

FINANCIAL CRISES: REVIEW AND EVIDENCE

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ABSTRACT This paper presents a brief review of the literature on financial crises focusing on three specific aspects. First, what are the main factors explaining financial crises? Since many theories on the sources of financial crises highlight the importance of sharp fluctuations in asset and credit markets, the paper briefly reviews theoretical and empirical studies on developments in these markets around financial crises. Second, what are the major types of financial crises? The paper focuses on four types of financial crises—currency crises, sudden stops, debt crises, and banking crises—and presents the frequency and distribution of crises over time and across countries. Third, what are the real and financial sector implications of crises? The paper briefly reviews the adverse effects of crises for the real economy and financial sector.

JEL E32, F44, G01, E5, E6, H12

Keywords Sudden stops, Debt crises, Banking crises, Currency crises, Defaults, Policy implications, Financial restructuring, Asset booms, Credit booms, Crises prediction

ÖZ Bu çalışma, finansal krizlere üç yönden yaklaşarak ilgili literatürün kısa bir değerlendirmesini yapmaktadır. Odaklanılan yönlerden ilki, “finansal krizleri açıklayan temel unsurlar nelerdir?” sorusudur. Finansal krizlerin kaynağına ilişkin teorilerin bir çoğu varlık ve kredi piyasalarındaki ani ve sert dalgalanmaların önemini ön plana çıkardığı için, bu çalışma finansal krizler esnasında söz konusu piyasalarda olan gelişmeleri inceleyen teorik ve ampirik çalışmaları kısaca değerlendirmektedir. İkinci husus, “finansal krizlerin belli başlı türleri nelerdir?” sorusudur. Çalışma dört tür finansal krize – likidite krizleri, ani durmalar (sudden stops), borç krizleri ve bankacılık krizleri- odaklanmakta ve krizlerin zaman içinde ve ülkeler bazında sıklığını ve dağılımını sunmaktadır. Üçüncü olarak ise, “krizlerin reel ekonomiye ve finansal sektöre yansımaları nelerdir?” sorusu sorulmaktadır. Bu bağlamda çalışma, krizlerin reel ekonomi ve finansal sektör üzerindeki olumsuz etkilerini kısaca gözden geçirmektedir.

FİNANSAL KRİZLER: DEĞERLENDİRME VE BULGULAR

JEL E32, F44, G01, E5, E6, H12

Anahtar Kelimeler Ani durmalar, Borç krizleri, Bankacılık krizleri, Likidite krizleri, Borcu zamanında ödeyememe, Politika yansımaları, Finansal yeniden yapılanma, Varlık balonları, Kredi balonları, Krizlerin tahmini

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1. Introduction

The 2007–09 global financial crisis and its aftermath have been painful reminders of the multifaceted nature of crises. They hit small and large countries as well as poor and rich ones. As fittingly described by Reinhart and Rogoff (2013a), crises “*are an equal opportunity menace*”.¹ They can have domestic or external origins, and stem from private or public sectors. They come in different shapes and sizes, evolve into different forms, and can rapidly spread across borders. They often require immediate and comprehensive policy responses, call for major changes in financial sector and fiscal policies, and can compel global coordination of policies.

The widespread impact of the 2007–09 global financial crisis underlines the importance of having a solid understanding of crises. As the latest episode has vividly shown, the implications of financial turmoil can be substantial and greatly affect the conduct of economic and financial policies. A thorough analysis of the consequences of and best responses to crises has become an integral part of current policy debates as the lingering effects of the latest crisis are still being felt around the world.

This paper provides a selected survey of the literature on financial crises.² Crises are, at a certain level, extreme manifestations of the interactions between the financial sector and the real economy. As such, understanding financial crises requires an understanding of macro-financial linkages, a truly complex challenge in itself. The objective of this paper is more modest: it presents a focused survey considering three specific questions. First, what are the main factors explaining financial crises? Second, what are the major types of financial crises? Third, what are the real sector and financial sector implications of crises?

Section 2 reviews the main factors explaining financial crises. A financial crisis is often an amalgam of events, but it is often preceded by asset and credit booms that then turn into busts. Thus, many theories focusing on the sources of financial crises have recognized the importance of sharp movements in asset and credit markets. In light of this, this section briefly

¹ Reinhart and Rogoff (2013a) use this phrase in the context of banking crises, but it also applies to a wider range of crises.

² For further reading on financial crises, the starting point is the authoritative study by Reinhart and Rogoff (2009b). Claessens and Kose (2013) present the full version of this article with an extensive list of references (which are omitted here for brevity). Claessens and others (2013) provide a comprehensive collection of recent studies on financial crises.

reviews the literature analyzing developments in credit and asset markets around financial crises.

Section 3 classifies the types of financial crises identified in many studies into four main groups: currency crises, sudden stop (or capital account or balance of payments) crises, debt crises, and banking crises. Theories designed to explain crises are used to guide the literature on the identification of crises. However, transforming the predictions of the theories into practice has been difficult. Although it is easy to design quantitative methods for identifying currency (and inflation) crises and sudden stops, the identification of debt and banking crises is typically based on qualitative and judgmental analyses. Irrespective of the classification used, different types of crises are likely to overlap. The section then reviews the frequency of crises over time and their distribution across different groups of countries.

Section 4 analyzes the implications of financial crises. The macroeconomic and financial implications of crises are typically severe and share many common features across various types. Large output losses are common to many crises, and other macroeconomic variables typically register significant declines. Financial variables, such as asset prices and credit, usually follow qualitatively similar patterns across crises, albeit with variations in duration and severity of declines. The section examines the effects of crises and presents a set of basic stylized facts with respect to their macroeconomic and financial implications. The last section summarizes the major lessons from our brief review of the literature.

2. Explaining Financial Crises

Financial crises have common elements, but they come in many forms. A financial crisis is often associated with one or more of the following phenomena: substantial changes in credit volume and asset prices; severe disruptions in financial intermediation and the supply of external financing to various actors in the economy; large-scale balance sheet problems (of firms, households, financial intermediaries, and sovereigns); and large-scale government support (in the form of liquidity support and recapitalization). Financial crises are typically multidimensional events and can be hard to characterize using a single indicator.

Financial crises are often preceded by asset and credit booms that eventually turn into busts. Many theories focusing on the sources of crises have recognized the importance of booms in asset and credit markets. However, explaining why asset price bubbles or credit booms are allowed to continue and eventually become unsustainable and turn into busts or crunches has been challenging. This naturally requires answering why

neither financial market participants nor policymakers foresee the risks and attempt to slow down the expansion of credit or the increase in asset prices.

