

Hong Kong's Approach to Financial Stability*

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This article summarizes the characteristics of Hong Kong's approach to financial stability. It starts with an introduction to the macroeconomic policy setting and with a conceptual discussion on why financial cycles are likely to be an intrinsic feature of market economies. It then outlines the author's interpretation of the regulatory and supervisory philosophy in Hong Kong and describes in more detail the framework and conduct of macroprudential policies regarding housing market risks. The financial policy framework in Hong Kong emphasizes the importance of limiting the degree of leverage on the balance sheets of both the private and public sectors so that households, firms, and the government can weather financial cycles. Hong Kong's approach to financial stability therefore has two broad elements: first, macroprudential measures to lean against credit growth and the buildup of leverage in the upswing phases of financial cycles; and secondly, contingency planning and stress testing to ensure that participants in the financial system would be able to survive as going concerns in the downswing phases of financial cycles.

JEL Codes: E58, G18, G28.

1. Introduction

Hong Kong is a major international financial center in the Asia-Pacific region. As a special administrative region of China, it is a bridge between Mainland China and the rest of the world, serving as an entrepôt of trade and fund flows.¹ Hong Kong has developed

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¹The trade and financial market linkages between Hong Kong and Mainland China are analyzed in Genberg and He (2008).

into a highly service-based economy, with 93 percent of GDP, about US\$250 billion in 2011, being contributed by service industries. Hong Kong has been consistently ranked as one of the freest economies in the world. The Basic Law, Hong Kong's mini-Constitution, stipulates the following: "No foreign exchange control policies shall be applied in the Hong Kong Special Administrative Region. The Hong Kong dollar shall be freely convertible," and "The Government of the Hong Kong Special Administrative Region shall safeguard the free flow of capital within, into and out of the Region."

The status of Hong Kong as a major international financial center has important implications for financial stability. The gross volume and volatility of capital flows tend to be large in comparison with the size of the local economy. In mid-2012, Hong Kong's gross international investment assets were thirteen times its GDP, and its gross international investment liabilities were ten times its GDP. In addition, the sizes of the financial institutions domiciled in Hong Kong, many of them being the largest in the world,² are also very large in comparison with the size of the local economy. As of June 2012, total assets of the banking system in Hong Kong were 700 percent of GDP.

Over the years, the Hong Kong Government and the Hong Kong Monetary Authority (HKMA) have developed a unique policy framework that has served the economy well. Overall, macroeconomic policy in Hong Kong puts emphasis on long-term (through-the-cycle) stability rather than demand management. The stable external value of the currency, set in the context of the linked exchange rate system through a currency board arrangement, has contributed to microeconomic efficiency gains. The choice of the linked exchange rate system also reflects the recognition that, as a major international financial center, Hong Kong's monetary conditions are significantly affected by major reserve-currency countries, irrespective of the type of monetary policy frameworks it chooses to adopt.³ There is a deep-rooted fiscal conservatism in Hong Kong. The Basic Law stipulates that "the Hong Kong Special Administrative Region shall follow the

²Out of the twenty-eight global systematically important financial institutions (G-SIFIs) identified by the Financial Stability Board, twenty-seven have branches or affiliates in Hong Kong.

³The origins and evolution of Hong Kong's monetary policy framework and its relationship with financial stability is discussed in Greenwood (2008).

principle of keeping the expenditure within the limits of revenues in drawing up its budget, and strive to achieve a fiscal balance, [and] avoid deficits." In most years the Government had budget surpluses and as a result has accumulated large fiscal reserves, amounting to one-third of GDP as of end-2011.

The financial policy framework in Hong Kong emphasizes the importance of limiting the degree of leverage on the balance sheets of both the private and public sectors so that households, firms, and the government can weather financial cycles. Hong Kong's approach to financial stability therefore has two broad elements: first, macroprudential measures to lean against credit growth and the buildup of leverage in the upswing phases of financial cycles; and secondly, contingency planning and stress testing to ensure that participants in the financial system would be able to survive as going concerns in the downswing phases of financial cycles. This approach is in line with that proposed by Shin (2010), albeit with an emphasis on the management of the asset side of a bank's balance sheet.

