

# Growing credit card markets in Asia: challenges to policymakers<sup>1</sup>

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*Credit card lending in Asia has grown rapidly since the 1997 Asian financial crisis. This growth has seen several episodes of sharp booms and busts, posing new risks to financial stability. This paper attempts to learn more about the credit card markets and shed light on and draw lessons from some of the core common elements in the three recent episodes of credit card lending distress in Asia. Policymakers need to learn more about the risks arising from this type of consumer lending and respond with enhanced supervisory capacity, better market infrastructure, and appropriate prudential measures.*

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## 1. Introduction

Consumer credit in Asia has grown significantly in recent years. While housing finance has so far dominated the lending to households and thus received the bulk of attention by policymakers and market players, unsecured personal lending has also expanded rapidly, albeit from a relatively low basis. With rising affluence, banks more oriented to the apparent higher risk-adjusted returns on household lending, and policymakers' strategy to pursue less export-dependent growth, the credit card business has been one of the fastest-growing areas of unsecured retail finance in many Asian markets. Expanding credit card markets improve access to credit by a broader portion of the population and represent a more important source of profits for banks and other lenders. They may also affect the transmission of monetary policy and pose new challenges to financial stability.

The levels of outstanding credit card holdings and loans in Asia have not always converged smoothly to levels seen in mature markets. Rather, in this decade, Asia has witnessed cycles of marked credit card lending booms and busts in a number of its markets. This working paper takes stock of the recent experience in Asian credit card markets generally and examines three episodes of credit card lending distress in particular: Hong Kong SAR in 2002, Korea in 2003 and Taiwan, China (hereafter Taiwan) in 2006. Our analysis attempts to shed light on three questions. First, why did competition in a line of business that is well established elsewhere still from time to time lead to excessive credit card lending? Second, what was the character of the busts following the credit card lending booms? Third, what lessons can be learned from these episodes for both policymakers and market players? Answers to these questions will be especially valuable to a number of populous emerging Asian markets, such as China and India, where the credit card segment of retail finance is just starting to take off.

These three Asian episodes of credit card lending booms and busts seem to share several common elements in terms of their approximate causes, symptoms, dynamics and consequences: intensified competition in the high-yield, less prime, credit card lending business leading to reduced lending standards; a rapid build-up in household indebtedness; a disproportionate concentration of debt burdens among riskier cardholders; a significant and often sudden deterioration of asset quality; and a subsequent significant and prolonged contraction in credit card receivables. The bottom line is that, as consumer finance becomes an important part of Asia's financial system, policymakers need to better understand the associated risks and be prepared to respond.

The working paper is partially based on Kang and Ma (2007) and structured as follows. Section 2 takes stock of the recent experience and discusses important trends in Asia's credit card sector. Section 3 examines the three recent episodes of credit card lending distress in Asia and highlights some of the important common ingredients of these boom-bust cycles. Section 4 undertakes a more detailed case study of the Korea's distress episode during 2002-03 and examines issues related to rigidity of interest rates on credit card, adverse selection and factors influencing credit card asset quality, using firm-level data for Korea. Section 5 explores some of the possible policy lessons mainly from these three episodes of credit card lending distress in Asia, and Section 6 concludes.

## 2. Asia's credit card sector

Since the 1997 Asian financial crisis, lending to households has outpaced the increase in total bank loans in most regional markets in Asia.<sup>2</sup> Especially for those markets with an initial low level of credit to the household sector, household loans rose much faster than the overall bank loans (Graph 1). Take Korea and Malaysia, for example, their household loans accounted for about one quarter of their respective total bank loans outstanding in 1998 but now represent half of their respective overall loan books, as lending to consumers grew twice as fast that of the total bank loans. In China's case, the loans to the household sector jumped 48 times between 2000 and 2005, albeit from a tiny base. By contrast, the share of the household sector in Australian banks' total loan book had already reached a high level of 64% by 1998 and since then, the growth in consumer loans was only slightly faster than that of total loans.

A combination of demand- and supply-side factors has contributed to this marked shift to consumer finance. First, after the Asian financial crisis, weak corporate loan demand and the easing of monetary policy to spur the economy led to ample liquidity in the banking systems. In most of the Asian economies, the investment-to-GDP ratios today remain well below the 1997 levels. During 1998–2000, the loan-to-deposit ratios in Hong Kong, Korea and Taiwan had declined by 10–15 percentage points. With lending to households growing faster than the overall loan book, the corporate loans as a share of the total deposits would fall even more. This, together with possible capital saving from mortgage business, put considerable pressure on banks to tap the consumer finance business more aggressively. Since it had previously been neglected in many Asian markets, such lending offered banks both potentially higher margins and diversification benefits. Second, rising living standards and house prices in many Asian markets probably increased consumer demand for credit, as consumer finance is often regarded as a superior good. Third, rapid progress in information technology had reduced the costs of retail finance in terms of setting up both risk and account management systems. Finally, financial deregulation, new local and foreign entrants and government policies also tended to boost formal lending to the household sector.

Against this background, the credit card segment of consumer lending is rapidly gaining ground in Asia. One flow measure of Asia's credit card sector is credit card billing (Graph 2).<sup>3</sup> Total credit card usage volume, including the use of cards both to make purchases of goods and services and to withdraw cash, increased by 200 to 500% in many Asian markets between 1998 and 2006. Of the total credit card billing, 80 to 90% are for goods and services purchases and the remaining 10 to 20% for cash lending for most Asian markets (Graph 3). Also, as a share of private consumption expenditure, card purchases have been on an upward trend for most Asian economies, reaching 10 to 20%. One notable example of this general pattern is Korea where cash advance represented 65% of the total credit card billing at one point and its purchases of goods and services on cards stand out as high as 60% of the private consumption expenditure.<sup>4</sup>

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<sup>2</sup> For more updated overviews of general lending to households in Asia, see Fitch Ratings (2006), S&P (2006) and Mohanty (2006). For more recent discussions of housing finance issues in Asia, see Zhu (2006) and Chan et al (2006).

<sup>3</sup> Total credit card usage volume is the total transaction flow on credit cards, including both credit card purchases and new cash lending. In addition, unless otherwise specified, credit card debt, balances outstanding, receivables and credit card assets are used interchangeably as a stock measure of overall credit card indebtedness from both purchases and cash lending. Finally, following common practice in most Asian markets, delinquency is defined in this working paper as a loan payment three months overdue.

<sup>4</sup> Broader use of credit cards for payment purposes may reduce cash holdings and lead to unstable demand for narrow money, with potential implications for central banks targeting monetary aggregates.

Meanwhile, as a stock measure of the credit card business, credit card receivables have also exhibited a broad upward-trend across Asia over the past ten years. Per capita credit card balances outstanding grew by two to six times in these regional markets during the period of 1998-2006 (Graph 4). By the end of 2005, credit card receivables in these markets generally ranged between 2 and 7% of their respective total bank loans outstanding and between 3 and 15% (save the Philippines which reached 34.6%) of total household lending (Table 1). The two main exceptions to this picture are China and India, two large emerging Asian markets with local credit card sectors still in their infancy. They have lately been experiencing explosive growth — during 2004-07, the annual compound growth of total credit card receivables has averaged 47% for India and 76% for China.

The primary focus in this working paper is on the lending side of the credit card business in Asia.<sup>5</sup> Therefore, we will look more closely at the trends of the stock measure of credit card receivables. As well known, credit cards serve two primary functions: payment and financing. Accordingly, credit card users generally fall into two groups: “transactors”, who use credit cards mostly for payment convenience, and “revolvers”, who borrow regularly on their credit cards and pay interests accordingly. Transactors typically are of better credit but generate limited earnings to card issuers, principally through merchant discount fees. By contrast, regular revolvers tend to be inherently riskier personal borrowers in many cases than transactors. Moreover, compared to other forms of household credit, credit cards represent a high-yield unsecured personal lending business, on average providing more than half of the net earnings for credit card issuers in many Asian markets. Growing and more sizable credit card lending represents new opportunities in terms of improved access to credit and consumption smoothing by consumers, more diversified loan portfolios and higher margins for the financial industry but also increases risks to the financial system.

As a share of GDP, credit card balances in most Asian markets do not seem excessive when benchmarked against the United States at 7% of GDP (Table 1). Nevertheless, this same measure indicates comparatively high credit card indebtedness of 15% in Korea in 2002 and 9% in Taiwan in 2005. Moreover, it is not appropriate to simply compare levels without taking into account the fact that the market is well established in the United States but generally developing in many emerging Asian markets. Systemic risks could still arise at seemingly comparable level of credit card debts.

The expansion of credit card balances outstanding in many Asian markets has followed two distinct patterns in recent years (Table 2 and Graph 4). Credit card lending and debt in Malaysia and Singapore has so far shown the relatively steady growth that might characterise a smooth catch-up to the scale of such receivables in relation to household income in mature markets. In contrast, credit card lending in Hong Kong, Korea and Taiwan has in each case exhibited large swings of a boom-bust nature (Graph 5). Thus, if there is an underlying trend in these three Asian markets towards convergence to levels prevailing in mature markets, it has certainly not been smooth. Thailand has been an interesting outlier to these two general patterns — it experienced explosive growth in credit card receivables during 2002-03 but has so far managed to rein the lending boom to a soft landing, mainly through early and phased regulatory responses.

Large fluctuations in credit card lending such as those seen in these three markets can pose potential systemic risks and present new challenges to the region’s regulators. Behind these big swings in credit card receivables would be costly adjustments on the part of both card

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<sup>5</sup> Credit card lending can be granted by issuers through revolving credit balances, instalments or cash lending including both cash advances and card loans. Therefore, we also include cards that perform only the financing function, such as “cash cards” which provide specialised cash advance services to the cardholders but are not used for purchase payments. Cash cards are particularly popular in Japan and Taiwan and lately become available in Thailand as well.

issuers and cardholders, if not investors and taxpayers. More broadly, such lending booms and busts can be viewed as part of a more general problem involving the build-up and subsequent unwinding of financial imbalances observed not just in emerging Asia. The recent turmoil in the US subprime mortgage market testifies to the need for a better understanding of potential financial imbalance associated with excessive risky lending. These patterns can have important implications for the real economy, financial stability and in turn the design of policies and regulatory frameworks (Borio and Lowe (2002), Borio and Shim (2007)).

### **3. Three episodes of credit card lending distress in Asia**

In this paper, credit card lending distress refers to a situation of sharp asset quality deterioration in the credit card lending portfolio, significant card issuer losses and subsequent prolonged card lending retrenchment. While their specific circumstances differ, the three more volatile Asian episodes just referred to share a number of stylised characteristics to various degrees. These include the episodes' causes, mechanics and effects on the financial system and real economy. Of the three cases, the Korean one has been the most severe, and it will be further investigated in greater details in Section 4. The current section emphasises the common elements of these cases of credit card lending distress. Conceptually, it is useful to examine these three cycles in credit card lending in two phases: the boom and the bust, respectively.

#### **3.1 The boom**

The boom phase was typically characterised by large increases in credit card lending and credit availability. As a result, the stock of credit card debt grew at a rapid pace within a short period of time. Hong Kong's card balances increased from 3% of GDP in 1998 to 5% in 2001. Korea's outstanding credit card debt grew most rapidly, from 4% in 1999 to a peak of 15% by 2002. Taiwan was in between, with receivable balances growing from 5% in 2002 to 9% in 2005. At the time, such credit card lending booms might have appeared to reflect no more than a catch-up process, given technological advance and previously unsatisfied demand. In retrospect, however, they seem to have also gone hand in hand with a relaxation in the screening and lending standards of card issuers amid intensified market competition.

