

# Stress-testing

*by the Banking Policy Department*

Stress-testing involving the use of various techniques to assess a financial institution's potential vulnerability to adverse changes in market conditions has become an increasingly important risk management tool in recent years. In February 2003, the HKMA issued a guidance note to all authorized institutions (AIs) illustrating the use of this risk management vehicle and describing the HKMA's approach to evaluating the appropriateness and effectiveness of stress tests conducted by AIs.

AIs are expected to have in place a stress-testing programme that is appropriate to the nature and complexity of their business activities. They have been given one year (until the end of February 2004) to comply with the relevant requirements of the guidance note. This recognises the fact that some may need time to develop or enhance their internal systems for conducting stress tests. This memo addresses some common questions raised by AIs regarding the supervisory framework for stress-testing.

On-line access to the guidance note is available under the icon of "Supervisory Policy Manual" in the HKMA's public website ([www.hkma.gov.hk](http://www.hkma.gov.hk)).

## **Q1. Do the guidance note requirements apply to all AIs?**

A1. While the guidance note is of general application to all AIs, some of the best practices recommended (e.g. use of sophisticated stress-testing techniques) are relevant only to AIs with large and complex operations. The general principle is that AIs should have adequate systems for conducting stress tests appropriate to the nature and complexity of their exposures.

## **Q2. Are AIs expected to use complex models for their stress tests?**

A2. The use of complex models is not a mandatory requirement. As indicated in paragraph 2.3.4 of the guidance note, AIs may use complex financial models (e.g. pricing or statistical models) or less sophisticated means (e.g. judgement based on past experience) that are commensurate with the nature of their portfolios

and risks involved. In other words, whether complex models are used depends on the level of sophistication of an AI's business activities.

At a minimum, AIs should take steps to implement a comprehensive stress-testing programme that covers major risk factors under stress scenarios according to the nature of their portfolios, as well as the external environment in which they operate (re: subsection 2.4 of the guidance note). The stress scenarios can either be based on historical or hypothetical events and should include the specification of likely stress events and scenarios (re: section 3 of the guidance note). AIs having relatively complex risk profiles (e.g. material interest rate and market risks arising from different business activities and products) are expected to employ more sophisticated techniques, such as simulation of stress scenarios that, together, affect a number of risk factors (e.g. equity prices, foreign exchange rates and interest rates).

**Q3. Are AIs expected to follow strictly the stress scenarios illustrated in the guidance note?**

A3. The HKMA's focus is on whether AIs have adopted a stress-testing programme that is appropriate to the nature and complexity of their business activities. In particular, the HKMA will review if the process itself is effective having regard to the key elements set out in section 2 of the guidance note. Therefore, AIs are not expected to follow strictly the stress scenarios, which are provided to them solely for illustrative purposes. They should determine their own stress tests based on the nature of their portfolios and the risks involved. As part of its ongoing supervision, the HKMA will monitor the progress of AIs in enhancing their stress-testing capabilities.

**Q4. Will the HKMA provide AIs with a range of macroeconomic factors such as GDP and unemployment rates for stress-testing purposes?**

A4. The HKMA will not specify ranges for the macroeconomic factors to be used in AIs' stress scenarios at this stage. They should make their own assumptions based on their assessment of macroeconomic conditions. At a later stage, the HKMA may specify ranges in the context of implementing credit risk stress-testing requirements for assessing capital adequacy under Pillar Two (supervisory review process) of the New Basel Capital Accord.

**Q5. Must the Board of Directors and senior management of an AI approve the procedures and methodologies of its stress-testing programme?**

A5. As stress-testing is an important part of an AI's risk management process, the Board of Directors and senior management have the responsibility to ensure that it is properly conducted and to determine appropriate remedial action to address potential risks identified from the stress tests. Nevertheless,

where necessary, the Board of Directors may delegate the authority to approve stress-testing procedures and methodologies to a committee that includes members who have adequate technical knowledge to exercise that authority (re: paragraph 2.2.2 of the guidance note).

**Q6. Is it acceptable to the HKMA if a foreign AI uses the stress tests conducted by its head office on a group basis?**

A6. AIs are expected to integrate stress-testing into their risk management process. The HKMA understands that in some cases the stress tests may be conducted by the head office of a foreign AI on a group basis. This is generally acceptable provided the stress tests reflect the specific risk characteristics of the AI's portfolios. AIs having such an arrangement should discuss this with the HKMA (re: paragraph 1.3.8 of the guidance note).

**Q7. Are the stress-testing programmes developed by AIs subject to the HKMA's endorsement?**

A7. AIs are not required to seek the HKMA's endorsement for their stress-testing programmes. However, the HKMA will evaluate the appropriateness and effectiveness of the tests conducted, based on the principles set out in subsection 1.3 of the guidance note, through its off-site reviews or on-site examinations.

**Q8. Are AIs required to submit their stress-testing results to the HKMA for review on a regular basis?**

A8. The stress-testing results of an AI will be reviewed regularly by the HKMA, either once a year or on a needs basis, including any action taken in response to the results generated. It will discuss these matters with the AI's senior management during prudential meetings. The HKMA may also request an AI to submit additional stress tests on those positions where the risk is considered to be significant.