Hong Kong's approach to financial stability has to a significant extent been shaped by its own history, particularly lessons from the Asian financial crisis that engulfed the region during 1997–98. On the eve of the Asian financial crisis, housing prices in Hong Kong had shown signs of large misalignment with economic fundamentals, and the Hong Kong dollar had also become overvalued. In August 1998, the HKMA made the controversial move to intervene in the equity market to counter hedge funds' double market play. Taking advantage of the rule-based currency board arrangements, the hedge funds attacked the Hong Kong dollar to produce very high interest rates with a view to sending the stock market into a nosedive and benefiting from short positions in stock index futures. The Hang Seng Index recovered quickly after HKMA intervention. The operation also turned out to be profitable. By April 2001, the HKMA had recouped all the invested money (HK\$118 billion) by disposing of a big chunk of the acquired stocks through an exchange-traded fund called the Tracker Fund.

But the external shock of the Asian financial crisis prompted a collapse of the property market: housing prices dropped by 66 percent, output contracted by 9 percent in total over five quarters and remained more or less flat for seven years, the unemployment rate

climbed from 2 percent to 8 percent, and consumer price declined by 16 percent over the next six years.

What is more interesting was the very low mortgage delinquency ratio that peaked at 1.4 percent despite the 66 percent correction in property prices. There was no banking crisis and there was no need to bail out banks. This is in sharp contrast to the banking and financial crisis in the United States and Europe after Lehman's collapse, where housing prices dropped less significantly but the delinquency ratios increased more sharply. In the United States, home price has dropped by some 30 percent, while the mortgage delinquency ratio increased to over 10 percent; in Ireland, home price has fallen by 50 percent, while the ninety-day overdue mortgage arrears ratio rose to almost 11 percent.

A range of factors had contributed to the relatively low mortgage delinquency ratio in Hong Kong after the bubble burst, including the declining mortgage rate and high savings rate of households. But an important factor was the macroprudential measure that capped the loan-to-value (LTV) ratio of mortgages at 70 percent. This provided banks with a significant cushion to absorb property-price corrections, and a substantial equity stake that maintained incentives for borrowers to service loans as long as they were able to do so.

2. If We Cannot Avoid Financial Crises, How Can We Survive Them?

"It's awful. Why did nobody see it coming?" Queen Elizabeth II asked why nobody had noticed that the global credit crisis was on its way during her visit to the London School of Economics in November 2008. A little over half a year later, on July 22, 2009, Professor Tim Besley and Professor Peter Hennessy, on behalf of a group of distinguished economists of the British Academy, wrote an open letter to the Queen to answer her question: "Your Majesty, the failure to foresee the timing, extent and severity of the crisis and to head it off, while it had many causes, was principally a failure of the collective imagination of many bright people, to understand the risks to the system as a whole."⁴

⁴"Letter to Her Majesty The Queen" dated July 22, 2009, the British Academy, available on the web site of the British Academy: www.britac.ac.uk.

Implied in this reply to the Queen was a belief that if only we had better early-warning indicators, we could have avoided the once-in-a-century trans-Atlantic financial crisis of 2008–09. This belief was also behind the many calls for the setting up of early-warning indicators since the breakout of the crisis. For example, the final communiqué of the G20 summit on April 2, 2009 states, “We agree . . . that the FSB should collaborate with the IMF to provide early warning of macroeconomic and financial risks and the actions needed to address them.”

There are, however, many challenges in anticipating future crises. These challenges range from philosophical to theoretical to statistical.⁵ A philosophical question in thinking of the role of early-warning indicators is whether human beings are rational. If we assume that societies do not like crises and they make an effort to avoid such crises, then when crises do erupt, they must be surprises, accidents, or shocks. As a result, we cannot forecast crises using observed historical data. Therefore, early-warning indicators based on an observed (reduced-form) relationship between indicator variables and the occurrence of crises may not be particularly useful (this is in essence the same problem as identified by “the Lucas critique”). The alternative hypothesis, in contrast, would argue that human societies are perhaps not as rational and keep making the same mistakes (Reinhart and Rogoff 2009).