The dynamics of macroeconomic and financial variables around crises have been extensively studied. Empirical studies have documented the various phases of financial crises, from initial, small-scale financial disruptions to large-scale national, regional, or even global crises. They have also described how, in the aftermath of financial crises, asset prices and credit growth can remain depressed for a long time and how crises can have long-lasting consequences for the real economy. Given their central roles, the paper next briefly discusses developments in asset and credit markets around financial crises.

2.1. Asset Price Booms and Busts

Sharp increases in asset prices, sometimes called bubbles, and often followed by crashes, have been experienced for centuries. Asset prices sometimes seem to deviate from what fundamentals would suggest and exhibit patterns different from predictions of standard models with perfect financial markets. A bubble, an extreme form of such deviation, can be defined as “the part of asset price movement that is unexplainable based on what we call fundamentals” (Garber, 2000). Patterns of exuberant increases in asset prices, often followed by crashes, figure prominently in many accounts of financial instability, for both advanced countries and emerging market economies, going back millennia.

Formal models attempting to explain asset-price bubbles have been available for some time. Some of these models consider how individual episodes of rational behavior can lead to collective mispricing, which in turn can result in bubbles. Others rely on microeconomic distortions that can lead to mispricing. Some others assume “irrationality” on the part of investors. Despite parallels, explaining asset-price busts (such as fire sales) often requires accounting for different factors than does explaining bubbles.

Some models using rational investors can explain bubbles without distortions. These models consider asset-price bubbles as agents’ justified expectations about future returns. They have been applied relatively successfully to explain the Internet bubble of the late 1990s. More generally, theories suggest that bubbles can appear without distortions, uncertainty, speculation, or bounded rationality.

However, both micro distortions and macro factors can also lead to bubbles. Bubbles may relate to agency issues (Allen and Gale, 2007). For example, as a result of risk shifting—when agents borrow to invest (e.g., margin lending for stocks, mortgages for housing), but can default if rates of

return are not sufficiently high—prices can escalate rapidly. Fund managers who are rewarded on the upside more than on the downside (somewhat analogous to the limited liability of financial institutions) bias their portfolios toward risky assets, which may trigger a bubble (Rajan, 2005). Other microeconomic factors (e.g., interest rate deductibility for household mortgages and corporate debt) can exacerbate this risk-taking, possibly leading to bubbles.

Investors' behavior can also drive asset prices away from fundamentals, at least temporarily. Frictions in financial markets (notably those associated with information asymmetries) and institutional factors can affect asset prices. Theory suggests, for example, that differences of information and opinions among investors (related to disagreements about valuation of assets), short sales constraints, and other limits to arbitrage are possible reasons for asset prices to deviate from fundamentals.

Mechanisms such as herding among financial market players, informational cascades, and market sentiment can affect asset prices. Virtuous feedback loops—rising asset prices and increasing net worth positions that allow financial intermediaries to leverage up and buy more of the same assets—play a significant role in driving the evolution of bubbles. The phenomenon of contagion, that is, spillovers beyond what fundamentals would suggest, may have similar roots. Brunnermeier (2001) reviews these models and shows how they can help explain bubbles, crashes, and other market inefficiencies and frictions. Empirical work confirms some of these channels, but formal econometric tests are most often not powerful enough to separate bubbles from rational increases in prices, let alone to detect the causes of bubbles (Gürkaynak, 2008).

Bubbles may also be the result of the same factors that are argued to lead to asset-price anomalies. Many deviations of asset prices from the predictions of efficient-market models, on a small scale with no systemic implications, have been documented.

2.2. Credit Booms and Busts

A rapid increase in credit is another common thread running through the narratives of events that precede financial crises. Leverage buildups and greater risk taking through rapid credit expansion, in concert with increases in asset prices, often precede crises (albeit typically only recognized with the benefit of hindsight). Both distant and more recent crisis episodes typically witnessed a period of significant growth in credit (and external financing), followed by busts in credit markets along with sharp corrections in asset prices. In many respects, the descriptions of the Australian boom and bust of

the 1880–90s, for example, fit the more recent episodes of financial instability.

Likewise, the patterns before the East Asian financial crisis in the late 1990s resembled those of the earlier ones in Nordic countries as banking systems collapsed following periods of rapid credit growth related to investment in real estate. The experience of the United States in the late 1920s and early 1930s exhibits some features similar to the run-up to the 2007–09 global financial crisis with, in addition to rapid growth in asset prices and land speculation, a sharp increase in (household) leverage. The literature has also documented common patterns in various other macroeconomic and financial variables around these episodes.

Credit booms can be triggered by a wide range of factors, including shocks and structural changes in markets.³ Shocks that can lead to credit booms include changes in productivity, economic policies, and capital flows. Some credit booms tend to be associated with positive productivity shocks. These booms generally start during or after periods of buoyant economic growth. Dell’Ariccia and others (2013) find that lagged GDP growth is positively associated with the probability of a credit boom: in the three-year period preceding a boom, the average real GDP growth rate reaches 5.1%, compared with 3.4% during a tranquil three-year period.

Sharp increases in international financial flows can amplify credit booms. Most national financial markets are affected by global conditions, even more so today, so asset bubbles can easily spill across borders. Fluctuations in capital flows can amplify movements in local financial markets when inflows lead to a significant increase in the funds available to banks, relaxing credit constraints for corporations and households. Rapid expansion of credit and sharp growth in house and other asset prices were indeed associated with large capital inflows in many countries before the 2007–09 financial crisis.

Accommodative monetary policies, especially when in place for extended periods, have been linked to credit booms and excessive risk taking. The channel is as follows. Interest rates affect asset prices and borrower’s net worth, in turn affecting lending conditions. Analytical models, including on the relationship between agency problems and interest rates, suggest more risk-taking when interest rates decline and a flight to quality when interest rates rise, with consequent effects on the availability of external financing. Empirical evidence supports such a channel because credit standards tend to loosen when policy rates decline. The relatively low interest rates in the

³ For comprehensive reviews of factors associated with the onset of credit booms and their real and financial implications, see Mendoza and Terrones (2008, 2012).

