

CHIP: THE GLOBAL LANDSCAPE

INTERNATIONALLY, THE WAVE OF THE CHIP CARD LEADS TO THE END OF THE SWIPE.

There were 250 million EMV-compliant chip cards and two million chip-card-capable ATMs and point-of-sale terminals deployed globally at the end of 2004. More than 275 million banking cards issued in

Of these chip cards, more than 95% are EMV-compliant chip cards.

In Asia/Pacific, EMV-compliant chip migration for both credit and debit cards are at different stages of development. Taiwan, Korea, Japan and Malaysia are the first markets to lead the chip migration and have recently been followed by Singapore, Thailand and Hong Kong.

fraud. As chip becomes fully integrated into the payments landscape, the value goes beyond fraud and chip becomes a competitive advantage for those who have implemented it properly.

TAIWAN

Credit card fraud has been a serious problem for Taiwan. This was one of the key reasons Taiwan set a deadline of 2006 for full EMV compliance chip migration. The first

A number of factors converged to influence chip migration in this market. One of the early reasons was to combat credit card

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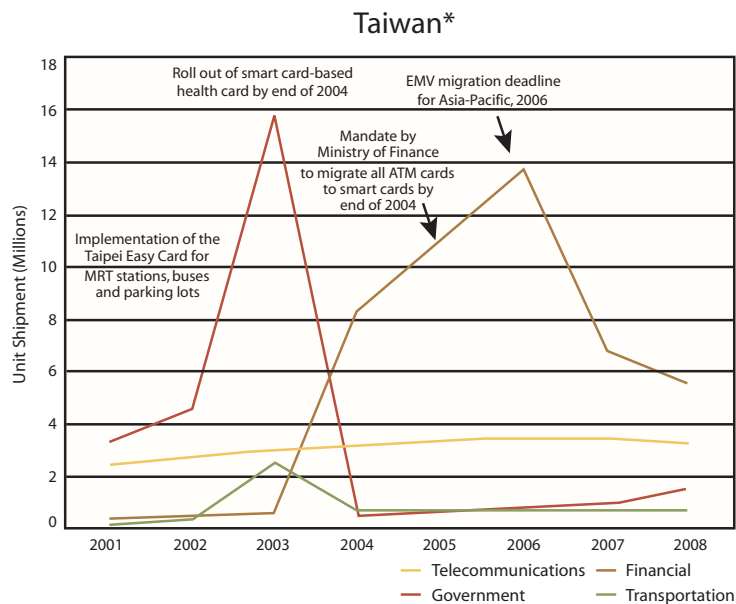
More than 275 million banking cards issued in 2005 carried a chip, an amount that has almost doubled since 2002.

2005 carried a chip, an amount that has almost doubled since 2002. The number of chip cards in the banking industry is increasing every year and, given the two billion chip cards currently in circulation, it is clear that the potential for growth is huge.

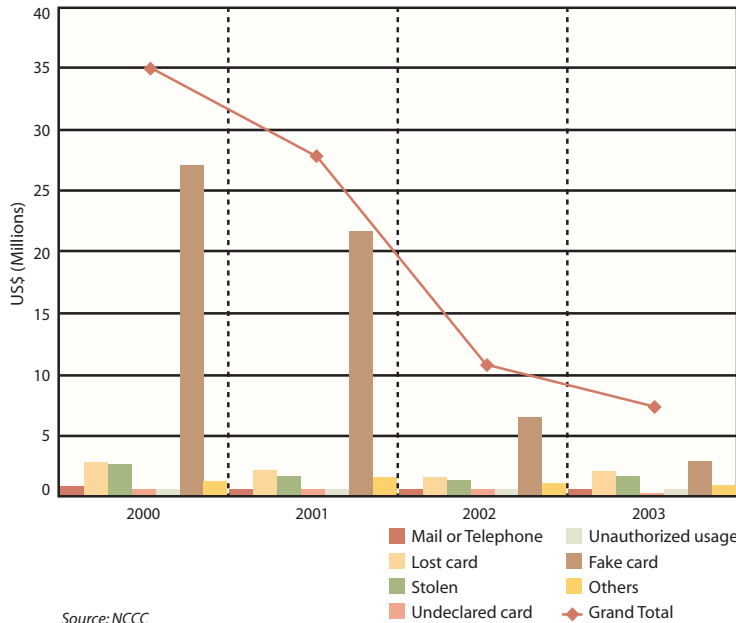
The majority of chip cards are currently being issued in Europe. In 2005, over 70% of cards issued in Europe were chip-enabled. Asia/Pacific is hot on Europe's heels, where, as of 2005, over 25% of cards issued were chip cards.

CHIP CARD MIGRATION IN ASIA/PACIFIC

As of June 2005, MasterCard had more than 38 million MasterCard branded chip cards in Asia/Pacific, registering 65% deployment growth compared to a year ago.