A theoretical challenge is that our knowledge of financial instabilities has not advanced to such a stage that would allow us to build useful models with predictive powers. This can be illustrated by the so-called Anna Karenina principle. In Tolstoy’s world, “all happy families resemble one another, but each unhappy family is unhappy in its own way.” In a similar vein, every crisis is perhaps unique in its causes and symptoms. Consequently, how do we exhaust all potential causes and build models that are capable of forecasting all types of crises?

A statistical challenge is the signal versus noise problem, as exemplified by the story of “the boy who cried wolf.” This problem is particularly acute since we do not have many observations of financial

⁵This discussion draws on the presentations by the author and by Professor Takatoshi Ito of University of Tokyo at the IMF high-level seminar “Early Warning Systems and Their Role in Surveillance,” February 9, 2010, Singapore.

crises. As is well recognized, there is always a trade-off between a type I error (missing a crisis) and a type II error (false alarm). If the central bank is biased toward minimizing type I errors at the expense of tolerating type II errors—i.e., issuing too many false alarms—then it may lose credibility. However, if the central bank is biased toward minimizing type II errors at the expense of tolerating type I errors—i.e., failing to issue warning signals for the eventual crisis—then it will get blamed for not doing its job.

In the face of these daunting challenges in forecasting financial crises, one legitimate question is then, how should we think about the financial stability mandate? Is it to prevent infrequent bad outcomes, or to survive such bad outcomes? Crises have occurred throughout human history, and they will probably keep occurring in the future. All crises cannot be prevented without a very large sacrifice of efficiency in recognizing the trade-off between efficiency and stability. In this liberalized and globalized world, competitive pressures both domestically and internationally seem to invariably lead to a bias in favor of efficiency against stability. Moreover, societies have different risk preferences, just as families have different views on how children should be brought up. Such differences in risk preferences would lead to different patterns of behavior in tolerating risks, despite an increasingly harmonized global regulatory landscape.

What then would be a robust approach to financial crisis survival? It is advisable for guardians of the society (like central banks) to err on the cautious side and to adopt a “conservative” attitude, while at the same time allowing some room for risk taking by the rest of the society. By conservative I mean a sense of fear and awareness of human beings’ ignorance, or a higher tolerance of type II errors (false alarms). And it would be important to have a “Noah’s ark” (contingency plan) in a robust approach to financial stability.

To sum up, we do not yet or will never have workable models that allow us to pick up all new risks on the horizon and guard against the danger of fighting the last battle. Because of such model uncertainty, it is difficult to choose relevant early-warning indicators to forecast future crises and define operational targets on the value of such indicators. Economists at central banks will need to adopt a suite of approaches to risk analysis, including very close dialogue with colleagues on the front line. Early-warning systems are probably most useful as a mechanism to force key players to think

through what could go badly wrong. While we may be able to anticipate some crises, we will very likely miss some other important ones. Thus maintaining financial stability is as much about crisis survival as crisis prevention.

If I were to reply to the Queen's question, I would write as follows: "Your Majesty, nobody saw the crisis was coming because of the prevailing belief system, which was too optimistic about human beings' capacity to make self-corrections, which believed in the 'end of history'⁶ and the end of business and financial cycles, and which failed to see that the virus can mutate so that outbreaks happen from time to time. We are humbled by the recent crisis experience, and you are unlikely to see a repeat of the same mistakes in the near future. But, with time passing by, memories fading, and people passing away, there will be seemingly convincing theories arguing that humankind has had a breakthrough and history will no longer repeat itself—that is the time we will probably be hit again by another major crisis. You may be disappointed to know that the economic science is not yet, or will never be, able to tell you with much confidence that a financial crisis is on its way. It is always advisable to hope for the best but prepare for the worst."

