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Panel on Financial Affairs

Meeting on 3 December 2007

**Background Brief on
the Operation of Octopus Cards and EPS Payment System in Hong Kong**

Purpose

This paper sets out the background of the operation of Octopus Cards and EPS Payment System in Hong Kong and summarizes the major views and concerns expressed by Members of the Legislative Council (LegCo) on the subject.

Background

Regulatory framework for Octopus Cards and the EPS Payment System

2. When the regulatory approach for multi-purpose stored value cards (MPC) was formulated in mid-1990s, the Government's policy objectives were to maintain the stability of the payment system but at the same time not to stifle innovation on payment products and services available to the public. The Government also decided that non-banks should be allowed to issue MPCs as a special-purpose vehicle deposit-taking company (DTC). Pursuant to this policy, the Hong Kong Monetary Authority (HKMA) authorized Octopus Cards Limited (OCL), the issuer of the Octopus Cards, as a DTC in 2000 and has been supervising it as such since then. The primary supervisory objective is to ensure the safety and soundness of OCL so as to protect the interests of cardholders. In addition to the regulatory requirements under the Banking Ordinance (BO) (Cap. 155), OCL is also required to comply with the Code of Practice for Multi-Purpose Stored Value Card Operation (the MPC Code) which it voluntarily adopted in 2005. The Code has been endorsed by HKMA which also monitors OCL's compliance with it. According to OCL's information, more than 15 million Octopus Cards are in circulation in Hong Kong.

3. HKMA has formulated an informal oversight framework to promote the general safety and efficiency of the retail payment systems in Hong Kong. Under this framework, EPS Company (Hong Kong) Limited (EPSCO) together with seven other credit and debit card scheme operators drew up and issued a Code of Practice for Payment Card Scheme Operators (the PCS Code) in December 2006 with the endorsement of HKMA. The overall implementation of this self-regulatory approach is overseen and monitored by HKMA which also receives compliance reports from EPSCO on its annual self-assessment of compliance with the PCS Code.

The MPC market in Hong Kong

4. The Government has stated that it is generally supportive of the wider application of electronic money. A number of MPC schemes (e.g. Mondex and VisaCash) introduced in Hong Kong some years ago have gradually faded out and as a result, the Octopus Card remains the only MPC scheme in Hong Kong. However, the MPC market remains open to potential operators and future competition. Under the existing regime, licensed banks are deemed to be approved to issue MPCs under the BO and non-banking institutions are allowed to issue MPCs as a special-purpose vehicle DTC. According to the Administration, the imposition of the same regulatory requirements on the existing and potential card issuers helps ensure a level playing field for market players.

5. As the only existing MPC issuer in Hong Kong, OCL, in addition to its obligations under BO, is also required to comply with the MPC Code which specifically requires that there should be no measures having the effect of unfairly limiting competition in the market.

Failed Octopus EPS add-value transactions

6. In February 2007, it was widely reported that some passengers had failed to add value to their Octopus Cards via the EPS payment system at several Mass Transit Railway (MTR) stations but the corresponding amounts had still been debited from their EPS-designated bank accounts. In response, OCL commenced investigation with EPS and asked the two railway corporations to suspend the Octopus EPS service on all add-value machines in the MTR and Kowloon Canton Railway (KCR) stations starting from 3 February 2007. OCL also worked with EPS to carry out a review of the estimated 500 000 Octopus EPS add-value transactions that had taken place from 5 December 2006 to 3 February 2007. On 9 February 2007, OCL announced that it had identified 571 cases in which EPS accounts had been charged without crediting the Octopus Cards. Refunds to all 571 affected customers were arranged and completed on 14 February 2007. Meanwhile, OCL conducted an investigation of the technical aspects of the problem with EPSCO, the two railway corporations, the modem and network provider and the EPS terminal suppliers.

7. On 16 February 2007, the Monetary Authority appointed Professor CHAN Chi-fai, Chairman of the Hong Kong Deposit Protection Board and ex-Chairman of the Consumer Council, as an Advisor to OCL pursuant to section 52(1)(B) of BO. On the same day, the Monetary Authority required OCL to commission an independent auditor¹ under section 59(2) of BO to review the incident as well as broader issues such as the operational risk control environment of OCL and for the auditors to submit to HKMA a report on the review. Having considered that failed Octopus EPS add-value transactions might not have been confined to the Octopus EPS add-value system serving MTR and KCR stations, OCL decided after discussion with HKMA to extend the suspension of the system to all Octopus EPS add-value machines starting from 17 February 2007 while investigation was underway.

