



## Mobile Banking in Asia

Technology has transformed the banking industry with the introduction of mobile banking services that offer unprecedented convenience and accessibility to customers. Decreases in mobile phone prices and the cost of mobile phone network infrastructure, combined with an increase in pre-paid service plans, have contributed to a near eightfold increase in mobile phone users worldwide, from 600 million in 2000 to 4.6 billion in 2009.<sup>1</sup> Banks and telecommunications companies have responded to this growth by using mobile banking to build their brands, retain existing customers, and acquire new customers by upgrading the quality of services and nature of customer relationship management. The number of mobile banking users worldwide is forecasted to grow from 55 million in 2009 to 894 million in 2015, at a compound annual growth rate of 59%.<sup>2</sup> Asia is already a leader in the adoption of mobile banking services, accounting for over half of total users worldwide; the region includes several successful mobile banking delivery models to existing customers as well as to populations traditionally without access to financial institutions. Mobile banking not only presents market opportunities to banks and telecommunications companies, but also poses significant regulatory issues for central banks and regulatory agencies. This *Asia Focus* report describes the various approaches to mobile banking in Asia, and examines how particular countries have addressed regulatory issues.

### Mobile Banking Market Segmentation

Mobile banking refers to the delivery of banking and financial services through mobile telecommunications devices, including cell phones, smart phones, and personal digital assistants. The types of services offered include informational, such as balance inquiries, and transaction-based, such as

balance transfers, deposits, and withdrawals. The specific suite of mobile banking services provided by a bank or telecommunications company depends on the target market. Additive services target existing customers, while transformational services target the unbanked. Although no legal restrictions prevent banks and telecommunications companies from targeting both markets, each of the major mobile banking service providers in Asia has concentrated on a single market.

#### *Additive Approach*

Under the additive approach, mobile banking services are targeted to existing bank customers. These customers are typically comfortable with technology and want a convenient method in addition to credit cards, ATMs, and the Internet to manage money without having to handle cash. Bill payment, account transfers, and balance inquiries are common services offered to retail customers. As banks and telecommunications companies seek to differentiate themselves from competitors, they may also offer customers more complex services such as financial planning tools, foreign currency exchange, and loans. For corporate and institutional clients, services include the ability for customers to authorize corporate financial transactions with their mobile phones. A key challenge to ongoing customer use of mobile banking services under the additive approach is the existing availability of various alternative modes of banking transactions such as Internet banking, ATMs, and credit cards. Given these other channels to conduct banking, banks and telecommunications companies must develop mobile-based services that offer increased value and convenience for customers. Unlike in the US, where existing bank customers have been slower to adopt mobile banking technology and only 3%

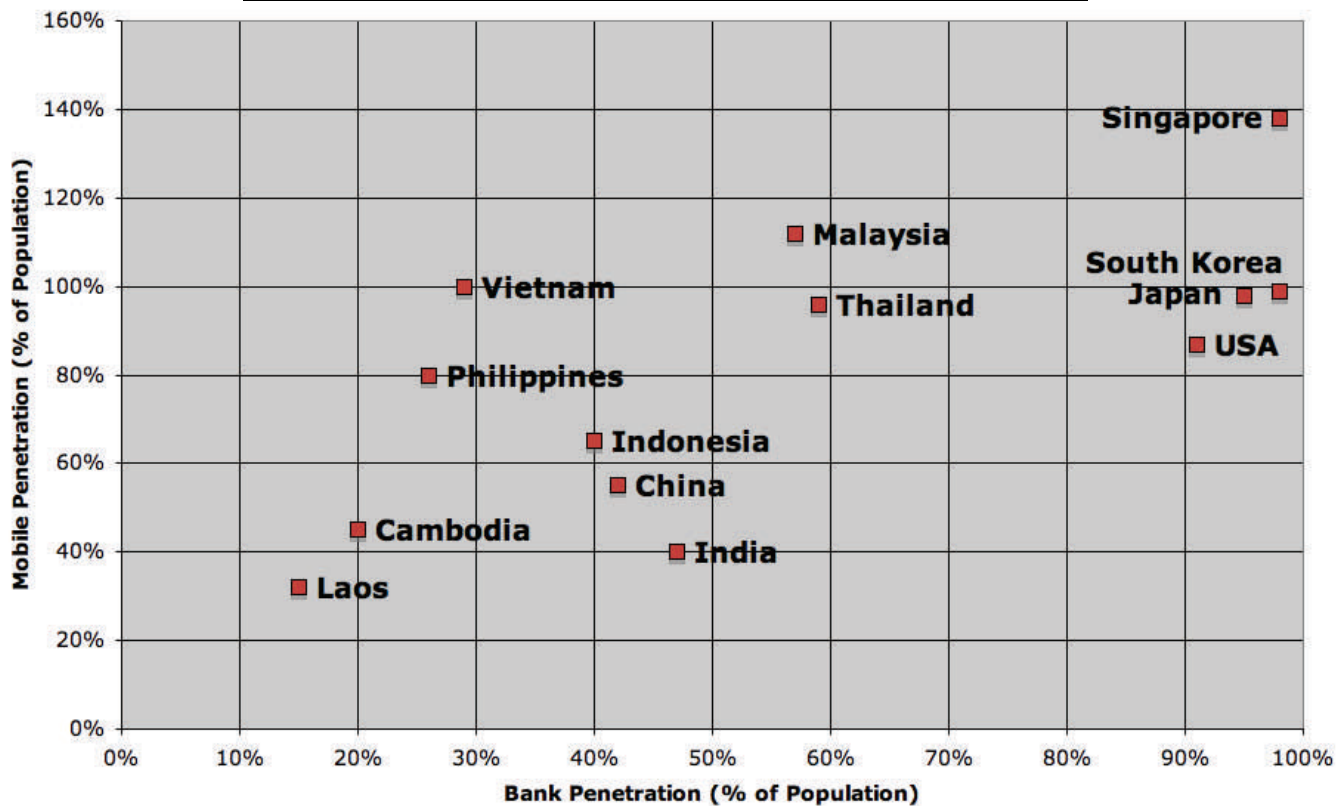
of banks offer mobile banking services, banks and telecommunication companies in Asia that target existing customers have an established record of mobile banking innovation and high customer adoption.<sup>3</sup>