3. Toward a Financial Stability Framework in Hong Kong

Because of the recognition that financial cycles are probably unavoidable, the authorities in Hong Kong have maintained a conservative approach to regulatory and supervisory policies. Traditionally there has been a strong aversion to moral hazard and a recognition that it is unrealistic for a very small and open economy to avoid all volatilities in asset prices and income. There is thus a limit to what public policies can achieve: the private sector should not expect the government to iron out all volatilities, and instead they are better off limiting the degree of leverage on their own balance sheets.

Before the breakout of the trans-Atlantic crisis of 2008–09, a regulatory philosophy that had become mainstream in the advanced economies had led to a reorientation of supervisory resources to

⁶See Fukuyama (1992).

an assessment of the risk-management systems and processes of the regulated financial institutions, because their risk profiles were so complicated that they were beyond the supervisors' capacity to understand them. As long as the supervisory authorities were satisfied that the board of directors and the risk-management committee have systems in place, their judgments of risks were respected and not to be second-guessed by the supervisory authorities. This approach proved to be disastrous by the crisis experience: neither the board of the directors and risk-management committees nor the supervisory authorities were in the know about the risks that the systematically important financial institutions were taking.

In contrast, the supervisory approach at the HKMA had always emphasized the need to take a view by the supervisors on risks of banks. The supervised institutions had an obligation to satisfy the HKMA supervisors that they understood well what they were doing and the consequences of their risk-taking actions.⁷ An intimate knowledge of the risk profiles of the supervised institutions was considered essential and could only be maintained through close dialogue between the supervisors and the supervised institutions.

Systemwide risk-identification or early-warning exercises are facilitated by the fact that central banking functions and banking supervision are housed under the same roof within the HKMA and the responsibility of maintaining banking stability rests with one single authority, namely the Chief Executive of the HKMA. This would help avoid problems associated with information sharing between the lender of last resort and the banking supervisor. Within the HKMA, coordination of financial stability issues that cut across different departments is handled by the Macro-Surveillance Committee. Beyond the HKMA, the Council of Financial Regulators and the Financial Stability Committee meet regularly to discuss issues of macroprudential concerns.⁸

⁷Differences in regulatory approaches between Hong Kong and other centers are also discussed in Goodstadt (2011).

⁸These bodies are chaired by the Hong Kong Government and have membership from across the different regulatory and supervisory authorities in the banking, debt, equity, insurance, and related markets.

Market intelligence also plays an important role in identifying early-warning signals of risks. Market intelligence is guided by the “follow the money!” principle: If a particular trade or a product is the talk of the town and every bank is diverting resources to that trade or product, then something is not right in the situation! It would at least warrant further supervisory attention.

In terms of policy instruments, macroprudential measures include both across-the-board tools such as regulatory reserves and countercyclical buffers, and sector-specific tools such as limits on loan-to-value (LTV) ratios and debt-service ratios (DSR). Continued efforts have also been devoted to infrastructural enhancements such as positive mortgage data sharing, which are complementary to discretionary policymaking.

To sum up, the financial stability framework in Hong Kong includes an emphasis on the consistency and transparency of policy frameworks and strict enforcement of rules. While regulatory authorities are market friendly and strive not to impose too heavy a regulatory burden, they do expect to be respected. In other words, non-compliance is not taken lightly. There is also an emphasis on the robustness of financial infrastructures. Most notably, there is extensive contingency planning: almost every aspect of the functions performed by the HKMA is subject to a rigorous process of tail-risk analysis and operational drills in scenarios of tail-risk realizations.

4. Macroprudential Regulation and Supervision of Housing Market Risks in Hong Kong

Because of the importance of the property market in the Hong Kong economy, there has been a focus on exposures to the property market in HKMA's financial stability work. The HKMA has been using macroprudential policies to prevent bank credit from fueling property-price bubbles and to ensure that banks and their customers have sufficient cushions on their balance sheets to survive volatilities in property prices. These policies do not aim at targeting property prices but may help to dampen the amplitude of property-price cycles and to prevent the collateral damage that other more blunt policies might cause.