Six factors lay behind the relaxation of lending standards and excessive growth in credit card lending. First, as noted earlier, weaker corporate loan demand, ample liquidity in the banking systems and lower interest rates in the wake of the Asian financial crisis put considerable pressure on banks and other lenders to focus more on consumer lending. In Korea, commercial banks financed not only their own credit card operations, but also the dominant monoline credit card issuers through loans. Declines in interest rates at the time also led Korean households to seek higher yields in fixed income mutual funds of investment trust companies (ITCs), themselves overweight in paper issued by monoline credit card companies. In a search for yield, pension funds and insurance companies also took sizable exposure to credit card companies (Park (2007)). In Hong Kong, the depressed local real estate market at the time dampened demand for mortgage loans (which represented some 30% of the total local loan book) and pressured banks to seek opportunities in unsecured personal lending. Taiwan's banking system was also awash with liquidity, as bank reserves in excess of the required level approached 20% of total deposits for most of the 2000s.

Second, during financial liberalisation, there were new and often less experienced entrants contesting these markets. These new players intensified competition among credit card issuers for market share, leading to more relaxed lending standards and stronger credit expansion (Dell'Arizza and Marquez (2006)). In Hong Kong, some major foreign issuers without extensive local branch networks tried to enter the credit card market through direct

marketing. In Taiwan, financial liberalisation in the early 1990s doubled the number of banks in an already crowded banking market. These newcomers, mostly smaller private commercial banks, targeted the under-served consumer banking business, doubling their market share from 28% in 1994 to 56% in 2005. In Korea, tax incentives to both consumers and merchants to promote the use of credit cards prompted some chaebols, with limited consumer banking experience, to expand the credit card business headlong, and thus captured as much as 76% of domestic credit card transactions by 2002. These changes in the competitive landscape probably led even some dominant incumbents to relax their screening and underwriting standards as well.

Third, economies of scale in the credit card business might also have contributed to competition for market share. The credit card industry is a scale business, often involving large initial sunk costs necessary to set up the infrastructure for data processing, credit scoring, account management, monitoring and settlement. Moreover, the industry needs a sufficient cardholder base to attract merchants to sign on to credit card programmes (Evans and Schmalensee (2005)). Thus, once the initial investment is made, the marginal cost of adding new accounts is relatively low, reinforcing the imperative to chase market share. Such industry and cost structures thus tend to intensify market competition. In Korea's case, local credit card issuers usually do not outsource many of their operations, further increasing the threshold of accounts needed to break even for their credit card operations (Yun (2004)).<sup>6</sup> All three episodes witnessed aggressive and costly marketing campaigns to recruit new cardholders through mass mailing, telemarketing and even street solicitation, with little screening.

Fourth, a generally limited credit reporting and sharing infrastructure in some markets further contributed to the excessive build-up of risks in credit card lending portfolios. This was particularly the case at the time in Hong Kong and Korea, where the coverage of local credit reporting systems was limited in terms of reporting lenders, debtor base and types of data collected (Miller (2003), He et al (2005), Jeong (2006), and Park (2007)). To make things even worse, the Korean government erased as much as half of the available personal delinquency records at the local bankers association in May 2001<sup>7</sup>, making it more difficult for card issuers to identify less credit worthy card applicants (Lee (2005)). In particular, some leading local credit card issuers did not participate in the local credit reporting system, fearing that sharing certain customer information reduce their monopolistic rents of private information on their own client base. On the other hand, Taiwan's credit bureau was arguably among the most sophisticated in the world, but the boom-bust cycle occurred anyway.<sup>8</sup> A well-functioning information sharing system alone is no panacea. The situation was quite similar to the subprime woes in the US mortgage market, where the credit reporting and sharing system was in principle well developed.

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<sup>6</sup> According to an informal survey by the authors, the estimated break-even threshold of cardholders for the top five Korean credit card issuers combined is about 30 million. Setting this threshold against the fact that there are around 20 Korean credit card issuers and a total working population of 25 million indicates keen competition for market share in Korea.

<sup>7</sup> Soon after the 1998 Asian financial crisis, there were two to three million delinquent Korean borrowers who had no proper access to the formal financial sector, faced social stigma, were not able to find employment and had to turn to private money lenders and even the informal credit market. These low-income delinquents were charged prohibitively high interest rates and endured harassments. To ease the associated social tensions, the Korean government took the initiatives to erase the records of more than one million delinquencies in hope to allow these delinquents to restart their normal life.

<sup>8</sup> Taiwan's credit reporting system (the Joint Credit Information Centre (JCIC)) was further undermined by the reported beggar-thy-competitor behaviour of some card issuers, which encouraged delinquent borrowers to apply for new credit cards from other banks so as to repay their existing card debts in exchange for not reporting their delinquencies to the JCIC.

Fifth, various forms of principal-agent problems could also aggravate information asymmetry and further distort incentives to screen and monitor card borrowers. Amid intense competition, for instance, some Taiwanese card issuers simply outsourced the recruitment of new cardholders to so-called “credit card brokers” who, for a fee, helped less creditworthy card applicants to “polish up” their applications and simultaneously submit them to several issuers. This effectively bypassed the local credit reporting system. Such agency problems related to the unregulated, commission-based broker system also happened in Korea during the 2002-03 credit card lending boom. Moreover, as will be discussed in Section 4, Korean card issuers relied heavily on wholesale funding, particularly securitisation, to support their business expansion and thus might be eager to inflate the asset quality of their card portfolio (via re-ageing) and push risky card loans off their balance sheets to less informed third-party investors as marketable securities (Moreno (2006), White (2007)). This to some extent resembled the recent experience in the subprime mortgage market in the US, where responsibilities are segregated among different agents. Without proper prudential and regulatory arrangements in place to ensure sufficient risk-sharing and transparency, the “originate and distribute” model might weaken the incentives to screen borrowers in Korea. Nevertheless, this particular business model seemed to play only a relatively minor role in the cases of Hong Kong and Taiwan.

Finally, higher lending rates on a fast-growing, but not well seasoned, credit card loan portfolio initially brought about attractive net earnings. This enticed new and incumbent card issuers to focus still more on the card lending business. In all three cases, competition was very intense on the lending side of the credit card business. The seasoning effect in credit card lending appears to be similar to that of corporate high-yield bonds, which tend to have low default rates in the years immediately after their issuance, with its positive cash flows. Thus, credit card issuers tend to record much higher yields initially from card lending, unless they provision explicitly for the latent losses expected later. In Korea, cash advance fees and interest charges exceeded 20%, compared to the prevailing unsecured personal loan rates of 6–7%.<sup>9</sup> During the Korean credit card lending boom, the share of cash lending in total credit card assets approached 65%, and the sector’s average return on equity reached 40% (Graph 6). It was estimated that in 2001, returns on asset of the credit card companies were six times of the average of the Korean commercial banks (Yun (2004)). In Taiwan’s credit card industry, interest earnings and fees related to cash advances were five times the earnings from merchant discount fees during the lending boom; at the peak, Taiwan’s cash card balance approached half of the total credit card receivables outstanding (Graph 7).

All six factors interacted and worked to heighten the risks of relaxing lending standards. Through either an understatement of the lending standards or the knowing acceptance of greater risks, the result was excessive lending and riskier credit card loan portfolios. Moreover, in addition to generally easier loan standards, there was a deliberate strategy to target the market segment for less prime and higher-yielding “revolvers”. As a result, credit cards have over time evolved from being part of a banking package catering for high-end bank customers to being a mainstream payment means and facility for occasional revolvers, and further to a lending instrument targeting less prime regular revolvers. Abundant liquidity, intense market competition and lending booms only served to accelerate this evolution, probably too fast for the comfort of the financial system.<sup>10</sup> Thus, competition for market share started rapidly moving down the credit spectrum, sometime within a very short span of time.

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<sup>9</sup> In Hong Kong, banks’ net interest margins on mortgage lending were squeezed at the time, making card lending relatively more attractive (He et al (2005)). In Taiwan, industry players estimate that net interest margins on card loans were at least four times higher than those on corporate lending.

<sup>10</sup> For a similar but more gradual transition in the US credit card market, see Stavins (2000).

As a consequence, the composition of the cardholder base changed markedly, leading to bigger and higher-risk card lending portfolios. Typically, there was a tendency of disproportional concentration of debt burdens among the less creditworthy card borrowers who need unsecured lending the most. In Taiwan, the outstanding balance of cash card holders, who are mostly revolvers and thus riskier on average than credit card holders, amounted to half of credit card receivables by late 2005. This compared to only one quarter in mid-2004 (Graph 6). In Korea, LG Card, a leading local issuer, found that 70% of its bad loans came from card lending extended to accounts acquired during 2000–01, when the number of total credit cards in the economy more than doubled. On the basis of evidence from local income and expenditure surveys, Park (2007) shows that between 1999 and 2002, the average debt burden of asset-poor households rose much faster than other households. Much of such increased debt burden during this period presumably was in the form of unsecured credit card debt.

As commonly happens with the boom of credit to households, aggregate spending received a boost as well. Korea's private consumption expenditure as a share of GDP jumped from 48% in 2000 to 55% in 2002, as rapid credit card lending allowed Korean households to smooth consumption, which helped sustain the economic recovery after the 1998 recession brought about by the Asian financial crisis (see the section on Korea). By contrast, for Hong Kong and Taiwan, the effects of credit card lending boom on personal consumption were less pronounced.

### **3.2 The bust**

The second phase of the credit card lending cycles often began with the lagged recognition of excessive indebtedness and disproportional risk concentration, amid rising delinquencies. This resulted in greater caution on the part of the card issuers, tighter lending standards, contractions of credit, and prolonged balance sheet adjustments, often affecting the real side of the economy.

Though increasing credit lines, the merry-go-round process of some multiple credit card holders, re-aging practices among card issuers (rollover of would-be delinquent card debt) and in some cases, unloading card loans via asset-backed securities kept the lending boom going for a while, eventually some overstretched card borrowers hit limits. In addition, as credit card portfolios became more seasoned over time, delinquency and subsequently credit costs rose, due to mounting provisions and charge-off expenses, which squeezed cash flows and profit margins of credit card issuers. Before long, card issuers sensed trouble and became more cautious in extending credit lines to riskier card borrowers. In some cases, they even trimmed lending to those normally creditworthy card borrowers outright, further tightening credit availability for the sector.

Tighter credit in turn further pushed up delinquencies, especially among overleveraged card borrowers. This resulted in a scenario similar to a credit crunch, that is, a situation where credit contraction and deterioration in asset quality of credit card loan portfolios tend to reinforce each other. These adverse dynamics are captured by both the rapid declines in outstanding credit card balances and sharp spikes in the impaired asset ratio, which in this working paper is defined as the sum of delinquencies and charge-offs over credit card receivables (Graph 5).<sup>11</sup> Korea and Taiwan's impaired assets ratios both approached nearly 25% at their respective heights of the stress phase of the cycles. In the two years following their respective peaks of lending booms, Korea's credit card receivables fell by 65%, compared to a decline of 30% in Taiwan but only 10% in Hong Kong.

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<sup>11</sup> Because the rules for write-off vary across markets as well as over time, a better way to capture the asset quality of the credit loan portfolio would be the impaired assets that comprise both delinquency and charge-off.

