Journal of Monetary Economics 64 (2014) 47–67

Contents lists available at ScienceDirect

Journal of Monetary Economics

journal homepage: www.elsevier.com/locate/jme

Domestic or global imbalances? Rising income risk and the fall in the US current account

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ARTICLE INFO

Article history:
Received 23 June 2011
Received in revised form
11 February 2014
Accepted 12 February 2014
Available online 22 February 2014

Keywords:
Precautionary savings
Global imbalances
Limited commitment
Default
Idiosyncratic income risk

ABSTRACT

When default leads to exclusion from financial markets, the implied loss of consumption smoothing opportunities is more costly when income volatility is high. A rise in income risk thus makes default less attractive, allowing creditors to relax borrowing limits. I show how, in an open economy, this endogenous financial deepening may reduce aggregate foreign assets in response to a rise in individual income risk, against the precautionary savings intuition. Conditions for this depend on whether default constrains complete or uncontingent contracts. The post-1980 rise in US household income risk strongly reduces foreign assets when domestic markets are complete or world interest rates low.

1. Introduction

Since 1980, the US economy has experienced a significant rise in both cross-sectional income inequality and the uncertainty of individual incomes. The standard self-insurance model suggests that this should have increased individual savings at the same time as consumption inequality. But instead, as Fig. 1 shows, during this period of rising individual risks the US savings rate declined and the country's net foreign assets as a share of GDP fell by almost 30 percentage points, while consumption inequality increased only very little. This paper looks at an economy where a rise in individual income risk can lower aggregate foreign assets by relaxing endogenous borrowing constraints. The crucial assumption is that individuals have the option to default on financial contracts, at the price of exclusion from financial trade. This limits the amount they can credibly borrow against the future. Higher income risk increases individuals' incentives to maintain financial market access in order to smooth consumption. By making default less attractive, a rise in risk can thus relax incentive constraints and allow individuals to issue more claims against their future income.

Motivated by the US experience, this paper tries to provide a deeper theoretical and quantitative understanding of how income risk affects aggregate savings and consumption inequality in economies where individuals' ability to smooth consumption through asset trade is restricted by the option to default. There, higher risk translates to higher consumption volatility after a default that excludes agents from all future financial transactions. A risk-averse consumer is thus less willing to declare default when income risk rises, which allows creditors to increase her borrowing limit. I show analytically how this endogenous financial deepening effect of higher income risk can result in a fall in aggregate savings. The conditions

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http://dx.doi.org/10.1016/j.jmoneco.2014.02.002
0304-3932

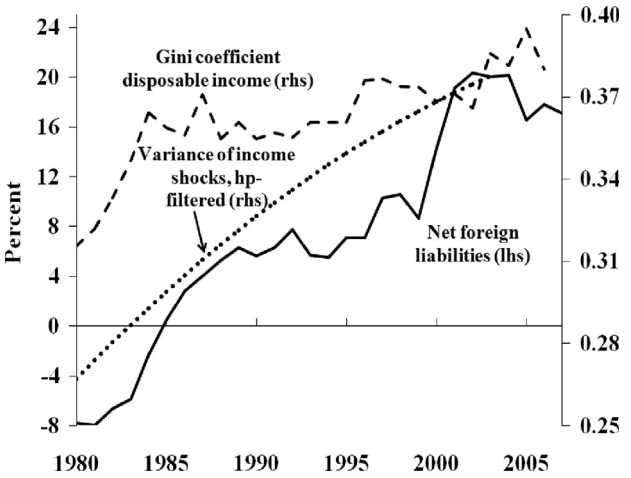

Fig. 1. The series for US net foreign liabilities is measured as percent of GDP and taken from an updated and extended version of the dataset constructed by Lane and Milesi-Ferretti (2007). Both the Gini coefficient for US equivalent household disposable income (Heathcote et al., 2010) and the hp-filtered total variance of estimated shocks to log household incomes (Krueger and Perri, 2006), are based on data from the US Consumer Expenditure Survey.

under which this happens, however, depend crucially on the kind of financial assets available. When agents can write contingent insurance contracts, as in Alvarez and Jermann (2000) or Krueger and Perri (2006), aggregate asset holdings follow a hump-shaped relationship with income risk. So the financial deepening effect allows higher borrowing only at sufficiently high levels of risk. In economies where, in contrast, asset trade is exogenously limited to non-contingent bonds, as in Zhang (1997), a rise in risk reduces aggregate savings only when income risk is not too high, and when debt is cheap enough (interest rates sufficiently low) to make borrowing constraints bind for a large part of the population. This is because, with non-contingent debt, borrowing constraints due to default incentives follow a U-shaped relationship with risk: higher income volatility first relaxes borrowing constraints, and then tightens them. At higher levels of income risk or interest rates, the bond-economy with no-default constraints therefore behaves similarly to a simpler one with exogenous borrowing limits and no option to default, where higher risk increases aggregate assets. Interestingly, the effect of income risk on consumption inequality also differs substantially between the complete markets environment and the bond economy. In the former, an analytical characterisation of the consumption distribution reveals that for sufficiently high levels of risk and interest rates, consumption inequality remains constant even when income risk rises further. In contrast, in the bond-economy with default-constraints higher income risk always raises consumption inequality.

The second part of the paper looks at a quantitative specification of the model, calibrated to capture the rise in individual income risk in the US economy between 1980 and 2003. The analysis shows that with complete markets, the observed increase in risk strongly decreases stationary asset holdings. In the bond economy, on the other hand, the effect of risk on asset holdings is negative at low interest rates, but positive at high interest rates. Interestingly, with bond-trade, stationary consumption inequality, equal to long-run individual consumption volatility, is not very sensitive to interest rates, but reacts strongly to the change in income risk. In contrast, with complete markets a rise in interest rates strongly reduces consumption volatility.

Overall, the results in this paper show that the negative relationship between income risk and assets implied by the financial deepening effect is stronger and more robust under complete markets than in the bond economy. The complete markets economy is thus better placed to explain the observed fall in the US asset position and the rise in income risk since the 1980s. The complete markets model with limited commitment has, however, other implications, such as for the determination of consumption inequality (more strongly affected by world interest rates than with bond trade), and the shape of the consumption distribution (which is strongly asymmetric as default constraints only bind at high income Broer, 2013) that call for a more comprehensive comparison of the joint distribution of assets, consumption and income across models of imperfect risk-sharing than this study, whose main focus is the aggregate savings function, can deliver.

Previous studies have identified several potential explanations for the fall in the US net asset position since 1980, such as, for example, differences in productivity or demographic growth, in the structure of country portfolios, or in the timing of capital account liberalisation.[1] More relevant to this paper are the studies by Fogli and Perri (2006) and Mendoza et al. (2009), who analyse the role of income risk for relative precautionary savings across countries. In particular, Fogli and Perri (2006) show how the more pronounced "great moderation" in macro-volatility in the US could have reduced precautionary savings there more than in other countries. Abstracting from aggregate risk, Mendoza et al. (2009) argue that more advanced insurance markets against individual risks in the US may have led to an inflow of excess precautionary savings

[1] See for example, Backus et al. (2009), Gourinchas and Rey (2007), Backus et al. (forthcoming), Carroll and Jeanne (2009), McGrattan and Prescott (2010) or Prades and Rabitsch (2012).