Acceptance speech
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Ben S. Bernanke, awardee in the Economics, Finance and Management category (13th edition)

I am honored to receive the BBVA Foundation's Frontiers of Knowledge Award. I am particularly pleased to share the award with such a distinguished and productive group of scholars.

All of the award recipients have contributed to our understanding of how stress in financial markets, especially banking and credit markets, affects the course of the economy, including jobs, output, and inflation. Given the catastrophic effects of the global financial crisis a little more than a decade ago, one would think that this linkage would be well understood by economists. But, unfortunately, even on the eve of the crisis, most economic models used for forecasting and policymaking did not incorporate sophisticated analyses of credit markets and how they could break down. That is now changing, and the work of the four of us, as well as of many other researchers, has helped to provide the foundations for that change.

My own interest in this topic was the result of an accidental confluence. In graduate school at MIT in the late 1970s, working with mentors like Stan Fischer and Peter Temin, I developed a strong interest in economic history, especially the Great Depression of the 1930s. The Depression combined three critical elements: (1) a dozen years of high unemployment, ended only by mobilization for World War II; (2) the contraction of the money supply, emphasized by Milton Friedman and Anna Schwartz, and the associated sharp deflation in prices; and (3) global financial collapse, including waves of banking panics in the United States and Europe. What were the deep connections among these phenomena? I would later write that fully understanding the Depression was the "holy grail of macroeconomics."

Seemingly unrelatedly, my first job after graduate school was at Stanford's Graduate School of Business. At the time, with scholars like Bob Wilson and David Kreps, Stanford was a leader in the study of the economics of imperfect information and principal-agent models. As I learned about this work, I began to understand that it provided the basis for new thinking about the working of credit markets. Lenders must always confront imperfect information about the characteristics and opportunities of their potential borrowers. To overcome this information asymmetry, lenders must gather intelligence about borrowers and structure the terms of the

loan to provide incentives for repayment. The economics of imperfect information clarified how this could be done and how the process could break down. It also showed the factors that determine the cost of lending. In my 1983 paper on the Depression I coined the term cost of credit intermediation to describe the cost of making an economic loan, over and above the cost of funds. That cost is now more often referred to as the external finance premium.

The key insight of the models I learned about at Stanford is that the external finance premium depends on, among other things, the net worth of banks and their borrowers. For example, a borrower whose net worth is large relative to a requested loan—think of a homebuyer with a large down payment—will have a low external finance premium, because the borrower's large equity stake aligns her incentives more closely with those of the lender and provides a greater cushion in case of bad outcomes. Banks are also ultimately borrowers themselves, since they must obtain the funds to lend from savers and investors, so their net worth—their capital—likewise matters for the overall cost of lending. When banks are decapitalized, because of credit losses for example, they must pay more for funds themselves, leading the external finance premiums of their customary borrowers rise.

When these ideas are combined with macroeconomic models, the lesson is that recession, deflation, and credit collapse are interconnected. Economic downturns that reduce the net worth of borrowers and lenders also increase the aggregate external finance premium, throwing sand in the gears of the credit mechanism. In the Depression, the deflation of prices greatly intensified this dynamic—think of a farmer trying to pay a fixed mortgage while commodity prices are collapsing. Widespread default in turn triggered banking panics and the breakdown of credit markets, which depressed investment, spending, and hiring, which, in a vicious circle, further damaged credit markets. There are many more details that I will omit here, but in brief, the economics of imperfect information helps provide and clarify the missing links among the financial health of lenders and borrowers, the functioning of credit markets, and overall economic performance. It bring us that much closer to the holy grail of understanding the Depression.

My arrival at Stanford had another substantial benefit, which is that there I met my future coauthor and friend, Mark Gertler, who was completing his Ph.D. there at the time. Mark and I discussed these and related ideas endlessly and, over the years, would write many papers together. With Simon Gilchrist, Mark and I showed that endogenous changes in the external finance premium—a dynamic we called the financial accelerator—can help explain the severity of economic recessions and booms. (Simon and Egon Zakrajsek would later show that the external finance premium is an excellent predictor of the business cycle.) Mark and I would also investigate how monetary policy can affect the external finance premium, giving rise to the so-called credit channel of monetary policy. In 2002 I joined the Fed, where I would ultimately have to contend with credit market breakdowns as a policymaker, but Mark continued to develop these themes, including his excellent work with Nobu Kiyotaki, which provided much insight into

the interaction of the economy and the stability of the banking system.

I could say much more but time is short. Let me close by thanking my coauthors and colleagues, at Stanford, Princeton, and the Federal Reserve; my wife Anna, for her constant support; and, of course, the foundation for this wonderful award. Thank you.