In terms of both output and inflation, the Hong Kong property market is an important driver of macroeconomic outcomes. In 2010, real-estate services accounted for 6 percent of GDP, while the ownership of premises amounted to 11 percent of GDP. Housings costs also comprised almost 32 percent of the Hong Kong CPI basket. At the same time, residential mortgage lending (RML) has always been one of banks' largest areas of risk exposure. Since 1991, the banking sector's RML has never been lower than 20 percent of its lending for use in Hong Kong, with a maximum of 37 percent registered in September 2002.

Housing prices in Hong Kong grew strongly since early 2009, with the level in 2012:Q3 roughly doubling that in 2009:Q2. This rapid rise in residential prices reflected both low interest rates and very tight supply conditions. Mortgage interest rates went as low as 1 percent in the second half of 2009 and have stayed below 2.5 percent. Supply of flats has fallen below the estimated demand for flats since mid-2006 and, as a result, a large demand-supply imbalance has persisted. These developments, along with the forward guidance by the Federal Reserve that its policy interest rate will remain low until at least 2015, have led strong expectations that property prices will keep rising. The possibility of a housing market bubble in the making has been the most important financial stability concern for the HKMA in the past several years.

Indeed, over the past two decades, the HKMA has used limits on LTV as one type of targeted policy tool to manage banks' credit exposures to the property market and lean against the amplitude of property-price cycles. Hong Kong started off in the early 1990s with a maximum loan-to-value ratio of 70 percent for all property types, introducing more differentiated ratios over time, depending on the property type and its value. Thus, the policy has expanded both in terms of its scale and scope. In recent years, the use of LTV limits by the HKMA has become more intensive as a means to address the strong upward pressure on the housing market.

In light of the lessons learned from the Asian financial crisis, the HKMA has further refined its approach in handling asset-price pressures. This refined approach has the following elements: enhanced analytical tools, early action in the cycle, scalable measures with careful calibration, coordination among authorities, tactful communications, and plans for exit.

Over the years, the HKMA Research Department has developed a suite of models on the housing market in Hong Kong. These models broadly fall into three categories: risk indicators, equilibrium or fair-value housing-price models, and forward-looking asset-pricing models. Risk indicators include price and transaction volume indicators, indicators on speculative activities such as flipping trades and confirmor transactions; affordability indicators such as price-to-income ratio and mortgage-payment-to-income ratio; and user-cost measures such as the buy-rent gap.⁹ Equilibrium housing-price models characterize housing prices as driven by demand- and supply-side fundamentals (e.g., income, interest rates, and housing supply), market sentiment, and attractions to foreign investors. They can produce a fair value of property against which the current price level can be compared in order to gauge overvaluation risk.¹⁰ Under the asset-pricing framework, housing price is modeled as the current worth of its future rental income stream. Overvaluation risk is identified as explosive deviations of housing prices from the intrinsic rental value.¹¹ These models help to form a view on housing market risks at a particular conjuncture.

An important lesson from the Asian financial crisis is that policymakers should act early in the cycle, as expectation of a price increase is difficult to reverse once it becomes entrenched. It is also important to adopt scalable measures. Behavioral patterns suggest that property prices and market activities may pick up again after the market has digested the initial measures. The incremental approach allows policymakers to carefully assess the market impact of the introduced measures and, in light of the assessment, to calibrate the scope and magnitude of further measures if considered necessary. The HKMA has introduced five rounds of macroprudential measures since October 2009 by lowering the caps on LTV and DSR gradually and extending the prudential target from luxury homes to investment properties, and later to those where borrowers repay their debt with foreign income or have multiple mortgages.

⁹These indicators were first described in Chan, Peng, and Fan (2005).

¹⁰An example of fair-value models is described in Leung, Chow, and Han (2008).

¹¹An example of asset-price models is described in Yiu and Jin (2012).

The HKMA has also coordinated with the fiscal and land authorities. As a long-term solution, the land authorities have introduced land- and housing-supply measures in order to redress property market imbalances. The fiscal authority has introduced demand-management measures to dampen speculative activities in order to buy time for supply-side measures to take effect. For example, the Hong Kong Government has recently introduced a 10–20 percent special stamp duty for properties resold within three years. It has also introduced a 15 percent buyer's stamp duty on residential properties acquired by companies and non-locals, which account for about 20 percent of total transactions.

