金融英语世界

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2004年
第3辑

ENGLISH

金融英语世界

THE WORLD OF FINANCE ENGLISH

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Methodology[*]
方　法

By *Morris Goldstein*
卫旭东　译

Our approach to identifying early warning indicators of financial crises in emerging economies reflects a number of decisions about the appropriate methodology for conducting such an empirical exercise. Key elements of our thinking are summarized in the following guidelines.

我们认清新兴经济体金融危机早期预警信号的办法反映了对于进行此种实证分析所采取正确方法的一系列决策。我们思维的要点可以总结为以下几个方面。

General Guidelines

总原则

First, finding a systematic pattern in the origin of financial crises means looking beyond the last prominent crisis (or group of crises) to a larger sample. Otherwise there is a risk either that there will be too many potential explanation to discriminate between important and less important factors or that generalizations and lessons will be drawn that do not necessarily apply across a wider body of experience.[1] We try to guard against these risks by looking at a sample of 87 currency crises and 29 banking crises

第一,在金融危机的起因中发现一种系统模式就意味着我们不要仅仅分析上一次(或一组)重大危机。否则在区分重要和次重要因素时会需要太多的解释,或者总结的经验教训不适用于大多数案例。我们通过分析1970－1995年间25个新兴经济体和小工业国家所发生的87起货币危机和29起银行危机来预防这些问题。

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[*] Source: "Methodology" in *Assessing Financial Vulnerability* by Morris Goldstein.

that occurred in a sample of 25 emerging economies and smaller industrial countries over 1970-1995[2].

Several examples help to illustrate the point. Consider the last two major financial crises of the 1990s: the 1994-1995 Mexican peso crisis and the 1997-1999 Aisan financial crisis. Was the peso crisis primarily driven by Mexico's large current account deficit (equal to almost 8 percent of its GDP in 1994) and by the overvaluation of the peso's real exchange rate, or by the maturity and composition of Mexico's external borrowing (too short term and too dependent on portfolio flows), or by the uses to which that foreign borrowing was put (too much for consumption and not enough for investment), or by the already-weakened state of the banking system (the share of nonperforming loans doubled between mid-1990 and mid-1994), or by bad luck (in the form of unfortunate domestic political developments and an upward turn in US international interest rates)? Or was it driven by failure to correct fast enough earlier slippages in monetary and fiscal policies in the face of market nervousness, or by a growing imbalance between the stock of liquid foreign-currency denominated liablilties and the stock of international reserves, or by an expectation

有很多案例有助于此观点的阐述。回想一下上个世纪 90 年代的两次重大金融危机：1994 - 1995 年墨西哥比索危机和 1997 - 1999 年的亚洲金融危机。比索危机主要是由墨西哥巨大的经常项目赤字（几乎是其 1994 年 GDP 的 8％）和比索实际汇率的高估引起的？还是因为墨西哥外债（期限太短且过于依赖证券投资流动）的期限和组成？还是因为外债的利用（用于消费的过多而用于投资的不足）？还是因为早已脆弱的银行系统（1990 年年中到 1994 年年中不良资产的比例翻番）？还是因为运气不好（不幸的国内政治运动和美国国际利率的回升）？或者该危机是由于在面对市场不安情绪时政府没有迅速改正以前货币和财政政策的不足引起的？或者因为短期流动外债和国际储备存量的不平衡扩大引起？亦或是墨西哥债券人对美国政府救助泰索（短期债务工具、不记名债券）持有人的预期

on the part of Mexico's creditors that the US government would step in to bail out holders of tesobonos?[3]

引起?

Analogously, was the Asian financial crisis due to the credit boom experienced by the ASEAN-4 economies (Thailand, Indonesia, Malaysia, and the Philippines), or a concentration of credit in real estate and equitites, or large maturity and currency mismatches in the composition of external borrowing, or easy global liquidity conditions, or capital account liberalization cum weak financial sector supervision? Was it the relatively large current account deficits and real exchange rate overvaluations in the run-up to the crisis, a deteriorating quality of investment, increasing competition from China, global overproduction in certain industries important to the crisis countries, or contagion from Thailand?[4] There are simply too many likely suspects to draw generalizations from two episodes—even if they are important ones. To tell, for example, whether a credit boom is a better leading indicator of currency crises than are, say, current account deficits, we need to run a horse race across a larger number of currency crises[5].