Among the Asian countries where most banks use the additive approach, Japan and South Korea have the highest mobile banking penetration rates; in each country, nearly 100% of active banking customers have access to mobile banking services.<sup>4,5</sup> Contributing to the high mobile banking penetration rates in these countries, well-developed mobile infrastructures allow for the proliferation of the 3G system, an advanced mobile telecommunications standard for high-speed data services in conjunction with voice services. Japan was first in the world in 3G mobile device proliferation and has about 90% of its mobile devices on the 3G platform. In Japan, mobile phone handsets have supported electronic payments since 2004. Reflecting the ubiquity of mobile phones and mobile payments in Japan, Jibun Bank launched in 2008 as the world's first completely virtual bank and won The Asian Banker IT

Implementation Award for "Best Core Banking Project" for strategic use of technology.<sup>6</sup> Jibun Bank, formed by a joint partnership between Bank of Tokyo-Mitsubishi UFJ and the telecommunications company KDDI, offers a full range of banking products and services exclusively on mobile phone handsets (*Figure 2*).

Adoption of mobile banking in South Korea has also proceeded rapidly due to the widespread use of mobile phones to purchase goods and services such as public transportation fares, event tickets, and restaurant bills. In South Korea, all retail banks offer mobile banking to customers, and in 2004, they began to issue integrated circuit chips that customers could insert into their mobile phones to allow them to work like debit or credit cards. Customers with the memory chip place their mobile phones on a specialized reader at banks and retailers that updates customer accounts with purchase amounts. Mobile phone operators began incorporating the memory chips into all 3G mobile phones in late 2009 within a Universal Subscriber Identity Module (USIM)

**Figure 1 – Access to Mobile Services and Banking by Country**



Source: AnalysysMason, World Bank, 2009

Note: Mobile penetration statistics based on total number of mobile phone subscriptions per country. Penetration rates greater than 100% indicate ownership of more than one mobile phone per person.

**Figure 2 – Top Mobile Banking Service Providers in Selected Countries**

Country	Name of Service	Bank	Telecommunications Company	Launch Year
Japan	Jibun Bank	Bank of Tokyo-Mitsubishi UFJ	KDDI	2008
	Mobile remittance service	Mizuho Bank	NTT DoCoMo	2009
South Korea	BankOn	Kookmin, Korea Exchange, Korea First, Industrial Bank of Korea	LG Telecom	2003
	M-Bank	Woori, Shinhan, Chohung, Hana,	SK Telecom	2004
	K-Bank	Kookmin, Koram, Pusan	KTF	2004
India	SBI Freedom	State Bank of India	Vodafone, Airtel, Aircel, Tata Docomo and Idea	2008
	iMobile	ICICI	Reliance Infocomm	2004
	ngpay	HDFC	Bharti Airtel	2008
Philippines	GCash		Globe Telecom	2004
	Smart Money / Smart	Banco de Oro	Smart Communications	2001

Source: Various bank websites, 2010

that can contain data for approximately 100 debit and credit cards in a single chip.

