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The mixed blessing of IMF intervention: Signalling versus liquidity support

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Abstract

Although IMF support is supposed to benefit a country, it might be bad news that the IMF believes intervention is necessary. This paper analyzes a bank run model in which both the liquidity effect and the signalling effect of the intervention occur. The IMF strategically provides liquidity support to facilitate market functioning. When the IMF intervenes and has large resources, it uses the signalling to aim for a "half run" and off-sets the negative consequences with the liquidity support. For small IMF resources, the negative signalling effect might not be off-set and the IMF presence can be distorting.
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1. Introduction

When the IMF decides to provide liquidity support to a country, this is good news: the country has a larger budget to tackle any liquidity problems it might face. However, it can also be bad news: the IMF makes it apparent that in its assessment the country may not be sufficiently sound to deal with its own problems. The impact of the IMF support on investors crucially depends on the relative importance of these interpretations. This paper analyzes these two mechanisms through which the IMF affects the behavior of the investors.

A core element of bank run models is the coordination problem among investors: when an investor withdraws her money she (potentially) lowers the investment return of other investors. In

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bank runs models following the seminal paper of Diamond and Dybvig (1983), this coordination problem results in multiple equilibria. In one equilibrium all investors run, in another all stay. Inspired by the two-player model of Carlsson and van Damme (1993), Morris and Shin (1998, 2001) eliminate this multiplicity by introducing noisy private information about the determinants of the investment return. This reduces the reliance on public information. When the precision of the private information is sufficiently high, there is a unique hybrid equilibrium in which some investors run and others stay. Although the unique equilibrium seems to be convenient for policy evaluation, Angeletos et al. (2006) show that this can be misleading. The policy choice itself most probably conveys information that affects the investors' decisions. As in their model, this can again lead to multiple equilibria. In my paper, however, the information signalled by the policy choice facilitates coordination and leads to a unique equilibrium.

I extend the bank run model of Morris and Shin (2001) by adding the IMF as a player. Investors with noisy private information simultaneously have to decide on rolling-over their investments in a country. This coordination problem can result in the country being solvent but illiquid. When the IMF expects this to be the case, it is willing to approve the country's request for liquidity support. It sets the size of a loan for the country before the investors take their decisions. The loan size fully or partially reveals the IMF's private information to investors. Since this effect is understood by the IMF, it uses the signalling strategically. In choosing the loan size, the IMF can be constrained by the resources available for supporting the country. This constraint influences the extent of the signalling and in turn the effectiveness of the intervention.[1]

The main findings of this paper are the following. Firstly, when the IMF resources are sufficiently large, the signalling effect is a useful tool for coordinating investors. When a loan is granted, the IMF not only conveys the message that the country is not sufficiently sound to deal with its problems, but also that the IMF is confident that its involvement will be effective. The IMF succeeds in reducing the probability of the country being solvent but illiquid. Secondly, when the IMF resources are small, the IMF presence can be distorting. The IMF can no longer intervene convincingly. Although the liquidity effect of the loan is positive, the main effect of the loan is signalling that the private information of the IMF indicates the country to be solvent but illiquid. Despite its good intentions, the IMF might thus aggravate the country's problems. This is in sharp contrast with the simultaneous model in which the signalling effect is absent and the IMF is necessarily successful, even for small resources. Thirdly, explicit expressions for the main equilibrium variables are derived. Very few models built around global games allow for explicit solutions when private information is not arbitrarily precise. For large resources any non-zero loan is associated with a unique assessment. In other words, a non-zero loan fully reveals the IMF's private information. In contrast, when the IMF has small resources, the maximum loan is granted for various values of the private information. The maximum loan now only partially reveals the IMF's private information.

Interestingly, when the IMF grants a non-zero loan smaller than its resources, its equilibrium behavior coincides with making the "median" investor indifferent between running and staying. To see why this is the case, first note that the IMF sets the loan size such that the expected return of staying investors is zero. Due to the noisy information, it expects that half of the investors have lower expectations about the return than it has itself. These investors withdraw their money and run. So, the IMF chooses the loan that neutralizes the country's condition: whenever a loan is

[1] The paper is phrased in terms of international finance like most papers using related techniques; however, the main findings hold *mutatis mutandis* for a setting in which a large bank considers providing liquidity support to a private company financed by investors.

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