VoxEU: Predictable financial crises

There is a long-standing debate on whether financial crises can be predicted. This column draws on a chronology of past financial crises and data on credit and asset prices and finds that if there is a large credit expansion with an asset price boom, then financial crises are highly predictable, **writes Robin Greenwood et al**

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How predictable are financial crises?

An important line of thought postulates that they are largely unpredictable. Each of the three principal US policymakers during the 2008 financial crisis has taken this position at different times. Former US Secretary of the Treasury Tim Geithner suggested that "Financial crises cannot be reliably anticipated or pre-empted." According to former US Secretary of the Treasury Hank Paulson, "My strong belief is that these crises are unpredictable in terms of cause, timing, or the severity when they hit." According to Federal Reserve Chairman Ben Bernanke, "This crisis involved a 21st century electronic panic by institutions. It was an old-fashioned run in new clothes." This line of thought is further supported by early empirical studies showing that, even if most crises are preceded by weak economic fundamentals, they are not especially predictable. If these views are correct, then policymakers should concentrate their efforts on 'firefighting', or cleaning up after a crisis. But policing market conditions before crises actually happen would be futile.

An alternative view sees financial crises as predictable enough that policymakers should try to prevent or mitigate them ex ante. This view sees financial crises as the outcomes of overheated

credit markets, characterized by rapid expansions of credit accompanied by asset price booms (Minsky 1977 and Kindleberger 1978). Borio and Lowe (2002) show that rapid credit growth and asset price growth predict banking crises in 34 countries between 1970 and 1999, spurring numerous academic policy studies on so-called 'early warning indicators'. More recently, Schularick and Taylor (2012) and others have shown that credit expansions and narrow credit spreads predict financial fragility.

Even with all this evidence, precise estimates of the probability of a financial crisis following credit and asset price booms remain unavailable. In Greenwood et al. (2020), we draw on newly available crisis chronologies and data to estimate the probability of financial crises as a function of past credit and asset price growth.

A key quote from the article:

Our first finding is that if there is a large credit expansion with an asset price boom, then financial crises are in fact highly predictable. When either non-financial business credit growth is high and stock market valuations have risen sharply, or when household credit growth is high and home prices have risen sharply, the probability of a subsequent crisis is substantially elevated. This is shown in Table 1, where we list the probability of a financial crisis occurring within three years as a function of past credit and asset price growth. The probability of a crisis beginning within the next three years is 45% when equity price growth is in the top tercile of its historical distribution and business credit growth is in the top quintile of its historical distribution. When home price growth is in the top tercile and household credit growth is in the top quintile, the probability of a crisis beginning within three years is 37%.

We use these results to motivate a simple indicator variable called the Red-zone, or the 'R-zone' for short, that identifies periods of potential credit-market overheating. A country is in the 'business R-zone' if non-financial business credit growth over the past three years is in the top quintile of the historical distribution, and stock market returns over the same window are in the top tercile. Similarly, a country is in the 'household R-zone' if household credit growth over the past three years is in the top quintile of the historical distribution, and stock market returns over the same window are in the top tercile. Using these R-zone predictors, we show that crises are predictable but slow to develop, suggesting that policymakers have time to act based on early warning signs. For example, the US was in the household R-zone in 2002-2006, a clear harbinger of the crisis that started in 2007.

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