EXHIBIT 8

Shopping without cash: The emergence of the e-purse

Carol L. Clark

Introduction and summary

During the 1990s, some payment analysts suggested that smart cards[1] with e-purse applications could be a promising new payment option for certain types of transactions. An e-purse is a stored-value payment device that offers the following features to the consumer: It holds electronic monetary value that substitutes for cash; it does not require online authorization; it records the value of each purchase on the card rather than a central computer server; and it can be exchanged for goods and services from various merchants. The device is generally stored on a computer chip, which can reside on any one of a number of items most consumers already carry, such as a payment card, mobile phone, key chain, or even a watch. When the consumer makes a purchase, monetary value is deducted from the microchip on the card.

The key difference between a stored-value smart card and debit, credit, payroll, and gift cards is that value is stored directly on the smart card rather than stored in an account on a central computer server, and therefore, transactions are processed offline between the smart card and the card reader at the point of sale (POS). In contrast, debit, credit, payroll, and gift cards in the United States are offered on magnetic stripe cards, and payment involves an online authorization that requires a real-time connection with a central computer. The purchase is approved or declined through the authorization process, which checks whether there is sufficient value in the account for debit, payroll, and gift card transactions and whether the credit limit has not been exceeded for credit card transactions. The authorization process may also check whether the card is fraudulent or stolen.

Some payment analysts predicted that smart cards could lead to a cashless society, one in which e-purses would replace cash and coins for low-value payments. As we know, this hasn't happened. Although

a number of e-purse programs have been implemented around the world, these programs have experienced varying degrees of success, and many have failed outright. Smart card adoption in the United States has been slower than in the rest of the world. Many analysts argue that this is partly because the U.S. already has an advanced telecommunications infrastructure that can verify magnetic stripe card transactions quickly and cheaply online. This results in relatively low fraud levels and relatively high levels of satisfaction among businesses and consumers with the current systems. If this is true, then smart card applications may offer more value in other parts of the world with less highly developed telecommunications infrastructures and higher incidences of fraud in existing payments networks.

In this article, I review six e-purse smart card programs in Hong Kong (one) and the United States (five). I chose these two regions because Hong Kong has one of the most highly successful e-purse programs, the Octopus card, and the United States has implemented a number of e-purse programs, some of which have been more widely adopted than others. I find that the most successful among these programs tend to have the following characteristics: a captive audience that drives critical mass, such as those found in the transportation industry or government sector; an affordable cost structure relative to other payment instruments; compelling incentives to consumers and merchants; and a technology that is well tested and addresses standards issues before the rollout.