In response to early signs of asset quality deterioration, the initial policy response of the authorities often took the form of tighter administrative and regulatory measures, especially in the case of Korea. These policies included an intensification of the consultations between the regulators and local credit card issuers over best practice guidelines for credit card operations and credit reference agencies. Examples included the establishment of a more inclusive credit reference agency in Hong Kong (He et al (2005)) and stronger write-off and disclosure requirements in Taiwan. In response to emerging signs of stress, the Korean authorities first upgraded credit card asset classification standards, strengthened provision requirements, started applying prompt corrective action to standalone card issuers, and then raised their minimum capital adequacy ratio from 7% to 8%. The Korean authorities also banned aggressive marketing practices, introduced a new rule requiring a cap on cash lending balances of below 50% of total credit card assets by a specified deadline (the so-called “50% rule”), and applied pressure to credit card companies to lower their interest charges. While probably healthy from a longer-term perspective or deployed in advance, in the shorter term some of these measures risked additional contractionary effects on credit card issuers and borrowers, thereby exacerbating the credit crunch as the cycles turned.

In each case, as the situation worsened, policy interventions shifted more towards crisis management, often in the forms of regulatory forbearance for issuers and debt rehabilitation for overleveraged cardholders. All three cases witnessed some form of personal debt workout programmes or procedures, sometime under intense political pressure and social tensions associated with alarmingly widespread defaults and bankruptcy (Graph 8). The authorities in Hong Kong endorsed the workout guidelines proposed by the local bankers’ association. In Korea, a “credit counselling and recovery service” programme was set up in October 2002 to facilitate debt rescheduling. In Taiwan, to facilitate renegotiation between issuers and multiple-card debtors, the authorities initiated a personal debt restructuring programme, covering some 30% of total card balances. One third of the restructured debtors were reportedly performing at the time, but enrolled in the programme nevertheless to take advantage of better repayment terms.<sup>12</sup> Some restructured loans were immediately reclassified as performing, effectively granting issuers regulatory forbearance. In Korea, the authorities reversed some earlier tough measures (see Section 4 for more details) and allowed issuers to roll over delinquent credit card loans, a practice known as “re-ageing”. This eased, at least temporarily, the burden of provisions and charge-offs on issuers, thus also providing de facto regulatory forbearance.

The cleaning-up processes in the three episodes also shared the common features of the protracted contraction in credit card receivables and heavy losses suffered by card issuers but differed in the role of the government. Hong Kong’s consolidation following the turning of the lending cycle was mostly driven by market, with the exit of a key credit card issuer (and also a new entrant at the start of the local credit card lending cycle) through the sales of its entire card business and book to another key local market player. In Korea and Taiwan, both the market and government played some role in the cleaning up process. For instance, almost one third of Taiwan’s 34 cash card issuers closed down their business altogether, as a number of local and foreign credit card issuers quitted the local credit card market, with ABN AMRO selling its whole TWD 8 billion worth credit card portfolio in Taiwan. On the other hand, the Korean government, through the state-owned Korea Development Bank, intervened and coordinated the financial sector participation in a rescue package for the

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<sup>12</sup> Taiwan’s debt restructuring programme offered lower interest rates of 3–4% compared to the prevailing card lending rates of 16–20%, and longer repayment periods of seven to eight years compared to three years normally. The programme might help ward off other more questionable measures proposed by politicians at the time. In Hong Kong, a more forgiving personal bankruptcy regime was introduced before the local credit card problems arose.

troubled leading local credit card company, LG Card (See Section 4 for more details). Finally, as discussed, regulatory forbearance of one form or another was applied in the cases of Korea and Taiwan.

The effects of these credit card lending boom-bust episodes on the financial system varied, depending in part on the scale of the initial excess and in part on policy responses, but in each case the damage remained manageable. Leading issuers often suffered heavy losses from their card lending business. It is estimated that about one third of the entire card lending books at their peaks eventually had to be written off in the wake of these credit card stresses. The lending boom in Korea was the most spectacular; so was its subsequent bust. Although credit card lending normally amounted to less than 10% of the total loan books in these banking systems, Korea's credit card balances for both bank and monoline issuers were equivalent to as much as one fifth of total bank loans outstanding at the peak of the boom. Moreover, commercial banks were themselves heavily exposed to monoline credit card issuers. As of March 2003, Korean commercial banks' lending to the troubled LG Card was KRW 11.2 trillion, or 38% of the creditor banks' combined capital. The overall exposure of commercial banks to the card issuers reached KRW 22 trillion on the eve of the credit card crisis (Park (2007)). Credit card debt distress further fuelled broad disruptive contagion in Korean financial markets (see the next section), thus indirectly contributing to a weakening in corporate capital spending into 2004.

The unwinding of the earlier excess lending sometimes also intertwined with and even exacerbated ongoing local business down cycles. During 1997-2001, Hong Kong's prolonged housing price deflation led to negative equity for many mortgagors who had to turn more to unsecured lending; rising local unemployment weakened the repayment ability of card borrowers; and incomplete positive information sharing among credit card issuers and the introduction of a more generous personal bankruptcy regime in 1998 interacted to further accentuate the excess lending boom and its subsequent bust. As a result, both credit card charge-off and personal bankruptcies reached historical heights in 2002 (Graph 9). The credit card debt woes in turn might also add to the unemployment pressure locally. At the height of the credit card lending distress, the average debt burden of Hong Kong borrowers was about two times the monthly income while in the US, it was six; yet, this average debt multiple for Hong Kong's personal bankruptcy petitioners reached as high as 42 times in 2002, twice that in the US. In Korea, too, the economic downturn around late 2000 was considered as adverse income shocks that further weakened the household ability to service debts (Park (2007)). Yet in Taiwan, there was no strong evidence that business cycles helped trigger the burst of the local credit card lending bubble.

Finally, rising delinquencies impacted negatively on the real economies concerned, mostly via weakened consumer spending. Worsening asset quality, funding difficulties and tougher regulations reinforced credit contractions and led to a credit crunch in some cases. The more disorderly unwinding in Korea visibly led the private consumption downturn in 2003 (Graph 10). By contrast, credit card woes in Hong Kong were overshadowed by and perhaps mixed up with the protracted local asset price deflation at the time (Lai and Lam (2002)) and seemed to have mainly dampened the spending on big-ticket items in Taiwan after 2004.<sup>13</sup>

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<sup>13</sup> Interview with local credit card issuers indicated that some local car buyers borrowed cash through cash advances of their credit cards and cash cards to make down payment and in turn took out car loans so that their car purchases were entirely financed by debt.

## 4. The Korean credit card market

The Korean experience was the most dramatic and has attracted most attention (Kang and Ma (2007), ADB (2007)). This section examines some of key characteristics of the Korean credit card lending crisis in greater details and takes advantage of the available firm-level panel data in an attempt to shed some light on the debates over rigidity of credit card interest rates and possible adverse selection in the credit card lending market.

### 4.1 The 2003 credit card crisis

Our still closer examination of the Korean case highlights three points. First, government policies played a more prominent role at the start of the lending boom than in other countries. Nevertheless, the role of the tax incentive scheme in the 2003 card lending boom should not be overstated. Second, since the monoline card issuers dominated the local industry, in contrast to other Asian markets, the credit card crisis spilled over into the capital market and leading to further contagion. By contrast, credit card distresses in Hong Kong and Taiwan apparently did not lead to noticeable financial market turbulences. We attempt to draw out some of the implications from the possible agency problem and the absence of effective market discipline. Finally, the crisis involved institutional support for a troubled leading credit card issuer that was not a bank, which could be regarded as a mixed public-private rescue operation.

Government policies designed to cushion the severe economic downturn after the Asian financial crisis contributed in significant measure to the Korean credit card lending boom of 1999–2002. The policy package put in place at the time included tax benefits for merchants accepting credit cards and income tax deductions linked to credit card purchases made by cardholders.<sup>14</sup> On the regulatory front, the authorities abolished the administrative ceiling of KRW 700,000 (\$610) on monthly cash advances and removed the limit of the leverage (up to 20 times capital) on credit card issuers.<sup>15</sup> Moreover, the weighted regulatory capital requirement for the specialty issuers was only 7%, despite the inherently undiversified nature of their unsecured credit card lending business. Such policy measures spurred and enabled credit card companies to embark on an aggressive campaign to take on the initially lucrative cash lending business. In response, the market grew rapidly in 1999–2002, with the number of credit cards rising from 40 million to 100 million and the total credit card assets expanding fivefold (Graph 5).

Although the tax incentives might indeed stimulated credit card spending and make the Korean case special (Lee (2005)), one should not exaggerate the role of tax incentives in the card lending bubble. First, for card holders, issuers and card-accepting merchants alike, the tax incentives applied only to credit card purchases and not to credit card cash advances at all. It was precisely cash advances that got out of control during 2001–02, as issuers were deliberately targeting revolvers at the time (see Section 4.2). Second, to the extent that the bulk of the increased credit card spending represented a simple substitution for (replacement

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<sup>14</sup> The tax incentive scheme works as follows. A cardholder's income tax deduction = [credit card purchase - (annual income\*15%)]\*15%, subject to a maximum tax deduction of the lesser of either 20% of annual income or five million won. The 15% is a policy control variable. A merchant's tax deduction was set at one percent of the card transaction amount, subject to a maximum tax deduction of five million won. For example, assume a cardholder with an annual income of 30 million wons, credit card purchase of 9 mn wons, and a flat income tax rate of 14.1%. Then, her tax saving via credit card purchase will be 95,175 wons = 14.1%\*[9mn - 30mn\*15%]\*15%].

<sup>15</sup> In the wake of the Asian financial crisis, these policy and regulatory measures were part of broader financial deregulation and were also intended to stimulate consumer spending, enhance tax collection, and to some extent limit the korb (informal) loan market.

of) cash spending, the household ability to service credit card receivables should not be materially compromised. Third, even if some cardholders might have overspent to take advantage of tax benefits, other available unsecured personal loans attracted only 7 to 9% interest charges, compared to the prevailing 20% APR on credit cards. Fourth, the riskier households should generally be much less motivated to take advantage of income tax deduction, as the marginal income tax rates for the lower income brackets are only 8% to 17%. Finally, income tax deduction related to card purchase is still available today, albeit down from 20% in 1999 to 15% since 2005. In sum, while tax incentives did promote the use of credit card as a means of payment, we doubt it was a principal cause behind the excessive credit card lending boom in Korea.

The business model adopted by Korean credit card issuers had also helped shape the particular dynamics of the local credit card lending distress. This was mainly because of interactions between asset quality deterioration and funding difficulties (Graph 11). Specialised credit card service providers dominated the Korean market but were prevented by regulation from deposit-taking. Thus, during the boom, monoline issuers funded the credit expansion by tapping heavily into the capital market, with many of the papers (debentures, commercial papers or credit card ABS) they issued being purchased by ITCs, insurance companies and pension funds. But as their card portfolios began to turn sour, investors, spooked by an accounting scandal at SK Global in March 2003, rushed to pull their investments out of ITC-managed funds. Panic redemptions even forced ITCs to sell their government bond holdings, as liquidity in the secondary corporate bond markets disappeared (Remolona and Wooldridge (2003), Lee and Kim (2005), Park (2007)). In a matter of two weeks, the outstanding value of the ITC-managed funds fell by 15%. Most credit card companies found it almost impossible to roll over their maturing debts. Funding difficulties also forced some issuers, either insolvent or in a liquidity crunch, to slow or even cut their lending to cardholders, further pushing up delinquencies and hurting the confidence of bond investors.<sup>16</sup> Heavy reliance on wholesale funding thus subjected the Korean card issuers to sudden seize up in the financial market at a time when the asset quality of their card lending portfolio was deteriorating.