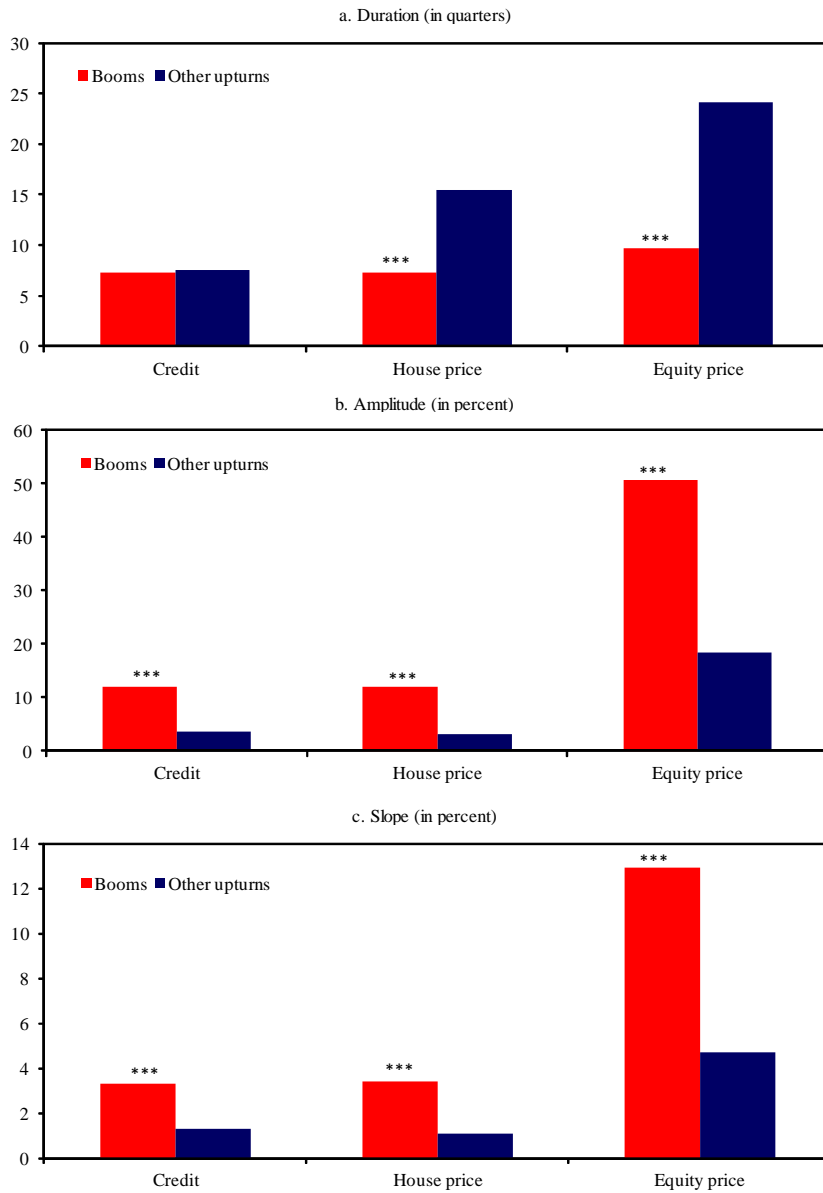
United States during 2001–04 are often mentioned as a main factor behind the rapid increases in house prices and household leverage. However, whether and how monetary policy affects risk taking, and thereby asset prices and leverage, remains a subject for further research.

Structural factors include financial liberalization and innovation. Financial liberalization, especially when poorly designed or sequenced, and financial innovation can trigger credit booms and lead to excessive increases in leverage by facilitating more risk taking. Financial liberalization has been found to often precede crises in empirical studies. Dell’Ariccia and others (2013) report that roughly a third of booms they identified follow or coincide with financial liberalization episodes.

2.3. Impact of Asset-Price and Credit Busts

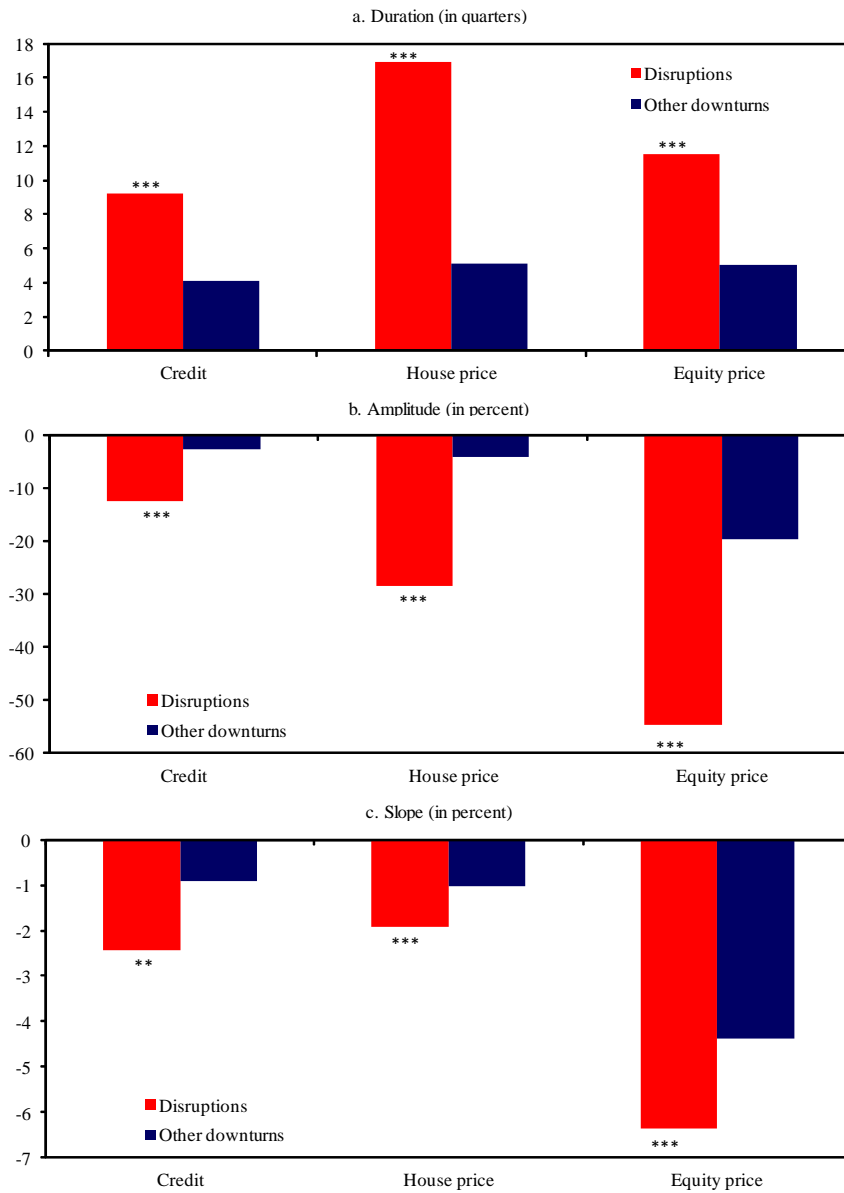
Movements in asset and credit markets during financial crises are much sharper than those observed over the course of a normal business cycle. Booms in credit and asset markets, defined as those upturns in the upward quartile of all upturns, are shorter, stronger, and faster than other upturns. For example, booms often take place over relatively shorter periods than do other upturns and are associated with much faster increases in the financial variables (Figure 1.A.). The slope of a typical boom, that is the average increase in the financial variable in each quarter, is two to three times larger than that of regular upturns. And crunches and busts are longer, deeper, and more violent than other downturns. Credit crunches and asset-price busts have much larger declines than do other downturns (Figure 1.B.).