### *Transformational Approach*

Under the transformational approach, mobile banking services are targeted to the unbanked: poor or remote populations living in informal or cash economies and without access to formal banking institutions. Barriers to formal banks in these economies include remoteness, high banking costs, and lack of customer education about financial services. Transformational banking concentrates on areas of moderate to high mobile phone penetration and low bank penetration. Not only can banks and telecommunications companies expand their customer base by providing mobile banking services to the unbanked, but their customers' greater access to low-cost, reliable financial services promotes greater savings, entrepreneurship, and economic development. A mobile banking transaction costs on average 19% less than that made by a traditional visit to a bank branch.<sup>7</sup> Given the inaccessibility of traditional brick and mortar banks, customers use their mobile devices to convert cash in and out of stored value accounts at cash points such as grocery outlets or mobile phone airtime sales agents. Customers also use mobile banking to transfer money between accounts and pay bills.

The transformational approach notably includes mobile remittance services where, in a typical scenario for an unbanked customer, a person working

far from home sends money back to the family. Without mobile banking, the worker would have paid fees ranging from 3% to 10% of the transaction to a money transfer operator such as Western Union or Moneygram to send the money, or would have used informal channels such as friends and relatives to physically deliver the money.<sup>8</sup> Mobile banking minimizes costs and increases reliability for remittances, permitting customers to make secure and timely deposits into their families' accounts. Challenges to the adoption of mobile banking services under the transformational approach include inadequate infrastructure in poor, rural areas that hinders the creation of extensive networks of cash-in/cash-out points, as well as high illiteracy and lack of financial services knowledge among target customers.

Although most developing countries in Asia, including Cambodia, Vietnam, and Indonesia, use the additive approach, India and the Philippines have successfully implemented the transformational approach. India, the country with the highest volume of foreign remittances in the world, received 12% of the US\$413 billion world market for remittances in 2009.<sup>9</sup> In the first pilot program of mobile-based remittances in India, HSBC India partnered with the telecommunications companies Idea Cellular, Tata Communications, and Etisalat to launch a remittance service in 2008 that enables Indian expatriates working in the UAE to transfer money to recipients in India.

Accounting for 5% of global remittances in 2009, the Philippines ranks fourth in countries receiving migrant remittances.<sup>10</sup> Both of the Philippines' top two mobile service operators, SMART and Globe Telecom, offer text message-based remittances along with other mobile banking services (*Figure 2*). SMART's "SMART Padala" service allows expatriates to make deposits at partner banks worldwide and direct the funds to a particular SMART subscriber in the Philippines. The recipient is notified of the transfer by text message and uses the mobile banking account to request a withdrawal from a partner bank. Similarly, through Globe Telecom's "GCash" service, the recipient uses the mobile banking account to request a withdrawal from any Globe Telecom store. Approximately 50% of SMART and GCash customers were previously unbanked.<sup>11</sup> Established in 2001 and 2004, respectively, SMART and Globe Telecom's mobile banking services are among the longest running in the world and have pioneered similar platforms in developing African and East Asian countries.

### Mobile Banking Business Models

Classification of business models considers which entity establishes the customer relationship and maintains the customer account. Mobile banking services in Asia can be delivered entirely through a bank or through a joint partnership between a bank and telecommunications company, classified as a bank-based business model, or entirely through a nonbank institution, classified as a nonbank-based business model. Regulatory factors play a strong role in determining which business models are present within a country. For example, India restricts the delivery of mobile banking services only to the bank-based business model while the Philippines allows both models.

#### *Bank-Based Business Model*

In a bank-based business model, the customer has a direct, contractual relationship with a licensed, supervised financial institution. The bank may manage both customer account management and the underlying technology supporting the mobile banking functions. Or, the bank may work under a joint venture with a telecommunications company to launch and support the technology; however, the bank handles account openings and account management. The mobile phone performs similar func-

tions as a bank branch, storing a database of personal customer information and details of customer accounts. Such an arrangement is common in India. The Reserve Bank of India issued guidelines in 2008 that permit only licensed banks with a physical bank presence in India to provide mobile banking services, disqualifying mobile network providers from providing mobile banking services independently.<sup>12</sup> Banks utilizing the additive approach, such as many of those in Japan and South Korea, follow the bank-based business model because customers must already have an existing account with the bank before enrolling in mobile banking services.

#### *Non-Bank Based Business Model*

In a nonbank-based business model, the customer has no direct contractual relationship with a financial institution, but rather has an account with a nonbank entity such as a telecommunications company or a prepaid card issuer. The non-bank business model is common in the Philippines, where the Bangko Sentral ng Pilipinas (BSP) permits nonbank companies to offer mobile banking services. Institutions planning to offer mobile banking services must seek prior approval from the BSP. Globe Telecom's "G Cash" service in the Philippines operates under a nonbank-based business model, providing a cashless and cardless method of transforming a mobile phone into a virtual wallet to make payments, transfer funds, and convert virtual money into cash at the telecommunications company's select retail agents. Retail agents, typically grocery stores, gas stations, and prepaid mobile phone airtime vendors, are third parties that partner with telecommunications companies to conduct cash-in/cash-out transactions for customers. These retail agents receive a commission for each mobile banking transaction.