Two possible lessons can be highlighted from the business model of monoline credit card operations based on wholesale funding. Firstly, the Korean business model resembles an “originate and distribute” type, which has come under criticism in the wake of the recent subprime difficulties in the US mortgage market. This model might in part encourage regulatory arbitrage and laxer underwriting standards on the part of Korean credit card companies in a broad market environment of easy credit and fierce competition. Prior to June 2003, there had been no explicit regulatory requirement about the capital needed to be set aside to cushion the contingent liabilities of the put options in the credit card receivables-backed securities.<sup>17</sup> In addition, by ABS, monoline credit card companies got around the regulation that a credit card company is not allowed to issue debenture (bonds) over 10 times of its capital. Furthermore, the widespread re-aging practice among credit card issuers tended to inflate asset quality of their card lending and facilitate the transfer of credit risks to distant securities investors, further reducing transparency and weakening the incentives to screen and monitor card applicants. Re-aging probably also delayed the recognition of the problem and allowed excessive accumulation of risk during the lending boom phase. According to the estimates of the FSS and Goldman Sacks (2003), re-aged loans at the top 8

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<sup>16</sup> This experience of contagion in the financial market again shared some similarity with the more recent woes in the securitisation market for subprime mortgage loans in the US and their contagion into the broader financial market globally.

<sup>17</sup> To correct this distortion, on 27 June 2003, the FSS introduced the new rule that 10% of securitized credit card assets should be included in the “adjusted total assets” as the denominator in the capital adequacy ratio calculation. Since February 2008, 50% of securitized assets have been included in the adjusted total assets.

Korean credit card companies might amount to as much as 30% of their total assets at the end of 2003.

A second and related lesson is that market discipline seemed to have failed to function. Given that the credit card portfolio typically represented about 5 percent of the total bank loan book, one may argue that yield spreads of bonds issued by commercial banks might not widen sufficiently and early enough to signal the rising underlying credit risk. But in Korea, the bond market failed to price such credit risks even as the quality of monoline issuers' portfolio deteriorated sharply, until the full crisis broke out in mid March 2003. Between January 2002 and February 2003, the yield spread of credit card company bonds over three-year government bond and the benchmark corporate bonds of comparable rating widened by less than 50 basis points (Graph 12).<sup>18</sup> This perhaps might have encouraged the aggressive balance sheet expansion of credit card companies longer than otherwise in a time when credit risk was already rapidly building up.<sup>19</sup> Such a lack of effective market discipline in the form of mis-pricing credit risk can be viewed as a particular case of market failure due to information asymmetry, which in turn might be related to the regulatory authorities' belated disclosure of information about credit card companies to the public and permission of the "re-aging" practice as well as the possibly opaque structure and excessive complexity of some of the ABS deal (Moreno, 2006). Finally, the failure of the domestic rating agencies to promptly review the bonds and ABS issues of credit card companies certainly did not help.

As the turmoil spread to the bond market, policy intervention came more to resemble a set of crisis management operations. This policy change was a response to the perception of higher systemic risks, though the extent to which a problem existed remains a matter for debate. Policymakers also shifted their tactics over time, opting to intervene firstly by providing liquidity support to both the unsettled financial market in general and to troubled credit card issuers in particular, and secondly arranging a rescue of the failing LG Card, which aroused controversy because of the possible moral hazard implications (Coulton (2005)).

These two forms of government intervention operations were large-scale. First, within days of the mid March 2003 bond market sell-off, the Bank of Korea (BoK) acted to inject substantial short-term liquidity into the system through open market operations. The BoK's liquidity injection via reverse repos, outright purchases of the government bonds and early redemption of Monetary Stabilisation Bonds was on the scale of KRW 4 trillion. The government also persuaded domestic investors to roll over the matured debts of credit card companies and not to exercise their put options in credit card asset-backed securities.

Second was a package arranged by the government through the state-owned Korean Development Bank (KDB) to rescue the troubled LG Card. The authorities initially pressured the majority shareholders of troubled credit card companies to inject capital (in the order of KRW 4.6 trillion), then suspended the trading of LG Card bonds, arranged the KDB to extend new credit to LG Card, and eventually coordinated a process of debt-equity swaps to ensure the joint control of LG Card by the creditor banks in 2004. At the peak, the KDB lending alone exceeded a quarter of the KRW 3.7 trillion total creditor claims on LG Card. The KDB-led creditor committee seized the management control of LG Card, with the CEO and most of the senior management being replaced. During the restructuring process of the debt-equity swap, the entire equity of LG Card's majority shareholders was wiped out, while that of the

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<sup>18</sup> Park et al (2003) also report that the yield spread of credit card company bonds over government bonds was statistically insensitive to changes in the underlying delinquency in the monoline issuers' card portfolios until it was too late.

<sup>19</sup> It should be noted that even if both primary and secondary market pricing signals reflected the underlying risks, it may not sufficient to restrain credit card issuers from excessive risk taking (Borio et al, 2004).

minority shareholders was substantially written down, which should help contain the moral hazard risk.<sup>20</sup> The creditor banks eventually recorded an accounting profit of KRW 3 trillion from the debt-equity swap in March 2007 when Shinhan Bank acquired LG Card through a public takeover bid in the stock market. So, ex post, the rescue of LG Card did not cost taxpayers money. On the other hand, as public-sector resources and implicit government guarantees were obviously involved upfront, the KDB involvement ex ante entailed a rise in the government's contingent liability at the time. Therefore, the institutional support for LG Card could be viewed as a joint private-public sector rescue characterised by a mixture of both "bail-out" and "bail-in" (Eichengreen and Ruehl (2000)).

#### **4.2 Interest rate rigidity and adverse selection**

In the literature, there are two competing versions of adverse selection in credit card lending, both related to Ausubel ((1991) and (1999)). The 1991 version of adverse selection is developed as a way to explain why credit card interest rates tend to be sticky and persistently high in competitive market environments (Also see Callem and Mester (1995)). Because of information asymmetries, and search and switch costs, lower credit card lending rates may attract less creditworthy or less profitable borrowers, hurting the net earnings of card issuers. Thus card issuers do not compete on credit card interest rates which therefore appear rigid relative to changes in market funding costs. By contrast, the second or 1999 version follows the classical case of adverse selection, predicting that higher credit card interest rates attract less prime card borrowers (Stiglitz and Weiss (1981); Stavins (2000)). On the basis of available firm level data, we discuss the following three questions related to rigidity of interest rates and adverse selection in the Korean credit card lending market.

The first question obviously is whether credit card interest rate is indeed rigid or inelastic at all relative to other bank lending rates in response to changes in funding costs. In terms of the absolute size, the estimated elasticity of the cash advance rate is quite comparable to those of other bank lending rates in Korea (Table 3). One puzzling observation though is that while other bank lending rates responded positively to changes in the policy rate, cash advance rate in Korea tended to move in opposite directions during 2002-06. One possible explanation to this puzzle is that soon after March 2003 when the government removed the informal pressure on card issuers to cap their credit card interest charges, the BoK also started an easing cycle by cutting its policy rate. So during this episode, cash advance interest rates and benchmark funding cost moved in opposite directions. At most, the evidence on the stickiness of credit card interest rates is mixed, based on the data sample for this short period.

A second question is whether changes in the cash advance rate are associated negatively with cash borrowing which is often undertaken by riskier cardholders. The answer seems to be a yes, consistent with the 1991 version of selection that lower cash advance rates result in higher cash borrowings by cardholders (Graph 13). Nevertheless, this negative correlation may also attribute to or be consistent with a simple supply-demand story. Alternatively, it could also be related to the particular mix of policy actions at the time. For examples, a combination of quantitative restrictions on cash advance lending and the discontinuation of informal pressures by the government on credit card issuers to charge lower interest rates in

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<sup>20</sup> The major shareholders representing 46% of LG Card's paid-in equity capital: the Koo family (16%), LG Securities and Investment Corp (9%), Templeton Asset Management (11%) and the Capital Group (9%). The remaining 54% were held by minority shareholders who exchanged 240 of their old shares for one share in the newly structured LG Card following the 2004 debt-equity swap. Those creditors who chose not to participate in the swap would agree to extend the maturity of their claims for one or two years in return for a premium of 200-300 bps over the prevailing yields on the benchmark 3-year AA- corporate bonds.

2003, together with tighter lending criteria of card issuers, could result in higher credit card interest rates and lower cash advances concurrently.

A final question regarding adverse selection concerns whether levels of credit card interest rates and/or cash advances affect asset quality of card lending portfolios. The 1991 version of adverse selection predicts lower credit card rates will lead to higher delinquency or charge-off. On the other hand, regardless which version of adverse selection, higher levels of cash advances (often undertaken by less creditworthy card borrowers) would often lead to increased riskiness of the credit card portfolio. We use firm-level panel data to estimate the following equation and test whether cash advance rate and the cash lending affect the credit card asset quality.

$$Y = \beta_1 X_1 + \beta_2 X_2 + \alpha_0 + \alpha_1 Z_1 + \alpha_2 Z_2 + \alpha_3 Z_3$$

where Y is an asset quality indicator, which could be either delinquency, charge-off or impaired asset that combines delinquency and charge-off.  $X_1$  and  $X_2$  are cash advance interest rate and cash advance share of the total card billing — the two explanatory variables of our interest.  $Z_1$ ,  $Z_2$  and  $Z_3$  are three control variables: log of total credit card asset, capital adequacy ratio and rate of return on assets at credit card companies. To avoid endogeneity, all of the  $X_i$  and  $Z_i$  are lagged two quarters.<sup>21</sup>

We find some weak evidence of lower cash advance rates being associated with poorer asset quality and strong evidence of bigger cash lending hurting asset quality (Table 4). When cash advance rates and cash lending are both used as explanatory variables, the cash lending seems to dominate in the determination of asset quality. One possible explanation is that as credit card companies deliberately targeted the market segment of less prime cardholders in 2000-2002, excessive cash lending resulted in riskier card portfolios and eventually poorer asset quality. Since the “50% rule” gradually took effect after 2003, cash lending slowed as asset quality of most credit card companies slowly recovered. Whether credit card interest rates were rigid or not, our findings highlight the central role of excessive cash lending in the Korean credit card crisis.

## 5. Lessons learned and policy implications

These three episodes of credit card lending distress point to a number of lessons which may be valuable to policymakers in other Asian markets that are starting to experience a rapid expansion in credit card lending, especially for the most populous Asian markets like China, India and Indonesia. Indeed, policymakers in other Asian markets have already taken notice of the three Asian episodes and some have responded accordingly. Given the limited space, this working paper mainly focuses on the following three policy lessons.<sup>22</sup>

First, the episodes highlight the importance of placing greater emphasis on detecting early warning signs before imbalances build up excessively for too long. Admittedly, it is a challenge to sound the alarm bell when profits are on the up, amid a lending boom, but reasonable average debt-to-GDP or liability-to-asset ratios and low initial losses should not

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<sup>21</sup> Because of the “accounting lag” that the dependent variables delinquency is defined as at least three-month overdue, the regressors need to be lagged for two periods (quarters).

<sup>22</sup> Excessive household indebtedness may also complicate monetary policymaking, which is beyond the scope of this paper.

give rise to complacency. For instance, while Korea's household financial liability-to-asset ratio during the 2000-02 card lending boom pointed to potential troubles ahead, the same ratio simply failed to alert in the case of Taiwan (Table 5). Even from a low base, the rapid growth in indebtedness itself may overwhelm risk management capacity and thus can pose new risks, especially during periods marked by structural change in the industry and/or the cardholding population. Nor should a benign economic environment lead to the conclusion that a consumer debt crisis will not occur. Moreover, given the time lags in data collection, problem recognition, and the policy response, there is probably a need to strengthen the capacity of policymakers to conduct on-site examinations and to maintain access to confidential information, particularly in the transition phases of market development.

