

A Two-Sided Auction for Legacy Loans

By Lawrence M. Ausubel and Peter Cramton

University of Maryland

25 March 2009

On Monday, 23 March 2009, Treasury Secretary Geithner presented the Public-Private Investment Program as a key instrument to resolve the financial crisis.¹ The stock markets reacted with enthusiasm, closing up 7% for the day. Although the description was much more detailed than the initial announcement on 10 February 2009, the Treasury's description still leaves many issues unanswered. The part that we flesh out here is the auction design for legacy loans. The Treasury description suggests something that looks more like an RFP process. The banks nominate pools of qualifying legacy loans that they wish to sell. Pre-qualified private investors submit bids for the various pools. The FDIC receives the bids and selects the winning bid for each pool. The bank then either accepts or rejects the selected bid.

The described auction process leaves some issues open. In particular, it does not adequately address the informational asymmetry between the private investors and the bank. Observe that the bank, as the originator of the loans, possesses additional information, such as how carefully the loan applications were checked, that will not be reflected in the due diligence materials provided to potential investors. It will also have extra information from servicing the loans and from providing other banking services to some borrowers. A second issue not adequately addressed is how the government will allocate its limited resources. If the terms of trade prove attractive, then loan pools will be transacted presumably until the TARP funds are exhausted. The plan does not describe how the government's cost will be managed, nor does it describe a market-based process for deciding which loan pools should transact.

The reverse auction that we previously outlined (Ausubel and Cramton 2008a,b) addressed these open issues by requiring the banks to compete for the Treasury cash. Fortunately, it is possible to retain the benefits of bank competition in a reverse auction, while still getting the benefits of investor competition in a forward auction. The insight to recognize is that we need active participation in the auction by both the private investors and the banks. In short, a two-sided auction is required.

There are many ways to structure a two-sided auction. Here we outline an auction design that tracks closely and builds upon the Treasury's description while utilizing components that are simple and well-tested. We believe such an auction would be effective in this setting and could be implemented quickly. Our approach emphasizes transparency and value to the taxpayer.

The legacy loan auction is a vehicle to remove legacy loans from banks so that the banks' remaining balance sheets have a readily-assessable value, enabling investors and counterparties to be confident that solvent banks are indeed solvent. To harness the power of private investor decision-making, the purchase decisions and subsequent asset management are made by private investors. Most of the money comes from the government in the form of equity and debt. Our approach includes a mechanism for providing the FDIC some additional compensation for bearing much of the downside risk through its debt investment.

¹ See www.financialstability.gov.

The legacy loan auction

Bank nomination. Each bank nominates one or more pools of legacy loans. For each loan in a pool, the bank provides the loan characteristics, including location, payment history, and other relevant due-diligence information. Alternatively, the bank may nominate loans, which the FDIC then aggregates into one or more pools.

Starting prices. Each pool is given a starting price by an independent third-party. The starting price is based upon the third-party's best estimate of the current value of the pool as a percentage of the face value, that is, "cents-on-the-dollar." For example, the starting prices may be 75% of the third-party's best estimate of value, so a pool valued at \$0.40 would have a starting price of \$0.30 and a pool valued at \$0.80 would have a starting price of \$0.60. The starting prices are determined from all the observable characteristics of each loan in the pool. These starting prices are only used as a method to start the bidding. The buy price for each pool will be determined in the auction.

Forward auction. A price is determined for each loan pool in a transparent and competitive auction. The private investors compete to buy pools of legacy loans. Related pools are auctioned at the same time in a simultaneous ascending clock auction. For each pool, there is a "price clock," indicating the tentative price of each pool in cents on the dollar. Bidders (the private investors) indicate the pools they wish to purchase at the current prices. A bidder submits an exit bid between the prior price and the current price for any pool the bidder decides to drop. The price is incremented for each pool desired by more than one investor, and investors again indicate their desired pools. This process repeats until no pool receives more than one bid. The outcome is a buy price for each pool equal to the highest rejected bid. If the pool is selected for trade in the reverse auction, the public-private investment fund pays the buy price.