The BSP requires that retail agents conducting cash-in and cash-out functions register with the central bank, send their personnel to training on anti-money laundering, verify customers' identities, maintain records of all transactions for five years, and report suspicious activity.<sup>13</sup> While the Core Information and Technology Supervisory Group (CITG) within the BSP handles all mobile banking issues and supervises telecommunica-



tions companies, supervision of retail agents is left to the telecommunications companies which retain all responsibility and liability for their agents. In 2010, Japan's Funds Transfer Act lifted the ban on nonbanks to conduct mobile fund transfers, allowing registered nonbanks to provide mobile fund transfers for small value payments. Nonbank entities entering the mobile funds transfer market are expected to trigger greater competition and innovation in the provision of mobile banking services.

## Regulatory Issues

The growth in mobile banking in Asia requires regulations that adequately protect consumers, guarantee secured transactions, promote economic stability, and allow for the innovation of new services. A country's regulatory provisions for mobile banking typically seek to perform the following functions:

- Clearly define mobile banking activities and institutional arrangements that are subject to licensing, regulation, and supervision by the financial authority;
- Require that mobile banking providers offer clear disclosures of prices and service offerings, as well as ensure fair treatment and data privacy for all customers; and
- Require that mobile banking providers manage risks of fraud and other criminal activity under Know Your Customer (KYC) rules, Anti-Money Laundering (AML) provisions, and other security safeguards.

For banks and telecommunications companies offering virtual banking services without brick-and-mortar facilities, KYC rules can impose a high hurdle for customer enrollment because these institutions lack the physical infrastructure and personnel to conduct customer interviews and identity checks, particularly in rural areas. Regulations have addressed this hurdle by allowing banks and telecommunications companies to outsource the customer verification function to third party agents who perform cash-in/cash-out services for mobile banking customers, as in the Philippines, or by capping account size and transaction volumes, as in India. In 2010, the BSP in the Philippines permitted Globe Telecom to have sub-distributors, such as gas sta-

tions, convenience stores, Internet cafes, food establishments, and other stores nationwide, perform account management services.<sup>14</sup> India imposes a mobile banking transaction limit of INR 5,000 (US\$113) on each fund transfer and INR 10,000 (US\$226) on each purchase, with an overall cap of INR 50,000 (US\$1,130)<sup>15</sup> per day, per customer.<sup>16</sup>

Technological advances in mobile banking necessitate regulations that are flexible enough to accommodate innovation and customer demand yet stringent enough to protect customer privacy. Recent developments in South Korea provide a good example of policy and industry responses in this regard. In January 2010, the Financial Supervisory Commission (FSC) required that all financial transactions on Internet-accessible smart phones include electronic signatures based on public key certificates, a mechanism that validates the authenticity of the bank's website and secures the data being transferred. However, the only application able to download public key certificates is Microsoft's ActiveX for Internet Explorer browsers. Consequently, mobile phones with non-Microsoft browsers unable to support ActiveX such as the iPhone, Blackberry, and Android, could not be used for mobile banking. In July 2010, in response to calls from banks and the Korean Communications Commission for greater flexibility in security technology, the FSC expanded its regulation to allow other verification methods equivalent to ActiveX during mobile banking transactions.<sup>17</sup> Banks including Woori, Industrial Bank of Korea, and Kookmin have responded to regulatory change by introducing mobile banking services compatible with phones equipped with non-Microsoft browsers.

Regulatory clarity on issues helps banks and telecommunications companies better assess the risks involved in providing mobile banking services, assuring that the infrastructure and services they put in place will not need to be continually readjusted.

## Conclusion

The mobile banking landscape in Asia continues to evolve, as banks and telecommunications companies develop new services and regulatory agen-

cies refine their rules. As an early adopter of mobile banking, Asia can set global standards in business models and in supervision and regulation. One notable development that is almost exclusive to Asia is the increasing number of telecommunications companies buying stakes in banks and financial services companies. In 2010, China Mobile, the world's largest mobile carrier with over 500 million subscribers, acquired a 20% stake in Shanghai Pudong Development Bank in an explicit strategy to enter the mobile banking market.<sup>18</sup> Similarly, South Korea's SK Telecom bought 49% of Hana Financial Corporation's credit card unit and Japan's NTT DoCoMo purchased stakes in Sumitomo Mitsui Card Corporation and UC Card Corporation.<sup>19</sup> Looking ahead, greater integration between banks and telecommunications companies may lead to more banks giving up some control to telecommunications companies. Banking regulators in Asia will likely remain attentive to developments in mobile banking to proactively establish rules that ensure information security, economic stability, and customer accessibility.

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