Second, governments can help enhance information flows to facilitate the functioning of the consumer credit market. For example, to mitigate information asymmetries between lenders and borrowers, credit information reporting and sharing should be encouraged (Miller (2003)). Since the recent episodes of distress, credit reporting and sharing in both Hong Kong and Korea have improved considerably (see the Appendix table), particularly in the coverage of the types of credit data. Three private credit bureaus are now competing against each other in Korea, as they started collecting more positive credit data since 2004. With the local monetary authority taking a strong lead in overcoming legal barriers and urging greater cooperation among the banking community, a central consumer credit information service providing both negative and positive information in Hong Kong has been operating since 2003 (He et al (2005)). Even in Taiwan, the local system has been further refined and enhanced after the recent boom-bust cycle of credit card lending.

Going forward, credit information sharing will become an even more important part of the financial market infrastructure, as credit cards are increasingly being offered to a wider population base in many emerging Asian markets. Credit reference agencies with a broad coverage of both the financial sector and types of credit data should in general help contain adverse selection problems, improve risk management capability, provide more reliable warning signals to regulators and permit more efficient product innovation and credit pricing. As shown in the Appendix table, in more recent years, many Asian markets feature at least one leading local credit reference agency sharing negative and positive credit data. In particular, the credit reporting system operated by the central bank in Malaysia allows the whole banking sector to share the positive and negative credit information, helping contain excessive risk buildup in the system. Nevertheless, it will take time to build an effective consumer credit database and functioning credit reporting business. Moreover, the episode in Taiwan and the more recent problems in the US subprime mortgage market suggest that credit reporting itself is no guarantee of safety and that careful consideration should be given to how best to maintain the integrity of credit information sharing and reporting systems.<sup>23</sup>

Finally, policymakers may find it helpful to upgrade their prudential and supervisory frameworks, especially during the liberalisation process. These include both general regulatory rules as well as guidelines on best practice and prudential rules specific to the credit card business (Table 6). For instance, there may be a case for more refined and differentiated provisioning requirements for credit card receivables: lending to regular revolvers is a higher-yield but riskier and more volatile business, while income from transactors is lower-margin but more stable. There should also explicit capital requirement as a cushion for the retained exposure or the contingent liability arising from off-balance sheet securitisation. Often, income tests, credit limits and minimum repayment requirements are imposed to cap risk exposure to the less prime segment of the credit card market.

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<sup>23</sup> Related to the issues of consumer credit information, timely disclosure of issuer information could help the financial market exercise its disciplinary role for credit card issuers. In addition, with a wider population being offered access to credit cards, better consumer education may help contain misuse.

Sometimes informally put in place through local bankers' associations, some of these more "paternalistic" rules can be helpful safeguards, at least during the difficult transition periods of rapid structural changes and financial liberalisation. In particular, these restrictions need to be deployed pre-emptively or sufficiently early, in order to enhance financial stability.

Forms of such restrictions have indeed been strengthened or reintroduced in some Asian markets following the recent distress episodes. For example, drawing lessons from the Korean experience, and in response to a marked acceleration in local credit card lending during 2001-03, the Thai regulators promptly introduced formal guidelines on credit card operations in 2002 and tightened them in 2004 (Watanagase (2005)). In November 2002, the Bank of Thailand (BoT) set the minimum annual income requirement of THB180,000 for cardholders and a 5% minimum monthly repayment of the total credit card balance outstanding. In March 2004, the BoT acted again to set a credit limit of five times of monthly income, hike the minimum monthly repayment to 10% in a phased manner and request mandatory cancellation of credit cards in case of overdue for more than three months. In April 2007, the BoT raised the regulatory ceiling on credit card charges to 20% from 18% APR. Largely owing to these BoT moves, Thailand's credit card balance outstanding decelerated sharply, from a worrisome peak of 80% growth in mid 2003 to below 10% by late 2007 (Graph 14). There were signs of some deterioration in the asset quality of credit card lending as well, probably in response to the tougher minimum monthly repayment requirement. Yet, it seems that so far, Thailand has managed to avoid a painful bust.<sup>24</sup>

Other regulations, however, may be more ambiguous in their effect and controversial. For instance, excessively binding legal or regulatory ceilings on lending rates may drive some borrowers away from the formal sector and weaken card issuers' ability to absorb shocks in times of distress.<sup>25</sup> This is more so, considering that credit card lending is a high-yield retail lending business. Instead of regulatory interest rate ceilings, a better approach for consumer protection would be mandatory standard disclosure of interest rate and fee charges as well as positive credit data sharing and tiered interest charges to ease rates for the majority of creditworthy card holders. In Asia, legal ceilings on interest rates on consumer finance range from 18% in Malaysia, 20% in Taiwan and Thailand, 40% in Korea to 60% in Hong Kong. Sometimes, informal caps on interest rates could be much lower than the formal legal ceilings. In the Philippines, the local regulatory ceilings on interest rates have been lifted since the 1980s so that higher card rates mostly reflect higher credit costs on card lending. Most Philippine card issuers currently charge some 30% APR and seem to have little problem absorbing a delinquency ratio of around 15%, which was the highest in Asia but appeared to pose little threat to the financial system (Graph 15).<sup>26</sup>

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<sup>24</sup> In Indonesia, policymakers also took note of the Korean credit card crisis and responded by stronger prudential regulations. Bank Indonesia in 2005 revised the regulations on credit card business and introduced a minimum monthly repayment of 10% of the credit card balance outstanding.

<sup>25</sup> As discussed in Section 4.2, lower credit card lending rates may potentially attract less creditworthy or less profitable borrowers because of information asymmetries, and search and switch costs, thus hurting the net earnings of card issuers (Ausubel (1991), Calem and Mester (1995) and Yun (2004)).

<sup>26</sup> In contrast, a very low credit card delinquency ratio of around 4 to 5% was observed in Taiwan during the extremely stressful phase of the credit card lending cycle. This apparently low delinquency was mostly due to a combination of more binding interest rate ceilings and tighter write-off rules and was a poor indicator of the financial distress experienced by the card issuers at the time.

## 6. Conclusions

This decade has witnessed strong growth in credit card balances in many Asian markets, as some of the potentially biggest credit card markets in the world, such as China and India, are also showing early signs of take-off. Meanwhile, some of these markets have experienced episodes of credit card lending booms and busts. The boom phase of these cycles is often associated with increased liquidity and competition for market share, laxer lending standards, excess credit expansion and adverse selection; the subsequent bust phase is sometimes exacerbated by the adverse dynamics of contracting credit, liquidity squeeze and moral hazard. Rising levels, rapid growth and shifting distribution of household debt may all pose risks to the region's financial systems. The dominant role of excessive cash lending is highlighted in all the three recent episodes of credit card lending boom-bust cycles in Asia.

With deregulation and growing consumer finance, policymakers need to appreciate the risks arising from consumer lending, and put in place appropriate prudential and supervisory measures to contain risks. Policymakers need to deploy these measures pre-emptively, ahead of anticipated structural changes and deregulation, as well as lay greater emphasis on both identifying indicators of excessive credit growth and reacting to them. Also, adequate market infrastructure for risk management and information sharing is needed for a healthy consumer lending market by mitigating the problem of information asymmetry. Nevertheless, some regulations may be counterproductive to the development of this high-yield retail lending sector. Finally, credit bureaus can help, but careful attention must also be paid to their structure and operations, as well as to the incentives needed to maintain their integrity, especially in times of easy liquidity, increased market competition, rapid structural changes and fast financial innovation.

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**Table 1: Credit card balances outstanding in Asia (end 2005)**

	Per capita <sup>1</sup>	% of total loans	% of household loans	% of GDP
Korea	675	5.5	11.0	4.2
<i>Korea (2002)</i>	<i>2,006</i>	<i>21.3</i>	<i>45.1</i>	<i>14.7</i>
Taiwan, China <sup>2</sup>	1,369	6.7	14.9	8.8
Hong Kong SAR	1,181	3.3	8.2	4.6
China	2	0.1	0.7	0.1
India	3	0.9	3.6	0.4
Malaysia	168	3.0	6.1	3.4
Philippines	18	3.5	34.6	1.5
Singapore	379	1.5	2.9	1.4
Thailand	59	2.5	14.0	2.0
Japan <sup>3</sup>	527	1.8	6.6	1.6
<i>Memo: United States</i> <sup>4</sup>	<i>2,854</i>	<i>10.5</i>	<i>37.0</i>	<i>6.8</i>

Note: <sup>1</sup> In 2005 US dollars. <sup>2</sup> Includes cash card balances. <sup>3</sup> Both total and household loans are those from domestically licensed banks and Shinkin banks only. Credit card balances include cash card balances. <sup>4</sup> Household loans do not include mortgages.

Sources: Central banks; CEIC; Fitch Ratings (2006); BIS.

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**Table 2: Annual growth of total credit card receivables (in per cent)**

	Hong Kong	Korea	Malaysia	Philippines	Singapore	Taiwan	Thailand
1999	7.2	42.9	51.3	n.a.	23.2	27.4	-25.2
2000	30.1	78.0	33.2	n.a.	25.8	40.9	-3.4
2001	22.9	122.8	20.9	3.0	21.8	31.6	26.3
2002	-9.6	39.3	19.5	13.8	15.5	32.4	76.7
2003	0.0	-45.2	15.5	8.9	4.4	32.4	30.1
2004	7.8	-34.9	16.4	17.4	3.0	29.7	25.6
2005	9.5	-5.7	17.3	19.6	3.4	17.6	21.1
2006	13.3	5.8	19.0	20.3	2.4	-30.7	19.2

Sources: central banks; CEIC; BIS.

**Table 3: Rigidity of credit card interest rates in Korea**

Y	LnY = c + e*LnX		
	c	e	$\bar{R}^2$
Cash advance rate	3.998 (14.88)**	-0.577 (-2.89)**	0.317
Cash advance rate (panel)	3.758 (43.28)**	-0.362 (-5.29)**	0.155
Unsecured personal loan rate	0.946 (4.75)**	0.640 (4.34)**	0.511
Mortgage lending rate	1.014 (5.39)**	0.570 (4.09)**	0.481
Corporate loan rate	1.296 (11.59)**	0.372 (4.49)**	0.529

Note: X is the overnight call rate which is the policy rate of the Bank of Korea. After taking log of X and Y, e can be interpreted as the elasticity of Y with respect to X. The time series estimation is based on quarterly data for the period of 1Q 2002 to 4Q 2006. Fixed effect panel regression covers the same period for six credit card companies with a total of 120 observations. If we replace the call rate with the benchmark 91-day CD rate for X, the estimation results still hold.

Source: FSS, BoK, authors' own estimates.

**Table 4: Factors influencing asset quality**

	(1)	(2)	(3)
Y = Delinquency rate			
$\beta_1$	-0.154 (-1.69)*		0.184 (1.99)**
$\beta_2$		0.108 (5.33)**	0.124 (4.45)**
$\bar{R}^2$	0.346	0.470	0.432
Y = Charge-off rate			
$\beta_1$	-1.153 (-1.89)*		0.442 (0.71)
$\beta_2$		0.611 (4.51)**	0.640 (3.68)**
$\bar{R}^2$	0.115	0.261	0.243
Y = Impaired asset ratio			
$\beta_1$	-1.302 (-2.00)**		0.632 (0.97)
$\beta_2$		0.718 (5.09)**	0.764 (4.19)**
$\bar{R}^2$	0.155	0.319	0.295

Note: Quarterly data from 1Q 2002 to 4Q 2006 and of six credit card issuers for a total of 120 observations. All equations are estimated by fixed effect panel regression. All of the Xs and Zs are lagged two quarters. The table reports only estimates for  $\beta_1$  and  $\beta_2$ ; other estimated coefficients are available upon request. We follow the procedure of Belsley, Kuh, and Welsch (1980) to test multicollinearity for all of the equations and drop Z<sub>1</sub> in Equation (3). We also estimate the random effect model and obtain broadly the same results.

Source: FSS, BoK and authors' estimates.