Figure 1.A. Credit and Asset Price Booms



Notes: The sample includes data for 23 advanced countries and covers 1960-2011. Amplitude and slope correspond to sample median and duration corresponds to sample mean. Duration is the time it takes to attain the level at the previous peak after the trough. Amplitude is calculated based on the one year change in each respective variable after the trough. Slope is the amplitude from peak to trough divided by the duration. Booms are the top 25% of upturns calculated by the amplitude. *** indicates that the difference between corresponding financial boom and other upturns is statistically significant at 1% level.

Figure 1.B. Credit Crunches and Asset Price Busts

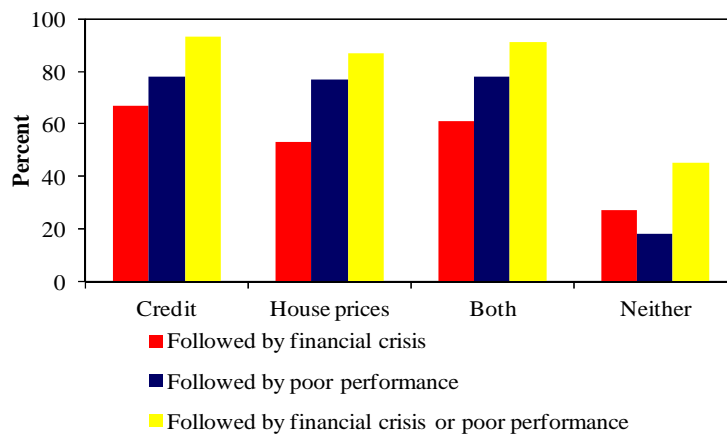


Notes: The sample includes data for 23 advanced countries and covers 1960-2011. Amplitude and slope correspond to sample median and duration corresponds to sample mean. Duration is the number of quarters between peak and trough. Amplitude is calculated based on the decline in each respective variable during the downturn. Slope is the amplitude from peak to trough divided by the duration. Crunches and busts are the worst 25% of downturns calculated by the amplitude. ***, ** indicate that the difference between the corresponding disruptions and other downturns is statistically significant at 1 and 5% level, respectively.

Specifically, credit crunches and house-price busts, respectively, lead to roughly 10 and 15 times larger drops than do other downturns, whereas equity busts are more than 2.5 times as large. These episodes also last longer, some two times longer, than other downturns, with house-price busts the longest of all, about 18 quarters, whereas credit crunches and equity busts last about 10–12 quarters. Moreover, disruptions are more violent, as evidenced by higher slope coefficients, with busts in equity prices being three times more violent than those in credit and house prices (Claessens, Kose, and Terrones, 2010).

The burst of the latest bubble—financed by banks (and the shadow banking system) and involving housing—has been very costly. For the 2007–09 episode, Crow et al. (2013) report that, in a 40-country sample, almost all the countries with “twin booms” in real estate and credit markets (21 out of 23) ended up suffering from either a crisis or a severe drop in the GDP growth rate relative to the country’s performance in the 2003–07 period (Figure 2). Eleven of these countries actually suffered both financial sector damage and a sharp drop in economic activity. In contrast, of the seven countries that experienced a real estate boom but not a credit boom, only two went through a systemic crisis and, on average, had relatively mild recessions. A broader discussion of the real and financial implications of financial crises and disruptions is presented in Section 4.

Figure 2. Coincidence of Financial Booms and Crises: 1960-2011
(fraction of total, in percent)



Source: Dell’Ariccia and others, 2011.

Notes: The sample consists of 40 countries. The numbers, except “Neither”, show the percent of the cases in which a crisis or poor macroeconomic performance happened after a boom was observed (out of the total number of cases where the boom occurred).

3. Financial Crises: Types, Distribution, and Frequency

3.1. Types of Crises

Financial crises can take various shapes and forms, but two broad types can be distinguished. Reinhart and Rogoff (2009b) describe two types of crises: those classified using strictly quantitative definitions and those dependent largely on qualitative and judgmental analysis. The first group mainly includes *currency* and *sudden stop* crises, and the second group contains *debt* and *banking* crises. Regardless, definitions are strongly influenced by the theories trying to explain crises.

The literature has been able to arrive at concrete definitions of many types of crises. For example, a *currency* crisis involves a speculative attack on the currency resulting in a devaluation (or sharp depreciation); or forces the authorities to defend the currency by expending large amounts of international reserves, or sharply raising interest rates, or imposing capital controls. A *sudden stop* (or capital account or balance of payments crisis) can be defined as a large (and often unexpected) decline in international capital inflows or a sharp reversal in aggregate capital flows to a country, likely taking place in conjunction with a sharp rise in its credit spreads. Because these are measurable variables, they lend themselves to the use of quantitative methodologies.

Other crises are associated with adverse debt dynamics or banking system turmoil. A *foreign debt* crisis takes place when a country cannot (or does not want to) service its foreign debt, sovereign, private, or both. A *domestic public debt* crisis takes place when a country does not honor its domestic fiscal obligations in real terms, either by defaulting explicitly, or by inflating or otherwise debasing its currency, or by employing other forms of financial repression.

In a *systemic banking* crisis, actual or potential bank runs and failures can induce banks to suspend the convertibility of their liabilities, or compel the government to intervene to prevent them from doing so by extending liquidity and capital assistance on a large scale. Because these variables are not so easily measured, these crises lend themselves more to the use of qualitative methodologies. Other classifications are possible, but the types of crises are still likely to overlap. A number of banking crises, for example, are associated with sudden stop episodes and currency crises.