类似的问题是,亚洲金融危机是由东盟4国(泰国、印度尼西亚、马来西亚和菲律宾)遭受的信用泡沫引起的吗? 还是因为信贷集中于房地产和股市? 还是因为外债的构成中大规模期限与货币错配? 还是因为宽松的全球市场流动性状况? 抑或是因为资本项目自由化连同脆弱的金融行业监管? 这是不是危机之前相对较大的经常项目赤字和实际汇率高估? 投资质量下降? 来自中国的竞争加剧? 对危机国家来说某些重要行业的全球生产过剩? 还是来自泰国的传染病? 从这两段我们发现有太多的可能性能得出结论,即使它们很重要。例如,要确定信贷泡沫是否相对经常项目赤字是更好的货币危机主要指数,我们需要从大量的货币危机中去判断。

Equally, but operating in the opposite

同样地但以相反方向运

3

direction, there is a risk of "jumping the gun" by generalizing prematurely about the relative importance of particular indicators from a relatively small set of prominent crises. One example is credit booms—that is, expansions of bank credit that are large relative to the growth of the economy. These have been shown to forerun banking crises in Japan, in several Scandinavian countries, and in Latin America (Gavin and Hausman 1996). Yet when we compare credit booms as a leading indicator of banking crises to other indictors across a larger group of e-merging economies and smaller industrial countries, we find that credit booms are outperformed by a variety of other indicators. Put in other words, credit booms have been a very good leading indicator in some prominent banking crises but are not, on average, the best leading indicator in emerging economies more generally. Again, it is helpful to have recourse to a larger sample of crises (in this study nearly 30) to sort out competing hypotheses.

The second guideline is to pay equal attention to banking crises and currency crises. To this point, most of the existing literature on leading indicators of financial crises relates exclusively to currency crises[6]. Yet the costs of banking crises in

作,则存在对于相对较小的一系列明显的危机中的某种指数的相对重要性过早下结论的风险。一个例证是信贷泡沫——也就是说与经济发展密切相关的银行信贷的扩张。我们在已发生的日本银行危机、很多斯堪迪那维亚国家和拉美(加文和郝斯曼1996)的危机中都可以看到这种情况。然而当我们把信贷泡沫作为银行危机的主要指数而与众多的新兴经济体和小型工业国家的其他指数进行比较时,我们发现各种其他指数比信贷泡沫要有用的多。换句话说,信贷泡沫在一些著名银行危机中扮演了很好的主要指数角色,但一般情况下不是新兴经济体银行危机的最好的主要指数。从更多的危机案例(在此研究中近30个)中挑选出有说服力的假设是很有帮助的。

规则二是对银行危机和货币危机同等对待。在这一点上,大多数现有金融危机的主要指数资料只与货币危机相关。但发展中国家银行危机的代价看起来要比货币

developing countries appear to be greater than those of currency crises. Furthermore, banking crises appear to be one of the more important factors in generating currency crises, and the determinants and leading indicators of banking crises should be amenable to the same type of quantitative analysis as currency crises are?

