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The risk of financial crises: Is there a role for income inequality?

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ABSTRACT

Could macroeconomic factors such as income inequality be the real root cause of financial crises? We explore a broad variety of financial and macroeconomic variables and employ a general-to-specific model selection process to find the most reliable predictors of financial crises in developed countries over a period of more than 100 years. Our in-sample results indicate that income inequality has predictive power beyond loan growth and several other financial variables. Out-of-sample forecasts for individual predictors show that their predictive power tends to vary considerably over time, but income inequality has predictive power in each forecasting period.
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1. Introduction

Financial crises are recurring phenomena in modern economies. The crisis of 2007–2009 was a stark reminder of the treacherous nature of financial crashes because it took almost the whole world by surprise. The search for its underlying causes has consequently revived academic interest in financial crises and their history (see Bordo and Meissner, 2012; Gorton, 2012; Rajan, 2010; Schularick and Taylor, 2012, among others). Income inequality has received increasing attention because it was highly elevated before the crisis of 2007–2009 (as it was before the Great Depression), and it has remained high in many developed economies after the crisis (Alvaredo et al., 2013). However, there is no

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consensus on the role that income inequality plays as a driver of financial crises and the channels it works through. There is not even a consensus whether real (macroeconomic) or financial factors play a more important role in predicting financial crises.

In this paper, we contribute to the discussion around the drivers of financial crises in two ways. First, we consider a long time-series and a relatively large set of real and financial variables that have been identified as potential drivers of crises in the previous literature to gain a more comprehensive understanding of their respective roles. On the real side, our major factor of interest is income inequality. While its role on the onset of financial crises has recently been studied in a number of theoretical contributions, the empirical evidence is scant and mixed. Some papers find that income inequality increases the probability of financial crises (Roy and Kemme, 2012) or drives credit booms (Klein, 2015; Malinen, 2016; Perugini et al., 2015), whereas others do not find income inequality to be a consistent ingredient in the growth of bank loans (Bordo and Meissner, 2012) or the development of financial crises (Atkinson and Morelli, 2011). On the financial side, Schularick and Taylor (2012) point to credit booms as the primary contributor to financial crises in developed countries over the past 140 years (see also Lang and Schmidt, 2016). In a recent paper, Jorda et al. (2015) show that mortgage lending to households in particular has increased considerably over the past century and Jorda et al. (2013) link credit booms to the severity of economic downturns. However, Gorton (2012) links abnormal credit growth to only one out of three financial crises that occurred during the period between 1970 and 2007. Rivas and Perez-Quiros (2015) also show that the role of credit in the identification of the business cycle was very limited before the financial crisis of 2007–2008. Therefore, by themselves, credit booms appear to be insufficient prerequisites of financial crises.[1]

Second, in our analysis we explicitly consider the various channels through which income inequality may impact financial crises and study whether income inequality is a direct driver of crises or whether it is the real root-cause behind the financial drivers such as credit booms. Iacoviello (2008) provides compelling evidence that income inequality was the primary driver of the increase in household debt in the United States during the 1980s and 1990s. Kumhof et al. (2015) show that inequality can raise leverage in middle-income and poor households as a result of consumption smoothing by borrowing against future incomes. Linking these findings to the credit boom literature implies that income inequality might be the actual real-side root cause of the risk of financial instability that has thus far been fully and directly attributed to credit bubbles. In a similar vein, Rajan (2010) argues that rising inequality caused redistribution in the form of subsidized housing finance, which led to the housing boom and the subsequent crash.

Our empirical evidence comes from a dataset of 14 developed countries over the 1870–2008 period. Our modeling strategy allows the predictive power to be distributed among a large set of variables and examines these potential predictors and their lags in joint models. Importantly, we employ a methodology that allows for a flexible general-to-specific model selection between different predictors without imposing restrictive assumptions on the channels through which, e.g., income inequality impacts the risk of financial crises. The full set of variables includes (the year-to-year change) in the top 1% income share as our measure of income inequality, real bank loans, gross real investments, the real current account balance, broad money (M2), gross real government debt, the real price of stocks, short-term real interest rates and six lags of each factor. We also add a dummy variable indicating when a deposit insurance scheme was introduced.[2] In each step of our empirical analysis, we then apply a general-to-specific model selection procedure to obtain the most parsimonious choice of variables that provides the most predictive information on the probability of a financial crisis. In addition, we consider various out-of-sample forecasting checks to assess the robustness of our in-sample results.

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[1] In addition to income inequality and credit booms, other factors that have been proposed to explain the occurrence of financial crises include collapses of asset bubbles, deregulation, financial innovations, movements of real interest rates, deposit insurance schemes, the growth of the monetary base, and current account imbalances (see Brunnermeier, 2008; Calvo et al., 1994; Davis et al., 2016; Demirgüc-Kunt and Detragiache, 1998; Gorton, 1988; In't Veld et al., 2011; Stoker, 1994; Tett, 2009).

[2] We experimented also with a dummy variable indicating the existence of a central bank, but it failed to have any statistically significant effect on the probability of a financial crisis.

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