3.2. Distribution and Frequency of Crises

A large body of work has been devoted to the identification and dating of crises, but ambiguities remain. Methodologies based on the main theories

explaining various types of crises can be used to identify and classify crises.⁴ In practice, however, this classification is not so straightforward. Although currency and inflation crises and sudden stops lend themselves to quantitative approaches, the dating of debt and banking crises is typically based on qualitative and judgmental analyses. Irrespective of type, variations in methodologies can lead to differences in the start and end dates of crises. And, as noted, various types of crises can overlap in a single episode, creating possible ambiguities about how to classify the episode. In practice, a wide range of quantitative and qualitative methods involving judgment are used to identify and classify crises.

The difficulties arise, in part, because the frequency and types of financial crises have evolved. For example, currency crises were dominant during the 1980s, whereas banking crises and sudden stops became more prevalent in the 1990s and the first decade of the 2000s. We summarize common identification and dating methods in Claessens and Kose (2013).

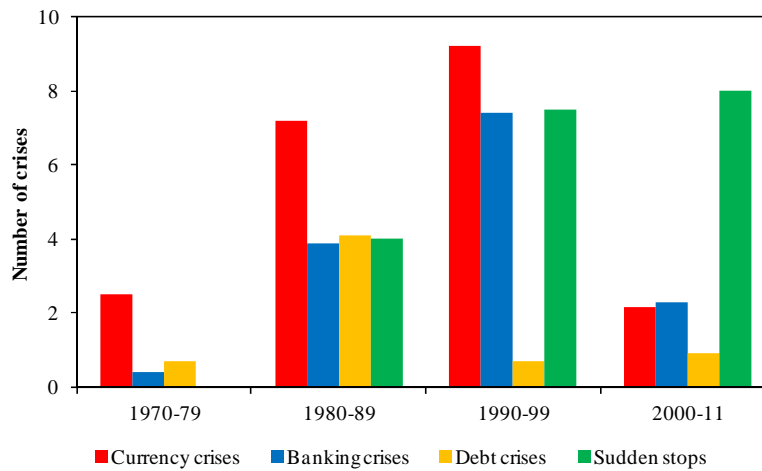
Crises have afflicted both emerging market economies and advanced countries throughout centuries. In the three decades before 2007, most crises occurred in emerging markets and included the Latin American crises in the late 1970s and early 1980s, the Mexican crisis in 1995, and the East Asian crises in the mid- to late 1990s. The susceptibility of emerging markets to crises is not new (Reinhart and Rogoff, 2013b). History shows that many countries that are advanced today, including Australia, Spain, the United Kingdom, and the United States, experienced financial crises when they were going through their own emergence processes in the 1800s. For example, France defaulted on its external debt eight times during the period 1550–1800. Some advanced countries experienced crises in recent decades as well, from the Nordic countries in the late 1980s, to Japan in the 1990s. The most recent crises, starting with the U.S. subprime crisis in late 2007 and then spreading to other advanced countries, show (once again) that crises can affect all types of countries.

Some claim that crises have become more frequent. The three decades after World War II were relatively crisis free, whereas the most recent three decades have seen many episodes (Figure 3). Some relate this increase to more liberalized financial markets, including floating exchange rates and greater financial integration. Using macroeconomic and financial series for 14 advanced countries for 1870–2008, Jordà, Schularick, and Taylor (2011) report no financial crises during the Bretton Woods period of highly regulated financial markets and capital controls. Also, Bordo and others

⁴ Dating does not, of course, establish causes, including whether the event was a rational outcome of some other “cause” (e.g., a crash in an asset price may be rational in response to a real shock). We describe the main theories explaining various types of crises in Claessens and Kose (2013).

(2001) argue that the sudden stop problem has become more severe since the abandonment of the gold standard in the early 1970s.

Figure 3. Average Number of Financial Crises per Decade



Sources: The dates of banking, currency, and debt crises are from Laeven and Valencia (2008, 2011), and the dates of sudden stops are from Forbes and Warnock (2011).

Note: This graph shows the average number of financial crises in respective decades.

More recent crises seem to have been shorter, but banking crises still last the longest. The median duration of debt-default episodes in the post–World War II period has been much shorter than for the period 1800–1945, possibly because of improvement in policies in the later period, improved international financial markets, or the active involvement of multilateral lending agencies. Currency and sudden stop crises are relatively short (almost by definition). With the major caveat that their ends are hard to date, banking crises tend to last the longest, consistent with their large real and fiscal impacts.

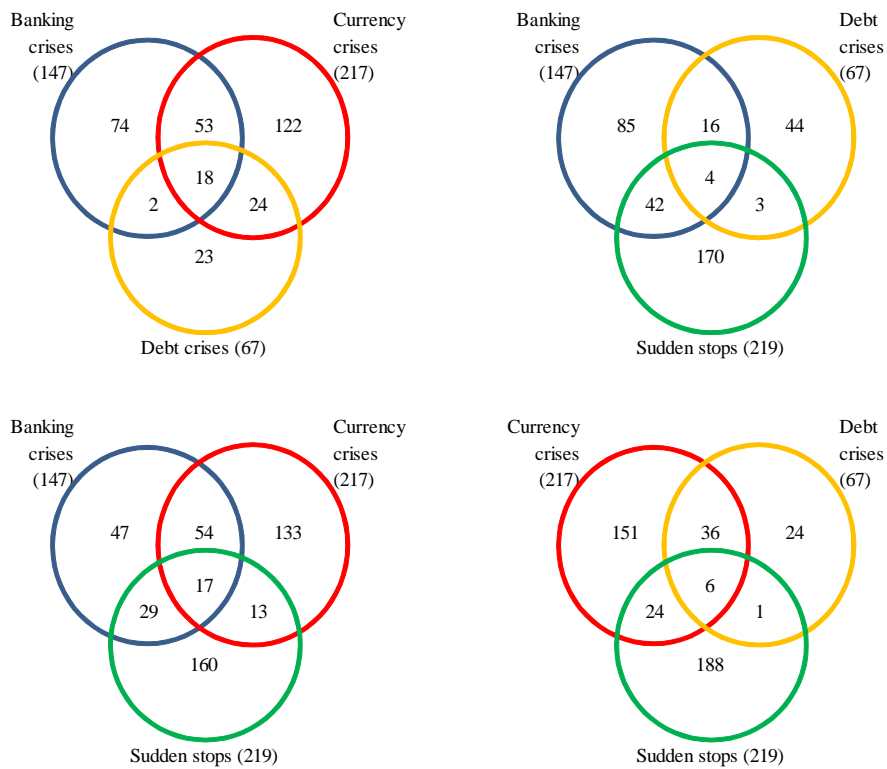
Financial crises often come in bunches. Sovereign defaults tend to come in waves and take place in specific regions. Jordà, Schularick, and Taylor (2011) report that there were five major periods when a substantial number of now-advanced countries experienced crises: 1890, 1907, 1921, 1930–31, and 2007–08. Earlier crises bunched around events such as the Napoleonic Wars. Examples of bunches since the 1980s include the Latin America debt crises in the 1980s; in 1992, the European Exchange Rate Mechanism currency crises; in the late 1990s, the East Asian, Russian, and Brazilian financial crisis; the multiple episodes observed in 2007–08; and the crises in Europe still ongoing in 2013. Periods of widespread sovereign defaults often

