

How does Hong Kong Monetary Authority use statistics in financial market surveillance?

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The views expressed in this presentation do not necessarily represent those of the Hong Kong Monetary Authority.



- What does the HKMA do?
- Hot topic: What is happening after US tightens its monetary policy?
 - Will Hong Kong banks remain resilient? Macro stress tests
 - Will Hong Kong dollar remain credible? Linked exchange rate system
 - How would emerging markets be affected? A study of financial contagion
- Q&A



Authority



Which functions are correct?

- 1. maintaining currency stability within the framework of the Linked Exchange Rate system
- 2. promoting the stability and integrity of the financial system, including the banking system
- 3. developing competitive, efficient, fair, orderly and transparent securities and futures markets
- 4. helping to maintain Hong Kong's status as an international financial centre, including the maintenance and development of Hong Kong's financial infrastructure
- 5. encouraging the development of the retirement scheme industry in Hong Kong
- 6. managing the Exchange Fund



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Exchange Fund assets

Table 3	Table 3 Currency mix of the Exchange Fund's assets on 31 December 2014 (including forward transactions)	
	HK\$ billion	n %
US dollar	2,367.3	2 75.2
Hong Kon	g dollar 228.9	7.3
Others ¹	552.9) 17.5
Total	3,149.0) 100.0

¹ Other currencies included mainly Australian dollar, Canadian dollar, euro, renminbi, sterling and yen.



Investment return of the Exchange Fund

Chart 1 Investment return of the Exchange Fund (1994 – 2014)¹





Prudential measures for residential mortgage loans (RML)

The Hong Kong Monetary Authority issued today (Friday) a circular to banks in Hong Kong to provide guidance on loan-to-value (LTV) ratios for residential mortgages on properties valued at \$20 million or more.

For residential properties valued at \$20 million or more, the LTV ratio will be capped at 60%. For properties valued at below \$20 million, the 70% LTV ratio will be maintained, but the maximum loan amount will be capped at \$12 million.

The measures will take effect immediately, but there will be a grace period for purchasers who have already signed provisional sale-and-purchase agreements on or before 23 October 2009. Such purchasers will still be able to apply, within one month from 23 October, for mortgage loans up to 70% LTV ratio.

The circular also reminds banks that they should be prudent in conducting valuation of properties and in calculating borrowers' debt servicing ratios (the ratio of their mortgage repayments to borrowers' income). In particular, banks should consider the effect on borrowers' ability to service mortgage payments when interest rates, which are currently at historical low levels, return to more normal levels.

The Chief Executive of the HKMA, Mr Norman Chan, said "These are prudential measures designed in the interest of maintaining banking stability, to enhance banks' risk management on mortgage lending to high-end residential properties. The lower LTV ratio for high-end properties will be helpful to banks in the management of the credit risks in lending against such properties." He also reminded prospective buyers of properties to take fully into account the impact of interest rates returning to more normal levels on their repayment ability and avoid overstretching themselves.

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Hong Kong Monetary Authority 23 October 2009



Second Hong Kong-Australia RMB Trade and Investment Dialogue 22 May 2014

Basel Committee on Banking Supervision



RMB Business in HK









- Money markets
 - Short term debt financing and investment
- Foreign exchange markets
- Derivatives
 - Futures and options
- Capital markets
 - Stocks and bonds



What will happen in the HK money market when US interest rates rise?





Who will suffer from interest rate rises?





What will happen to banks when interest rates increase?

%pa



US Interest Rate Cycle



Our macro stress test framework





HK banks are always under stress...



Notes:

1. Classified loans are those loans graded as "sub-standard", "doubtful" or "loss".

 Figures related to retail banks' Hong Kong office(s) and overseas branches. Source: HKMA.



HKD banknotes issued by the three note-issuing banks are fully backed by USD reserves





HK\$/US\$



• HKD has shown a high degree of credibility



Convertibility zone



- Is the spot exchange rate mean-reverting?
- If credible, the rate will revert to the mean (=?)



- Variance ratios
 - Check whether the variance of multi-period returns decreases with time

$$VR(K) = \frac{Var(r_t^K) / K}{Var(r_t^1) / 1} = \begin{cases} 1 \\ < 1 \\ > 1 \end{cases}$$

under random walk under mean reversion under mean aversion

where r_t^K is the *K*-period return











More than credibility!





Risk reversals of northeast Asian currencies (vis-à-vis the US dollar)





Volatility as yardstick of turbulence

• VIX: "The Investor Fear Gauge" (Whaley, 2000)





A quantile is:
$$r_{(1)} \le r_{(2)} \le \dots \le r_{(n/2)} \le \dots \le r_{(n)}$$
 e.g. median



Change in spread



• Quantile regression is used to assess the tail risk



Notes:

- (1) For illustrative purpose, the three quantile regression lines and the distributions are roughly sketched out in this graph.
- (2) The graph presents roughly a bird's eye view of the distributions.





Currency



FX links with sovereign creditworthiness - cointegration and error corrections





Contagion among economies: Sovereign CDS spreads





Sovereign tail risk assessment





- Major source of risk factors
 - Global vs domestic factors
 - Are they equally important?
- Market extremity
 - Normally, how do these factors contribute to sovereign credit risk?
 - During market turbulent, does the contribution change?



28% 68% Czech Czech 80.0E 25% 67% Russia Korea Indonesia 63% Poland 23% ■ VIX 62% 23% The Philippines Korea South Africa 61% Indonesia 23% ⊠ MOVE Chile 59% Chile 22% ∎USD Poland 58% 22% Hungary 57% Mexico 22% Russia □FX expect China 57% South Africa 22% □Leverage 56% Colombia 21% Peru Colombia 56% Brazil 20% ■ Inflation Thailand 54% Thailand 20% 51% Mexico Turkey 19% Malaysia 50% 19% Peru □GDP Brazil 48% 19% Malaysia 45% Hungary China 18% □Others 39% The Philippines 18% Hong Kong . 8 37% 14% Turkey Hong Kong % 20 60 100 0 40 80 0 20 40 60 80

QE tapering tantrum

Mean risk

Tail risk

■ VIX

MOVE

□Leverage

Inflation

GDP

EPFR Flow

■FX expect

□ Others

%

100

∎USD







- How much time / money do you have?
- What does the data / theory tell you?
- Is your model parsimonious and adequate?
- Is your model useful in telling the truth?



Any questions?