**Table 5: Ratio of financial liability to asset of households in Korea and Taiwan****(in per cent)**

	Korea	Taiwan
2000	41.2	28.0
2001	45.4	25.9
2002	51.8	24.2
2003	51.7	23.0
2004	51.8	23.3
2005	52.9	23.2

Note: household financial assets and financial liability are both from flow of funds accounts (stock).

Source: central banks; CEIC; BIS.

**Table 6: Features of regulatory guidelines for credit card lending**

Indonesia	Prudential requirement of due diligence in reviewing credit card applications and 10% minimum monthly repayment of the outstanding credit card balance, introduced in 2005.
Korea	Many rules were updated in the wake of the 2003 credit card crisis. They included maximum cash advance/card loan balance below 50% of total credit card assets; a maximum three-month interest-free period for instalment purchase; informal guidance of credit limit up to three times of monthly income; and banning street solicitation. Also, informal ceiling on cash advance interest rates before 2002.
Malaysia	Minimum annual income requirement of MR18,000 for credit holder; minimum monthly repayment requirement of 5% of the credit card balance outstanding; a ceiling of 18% for credit card finance charge and 15% for card holders with good repayment history for consecutive 12 months.
Singapore	Minimum annual income requirement of S\$30,000 for credit card holder; a maximum credit limit of two times of monthly income. In 2003, the MAS banned issuers from using temporary booths to accept card applications.
Taiwan, China	Total unsecured personal debt should be less than 22 times of monthly income for all lenders; re-examination of debt and income levels for card holders every six months; minimum monthly repayment of 10% of balance outstanding; a 20% ceiling of interest rate charged on credit card lending.
Thailand	Minimum annual income requirement of THB180,000 for credit card holder; a credit limit of five times of monthly income; a minimum monthly repayment of 10% of the balance outstanding; cancellation of the credit card if its holder is overdue for more than three months; a 20% ceiling of interest rate charged on credit card in 2004.

Source: Central banks; Fitch Ratings (2006); BIS.

**Appendix Table: Leading consumer credit information agencies in Asian markets**

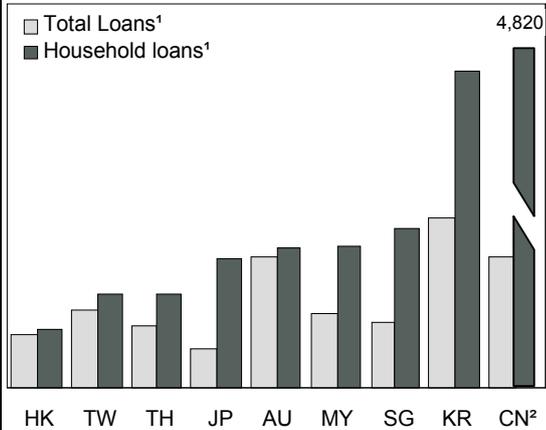
China	National Individual Credit Information Database (NICID)	A public, centralised agency run by the central bank and officially launched in 2006; all financial institutions authorised by the banking regulator are members and must report; information covers both negative and increasingly positive credit data.
Hong Kong	TransUnion Limited	A centralised and private agency principally owned by TransUnion International; member banks and lenders as both sources and users of information, which covers both negative and (partially from 2003 and fully from 2005) positive credit data.
India	Credit Information Bureau (India) Limited (CIBIL)	Established in 2001, CIBIL has mixed ownership of banks, credit reporting specialists and the central bank; main information sources and users are banks and lenders; information covers only negative data before 2005 and adds positive credit data since.
Indonesia	Credit Information Bureau (CIB)	A public, centralised reporting agency set up in 2006 and run by the central bank (Bank Indonesia); mandatory reporting by all lending institutions and covering both positive and negative credit data.
Korea	Korea Information Service (KIS), National Information and Credit Evaluation (NICE), and Korea Credit Bureau (KCB)	Three leading private reference agencies involving the local bank association, other lenders and credit reporting specialists; main sources and users are banks, and financial and non-financial institutions; KIS and NICE collect mostly negative credit data before 2001; KCB, set up in 2005, covers negative and limited positive credit data.
Malaysia	Central Credit Reference Information System (CCRIS) of Credit Bureau of Bank Negara Malaysia	A public and centralised agency run by the central bank; CCRIS was expanded only since 2001 to broaden its coverage; banks and other major financial institutions are required to report all of the credit information; information coverage includes both negative and positive credit data.
Philippines	Central Credit Information Corporation (CCIC)	Currently a data-sharing facility under the local bank association, covering mostly negative credit data; A new CCIC is going through the legislative process, which will be a mixed public and private agency covering both positive and negative credit data.
Singapore	Consumer Credit (Singapore) (CBS)	A dominant private agency established in 2002; members are major banks and financial institutions recognised by the monetary authority; mostly negative and limited positive credit data.
Taiwan, China	Joint Credit Information Centre (JCIC)	A centralised and public agency; members of the centre (information reporters and users) include most financial institutions, covering includes both negative and positive credit data and income/home ownership.
Thailand	National Credit Bureau Corporation Ltd (NCB)	A centralised, private agency owned by banks and credit reporting specialists, following a merge in 2005 of two local agencies; banks and most financial institutions report and use the database; information covers both negative and positive credit data.

Sources: central banks; Fitch Ratings (2006); BIS.

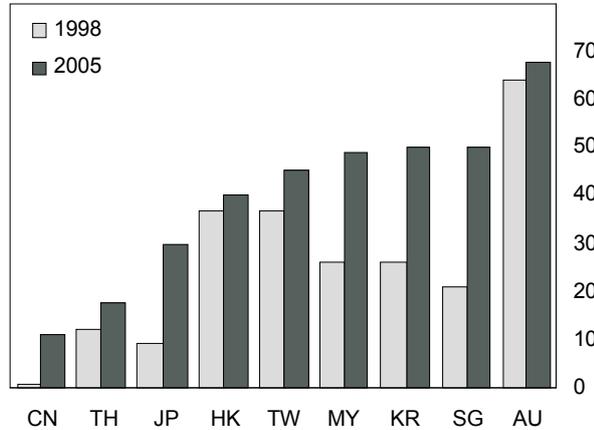
## Total and household loans in Asia

Between 1998 and 2005

Growth of total and household loans



Household loans as a share of total loans<sup>3</sup>



Note: AU = Australia; CN = China; HK = Hong Kong; JP = Japan; KR = Korea; MY = Malaysia; SG = Singapore; TW = Taiwan; TH = Thailand. <sup>1</sup> 2005 levels (1998 = 100). <sup>2</sup> For China, 2000 = 100. <sup>3</sup> As percent of total bank loans

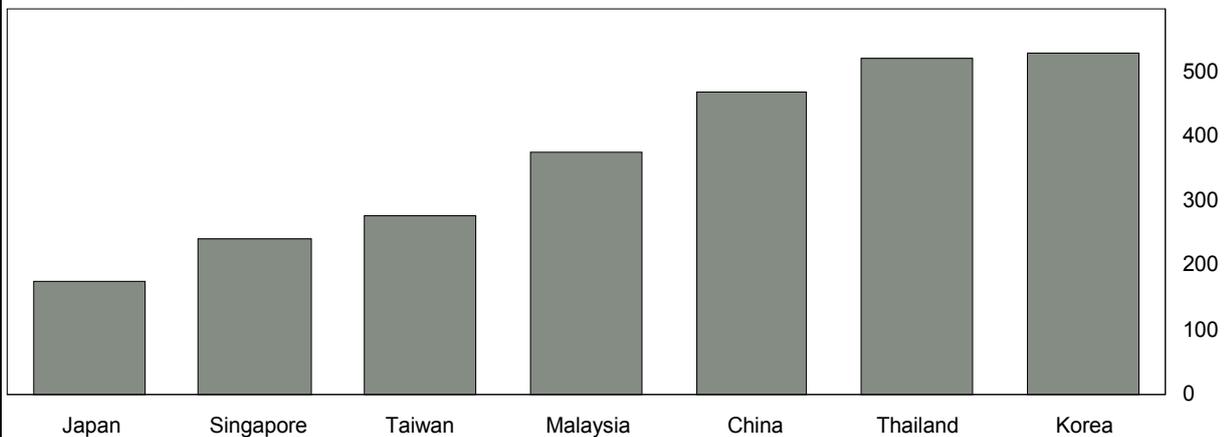
Sources: Moody's; CEIC; central banks; BIS.

Graph 1

## The growth of total credit card usage volume in selective Asian markets (2006)

1998 = 100

Panel heading



Note: total credit usage volume is the total transaction flow on credit cards, including card purchases and new cash lending.

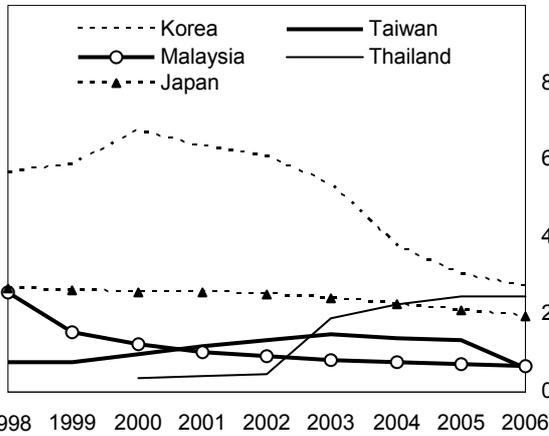
Sources: Central banks; CEIC; BIS.

Graph 2

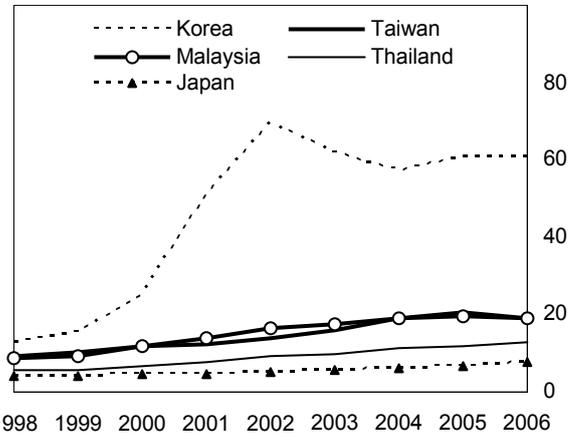
## Credit card use in Asia: purchase versus cash advance

In percent

Cash advance as a % of total credit card billing



Credit card purchase as % of private consumption



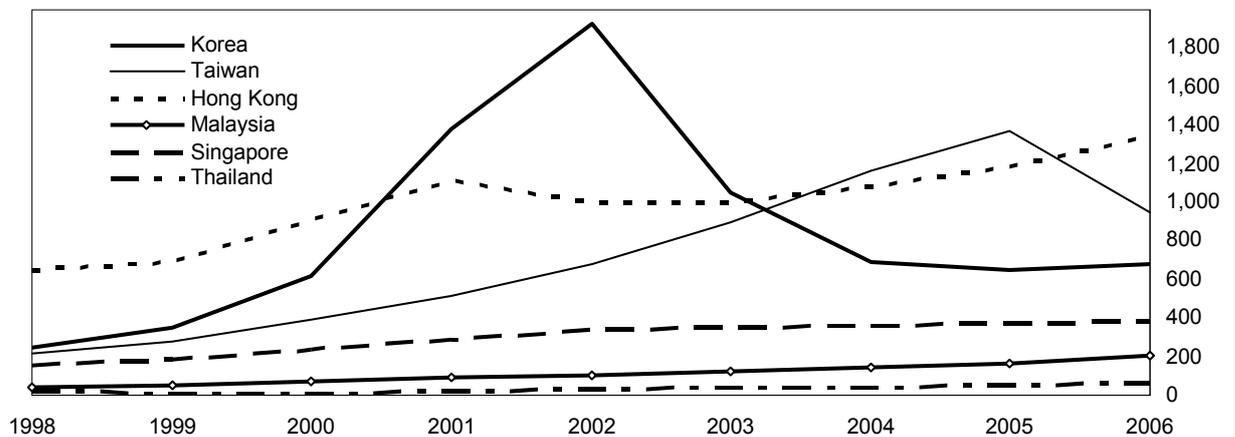
Note: credit card purchase includes all purchases of goods and services on credit card; cash advance includes card loans in Korea; both credit card purchase and cash advances are flows.

