financial shocks onto four
hilippines, and Thailand.
tions. Domestic credit to
the adverse shocks into
del developed by Aghion
aints through information
model embeds short-run
Shocks can shift an econ-
We use this model set-up
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Chapter 8

Summary and conclusions

8.1 Summary

The 1980s and 1990s witnessed several episodes of financial turmoil, including the sovereign debt crisis of Latin America in the 1980s, the near-breakdown of the European Exchange Rate Mechanism (ERM) in 1992-1993 and the severe crisis that swept through Asian economies in 1997-1998. Three generations of theoretical models have been proposed to describe and explain such financial crises. The so-called first-generation models are focussed on the Latin America debt crisis, which is characterised by weak macroeconomic fundamentals. Second-generation models are developed to explain the European ERM crisis exposed by speculative attacks and self-fulfilling expectations. The Asian financial crisis has different features. Prior to the crisis widespread macroeconomic problems were not visible, the financial sector was at the center of the crisis, and the economic effects of the crisis were devastating. This crisis episode generated so-called third-generation models that attribute the Asian crisis to moral hazard, financial panics and fragility, or corporate balance sheets problems.

This study deals with financial crisis in six Asian countries: Indonesia, Malaysia, the Philippines, Singapore, South Korea, and Thailand. We investigate three aspects of financial crises: identification, interdependence, and transmission. Our contribution is empirical rather than theoretical. We first review how financial crisis are identified, looking at operational criteria to define a financial crisis (currency, banking, and debt crisis) and the construction of leading indicators of the likelihood of a crisis. An early warning system (EWS) of currency crises is designed to

identify macro-financial vulnerability of a country and to predict a crisis. The interdependence of crises between countries and markets is analysed with synchronisation indices and an analysis of dynamic conditional correlation between financial markets. Finally, we study the transmission of exchange rate and policy reaction shocks to the real domestic economy emphasising the role of credit constraints.

Chapter 2 describes various methods for dating financial crises: the exchange market pressure index with an ad-hoc threshold, Markov-switching models and extreme value models of currency crises, and in-depth measurement of banking and debt crises. We also discuss the significance of macro-financial vulnerability indicators. Chapter 3 compares currency crisis episodes identified by the exchange market pressure index with a so-called ad-hoc threshold and thresholds based on extreme value theory. We judge the accuracy of these methods by confronting the outcomes with the official crisis event chronology provided by the IMF.

Chapter 4 presents an EWS model of currency crises with 26 potential indicators, which represent the conditions of the external sector (the current and the capital account), the financial sector, the domestic real sector, the public sector, and the global economy. We combine factor analysis and a multivariate logit model to generate the probability of a currency crisis. The performance of the model is evaluated in-sample and out-of-sample.

In Chapter 5 we describe bivariate and multivariate concordance indices for investigating synchronisation of low incidence financial crises, and analyse their properties. The methodology is illustrated with time series of binary variables of currency, banking, and debt crises. An application to the six Asian countries reveals the extent of concordance in crises both by country and asset market.

Chapter 6 investigates the interdependence of three financial markets: the exchange, money, and stock market. We first review the relevant theory and empirical evidence. Using daily data, we apply the multivariate Generalised Autoregressive Conditional Heteroscedasticity model and Dynamic Conditional Correlation model to analyse dynamic relationships between financial markets in two of the six Asian countries, Indonesia and Thailand, and across borders. The dynamic linkages are represented by patterns of conditional correlations over time and across countries and markets.

Chapter 7 examines the transmission of exchange rate and interest rate shocks to the real domestic economy in four Asian countries: Indone-

sia, Malaysia, the Philippines, and Thailand. We use a third-generation theoretical model of financial crises with emphasis on credit constraints to identify our Structural Vector Autoregression model. Two types of restrictions—short-run and long-run—are imposed to identify the structural model parameters. By means of impulse response functions and variance decompositions, we analyse the role of domestic credit as a transmission channel. Our finding supports the 'credit channel of a currency crisis'.

8.2 Conclusion

We summarise our conclusions under the headings identification, interdependence, and transmission.

Identification

As is the case for all other approaches used to identify currency crisis periods, our comparison of currency dating methods does not yield an unambiguous standard. Different currency crises dating methods generate different numbers of crises episodes and each method is sensitive to its own threshold, i.e., a relatively lower threshold produces higher incidences of crisis episodes, and vice-versa. Theory does not provide a formal definition of a currency crisis. Hence, there is hardly a way to judge the quality of these multiple methods. Given the official IMF chronology of the 1997-1998 Asian crisis, our comparison shows the Kaminsky, Lizondo, and Reinhart modified index based method appears to dominate, since this method conforms better in terms of capturing the IMF chronology of events in the economies examined.

Financial crises are difficult to predict, since they are by nature uncertain. Some leading indicators of our EWS model point to the sources of fundamental weaknesses. Early warning models help to identify the indicators of a crisis, but the model does relatively poorly in predicting the exact timing of crises. Our analysis in Chapter 4 provides insight into which variables merit more scrutiny. In particular, we find that important indicators of vulnerability are the growth rates of money (M1 and M2), imports, GDP per capita, and national savings. For the first two of these indicators, the results are consistent with stories of the origins of currency crises; for others there is no obvious link. The performance of the growth rates of money and imports as an indicator of