ASSESSING FINANCIAL VULNERABILITY

An Early Warning System for Emerging Markets

Morris Goldstein Graciela L. Kaminsky Carmen M. Reinhart

INSTITUTE FOR INTERNATIONAL ECONOMICS Washington; DC
June 2000

Contents

reface	Ķ
cknowledgments	хiх
Introduction	1
Organization of the book	9
Wethodology	11
General Guidelines	11
Putting the Signals Approach to Work	. 18
Empirical Results	33
The Monthly Indicators: Robustness Check	33
The Annual Indicators: What Works?	38
Do the Indicators Flash Early Enough?	40
Microeconomic Indicators: Selective Evidence	42
Rating the Rating Agencies	45
Do Sovereign Credit Ratings Predict Crises?	45
Why Do Credit Ratings Fail to Anticipate Crises?	49
Do Financial Markets Anticipate Crises?	52
An Assessment of Vulnerability: Out-of-Sample Results	55
Vulnerability and Signals	56
A Composite Indicator and Crises Probabilities	. 64
Contagion	73
Defining Contagion	: 74
Theories of Contagion and Their Implications	_, 75
Empirical Studies	76
	Introduction Organization of the book Methodology General Guidelines Putting the Signals Approach to Work Empirical Results The Monthly Indicators: Robustness Check The Annual Indicators: What Works? Do the Indicators Flash Early Enough? Microeconomic Indicators: Selective Evidence Rating the Rating Agencies Do Sovereign Credit Ratings Predict Crises? Why Do Credit Ratings Fail to Anticipate Crises? Do Financial Markets Anticipate Crises? An Assessment of Vulnerability: Out-of-Sample Results Vulnerability and Signals A Composite Indicator and Crises Probabilities Contagion Defining Contagion Theories of Contagion and Their Implications

Trade and Financial Clusters and a Composite Contagion Index		77
What	the Index Reveals about Three Recent Crisis Episodes	79
7 The Af	termath of Crises	85
(The I	Recovery Process	85
Some	Caveats	89
8 Summ	ary of Results and Concluding Remarks	95
Sumr	mary of Findings	95
Woul	d the Publication of the Indicators Erode Their Early	
Wa	arning Role?	109
Do th	ne Better Performing Indicators Carry Policy Implications?	110
Appendix	A: Data and Definitions	111
Referençe	S	115
Index		121
Tables		
Table 1.1	Emerging Asia: real GDP growth forecasts, 1996-98	3
Table 1.2	Rating agencies' performance before the Asian crisis:	J
1000	Moody's and Standard & Poor's long-term debt ratings,	
	1996-97	4
Table 2.1	Currency crisis starting dates	- 22
Table 2.2	Banking crisis starting dates	24
Table 2.3	Selected leading indicators of banking and currency crises	26
Table 2.4	Optimal thresholds	29
Table 2.5	Examples of country-specific thresholds: currency crises	30
Table 3.1	Ranking the monthly indicators: banking crises	34
Table 3.2	Ranking the monthly indicators: currency crises	35
Table 3.3	Annual indicators: banking crises	38
Table 3.4	Annual indicators: currency crises	39
Table 3.5	Short-term debt: selected countries, June 1997	40
Table 3.6	How leading are the signals?	41
Table 3.7	Microeconomic indicators: banking crises	42
Table 4.1	Comparison of Institutional Investor sovereign ratings with	
	indicators of economic fundamentals	46
Table 4.2	Do ratings predict banking crises?	48
Table 4.3	Do ratings predict currency crises?	48
Table 4.4	Do ratings predict banking crises for emerging markets?	- 50
Table 4.5	Do ratings predict currency crises for emerging markets?	50
Table 4.6	Rating agencies' actions on the eve and aftermath of the Asian	
	ovicio Juno Docombou 1007	Ε.