Sources: CEIC and central banks.

Graph 3

## Per capita credit card balance outstanding

In 2005 US dollars



Note: In Taiwan, the balance includes both credit card and cash card balances outstanding.

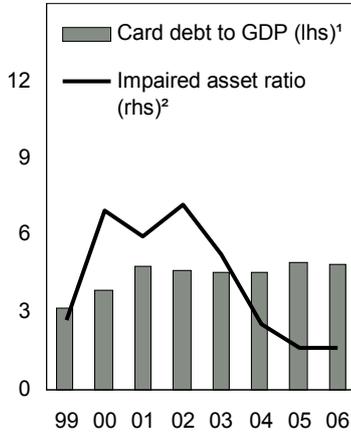
Sources: CEIC; central banks; BIS.

Graph 4

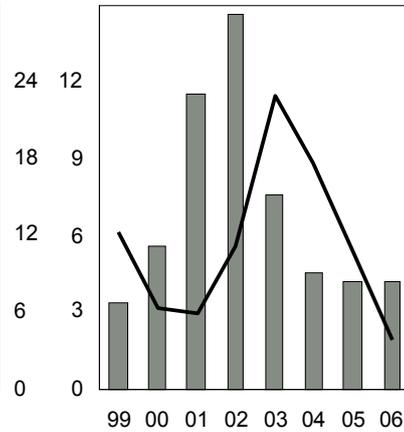
## Three episodes of credit card distress in Asia

Credit card balances and non-performing credit card assets

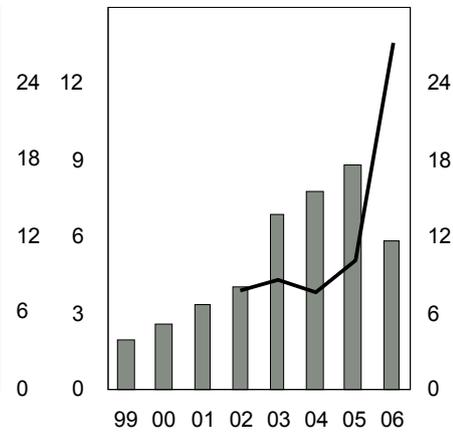
### Hong Kong SAR



### Korea



### Taiwan, China

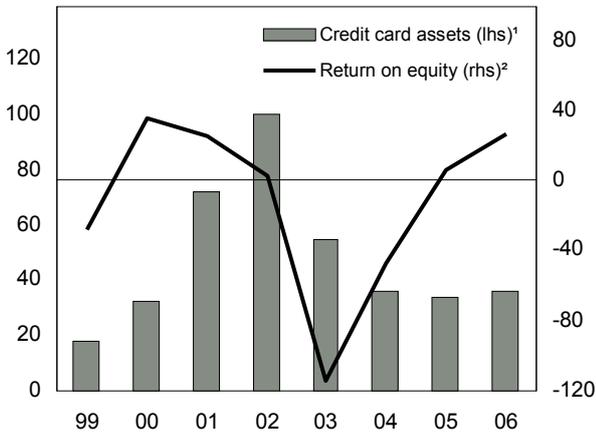


<sup>1</sup> Ratio of total credit card receivables to GDP; in per cent. Credit card receivables in Taiwan include outstanding cash card balances. <sup>2</sup> Ratio of the sum of delinquencies (three months overdue) and charge-off (annualised) over average card receivables; in per cent.

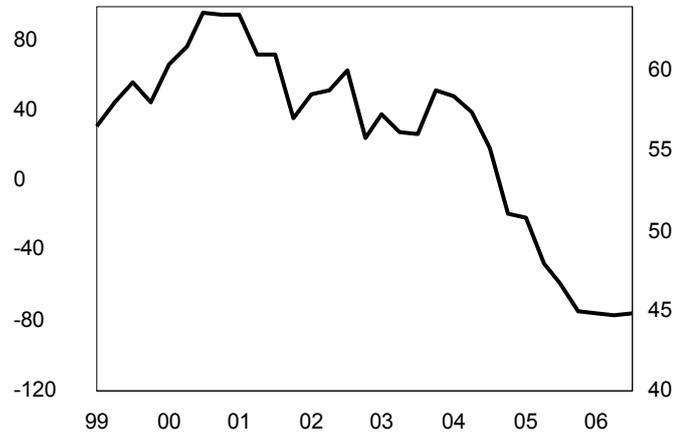
Sources: Hong Kong Monetary Authority; Korea's Financial Supervisory Service (FSS); Taiwan's Financial Supervisory Commission (FSC); authors' own estimates. Graph 5

## Profitability and credit card lending business in Korea

### Average return on equity in Korea's credit card sector



### Cash lending ratio in Korea<sup>3</sup>



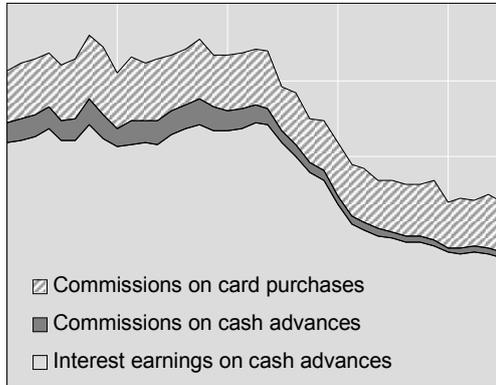
<sup>1</sup> Total assets under management; in trillions of KRW. <sup>2</sup> In per cent. <sup>3</sup> Sum of cash advances and card loans over total credit card assets outstanding; in per cent.

Sources: Korea's FSS; Taiwan's FSS; CEIC.

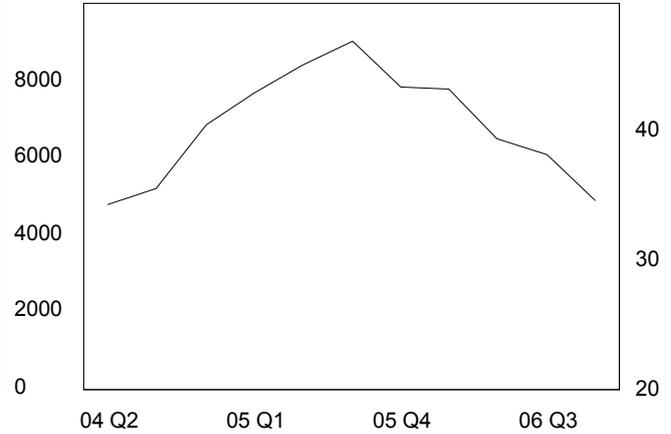
Graph 6

## Profitability in credit card business and cash card lending in Taiwan

Source of credit card earnings in Taiwan<sup>1</sup>



Ratio of cash card to credit card receivables in Taiwan<sup>2</sup>



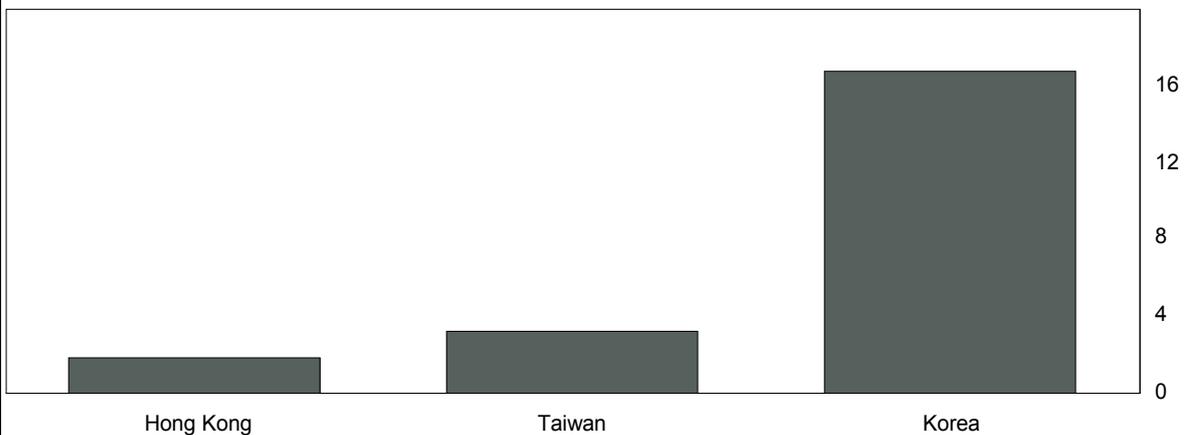
<sup>1</sup> In millions of New Taiwanese dollar. <sup>2</sup> Ratio of total cash balance outstanding to total credit card receivables; in per cent.

Sources: CEIC and Taiwan's FSC.

Graph 7

## Credit card defaults in Hong Kong, Taiwan and Korea during distress episodes

In percent

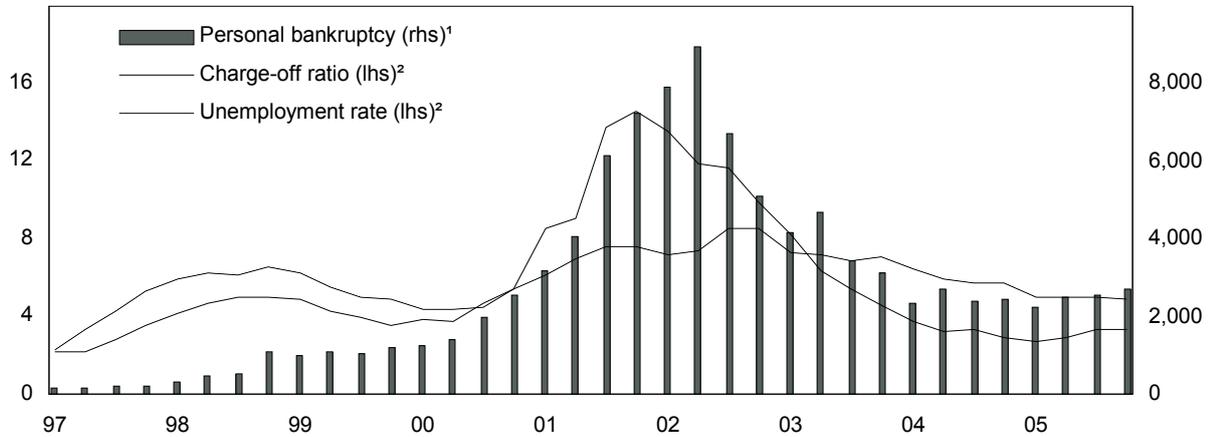


Note: credit card defaults a percent of the total working population. The data are dated June 2002 for Hong Kong, February 2004 for Korea and June 2006 for Taiwan.

Sources: CEIC, central banks, BIS.

