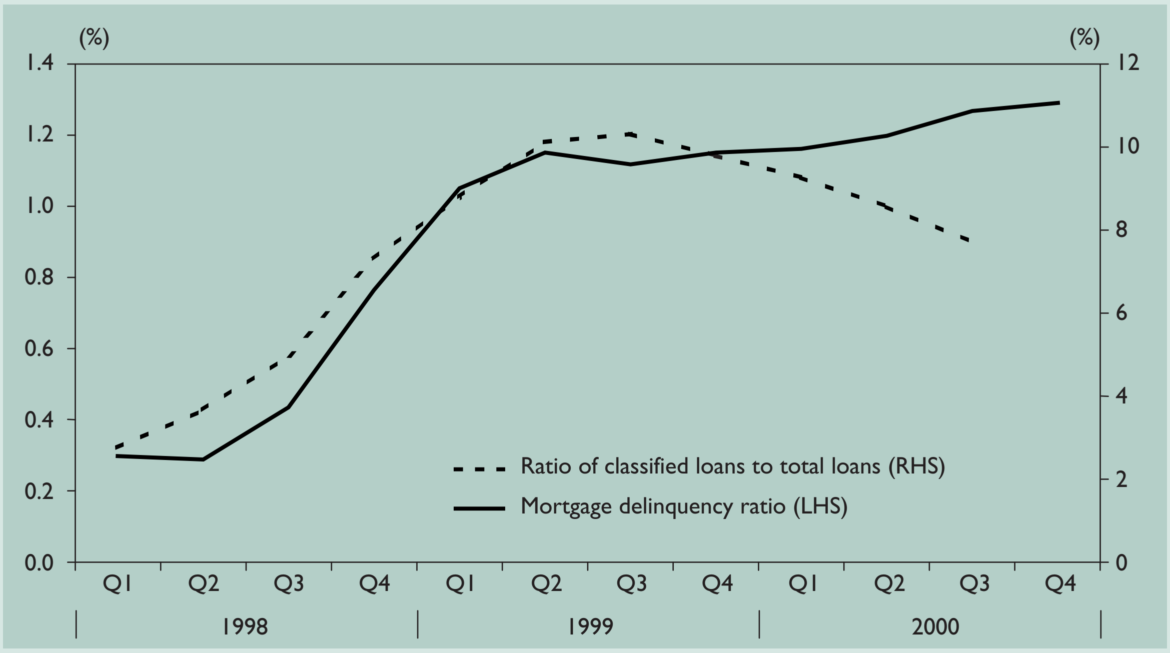
Chart 4
Share of Property-related Loan in Total Domestic Credit



9 Sharp variations in property prices have tended to be associated historically with both macroeconomic instability as well as problems in the banking sector in many countries. In the early 1990s, for example, house price volatility damaged financial institutions in the US, the UK and Japan, while the bursting of bubbles in the housing market directly contributed to the banking crises in Finland and Sweden (BIS, 1998).

10 Data on the latter are not available, but anecdotal evidence indicates that they are significant.

Chart 5
Bank Asset Quality



also affect expectations concerning future movements in the price of other goods and services (including wages).

In Hong Kong, the rental component accounts for about 26% of the CPI basket. As a result, rental changes tend to have a significant effect on CPI movements, albeit with considerable lags due to 1-2 year rental contracts. Of the total decrease of 9% in the CPI from its peak in July 1998 to December 2000, the fall in the rental component accounted for $4\frac{1}{2}$ percentage points. The rental component continues to exert downward pressure on the CPI, but at an increasingly moderate pace, as the lagged effect of rental declines in the earlier years diminish. There were likely also indirect effects through changes in aggregate demand. These developments have helped to improve the competitiveness of the Hong Kong economy. The real effective exchange rate (REER) of the Hong Kong dollar has dropped by 13% from its peak in the third quarter of 1998, reflecting in large part declines in domestic prices of goods and services including rents relative to foreign prices.

e. Property price and government fiscal position

Because land and other property-related income represent an important source of revenue to the government in Hong Kong, fluctuations in the property price may have a significant effect on the fiscal position. The share of land premia and stamp duties accounted for an average of 26% of the total revenue in the first part of the 1990s before the Asian financial crisis. The ratio has declined significantly in recent years to an average of about 14%, reflecting both lower land premia and stamp duties. The stamp duties dropped due to the weaker property price as well as lower transaction volumes. The decline in land premia also reflected both price and volume effects, including particularly the suspension of land sales for most of FY1998. The decline in land premia and stamp duties reduced the fiscal balance by about $2\frac{3}{4}$% and $1\frac{1}{2}$% of GDP in FY1998 and FY1999 respectively, compared with the average level in 1991-97.[11]

11 The negative effect was offset by the much larger-than-expected investment income from fiscal reserves. The latter were placed with the Exchange Fund and benefited from the capital gains in stock investment as a result of the market intervention in 1998. Excluding this extraordinary item, the fiscal balance would have recorded deficits of 4% and $2\frac{1}{4}$% of GDP in FY1998 and FY1999 respectively, compared with the actual deficit of $1\frac{3}{4}$% of GDP in FY1998 and a surplus of $\frac{3}{4}$% of GDP in FY1999.