Major views and concerns expressed by Members

8. In view of the widespread use of the Octopus Cards in Hong Kong and the implications of the failed transactions on the reliability of the MPC system, the Panel on Financial Affairs (FA Panel) considered it necessary to follow up the matter with the Administration, HKMA and the operators (namely OCL and EPSCO) from both the policy and operational perspectives. For this purpose, a meeting with the aforesaid parties was held on 2 March 2007 to discuss the extent and causes of the failed transactions and remedial action taken; as well as the efficacy of the existing regulatory framework and whether there existed a level playing field and fair competition in the MPC market in Hong Kong. Furthermore, at the LegCo meeting on 18 April 2007, Hon TAM Yiu-chung raised a question on the supervision of OCL.

Investigation and remedial action

9. On investigation, the FA Panel noted OCL's explanation that ascertaining the root causes of the failed Octopus EPS add-value transactions involved multiple parties and complicated technical issues. This partly explained why an independent consultant had to be appointed to review the incident and OCL's operational risk control environment with a view to identifying the underlying causes and prescribing solutions. The OCL agreed to provide the Panel with a copy of the review report when such is ready.

10. The FA Panel noted that in reviewing the Octopus EPS add-value transactions during the period 5 December 2006 to 3 February 2007, OCL had identified 0.1% failure rate of transactions where EPS accounts had been charged without crediting the Octopus Cards. In this connection, some members considered it necessary for OCL to also check the Octopus EPS add-value

¹ An international consultant, PricewaterhouseCoopers, was appointed as the independent auditor.

transactions prior to 5 December 2006 and arrange refund to the affected customers where faulty deductions were detected.

11. As about 90% of the Octopus Cards were anonymous, OCL could only make refunds on a reactive basis and in response to requests. Some members considered this arrangement not conducive to a proactive review of add-value transactions and to remedial action such as refund in the event of failed or faulty transactions. They called on OCL to consider encouraging customers to use automatic add-value service and Personalized Octopus Cards in which the identity of the cardholder could be ascertained. There was also the suggestion that OCL might consider issuing Personalized Octopus Cards to customers without an additional charge.

Other improvement measures

12. Arising from the incident, the FA Panel had further examined the Octopus Cards system and put forward the following suggestions to improve its operation for the consideration of OCL/EPSCO :

- (a) To provide more channels, (e.g. via the Internet and at all automatic turnstiles at MTR and KCR stations) to enable Octopus cardholders to check their card balance conveniently;
- (b) to carry out more frequent checks and upgrading of the Octopus Card infrastructure; and
- (c) to examine the feasibility of re-engineering the existing workflow so that value could be added to the Octopus Cards first before EPS accounts were debited, subject to availability of funds in the accounts concerned.

13. In order to enhance the overall safety and efficiency of the operation of Octopus Cards, there were suggestions that the Government should devise a statutory code of practice for operators of MPC, regularly conduct random checks on the transaction records of Octopus Cards and require OCL to establish a comprehensive enquiry system on customers' transaction records.

Competition in the MPC market

14. Noting that the Octopus Card had become the only MPC scheme in Hong Kong after the fading out of a number of MPC schemes some years ago, some members were concerned about market competition and whether there existed a level playing field for new entrants to compete with OCL in the provision of MPC services. They also questioned whether OCL had been offered any preferential treatment by public transport operators such as the two railway corporations.

15. In this regard, members noted OCL's explanation that other payment modes such as cash payment and credit cards were in direct competition with the Octopus Card and that OCL was not given any preferential treatment by public transport operators. HKMA also advised that OCL should aim to share its technical platform with any other parties interested in card-issuing and merchant-acquiring business, after taking into account the security requirements and reasonable commercial considerations.

Subsequent developments

Responses

16. In its interim response provided to the FA Panel on 27 March 2007, OCL outlined the steps taken to rectify the matter and reiterated its commitment to providing refunds to customers with valid claims. OCL also stated that it would take actions which were achievable in the short term to improve its services without waiting for the recommendations of the independent auditor's review. On 30 March 2007, HKMA also provided a written response in relation to the safeguards which were in place to ensure that there was fair competition and a level-playing field for market players interested in issuing MPC.