Graph 8

## Unemployment, personal bankruptcy and credit card charge-off in Hong Kong

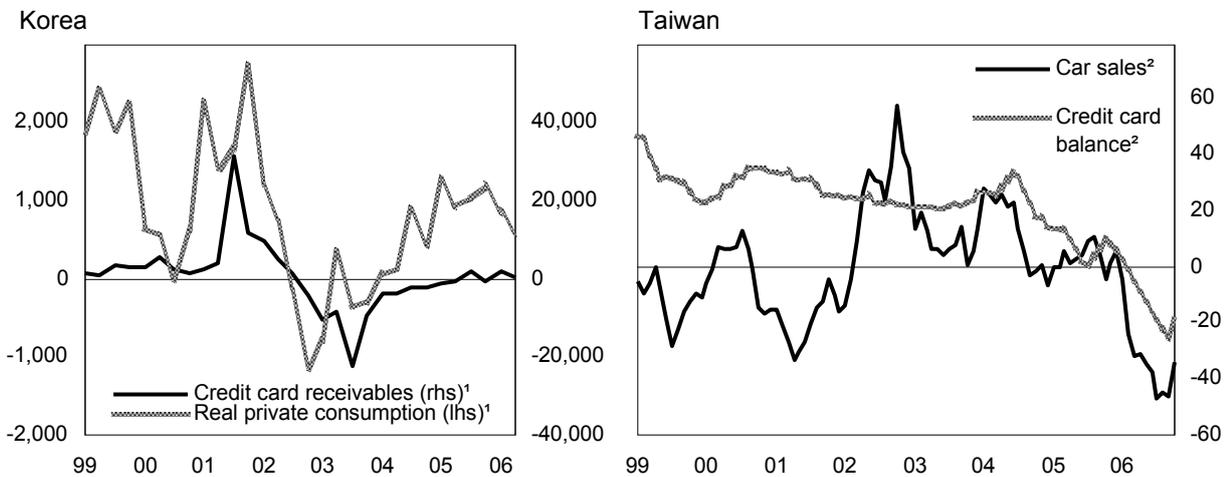


Note: <sup>1</sup> number of court bankruptcy orders. <sup>2</sup> in percent.

Source: CEIC, HKMA.

Graph 9

## Credit card lending distress and consumption



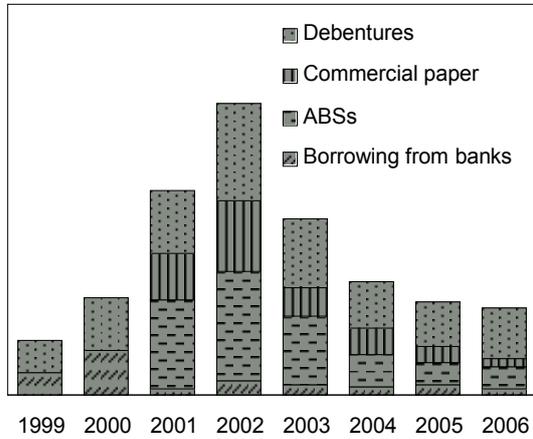
<sup>1</sup> Quarterly change; in billions of KRW. Real private consumption is seasonally adjusted, quarterly data. <sup>2</sup> Year-on-year changes; in per cent.

Sources: Bank of Korea; Korea's FSS; Taiwan's FSC; CEIC.

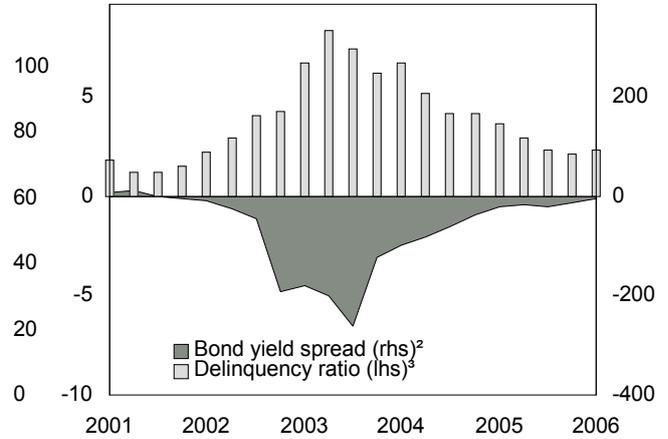
Graph 10

## Funding structure and asset quality of Korean credit card companies

Sources of external debt financing<sup>1</sup>



Yield spreads and delinquency ratio



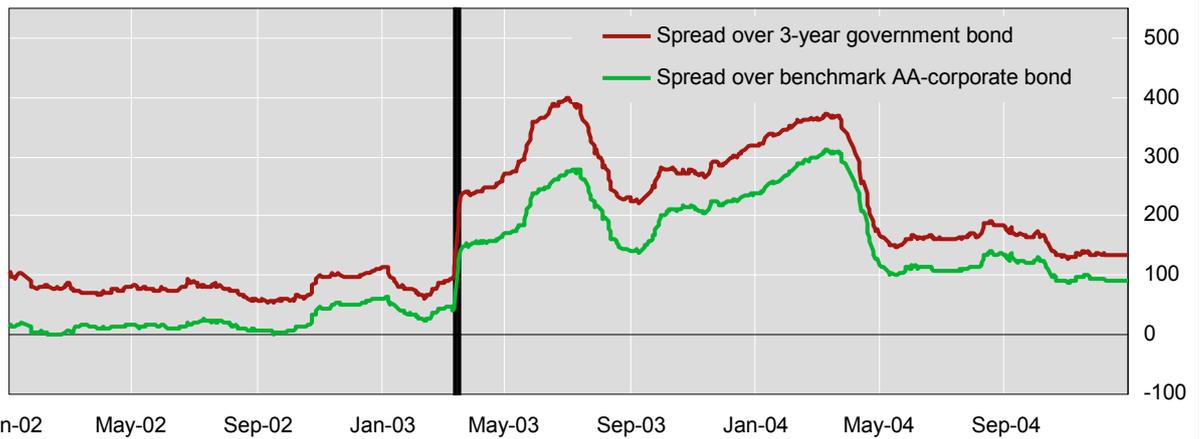
<sup>1</sup> Year-end amount outstanding; in trillions of KRW. <sup>2</sup> Benchmark corporate yields less credit card company bond yields; in basis points. <sup>3</sup> Three months overdue; in per cent.

Sources: Bank of Korea; Korea's FSS.

Graph 11

## Yield spread of credit card company bonds rated AA-

In basis points

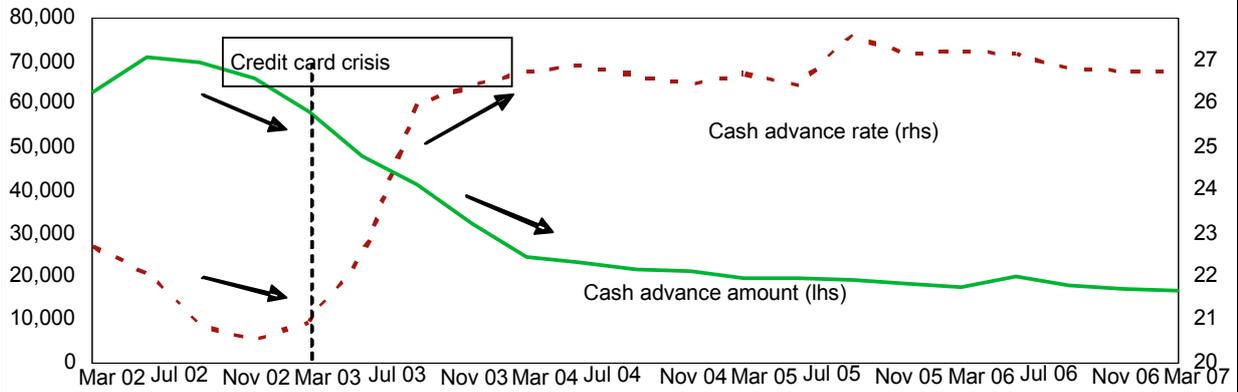


Source: Korea Bond Pricing Incorporation.

Graph 12

## Cash advances: interest rates and outstanding amounts

In percent and billions of Korean won

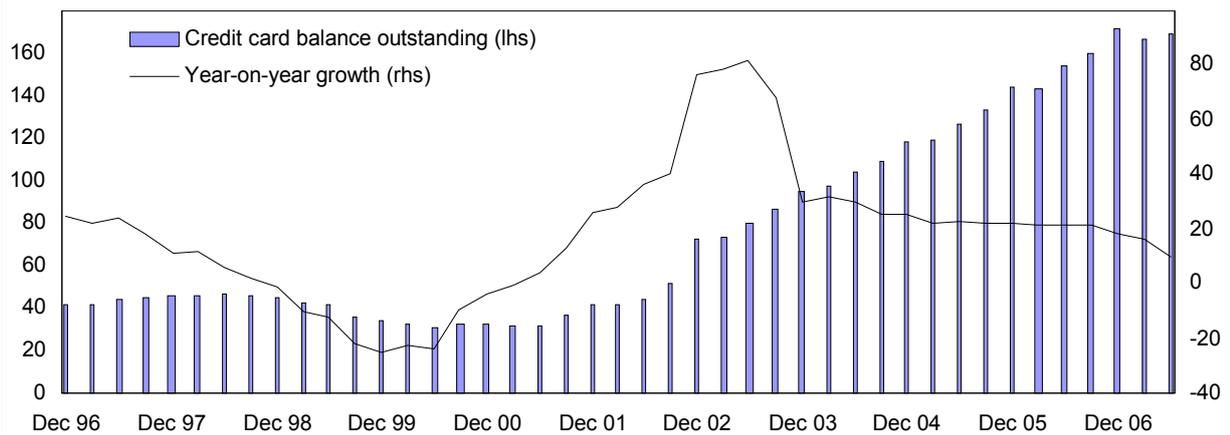


Sources: BoK and FSS.

Graph 13

## Credit card balances outstanding in Thailand

In billions of Thai baht and percent



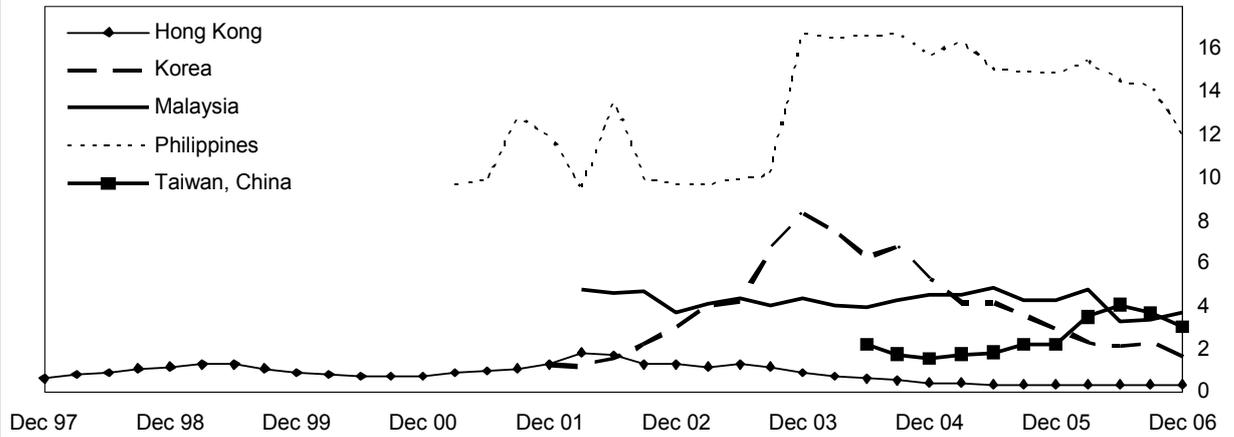
Note: Credit card data only which do not include cash card statistics.

Source: Bank of Thailand.

Graph 14

## Credit card delinquency ratio in selected Asia markets

In percent



Note: Delinquency here is defined as overdue for more than 90 days for all the markets cited. The delinquency ratio is the overdue amount over the credit card receivable balances outstanding.

Sources: CEIC, central banks and statistical offices.

Graph 15