



Economic Policy Papers

EXECUTIVE SUMMARY

A case can be made for the Great Recession being the result of a large financial shock that makes household borrowing difficult. The channel involves large reductions in house prices, which trigger sharp reductions in consumption.

We discuss the ingredients necessary for a quantitative macroeconomic model to successfully implement such a theory. They include: wealth heterogeneity, where the majority of the population needs to acquire financing to purchase houses despite the large amount of wealth in the economy; sizable real frictions that hinder the transformation of consumption into exports and investment and that constrain the increase of household working hours; and a role for expenditures in contributing to productivity.

The Great Recession and Financial Shocks

Current economic models need several additional ingredients before they can successfully explain the Great Recession

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Introduction

The Great Recession and its aftershocks are only now receding.

It was the most severe economic downturn since the Great Depression, with GDP and consumption falling about 10 percent below trend and not yet fully recovering. The recession was so damaging and entrenched that the Federal Reserve implemented exceptional policies for over seven years to alleviate its effects.

What was its cause? For many economists and popular press, the recession was the end product of a financial shock that made access to credit more difficult, caused major losses in financial wealth and forced people to cut spending to repair their balance sheets. While the notion of a large financial disruption triggering the crisis is very intuitive, current mainstream economic models fail to generate such costly outcomes from financial shocks.

In this note, we describe the main ingredients a model would need to demonstrate formally how a financial disruption can cause economic losses of the magnitude of the Great Recession. Macroeconomic models make simplifying assumptions so that they are tractable with modern

computational techniques. But these models must also be “mappable” to an actual economy’s national accounts and retain all elements that are essential to answering the questions at hand. We also discuss how this enhanced model could be used to answer important policy questions.

Focusing on production is not sufficient

Most research on the implications of financial disruptions has concentrated on the production side of the economy. The argument behind this approach is that firms have projects that need financing, but many good projects never launch because financing dries up during a financial crisis. And, indeed, younger firms performed much worse in the Great Recession than in other recessions relative to larger and older firms that had easier access to credit. Some of the slack was taken up by low-quality projects (those in the hands of firms with access to credit or to their own funds), resulting in lower new investment with worse performance than normally.

Various excellent attempts have pursued this line of reasoning, but we do not think these factors are powerful enough to generate a recession as big as the most recent. There are several reasons for this. First, investment is a small part of GDP. Second, many firms had large reserves of cash, so those that were subject to tighter lending conditions were few or relatively unimportant to overall GDP. Third, there is not a lot of evidence that cash-rich firms expanded at the expense of cash-stripped firms, an unavoidable implication of the theory. Finally, consumption contracted a lot in the Great Recession and, in these models, increased financial frictions on firms are not a big enough trigger to reduce consumption significantly. The bottom line is that the effects of financial shocks on the production side of the economy are only a minor contributor to the Great Recession.

Whatever caused the crisis, it triggered a large reduction in consumption. According to standard theory, households reduce consumption either because a change in prices induces them to do so (for instance, an increase in interest rates would prompt households to postpone consumption) or because a reduction in wealth induces them to save more to rebuild their wealth. The first explanation is unconvincing in this case since interest rates fell considerably during the period. But the latter explanation is a prime candidate; wealth disappeared from households’ pockets because prices of assets—particularly houses—fell dramatically during the crisis.

The question then is: Can a financial shock and ensuing credit difficulties trigger the major drop in house prices (and household wealth) experienced during the crisis? Wealth in the United States immediately prior to the crisis (and currently) was close to 500 percent of GDP, but this wealth was very concentrated. For most Americans, the home is their primary or only source of wealth. This means that the sharp fall in house prices (and related borrowing capacity) hit this large segment of

the U.S. population particularly hard. (Pension wealth cannot really be used as a buffer in terms of liquidity for consumption or collateral for borrowing.)

What we saw was consistent with these facts. The financial shock resulted in increased and widespread difficulties to get mortgages which, in turn, drastically reduced the demand for houses and ultimately resulted in plummeting house prices (more than offsetting the effects of credit expansion of earlier years).

Essential elements

For a model to successfully deliver this type of explanation for the Great Recession, it has to include several ingredients.

