The Intended and Unintended Consequences of Financial-Market Regulations: A General Equilibrium Analysis

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1. Introduction

Financial markets have historically been regulated. This regulation is often motivated by the desire to discourage speculation and to limit negative externalities, where the behavior of an individual investor or institution can destabilize the financial market as a whole. The recent financial crisis, which has highlighted the negative feedback from financial markets to the real sector, has intensified the debate about the ability of financial-market regulations to stabilize financial markets and improve macroeconomic outcomes. In this paper, we study the intended and unintended consequences of various regulatory measures used to reduce fluctuations in financial as well as real markets and to improve welfare. The measures we study are the ones that have been proposed by regulators in response to the financial crisis: the Tobin financial-transactions tax, portfolio (short-sale) constraints, and borrowing (leverage) constraints.[1]

Our objective is to evaluate these three regulatory measures within the same dynamic, stochastic general equilibrium model of a production economy, and to compare within a single economic setting, both the intended and unintended effects of these different measures on the financial and real sectors.[2] The kind of questions we address are the following: Of the three regulatory measures we consider, which is most effective in stabilizing financial markets? What exactly is the channel through which each measure works? What will be the impact, intended or unintended, of this measure on other financial variables and the spillover effects on real variables? Would more tightly regulated markets be more stable and increase output growth or welfare?

The model we develop to address these questions has two central features. The first is the presence of two distinct motives for trading in financial markets: (i) labor income that is risky, so investors use financial markets for risk sharing; in this case, financial markets improve welfare; (ii) investors disagree about the state of the economy, so investors use financial markets to speculate, which generates "excess volatility" in asset prices that has negative feedback effects on the real sector and reduces welfare.[3]

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[1] For example, on 1 August 2012, France introduced a financial-transactions tax of 0.20%; on 25 July 2012, Spain's Comisión Nacional del Mercado de Valores (CNMV) imposed a three-month ban on short-selling stocks, while Italy's Consob prohibited shortselling of stocks of 29 banks and insurance companies; and, tighter leverage constraints have been proposed following the subprime crisis: for instance, on 17 October 2008 the European Commissioner, Joaquin Almunia, said: "Regulation is going to have to be thoroughly anti-cyclical, which is going to reduce leverage levels from what we've seen up to now."

[2] The importance of relying on a general equilibrium analysis is highlighted in Loewenstein and Willard (2006) and Coen-Pirani (2005), who show that partial-equilibrium analysis can lead to incorrect inferences.

[3] Both policymakers and academics have recognized the importance of studying models with heterogeneous investors with different beliefs, among others, Hansen (2007), Sargent (2008), Stiglitz (2010), and Hansen (2010), who discuss the implications of the common beliefs assumption (for policy) and the intriguing possibilities of heterogeneous beliefs.

Second, we study a production economy with endogenous growth, but with an additional risk that originates in financial markets itself, over and above the risk originating in the production system. This additional risk arises from the disagreement amongst investors: because in the eyes of each investor the behavior of the other investors seems fickle, it is seen as a source of risk. It is only in a setting with endogenous production that one can analyze the feedback from this financial-market risk to the real sector, and hence, the impact of financial-market regulation on the real sector.

These features of the model allow us to meet the twin challenge set by Eichenbaum (2010): to model simultaneously (i) heterogeneity in beliefs and persistent disagreement between investors and (ii) financial-market frictions, with risk residing internally in the financial system, rather than externally in the production system. The twin challenges are met here with one stroke because the heterogeneity of investor beliefs we model is a fluctuating, stochastic one so that it constitutes, indeed, an internal source of risk.[4]

The main finding of our paper is that all three regulatory measures we consider have similar effects on financial and macroeconomic variables: they reduce stock and bond turnovers, as well as the risk-free rate, and increase the equity risk premium, stock-return volatility, real investment and output growth. However, because the role of the bond and stock markets for risk sharing and speculation is different, only those regulatory measures that are able to reduce speculation without hurting risk sharing substantially improve welfare. For example, the borrowing constraint improves welfare because it limits speculation by restricting access to funds needed to implement speculative trading strategies, but has only a marginal effect on risk sharing because borrowing plays a minor role for risk sharing. Similarly, a transaction tax improves welfare because, while it allows for small frequent trades to hedge labor-income risks, it makes large and erratic speculative trades less profitable. In contrast, a limit on stock holdings, such as a short-sale ban, can lead to a decrease in welfare because it limits risk sharing severely, while reducing only partially speculative trading.

For further details, see the published version of the paper in *Journal of Monetary Economics* 81 (2016) 25–43.

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[4]It constitutes, in fact, two internal sources of risk, which are correlated with each other: the heterogeneity of beliefs is stochastic and its volatility is also stochastic (with serial correlation), so that periods of quiescence in the financial market are followed by periods of agitation.

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