Other faulty deductions

17. In late March 2007, it was reported in a newspaper that there were errors in fare deductions from Octopus Cards under the Bus-Bus Interchange Discount Scheme of the Kowloon Motor Bus Company (1933) Limited (KMB). A passenger complained that the interchange discount had not been given to him for four Bus-Bus Interchange journeys. There was also a press report about deduction errors when using the Octopus Card to purchase goods at a retail shop in early April 2007. The reported incidents were brought to the attention of OCL.

18. On 13 April 2007, OCL provided a written explanation on the aforesaid incidents. It advised that KMB was handling the fare-deduction case as it involved Bus-Bus Interchange discount which was set by the Company. As for the retail shop incident, OCL had already settled the case with the customer concerned. OCL further pointed out that it had provided its merchants with a set of instructions to handle transactions properly, with regular reminders for their frontline staff to strictly comply with these instructions. According to OCL, it had also urged the merchants to take proactive measures to prevent such incidents from happening again.

Latest position

19. On 27 July 2007, OCL announced the findings of the independent auditor's review on the cause of the failed Octopus EPS add-value transactions and OCL's actions taken in response to the report. On the same day, Professor CHAN Chi-fai, the Advisor to OCL appointed by the Monetary Authority under BO, issued a statement on the findings and recommendations of the review. In August 2007, OCL provided the FA Panel with the "Report on the Independent Review under Section 59(2) of the Hong Kong Banking Ordinance" (the Report).² According to the Report, no evidence was found to suggest that Octopus add-value channels other than EPS had been affected. However, the failed transactions were not isolated incidents as similar failures could be dated back to January 2000. In response to the Report, OCL has, inter alia, set up a Task Force to address the identified root causes with all the relevant parties. OCL has also decided not to resume the Octopus EPS add-value service until all issues that caused the problem of failed transactions have been addressed to the satisfaction of all parties involved.

20. The Panel has considered it necessary to follow up the subject with a view to ascertaining the latest situation and the effectiveness or otherwise of the actions taken by OCL in response to the Report. The Administration, HKMA, OCL and EPSCO have been invited to attend the Panel meeting to be held on 3 December 2007 for discussion of the subject.

Relevant papers

21. A list of relevant papers is in **Appendix**.

Council Business Division 1
Legislative Council Secretariat
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² OCL advised that it was unable to release the Addendum to the Report given the confidential and proprietary nature of certain commercial, technical and security-related information contained therein.

List of relevant papers

| Committee | Paper | LC Paper No. |
|---|--|---------------------|
| Meeting of Panel on Financial Affairs on 2 March 2007 | ✧ Information paper on "Regulatory and Oversight Framework on Octopus Card and EPS" provided by the Hong Kong Monetary Authority (HKMA) http://www.legco.gov.hk/yr06-07/english/panels/fa/papers/fa0302cb1-1007-3-e.pdf | CB(1)1007/06-07(03) |
| | ✧ Letter dated 23 February 2007 from OCTOPUS Cards Ltd (OCL) http://www.legco.gov.hk/yr06-07/english/panels/fa/papers/fa0302cb1-1007-4-e.pdf | CB(1)1007/06-07(04) |
| | ✧ Paper from EPS Company (Hong Kong) Limited (EPSCO) http://www.legco.gov.hk/yr06-07/english/panels/fa/papers/fa0302cb1-1007-5-e.pdf | CB(1)1007/06-07(05) |
| | ✧ Information note on "Operation of the Octopus Card in Hong Kong" http://www.legco.gov.hk/yr06-07/english/sec/library/0607in08-e.pdf | IN08/06-07 |
| | ✧ Minutes of the FA Panel meeting on 2 March 2007 http://www.legco.gov.hk/yr06-07/english/panels/fa/minutes/fa070302.pdf | CB(1)1477/06-07 |
| | ✧ Follow-up to the meeting – OCL's letter dated 27 March 2007 http://www.legco.gov.hk/yr06-07/english/panels/fa/papers/fa0302cb1-1248-2-e.pdf | CB(1)1248/06-07(02) |
| | ✧ Follow-up to the meeting – HKMA's letter dated 30 March 2007 http://www.legco.gov.hk/yr06-07/english/panels/fa/papers/fa0302cb1-1302-1-e.pdf | CB(1)1302/06-07(01) |

| Committee | Paper | LC Paper No. |
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| | ✧ OCL Actions in Response to the PwC Report (as at end August 2007) http://www.legco.gov.hk/yr06-07/english/panels/fa/papers/fa0302cb1-2348-2-e.pdf | CB(1)2348/06-07(02) |