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Banking on Innovation

Modernisation of Payment Systems

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To Boonchuey Karnjanauksorn

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The views expressed in this book are those of the authors and do not represent the official views of the Bank of Thailand, the London School of Economics and Political Science or the University of Westminster. Any errors or omissions are attributed to the authors.

Preface

This book is being published during yet another period of dismay, and indeed disdain, for banking worldwide. Previous episodes of banking failures are associated with the mendacity of a few large bankers, or the mismanagement of a national treasury, or the knock-on effects of a major depression, or the failure of key regulators, and sometimes a combination of these and other factors. All these factors play a part in the explanation of the current banking failure, but there are at least two unusual factors that lie at the heart and have massively amplified these conditions. One is the abandonment of sensible risk analysis as financial instruments have been repackaged and sold on in ways that disguise, or at least camouflage, their riskiness. Another is the role of information and communication technologies in assisting in the computational processes that extend these practices using the tools of financial engineering and then extend and accelerate the knock-on effects of bad decisions.

The technologies that we focus on in this book were designed to have something of the opposite effect of those that accentuated the current malady in that they were designed to make more transparent the movement of money through the banking system. They were designed to ensure that debts are properly accounted for, that credits are paid out in an orderly fashion, that the parties involved are properly identified. They have been built and implemented such that the movement of money between organisations and among individuals can be scaled up without the system being highly sensitive to overload or congestion. They are supposed to be tools that promote efficiency, accountability, and above all, transparency.

We began this study shortly before the Asian financial crisis of 1997 and conducted studies initially among banks and central banks that were directly affected by it. We were concerned then and in the aftermath about the role that technology might have played in extending that crisis, but we were even more concerned about what financial institutions could do for themselves, apart from large scale geopolitical disruptions, to foster better practices. We were concerned to understand how banking systems could become more modern in the sense that they might move from practices that tended to isolate them from the benefits of more integrated, international financial systems. The risks of greater integration have long been clear, but the process of modernisation brought with it the opportunity to rid organisations of expensive practices that were long entrenched and directly contributed to low productivity.

No such technological artefact remains neutral for long. Its designers build into it features that emphasise their own priorities and biases. They are designed to ensure that those in charge of the systems benefit, sometimes at the expense of those whom the system is otherwise supposed to serve. We are assessing a large and intricate system, one that of course encounters resistance as it is implemented. That resistance is typical of the lifecycle of most innovations and originates in one form or another from locations throughout the institutions involved. Some stakeholders simply want no change of any kind, as they perceive (often quite correctly) that it will damage their vested interests. Sometimes participants would be willing to accept such innovations of product, method and practice, but are uneasy about their ability to adjust as users. Sometimes people would wish to champion alternative or contrary approaches, or value the supposed overall efficacy of a new system less than the anticipated costs at one particular point.

In this book we present a story of the introduction of payment systems. Early systems of this sort date from the last quarter of the twentieth century but the large scale standardisation of systems and the boost in participation such that the vast majority of banks worldwide now use such systems occurred in the last years of the twentieth century and the first years of this. This is the story of how this innovation took hold. It is also a study of how our understanding of innovation processes can teach us about processes of this sort, and of what this particular case of widespread innovation reveals about our understanding of innovation.

The common convenience of ATM machines, the widespread use of cashless payments, the rapid dissemination of smartcard payment systems and the facility for mobile payment, all rest on modern payment systems. How these innovations disseminated beyond the leading banking countries in northern Europe and North America so that they are available almost throughout the world is something that we have investigated in considerable detail by studying Asian banking systems in comparison with other regions. It is in this way that we are able to comment on the detailed mechanisms by which institutions acquired capabilities and adapted their practices to cope with the changes that they were undergoing.

The lessons from this story are far reaching. They extend to management practices and the implementation of new technologies. Although they may have most resonance for bankers and central bankers, those who are looking for ways to apply concepts of change to financial services and other large-scale systems should also see the extent to which clear thinking about innovation can bring better understanding.

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Abbreviations

ACDES	Australian Cash Distribution and Exchange System
ACH	Automated Clearing House
ACSS	Automated Clearing Settlement System (Canada)
AFT	Automated Funds Transfer
APACS	Association of Payment Clearing Services (UK)
APCA	Australian Payments Clearing Association Limited
APCS	Australian Paper Clearing System
ASEAN	Association of South East Asian Nations
ATM	Automated Teller Machine
BACS	Bankers' Automated Clearing Services (UK)
BAHTNET	Bank of Thailand Automated High-Value Transfer Network
BCBS	Basel Committee on Banking Supervision
BECS	Bulk Electronic Clearing System (Australia)
BI-RTGS	Bank Indonesia Real Time Gross Settlement
BIS	Bank for International Settlements
BoF-RTGS	Bank of Finland Real-Time Gross Settlement
BOK-Wire	Bank of Korea Financial Wire Network
CECS	Consumer Electronic Clearing System (Australia)
CHAPS	Clearing House Automated Payment System (UK)
CHIPS	Clearing House Interbank Payments System (US)
CIFS	CBC (Central Bank of the Republic of China) Interbank Funds Transfer System (Taiwan)
CNS	Continuous Net Settlement
CPA	Canadian Payments Association
CPSS	Committee on Payment and Settlement Systems
DNS	Deferred Net Settlement
ECB	European Central Bank
ECS	Electronic Cheque Clearing System (Thailand)
EDI	Electronic Data Interchange
EFT	Electronic Funds Transfer

EMEAP	Executives' Meeting of East Asia-Pacific Central Bank and Monetary Authorities
EU	European Union
FBA	Finnish Bankers' Association
FSAP	Financial Sector Assessment Program (IMF)
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariff and Trade
GDP	Gross Domestic Product
HVCS	High-Value Clearing System (Australia)
IMF	International Monetary Fund
IT	Information Technology
ITMX	Interbank Transaction Management and Exchange (Thailand)
LVTS	Large-Value Transfer System (Canada)
MEPS	MAS (Monetary Authority of Singapore) Electronic Payment System
NECTEC	National Electronics and Computer Technology Centre (Thailand)
NPC	National Payments Council
NSTDA	National Science and Technology Development Agency (Thailand)
PACS	Planning and Control System
PEACH	Pan-European Automated Clearing House
PhilPaSS	Philippine Payments and Settlements System
PMJ	Finnish retail payment system
POPS	Finnish large-value netting system for express transfers and cheques (Pankkien on-line pikasiirrot ja sekrit)
PSAF	Private Sector Adjustment Factor
PSC	Payment Systems Committee
R&D	Research and Development
RENTAS	Real-Time Transfer of Funds and Securities (Malaysia)
RITS	Reserve Bank Information and Transfer System (Australia)
ROSC	Reports on the Observance of Standards and Codes (IMF)
RTA	Regional Trade Agreement
RTGS	Real-Time Gross Settlement
SCL	Siam Commercial Link
SEACEN	South East Asian Central Banks Research and Training Centre
SEPA	Single Euro Payments Area
SET	Stock Exchange of Thailand
SIPCO	Siam Information and Processing Company Limited
SMART	System for Managing Automated Retail Funds Transfer (Thailand)

SNPC	Sub-Committee on National Payment Co-operation (Thailand)
SPICK	Sistem Penjelasan Imej Cek Kebangsaan (Malaysia)
TBA	Thai Bankers' Association
WATCH	Worldwide Automated Transaction Clearing House
WTO	World Trade Organization