

Referee Report on “An Idealized view of Financial Intermediation”, by Carolyn Sissoko

This article is a contribution to the literature that deals with the role of financial intermediaries in reducing the frictions of the exchange process. It considers an economy with a continuum of agents of various types, where the type of an agent depends on his initial endowment of a particular good. All agents share the same preference over the goods available in the economy and each agent wants to maximize his expected utility, with a common discount factor of  $\beta \in (0,1)$ .

The benchmark economy consists of a standard infinite horizon general equilibrium endowment economy. This economy has a unique competitive equilibrium that induces a Pareto optimal allocation (henceforth denoted as frictionless Pareto optimal allocation) against which the allocations obtained in the presence of frictions are compared. Frictions in the exchange process are added to the benchmark set up as follows. It is assumed that each period has two sub-periods and that, in every period, each agent is randomly required to either (i) sell in the first sub-period and then buy in the second sub-period, or (ii) buy in the first sub-period and then sell in the second sub-period. It is also assumed that agents are anonymous. Together, these assumptions imply that agents need an instrument to mediate their transactions. The article considers two possible instruments, fiat money and default free intermediaries; and analyze each of these instruments separately. Its main results are as follows. First, in the presence of fiat money, the frictionless Pareto optimal allocation cannot be achieved. However, this result can be overturned as long as there is a government able to implement a taxation scheme that conditions on an agent's endowment. Second, in the presence of default-free intermediaries, the frictionless Pareto optimal allocation can be achieved, as long as agents are sufficiently patient and the credit limit on agents does not bind.

#### Main comments

This is a clear and well-written article that deals with an interesting issue, i.e., the role of financial intermediaries in the exchange process. In particular, it explores how the presence of default free intermediaries can induce a higher welfare than the one obtained with the use of fiat money.

The main result of the paper relies upon the existence of a completely default-free intermediation scheme. The author claims that this ideal world can be a starting point for the analysis of more “realistic” modes of financial intermediation, in the same way as the competitive model is a starting point for the analysis of more “realistic” market structures. I think that this claim is rather ambitious and deserves some justification. First, as the author points out, this is not the first model that builds on an extreme form of intermediation to induce optimal allocations. Cavalcanti and Wallace (1999), for example, consider an economy where banks issue liabilities that circulate as a medium of exchange and show that this mechanism induces a higher welfare than the use of fiat money. For this reason, the author needs to be more upfront regarding the differences and advantages of her approach, so that one can seriously take her claim as a possibility. Second, the competitive model has proved itself to be quite robust to small modifications

of its set up. A similar robustness should be expected of the model presented in this article. I understand that this is not an easy task. However, the author should at least make some discussion of how robust she expects her model to be, given that is a highly stylized one. This discussion can actually motivate the creation of a section with the conclusion of the article. In its current form, the article has no such section.

As discussed above, the article presents two main results. First, it shows that fiat money cannot obtain a frictionless Pareto optimal allocation. The reason is that, in the absence of efficient and sophisticated taxation schemes across agents, the cash-in-advance problem leads to either (i) a shortage of liquidity, which happens when an agent becomes a buyer and does not have enough money to spend; (ii) an excess of liquidity, which happens when the government tries to mitigate the liquidity problem by injecting more money in the economy. As the author points out, this result is not completely new. It has been proved before in various settings. However, an advantage of the set up in this article is that it delivers this result in quite a natural and simple way.

The second main result is that a default-free intermediation scheme can implement the frictionless Pareto optimal allocation. The intuition is as follows: sellers will clearly accept payments that are guaranteed by a default-free intermediation, exactly because this intermediation is default-free. Moreover, as long as this intermediation always provides liquidity to the agents that are in need of it, it precludes the liquidity problem. The only problem with this scheme is that the intermediary must have a way to guarantee that it is going to be paid. This is a key problem that directly affects the reliability of the intermediary. The author acknowledges this fact and deals with it. Precisely, it is assumed that the default-free intermediary is able to observe the past history of the agents and is able to completely ostracize an agent that behaves badly. Together, these abilities guarantee that an agent will never default. As the author points out, Cavalcanti and Wallace (1999a,b) adopt a solution similar to the one proposed. Again, an advantage of this article is that it delivers this message in a simpler framework.

## Recommendation

This is an interesting paper. It is well written and has a clear message, i.e., the presence of a default-free intermediary can solve the liquidity problem usually posed by money, and induce a welfare enhancing allocation. The drawback of the article is that, when considered in a broader class of models, these results are not completely striking. However, a relevant advantage of the framework proposed is that it is quite natural and simple and, in this sense, it can indeed work as a benchmark against which new progress can be made. Therefore, I encourage a revision and resubmission of the paper that takes into account the points mentioned in this report. In particular, the author needs to make a more clear assessment of the differences between hers and previous work on the field, particularly the work of Cavalcanti and Wallace (1999a,b). Moreover, it is necessary to have a more clear discussion of the robustness of the model. This discussion can come in the conclusion of the paper.

## Minor Comments

- Abstract: I suggest the following modification to the text: “We consider an environment where the general equilibrium assumption that every agent buys and sells simultaneously is relaxed. We show that fiat money can implement a Pareto optimum allocation only if taxes are type-specific...” I would also drop the last phrase of the abstract.
- Page 1, third paragraph: I suggest the following modification to the text: “The assumption that....This assumption can be motivated....choose not to default in equilibrium. Clearly, we take this assumption as a starting point and recognize that a full understanding....study of the effects of relaxing this assumption.. We leave this to future work.
- Page 1, fourth paragraph: Replace the line that starts with “introducing this simple friction....”, with “This friction implies that each consumer will with probability onehalf....”
- Page 1: drop footnote 1.
- Page 2, 15<sup>th</sup> line: “transferring”
- Page 4, first paragraph: “This section makes an argument that runs parallel to the one made in a standard cash-in-advance economy in Sissoko (2007)....”
- Page 4, third paragraph, last line: It should be  $(1/nk)(1/2)_t$
- Page 5, third paragraph, first line: “...this model and the cash-in-advance models....”
- Page 5, Formula 6: I did not understand why the summation on the right hand side does not include j’. What happens if the agent wants to buy more than what he has as endowment?
- Page 7, line 6; and page 9, line 5: Replace Sissoko (forthcoming) with Sissoko (2007).