coincide with a sharp rise in the number of countries going through banking crises. These coincidences point toward common factors driving these episodes as well as spillovers of financial crises across borders.

Some types of crises are more frequent than others. Comparisons can be made for the post–Bretton Woods period (although some types of crises have been documented for longer periods, not all have; and currency crises were nonexistent during the fixed exchange rate period; together this necessitates the common, but shorter period). Of the total number of crises Laeven and Valencia (2013) report, 147 are banking crises, 217 are currency crises, and 67 are sovereign debt crises during the period 1970–2011 (note that several countries experienced multiple crises of the same type).

However, as noted before, the various types of crises overlap to some extent. Currency crises frequently tend to overlap with banking crises, the so-called twin crises (Kaminsky and Reinhart, 1999). In addition, sudden stop crises, not surprisingly, can overlap with currency and balance of payments crises, and sometimes sovereign crises (Figure 4). Of the 431 banking (147), currency (217), and sovereign (67) crises Laeven and Valencia (2013) examine they consider 68 to be twin crises, and 8 can be classified as triple crises. There are relative differences in coincidences of these episodes. A systemic banking crisis, for example, often involves a currency crisis, and a sovereign debt crisis sometimes overlaps with other crises—20 out of 67 sovereign debt crises are also banking crises, and 42 are also currency crises.

Figure 4. Coincidence of Financial Crises: 1970-2011



Sources: The dates of banking, currency, and debt crises are from Laeven and Valencia (2008, 2011) and the dates of sudden stops are from Forbes and Warnock (2011).

Note: A financial crisis starting at time T coincides with another financial crisis if the latter starts at any time between T-3 and T+3. A financial crisis starting at time T coincides with two other financial crises if the latter two start at any time between T-3 and T+3. The sample consists of 181 countries.

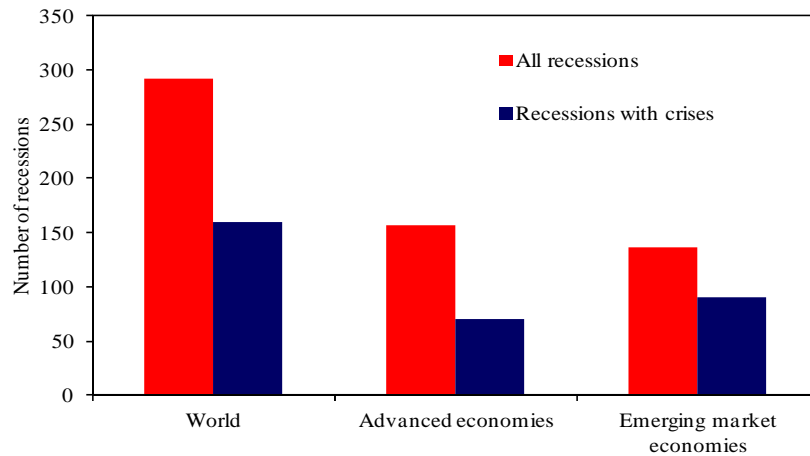
4. Real and Financial Implications of Crises

Macroeconomic and financial consequences of crises are typically severe and are similar across the various types of crisis. Despite the obvious differences between crises, the macroeconomic variables follow similar patterns. Large output losses are common and other macroeconomic variables (consumption, investment, and industrial production) typically register significant declines. Financial variables like asset prices and credit usually follow qualitatively similar patterns across crises, albeit with variations in duration and severity. This section provides a summary of the literature on the macroeconomic and financial implications of crises.

4.1. Real Effects of Crises

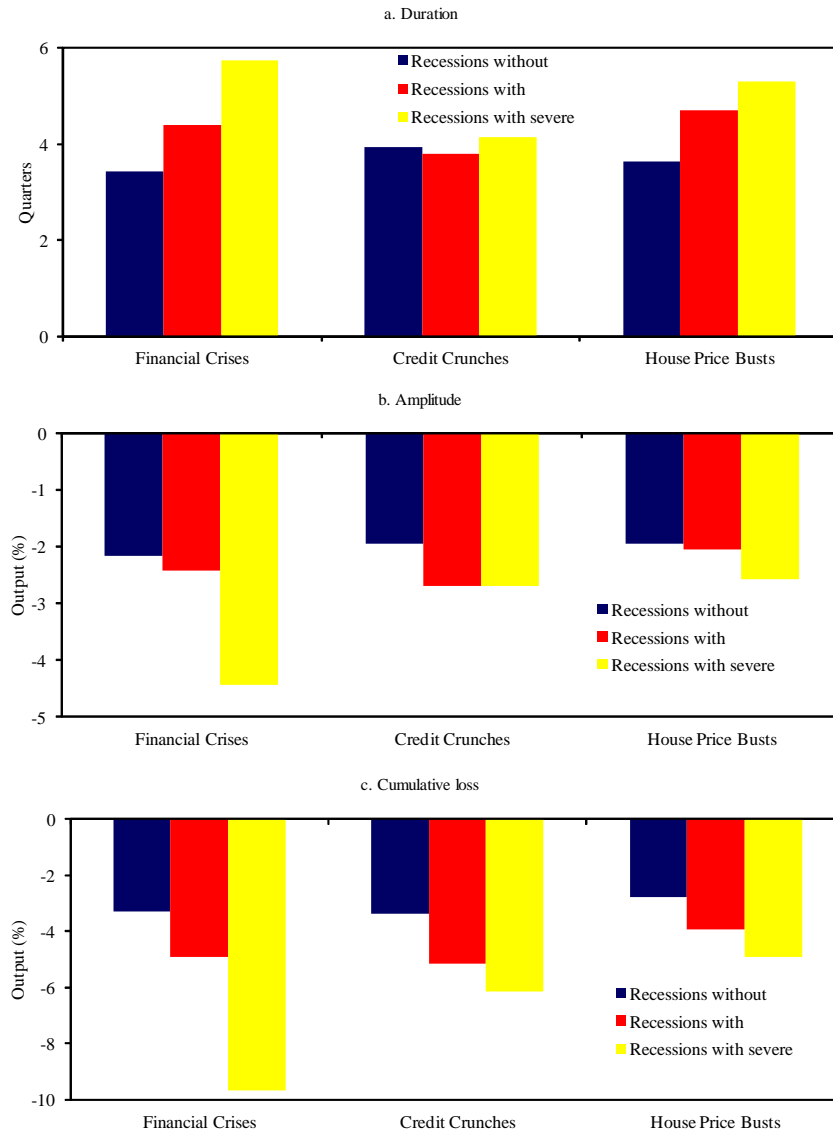
Financial crises have large economic costs. Many recessions are associated with financial crises (Figure 5) (Claessens, Kose, and Terrones, 2009, 2012). And financial crises often tend to make these recessions worse than a “normal” business cycle recession (Figure 6). The average duration of a recession associated with a financial crisis is some six quarters, two more than a normal recession. There is also typically a larger output decline in recessions associated with crises than in other recessions. And the cumulative loss of a recession associated with a crisis (computed using lost output relative to the precrisis peak) is also much larger than that of a recession without a crisis.