Some policymakers have argued that, looking forward, the emphasis in surveillance efforts should be directed to banking sector problems rather than currency crises. The underlying assumption supporting that view is that as more countries adopt regimes of managed floating, currency crises become a relic of the past. We believe this view to be overly optimistic. It is noteworthy that among all the Asian countries that had major currency crises in 1997-1998 only Thailand had an "explicit pegged exchange rate" policy. Indonesia, Malaysia, and South Korea were all declared managed floaters, while the Philippines in principle (but not in practice) had a freely floating exchange rate. Among emerging markets, there is widespread "fear of floating," and many of the countries that are classified as floaters have implicit pegs, leaving them vulnerable to the types of currency crises we study in this

危机的大。此外,银行危机也似乎是产生货币危机的更重要的因素之一。银行危机的决定性因素和主要指数也可像货币危机那样修改成数量分析的同种类型。

一些政策制订者认为未来监管方面的重点应该放在银行领域的问题而不是货币危机上。支持这个观点的潜在假设是由于更多的国家采用了有管理的浮动体制,货币危机已成为历史。我们认为这个观点过于乐观。值得注意的是,在所有 1997 - 1998 年间发生大的货币危机的亚洲国家中,只有泰国实行了"明示的盯住汇率"政策。印度尼西亚、马来西亚和韩国都宣布实行有管理的浮动汇率,而菲律宾原则上(并非实际上)实行自由浮动汇率。在新兴市场上有一种普遍的"浮动恐惧",而且很多被归为浮动汇率的国家实行不明示的盯住,这使得他们易受到我们本书研究的不同类型货币危机的攻击。

book[8].

We analyze banking and currency crises separately, as well as exploring the interactions among them. As it turns out, several of the early warning indicators that show the best performance for currency crises also work well in anticipating banking crises. At the same time, there are enough differences regarding the early warning process and in the aftermath of crises to justify treating each in its own right.

A third feature of our approach—and one that differentiates our work from that of many other researchers—is that we employ monthly data to analyze banking crises as well as currency crises.[9] Use of monthly (as opposed to annual data) involves a trade-off. On the minus side, because monthly data on the requisite variables are available for a smaller number of countries than would be the case for annual data, the decision to go with higher frequency data may result in a smaller sample. Yet monthly data permit us to learn much more about the timing of early warning indicators, including differences among indicators in the first arrival and persistence of signals. Indeed, many of the annual indicators that have been used in other empirical studies are only

我们单独分析银行和货币危机,也研究它们之间的相互作用。事实上,在货币危机中起了重要作用的早期预警指数在预测银行危机中也发挥了较好的作用。同时,早期预警过程和危机之后都有不同之处,足以支持各自的说法。

我们研究方法的第三个特征——也是区别我们和其他很多研究者工作的特征——是我们使用月度数据来分析银行危机以及货币危机。这种采用月度数据的作法(而不是使用年度数据)有利也有弊。从负面来看,因为与年度数据相比,较少国家能得到有关必要变量的月度数据,决定采用较高频率的数据就会导致样本的减少。但月度数据使得我们更多地了解早期预警指数的时间选择,包括首次出现指数的差异和信号持续时间。事实上,很多其他实证研究中使用过的年度指数要过很长时间才能为公众所知晓。当

publicly available with a substantial lag, which makes them plausible for a retrospective assessment of the symptoms of crises but ill-suited for the task of providing an early warning. Hence, we conclude that the advantages of monthly data seemed to outweigh the disadvantages. [10] In the end, we were able to assemble monthly data for about two-thirds of our indicator variables; for the remaining third, we had to settle for annual data.

人们回过头来对危机症状进行分析的时候,这些指数仿佛是很有道理的,但不能很好地起到早期预警的作用。因此,我们认为月度数据的优势要多于劣势。最后,我们能够收集起月度数据用于约2/3的指数变量;对于剩余的1/3,我们不得不通过年度数据。

A fourth element of our approach was to include a relatively wide array of potential early warning indicators. We based this decision on a review of broad, recurring themes in the theoretical literature on financial crises. These themes encompass

我们采用方法的第四个因素是要包含一个相对较广的潜在早期预警指数。我们把该决定建立在对研究金融危机理论的著作的大量的、反复出现的专题的分析上。这些专题涉及:

· asymmetric information and "bank run"stories that stress liquidity/currency mismatches and shocks that induce borrowers to run to liquidity or quality.