In terms of policy effectiveness, HKMA's prudential measures are generally effective in reducing the leverage of banks and households in mortgage finance. For example, growth of RML slowed from 14.1 percent in 2010 to 6.7 percent in 2011 and an estimated 7.9 percent in 2012. The average LTV ratio has dropped from 64 percent in September 2009 before the start of this recent round of policy measures to 52 percent recently. The average DSR has also decreased from 41 percent to 36 percent. The special stamp duty has been very effective in dampening speculative activities, which has practically wiped out confirmor transactions and flipping trades. More formal econometric analysis shows that tightening of LTV caps would reduce household leverage (as measured by the ratio of mortgage loans to GDP). Mortgage delinquency ratios for economies with LTV policy are found to be less responsive to property-price shocks. However, there is mixed evidence of the dampening effect of tightening of LTV caps on property market activities: although we find that tightening of LTV caps would reduce property-price growth, the policy effect on the property-price gap (from the trend) and property transactions is statistically insignificant (Wong et al. 2011).

In an important sense, macroprudential policies are effective tools to limit the quantity of leverage in an economy like Hong Kong. In terms of loan supply and demand, our analysis shows that the supply of mortgage loans has been effectively constrained by the LTVs and this helped lean against property-price dynamics. In other words, if the demand for mortgage loans had been fully satisfied by banks, then upward pressures on property prices would have been even higher.

For the communication strategy, it is necessary to put beyond doubt the policy intent of the macroprudential measures, which is

to maintain banking and financial stability by limiting the degree of leverage and creating buffers for banks and households, not targeting property prices. Otherwise, such policies would be considered a failure every time property prices rise again after a new round of measures.

It is also important to think ahead about when and how to exit from the macroprudential measures. When there are signs of a correction in property prices, the key questions we need ask include at least the following: Has the property market started the down cycle? Despite the corrections so far, are property prices still overvalued? How big is the risk of a disruptive property-price decline? Are banks resilient to property market downturn? Would a relaxation of specific policy measures (e.g., LTV cap) be effective under current market dynamics? What should be the magnitude of relaxation? Should we consider other measures? These questions will no doubt be on the mind of HKMA policymakers when the time comes for the implementation of an exit strategy.

To sum up, since property market bubbles could have very large repercussions for financial and macroeconomic stability, it is important to adopt financial policies to lean against the wind. While macroprudential measures can be useful in mitigating the fallout of market collapse on financial stability, they are not a silver bullet. Given the potential for circumvention and risk-shifting to areas that fall outside the perimeters of the adopted policies, there are important limits to what policies can achieve. Nevertheless, Hong Kong's experience shows that simple and transparent limits on leverage in residential mortgages have served to prevent bank credit from fueling asset prices and have helped dampen the amplitude of property-price cycles.

5. Conclusions

Financial cycles are likely to be an inherent feature of market economies. While central banks and supervisory authorities may be able to anticipate and prevent some crises, they will very likely miss some other important ones. Thus maintaining financial stability is as much about crisis survival as crisis prevention. Financial policies may be able to attenuate the amplitude of financial cycles, but it

would not be realistic, nor desirable, to expect the authorities to be able to eliminate all volatilities.

A key question in meeting the financial stability objectives is what central banks should and can realistically target in handling asset-price pressures. For the HKMA, the policy objective has been to contain the quantity or degree of private sector leverage, but not to target the level of property prices. The level of property prices depends on many factors that are beyond the control of central banks (e.g., land and housing supply). For financial stability, what matters in the end is whether households and banks can withstand the price correction when the property bubble eventually bursts.

For a major international financial center like Hong Kong, maintaining financial stability is a constant uphill battle. As central bankers are paid to worry, they are well advised to adopt a “conservative” attitude toward financial stability and hope for the best but prepare for the worst.

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