Figure 5. Coincidence of Recessions and Crises



Notes: The sample includes data for 23 advanced countries and 38 emerging market countries, and covers 1960-2011. A recession is associated with a financial crisis if the financial crisis starts at the same time with the recession or one year before or two years after the peak of the recession.

Figure 6. Real Implications of Financial Crises, Crunches, and Busts



Notes: The sample includes data for 23 advanced countries and covers 1960-2011. For "Duration" means are shown, for "Cumulative Loss" and "Amplitude" medians are shown. Amplitude is calculated based on the decline in output from peak to trough of a recession, duration is the number of quarters between peak and trough, and cumulative loss combines information about the duration and amplitude to measure overall cost of a recession and is expressed in percent. Disruptions (severe disruptions) are the worst 25% (12.5%) of downturns calculated by amplitude. A recession is associated with a (severe) credit crunch or a house price bust if the (severe) credit crunch or the house price bust starts at the same time or one quarter before the peak of the recession. A recession is associated with a financial crisis if the financial crisis starts at the same time of the recession or one year before or two years after the peak of the recession. The severe financial crises are the worst 50% of financial crises as measured by output decline during the recession.

The real impact of a crisis on output can be computed using various approaches. For a large cross-section of countries and a long period, Claessens, Kose, and Terrones (2012) use the traditional business cycle methodology to identify recessions. They show that recessions associated with credit crunches and housing busts tend to be more costly than those associated with equity price busts. Overall losses can also be estimated by adding up the differences between trend growth and actual growth for a number of years following the crisis or until the time when annual output growth returns to its trend.

On this basis, Laeven and Valencia (2013) estimate that the cumulative cost of banking crises is, on average, about 23% of GDP during the first four years.⁵ Regardless of the methodology, losses do vary across countries. Overall losses tend to be larger in emerging markets, but the large losses in recent crises in advanced countries (e.g., both Iceland and Ireland's output losses exceeded 100%) paint a different picture. The median output loss for advanced countries is now about 33%, which exceeds that of emerging markets at 26%.

Crises are generally associated with significant declines in a wide range of macroeconomic aggregates. Recessions following crises exhibit much larger declines in consumption, investment, industrial production, employment, and exports and imports compared with those recessions without crises. For example, the decline in consumption during recessions associated with financial crises is typically seven to ten times larger than those without such crises in emerging markets. In recessions without crises, the growth rate of consumption slows down but does not fall below zero. In contrast, consumption tends to contract during recessions associated with financial crises, another indication of the significant toll that crises have on overall welfare.

From a fiscal perspective, banking crises can be especially costly. Both gross fiscal outlays and net fiscal costs of resolving financial distress and restructuring the financial sector can be very large. For banking crises, Laeven and Valencia (2013) estimate that fiscal costs, net of recoveries, associated with crises are on average about 6.8% of GDP. Debt crises can be costly for the real economy. Furceri and Zdzienicka (2012) report that debt crises are more costly than banking and currency crises and are typically associated with output declines of 3–5% after one year and 6–12% after eight years.

⁵ The loss numbers rely on an estimated trend growth, typically proxied by the trend in GDP growth up to the year preceding the crisis. These numbers can overstate output losses, however, because the economy could have experienced a growth boom before the crisis or been on an unsustainable growth path.

The combination of financial system restructuring costs and a slow economy can lead public debt to rise sharply during financial crises. Reinhart and Rogoff (2009a) document that crisis episodes are often associated with substantial declines in tax revenues and significant increases in government spending. For example, government debt rises by 86%, on average, during the three years following a banking crisis. Using a larger sample, Laeven and Valencia (2013) report the median increase in public debt to be about 12% for their sample of 147 systemic banking crises.

Although empirical work has not been able to pinpoint the exact reasons, sudden stops are especially costly. Using a panel data set for 1975–97 and covering 24 emerging markets, Hutchison and Noy (2006) finds that while a currency crisis typically reduces output by 2–3%, a sudden stop reduces output by an additional 6–8% in the year of the crisis. The cumulative output loss of a sudden stop is even larger, about 13–15% over a three-year period.⁶ Cardarelli, Elekdag, and Kose (2010) examine 109 episodes of large net private capital inflows to 52 countries during 1987–2007 and report that the typical post-inflow decline in GDP growth for episodes that end abruptly is about 3% points lower than during the episode, and about 1% point lower than during the two years before the episode. These fluctuations are also accompanied by a significant deterioration of the current account during the inflow period and a sharp reversal at the end.