First, it must incorporate substantial wealth inequality and place many households in a position where a loss of housing wealth directly reduces their desired consumption. The model has to have many households buying houses on credit, and the price of houses has to be dependent on credit availability. Recent works by Huo and Ríos-Rull (2014a) and Kaplan, Mitman and Violante (2015) have large drops in housing prices as a result of financial shocks.

Second, the model needs to incorporate frictions such that households cannot get all the work they desire. When households suffer a drastic reduction of wealth, they typically work harder and save more to rebuild lost wealth. In the standard model, a reduction of wealth happens because of capital destruction, which increases the rate of return, and the response is to work harder and to save and invest more. In such a model, the economy shifts *quickly* from production for consumption (e.g., espresso bars, hair salons) to production for saving into the future (e.g., net exports).

But to generate a substantial recession from a financial shock, a model must incorporate elements to make it difficult to turn the economy on a dime from being a consumption-oriented economy to a savings-oriented economy, due to high costs of resource reallocation. This dynamic is reinforced in a model that incorporates a *global* recession, as countries find it more difficult to increase exports.

Third, the model needs to use a production technology where lower demand translates into lower productivity, because of idle capacity and lower profits. Service industries with fewer customers will look like they have lower productivity, and unsold consumer goods will show up as low-value inventory goods and perhaps be sold only at low prices. This is in contrast to the standard macroeconomic model in which lower demand and the accompanying reduction in employment result in an increase in productivity. Recent developments that use search theory in goods markets (Bai, Ríos-Rull and Storesletten 2011; Dyrda and Ríos-Rull 2012; Huo and Ríos-Rull 2014b; Huo and Ríos-Rull 2014a; Petrosky-Nadeau and Wasmer 2015) allow for a different outcome whereby decreases in spending result in *lower* productivity.

Fourth, a successful model must incorporate market imperfections. In standard macroeconomic models, hours worked and consumption levels are governed by a simple equation linking real wages to household desire to substitute consumption for leisure. However, this equation doesn't actually match real data on people's work and consumption patterns very well.

Fortunately, the standard framework has been supplanted in the past few years by the approach of Nobel laureates Dale Mortensen and Christopher Pissarides. According to the Mortensen and Pissarides approach, unemployed workers are not always able to find jobs even though they are looking. With the aid of search theory, the job search process is represented in a formal economic model and, in it, high unemployment can exist when firms post few vacancies.¹

Fifth and finally, the model should also incorporate a degree of unresponsiveness of interest rates to movements in consumption. In standard models, when all is said and done, much of the macroeconomic adjustment—investment and consumption, in particular—occurs via interest rate movements. Reductions in consumption coming from a negative wealth effect push down interest rates, thus reducing the strength of the fall in consumption. However, interest rates all over the world have come down for reasons that are not internal to the United States, including a global savings glut. Moreover, expansionary monetary policy in the United States has brought nominal interest rates close to zero, leaving limited room for further interest rate reductions.

Summary and conclusion

The most important implication of these ingredients for explaining the Great Recession is that asset prices adjust in response to financial frictions, which requires that large numbers of people trade those assets (mostly houses) actively and are vulnerable to abrupt changes in financing terms. Because modern economies have a lot of wealth, a delicate balance must be achieved between the total amount of wealth and the existence of vulnerable people on the fringes. Also required is the existence of real rigidities that hinder the transformation of an economy mostly engaged in producing to consume into one capable of producing for the future, as well as frictions in goods and in labor markets that reduce labor productivity during the recession and slow down the adjustment of wages and workers so unemployment can linger for a long time.

While there is still much room for improvement, economic models that have these ingredients are a step up from standard models for answering important policy questions. This is because they feature the main channels of transmission of financial shocks, which we have learned only recently are so important. We look forward to seeing reliable answers to questions related to the effectiveness of anti-crisis fiscal and monetary policies and what types of households are more likely to increase consumption in response to income stimulus, among others.

Note

* The authors thank the National Science Foundation for Grant SES-1156228, Kei-Mu Yi for helpful comments and Carolyn Wilkins for detailed input.

Endnote

¹ A trickier issue is the behavior of wages. Most traditional models imply large wage reductions as the economy's response to unemployment, again a feature that is not present in the data. While many models pose arbitrary rigidities in the wage adjustment process, recent work by Christiano, Eichenbaum and Trabandt (2013) shows how wage inertia can arise endogenously.

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