·强调流动性/货币不匹配的不对称信息和"银行运营"理论以及导致借贷者追求流动性和质量的冲击;

· inherent instability and bandwagon theories that emphasize excessive credit creation and unsound finance during the expansion phase of the businese cycle.

·内在的不稳定性和强调在商业周期的扩张阶段过分信贷以及不合理融资的流行理论;

· "premature" financial liberalization stories that focus on the perils of liberal-

·专向于当银行监管不力以及当明示和不明示的政

ization when banking supervision is weak and when an extensive network of explicit and implicit government guarantees produces an asymmetric payoff for increased risk taking,

· first-and second-generation models of the vulnerability of fixed exchange rates to speculative attacks, and

· interactions of various kinds between currency and banking crises.

In operational terms, this eclectic view of the origins of financial crises translates into a set of 25 leading indicator variables that span the real and monetary sectors of the economy, that contain elements of both the current and capital accounts of the balance of payments, that include market variables designed to capture expectations of future events and that attempt to proxy certain structural changes in the economy (e. g. financial liberalization) that could affect vulnerability to a crisis.

Once a set of potential leading indicators or determinants of banking and currency crises has heen selected, a way has to be found both to identify the better performing ones among them and to calculate the probability of a crisis. In most

府担保不能给所承担的风险相应回报时的自由化危险的"不成熟的"金融自由化理论;

·易遭受投机风险的固定汇率脆弱性的第一和第二代模型;

·货币和银行危机之间各种不同类型的相互影响。

从运作角度来看,这种金融危机起源的折中观点转换为一组 25 个主要指数变量。这些变量涉及经济的实际生产部门和金融领域,包含国际收支经常和资本账户的因素,包括用于捕捉未来事件预期的市场变量,而且试图进行经济结构调整(例如金融自由化)以改变其对危机的脆弱性。

一旦一组银行和货币危机的潜在主要指数被选定,就必须找到确认运行良好的指数和测算危机可能性的方法。而在现存的很多实证危机的著作中,这是通过估计

of the existing empirical crisis literature, this is done by estimating a multivariate logit or probit regression model in which the dependent variable (in each year of month) takes the value of one if that period is classified as a crisis and the value of zero if there is no crisis. When such a regression is fitted on a pooled set of country data (i, e, a pooled cross-section of time series), the statistical significance of the estimated regression coefficients should reveal which indicators are "significant" and which are not, and the predicted value of the dependent variable should identify which periods or countries carry a higher or lower probability of a crisis.

多元对数或概率回归模型实现的。在这种模型中，如果一段期间发生危机，因变量（在每年或每月）取值为 1；如果没有发生危机，就取值为 0。如果这样的回归与一组国家数据（也就是时间数列的横切面）相适应，估计的回归系数的统计就会显示哪些指数是"重要的"，哪些是不"重要的"；因变量的预计值应确认哪些阶段或哪些国家发生危机的可能性较大或较小。

注释:

1. One can also view "early warning indicators" as a way to discipline or check more "subjective" and "idiosyncratic" assessments of crisis probabilities for particular economies—just as more comprehensive, subjective assessments can act as a check on the quality of early warning indicator projections.

2. Our out-of-sample analysis spans 1996-97. Our criteria for defining a currency and a banking crisis is described later in this chapter.

3. See Leiderman and Thorne (1996) and Calvo and Goldstein (1996) for an analysis of the Mexican crisis.

4. These alternative explanations of the Asian crisis are discussed in BIS(1998), Corsetti, Pesenti, and Roubini (1998), Goldstein (1998a), Radelet and Sachs(1998), IMF (1997), and World Bank (1998).

5. Some of these explanations, of course, are not mutually exclusive. For example, large current account deficit may be the outcome of financial liberalization and its attendant credit boom.