IV. Concluding Remarks

In the wake of the Asian financial crisis, the property price dropped sharply relative to prices of other goods and services, returning to its level in the early 1990s. Property prices were broadly stable in the subsequent period, but weakened further in the latter part of 2000. The transaction volume more than halved during 1997-2000. Reflecting the decline in the property price, the net housing equity in the private residential sector is estimated to have dropped from $2^{3}/_{4}$ times GDP in 1997 to $1^{1}/_{2}$ times in 2000, also back to the level in the early 1990s. For some households, the fall in property prices has resulted in the problem of negative equity.

Fluctuations in property prices can affect other parts of the economy through various channels. Private consumption and investment — and hence output growth — can be affected through wealth and balance-sheet effects. Our empirical analysis suggests that the decline in the property price contributed about a quarter of the decline in real GDP in 1998. The drop in rentals accounted for about half of the decrease in the consumer price index in the wake of the Asian financial crisis. The banking sector was also adversely affected by the weak property market, but the overall financial position remains healthy. Finally, the drop in the property price has had negative effects on the fiscal balance, as land and other property-related income fell significantly amid the weak property market.

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BOX 1

Property Price and GDP Growth : Empirical Estimates

Two approaches can be used to assess empirically the impact of property market developments on output growth. One is to conduct simulation using a macro-econometric model that embodies the various channels through which property market variables influence household and business behaviour. The second approach employs individual equations that relate private consumption and investment to property market variables, controlled for the influence of other major factors such as real income and interest rates. As a full-fledged macro-economic model is not ready for the current purpose, three equations — for private consumption *(PCE)*, property-related private investment *(PR)*, and private investment in machinery and equipment respectively *(ME)* — were employed. These equations can be viewed as reduced-form equations from an underlying macro-economic model. The equations were estimated using OLS with annual data from 1984 to 2000.

Private Consumption

Percentage change in PCE was related to that in real GDP *(GDP)*, real property prices *(RPP)*, real stock market prices *(RHSI)* and change in the share of total households facing negative equity *(NQ)*. Real property and stock market prices are defined as the nominal price indexes deflated by the consumer price index. Real GDP was included to reflect the income effect, while real stock and property prices should capture the wealth and balance-sheet effects as discussed in the text. The negative equity variable could also effectively capture the possible nonlinear effects of property price declines on consumption, as noted in the main text. It is noted that the effect of interest rate changes on private consumption tend to work mainly through the asset price channels in Hong Kong.

$$\underset{}{\Delta PCE} = \underset{(2.7)}{0.015} + \underset{(5.7)}{0.598}\Delta GDP + \underset{(1.1)}{0.024}\Delta RHSI + \underset{(3.2)}{0.100}\Delta RPP - \underset{(1.4)}{0.657}\Delta NQ$$

$R^2 = 0.93$ D-W statistics = 2.08

The estimated results indicated that changes in the property price have larger effects on private consumption than do changes in the stock price. Specifically, a 10 percent rise in real property prices would raise PCE growth by 1 percentage point, compared with 1/4 percentage point for the same extent of increase in share prices.

Private Investment

Two empirical equations were estimated separately for property-related investment and investment in machinery and equipment. In addition to real property prices, several other variables were included, notably a long-term expected real interest rate *(LTRR)*, real GDP growth, and growth of loans (in real terms) for building and construction, property development and investment *(LOAN)*. To reflect some specific conditions for machinery and equipment investment in the estimation period, two dummy variables *(ACP and IT)* were included to account for the effects of the Airport Core Programme in 1994-97 and the booming IT sector in 2000 respectively.

$$\Delta PR = \underset{(1.5)}{-0.079} + \underset{(1.2)}{0.555}(\Delta GDP + \Delta GDP_{-1}) + \underset{(2.7)}{0.393}\Delta RPP + \underset{(2.1)}{0.299}\Delta LOAN_{-1}$$

$R^2 = 0.58$ D-W statistics = 1.57

$$\Delta ME = \underset{(1.9)}{-0.04} + \underset{(3.9)}{0.31}(\Delta RPP + \Delta RPP_{-1}) + \underset{(2.4)}{1.08}\Delta GDP_{-1} - \underset{(3.7)}{0.04}\Delta LTRR + \underset{(5.5)}{0.008}ACP + \underset{(5.3)}{0.29}IT$$

$R^2 = 0.91$ D-W statistics = 2.19

Private investment in Hong Kong appears to be strongly influenced by property price movements. In particular, a rise in property prices by 1 percent will raise property-related investment by over 1/4 percent.

Net Trade Balance Equation

Based on the estimated coefficients, the effects of a certain percentage change in the property price on private consumption and investment can be derived. The effect on growth in total domestic demand can in turn be obtained. To derive the net effect on overall real GDP growth, the import leakage is estimated using the following equation that relates real trade balance as a ratio to GDP *(TBYR)* to logarithms of domestic demand *(DD)*, foreign demand *(FD)* and the real effective exchange rate *(REER)*.

$$TBYR = \underset{(12.8)}{1.737} - \underset{(6.0)}{0.281}REER - \underset{(8.4)}{0.545}DD + \underset{(7.7)}{0.606}FD$$

$R^2 = 0.91$ D-W statistics = 1.91

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