4.2. Financial Effects of Crises

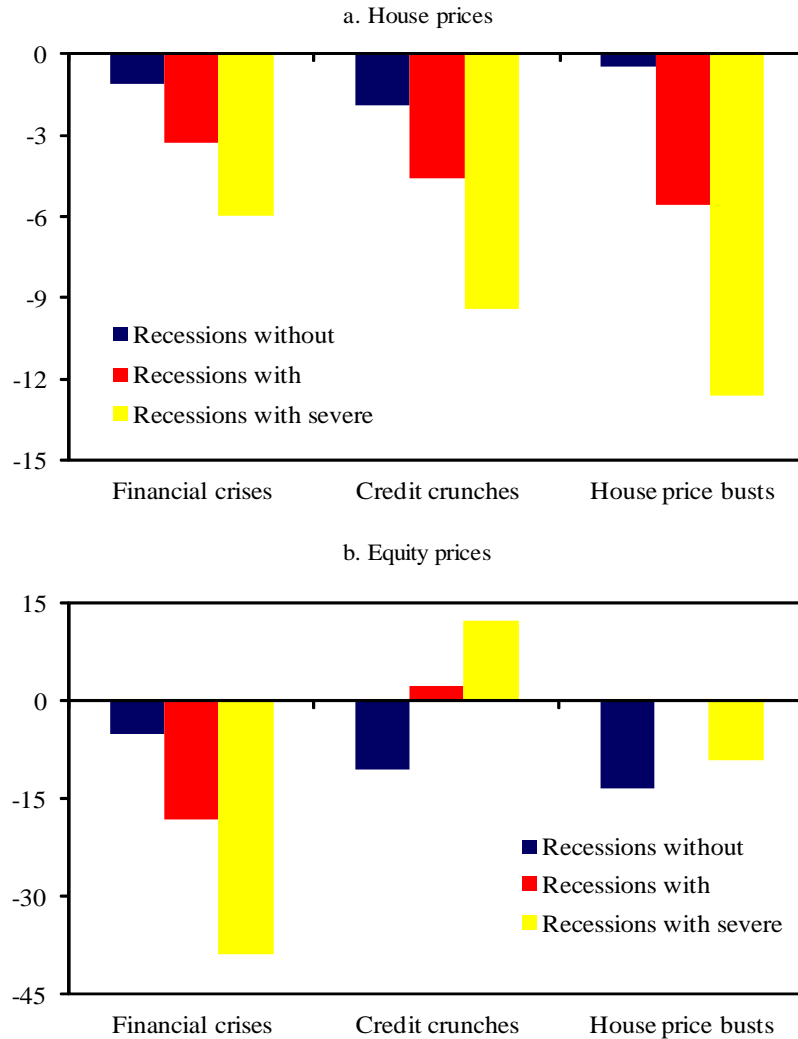
Crises are associated with large downward corrections in financial variables. A sizable research effort has analyzed the evolution of financial variables around crises. Some of the studies in this literature focus on crisis episodes using the dates identified in other work; others consider the behavior of the financial variables during periods of disruptions, including credit crunches and house and equity price busts. Although results differ across the types of crises, both credit and asset prices tend to decline or grow at much lower rates during crises and disruptions than they do during tranquil periods, confirming the boom-bust cycles in these variables discussed in previous sections.

In a large sample of advanced countries (Figure 7), house prices fall by about 12%, and equity prices drop by more than 40% during recessions associated with severe house price busts and recessions with severe financial crises, respectively. Asset prices (exchange rates, equity and house prices) and credit around crises exhibit qualitatively similar properties in their

⁶ Of course, this and other analyses can suffer from reverse causality. That is, private agents see events that lead them to predict future drops in a country's output and, as a result, these agents pull their capital from the country. In this view, anticipated output drops drive sudden stops, rather than the reverse.

temporal evolution in advanced and emerging market countries, but the duration and amplitude of declines tend to be larger for the latter than for the former.

Figure 7. Financial Implications of Crises, Crunches, and Busts



Notes: The sample includes data for 23 advanced countries and covers 1960-2011. Each panel shows the median change in respective variable during recessions associated with indicated financial events. Disruptions (severe disruptions) are the worst 25% (12.5%) of downturns calculated by amplitude. A recession is associated with a (severe) credit crunch or a house price bust if the (severe) credit crunch or house price bust starts at the same time or one quarter before the peak of the recession. A recession is associated with a financial crisis if the crisis starts at the same time as the recession or one year before or two years after the output peak preceding the recession. Severe financial crises are the worst 50% of financial crises as measured by output decline during the recession.

5. Conclusion

This paper presents a brief survey of the literature on financial crises to answer three specific questions. First, what main factors explain financial crises? Although the literature has clarified some of these factors, it remains a challenge to definitively identify the causes of crises. Many theories have been developed about the underlying causes of crises. These theories have recognized the importance of booms in asset and credit markets that turned into busts as the driving forces behind most crisis episodes. Given their central roles, the paper briefly summarizes the theoretical and empirical literature analyzing developments in credit and asset markets around financial crises.

Second, what are the major types of crises? Although financial crises can take various shapes and forms, the literature has focused on four major types: currency crises, sudden stop (or capital account or balance of payments) crises, debt crises, and banking crises. Crises can be classified in other ways, too, but the types still often overlap. A number of banking crises, for example, are also sudden stop episodes and currency crises. The paper presents the frequency over time and across different groups of countries.

Third, what are the real sector and financial sector implications of crises? Large output losses are common to many crises, and other macroeconomic variables (consumption, investment, and industrial production) typically register significant declines. Financial variables like asset prices and credit usually follow qualitatively similar patterns across crises, albeit with variations in duration and severity. The paper summarizes the literature on the macroeconomic and financial implications of crises.

One of the main conclusions of the literature on financial crises is that it has been hard to beat the “this-time-is-different” syndrome. This syndrome, as aptly described by Reinhart and Rogoff (2009b, p.15), is the belief that “*financial crises are things that happen to other people in other countries at other times; crises do not happen to us, here and now. We are doing things better, we are smarter, we have learned from past mistakes*”. Although often preceded by similar patterns, policymakers tend to ignore the warnings and argue that “the current boom, unlike the many booms that preceded catastrophic collapses in the past (even in our country) is built on sound fundamentals”. Leading up to every crisis, claims are made that developments appear to be different from those before earlier episodes. Before the 2007–09 crisis, for example, the extensive diversification of risks and advanced institutional frameworks were used to justify the belief that “this time is different.”

There are many similarities in the run-ups to crises. In the 2007–09 crisis, increases in credit and asset prices were similar to those observed in earlier crises. Given these commonalities, it should be possible to prevent crises. Yet, that seems to have been an impossible task. This suggests that future research should be geared to beating the “*this-time-is-different*” syndrome. In addition, more intensive efforts are needed to collect the necessary data to guide both empirical and theoretical studies.⁷

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⁷ This is of course a very broad task requiring addressing of two major questions: How to prevent financial crises? How to mitigate their costs when they take place? We discuss in detail these questions and summarize future research directions in Claessens and Kose (2013).

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