6. See Kaminsky, Lizondo, and Reinhart (1998) for a review of this literature. Among the relatively few studies that include or concentrate on banking crises in emerging economies, we would highlight Caprio and Klingebiel (1996a, 1996b), Demirgüç-Kunt and Detragiache (1998), Eichengreen and Rose (1998), Furnam and Stiglitz(1998). Honohan(1997), Gavin and Hausman

(1996),Goldstein (1997),Goldstein and Turner (1996),Kaminsky (1998),kaminsky and Reinhart (1998,2000), Rojas-Suarez (1998), Rojas-Suarez and Weisbrod (1995), and Sundararajan and Balino(1991).

    7. Both Kaminsky and Reinhart (1998) and the IMF (1998c) conclude that the output costs of banking crises in cmerging economies typically exceed those for currency crises and that these costs and greater still during what Kaminsky and Reinhart(1999)dubbed"twin crises"(that is, episodes when the country is undergoing simultaneous banking and currency crises). We provide further evidence on this issue in chapler 7.

    8. See Calvo and Reinhart (2000)and Reinhart (2000)for a fuller discussion of this issue.

    9. For example,the studies of banking crises in emerging markets by Caprio and Klingebiel (1996a,1996b) Goldstein and Turner (1996) , Honohan (1995), and Sundararajan and Balino (1991) are primarily qualitative, while the studies by Demirgüç-Kunt and Detragiache (1997). Eichengreen and Rose(1998) and the IMF(1998c) use annual data for their quantitative investigation of the determinants of banking crises.

    10. Privale-sector "early warning" analyses likewise seem to be moving in the direction of using monthly data. See Ades Masih, and Tenegauzer (1998) and Kumar, Perraudin, and Zinni (1998).

    1. 我们也可以把"早期预警信号"看作规范或检验某些特殊经济体危机可能性的更"主观"和更"特质"的评估,正如更全面和主观的评估能对早期预警信号的质量起到检验的作用。

    2. 我们不用样本分析的阶段是 1996－1997 年间。我们定义货币和银行危机的标准在本章后半部分进行陈述。

    3. 墨西哥危机的分析参见理德曼和索恩(1996)和卡尔沃与哥尔德斯坦(1996)。

    4. 这些对于亚洲危机的不同的解释在国际清算银行(1998),柯塞帝、佩塞帝和卢比尼(1998),哥尔德斯坦(1998a),拉德来和撒赫(1998),IMF(1997)和世界银行(1998)。

    5. 当然这些解释中的一部分并非相互独立。例如,较大的经常项目赤字可能是金融自由化和信贷泡沫的结果。

    6. 见卡敏斯基、理左多和理恩合(1998)以查阅本著作。在包含或专向于新兴经济体银行危机的相对不多的研究中,我们会着重提到卡普理奥和克林折别(1996a,1996b)、德米格和德特吉合(1998)、伊臣格林和罗斯(1998)、富奈姆和斯帝格理茨(1998)、赫那翰(1997)、加文和郝斯曼(1996)、格尔德斯坦和托纳(1996)、卡敏斯基(1998)、卡敏斯基和理恩合(1998、2000)、罗加斯苏亚雷(1998)、罗加斯苏亚雷和唯斯布罗(1995)以及苏打拉拉建和巴里非奥(1991)。

    7. 卡敏斯基和理恩合(1998)和 IMF 认为新兴经济体银行危机的产出方面付出的代价超过了货币危机,这些代价在卡敏斯基和理恩合(1999)所评论的"双子危机"(就是一个国家同时经历银行和货币危机的时候)中依然巨大。

    8. 见卡尔沃和理恩合(2000)和理恩合(2000)对于此问题的详细的讨论。

    9. 例如,卡普理奥和克林折别(1996a,1996b)、格尔德斯坦和托纳(1996)、赫那翰(1995)以及苏打拉拉建和巴里非奥(1991)对于新兴市场银行危机的研究主要是定性的,而德米格和德特吉合(1997)、伊臣格林和罗斯(1998)以及 IMF(1998c)则使用年度数据进行银行危机

指数的数量调查。

　　10.同样地,私人领域"早期预警"分析也要向使用月度数据发展。见艾德斯、马西赫和特内格泽(1998)以及库马尔、佩劳丁和辛尼(1998)。