Taiwan Bank Fraud Trends



Source: NCCC

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chip card was introduced in Taiwan in 2001 jointly by MasterCard, Cosmo Bank and Core Pacific Mall. Over 80% of the 1,000 point-of-sale terminals in Core Pacific Mall became EMV compliant within a short

time period. It is estimated that about 60% of the total terminals in Taiwan had been made fully EMV compliant by the end of 2004, making Taiwan the leader in Asia/Pacific in this regard. Details of the

First Ever Multi-Use Smart Card

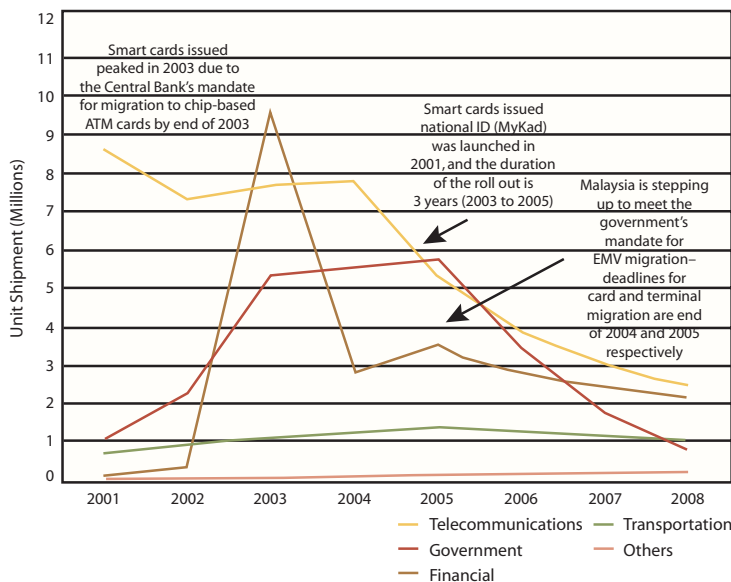
In January 2005, MasterCard International partnered with the Kaohsiung City Government to introduce a chip-based payment solution for Southern Taiwan's transportation system. The OneSmart PayPass Chip Combi Card integrates both contact and contactless chip payment solutions for electronic transportation payments. The all-in-one payment card combines MasterCard credit, debit, Mondex stored value features, access to the Cirrus Global ATM network and the MasterCard PayPass contactless functionalities.

In addition to bringing the latest smart card technology to Southern Taiwan, it also provides mass transit users a higher level of security, convenience and service.

roll out of different products and the chip migration are illustrated in the chart on page 11.

Even before the completion of the planned chip migration, payment card fraud losses

Malaysia*



Source: Frost & Sullivan

*All figures are rounded; base year is 2003

EMV Comes to China

The Industrial and Commercial Bank of China (ICBC), the largest commercial bank in China, partnered with MasterCard International in December 2005 to launch the first EMV-compliant, chip-based card in China. The introduction of the Peony MasterCard card marks an important milestone in the Chinese credit card industry, with ICBC as the first local bank to pioneer the shift to chip-based cards.

The completion of the ICBC program and move to the EMV chip platform enables cardholders traveling overseas to use their EMV chip card utilizing the POS systems and ATM machines. This also allows the service to be accepted locally and provides opportunities for the local payments industry as they enhance the payments environment in China, especially in light of the 2008 Beijing Olympics.

declined. Card fraud rate, for example, fell US\$10.8 million in 2002 to US\$7.6 million in 2003. Losses due to stolen cards, however, rose 36.4% from 2002 to 2003. But the general trend of card-related fraud has been on the decline as illustrated in the first chart on page 12.

MALAYSIA

The deadline set for full EMV compliance in Malaysia is 2006. Significant progress has been made so far. Terminal compliance and credit card compliance are near 100%. Growth in EMV-compliant terminals has come from both “new” and “replacement” demand. The Association of Banks of Malaysia and member banks have worked very closely in achieving speedy progress in chip migration.

THE EUROPEAN EXPERIENCE

FRANCE

Cartes Bancaires (founded in 1984) started France’s chip usage as early as 1990 with the issuance of its first B0’ (Bull Zero Prime) card. Today, there are 42 million chip cards issued by 180 banks and financial institutions to access 40,000 ATMs and carry out transactions with 600,000 merchants all over France. These are US\$ 200 billion and 3.4 billion transactions (75% payments, 25% ATMs) per business year.

The French experience has shown that after several years of using chip cards, domestic counterfeit has dropped from about US\$25 million in 1992 to almost zero in 1997. The fraud rate has also dropped from 0.087% to 0.019%.

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UNITED KINGDOM

The UK is the most mature card market in the world with 35 million cardholders and 87.6 million cards. The credit card is ingrained into the payment landscape with 83% of adults carrying one or more payment cards.

The primary motivation for the move to chip, as in other markets, was to reduce counterfeit fraud. In 1997, UK industry

losses topped £20.3m (17% total fraud) while chip-enabled France enjoyed a 0% rate of counterfeit fraud. In the UK, counterfeit fraud grew at a rate of 72% between 1995 and 1996 and another 49% from 1996 to 1997 – the case was clear cut. In addition, card issuers realized that the mature card market would benefit from the fresh platform for new services and product offerings that smart cards brought.

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The First Chip Trial in the UK

The first chip trial in the UK was held in Northampton and Dunfermline. The key objective of the trial was to create a national framework with global inter-operability that had a common specification, was EMV compliant, and secure. The trial also had to demonstrate the operability and acceptability of chip technology in POS and ATM environments.

The trial began in January 1997 with 13 card issuers and 8 acquirers taking part issuing 53,000 credit cards and 64,000 debit cards. The cards could be used at 475 retailers and 19 ATMs. Throughout the trial, cardholders used their cards for 104,000 point-of-sale transactions and 117,000 ATM transactions.

The trial wrapped up in June 1998 and exceeded all success criteria established. Minimal incidents were reported and those that were, were related to service code failures. Both retailer and cardholder market research done after the trial demonstrated positive experiences with the technology within these groups.