Purchase budget. Following the forward auction, the FDIC decides on the purchase budget. For example, suppose that the total offer in the forward auction, summing price times quantity across all pools, was \$125 billion. The FDIC may set a purchase budget of 80% of that figure, or \$100 billion. It remains to determine how the \$100 billion will be allocated. This final step is done via the reverse auction.

Reverse auction. Final prices to be paid to banks are determined in a transparent and competitive process. The banks compete to sell their pools of legacy loans in a reverse auction. There is a single "price clock," indicating the tentative price of the pool, as a percentage of the buy price established in the forward auction. The price starts at 100%. The banks indicate the pools they wish to sell at the current price. The price is decremented if there is excess supply; that is, the total offered for sale exceeds the purchase budget. Then the banks again indicate the pools they wish to sell at the lower price. This process repeats until supply equals demand—the pools offered for sale equal the budget. The tentative price and assignments then become final. As an example, if the reverse auction clears at 95% of the buy price and the buy price for the particular pool is 65 cents on the dollar, then the bank offering the pool is paid the sell price of $95\% \times \$0.65$ for every dollar of face value. Since the public-private investment fund pays the higher buy price (\$0.65) of the forward auction, this leaves the difference of $5\% \times \$0.65$. The difference is retained by the government, to clear the market on both sides and to compensate in part for the government's larger share of downside risk through its debt guarantee.

Advantages of the legacy loan auction

The legacy loan auction as presented above has several important advantages.

- *Broad participation on the demand side.* Demand consists of both public and private capital. Moreover, the private capital is not restricted in any way. This maximizes the money available

to purchase the troubled assets and enhances competition, assuring the banks that they will receive the market price for assets sold.

- *Mitigates adverse selection.* The approach mitigates adverse selection through the use of competitive dynamic auctions on both the buy side (the forward auction) and the sell side (the reverse auction). Mitigating adverse selection—the problem of buying more of loans that are overpriced—protects both the taxpayer and the private investors in the fund. Importantly, starting prices play the limited role of initiating the bidding in the forward auction.
- *Transparent price determination.* Pools are purchased in a transparent and competitive auction process. The auction is two-sided, incorporating the bids of private investors and asks of banks to determine all trades and prices. This price determination will create immediate liquidity for the banks, and push auction prices up from fire-sale prices to market prices that better reflect the hold-to-maturity value of the pools. The competitive, rule-based process also avoids discretion. This reduces lobbying, favoritism, and corruption in the process.
- *Private management of purchased assets.* Since the government remains a passive shareholder of each pool, the fund will rely on private-sector management of the purchased assets with the oversight of the government.
- *Readily implemented.* All of the elements of the legacy loan auction are standard and well-understood. The reverse auction has already been studied by the Treasury. It was experimentally tested in the fall (Ausubel et al. 2008). Both the forward and reverse clock auctions are commonly used in practice in high-stake auctions for assets valued in billions.

References for further reading

- Ausubel, Lawrence M. and Peter Cramton (2008a), "[A Troubled Asset Reverse Auction,](http://www.cramton.umd.edu/auction-papers.htm)" Working Paper, University of Maryland. www.cramton.umd.edu/auction-papers.htm, October 2008.
- Ausubel, Lawrence M. and Peter Cramton (2008b), "Auction Design Critical for Rescue Plan," *The Economists' Voice*, 5:5, www.bepress.com/ev/vol5/iss5/art5, September 2008.
- Ausubel, Lawrence M. and Peter Cramton (2009a), "No Substitute for the 'P'-Word in Financial Rescue," *The Economists' Voice*, 6:2, <http://www.bepress.com/ev/vol6/iss2/art2>, February 2009.
- Ausubel, Lawrence M. and Peter Cramton (2009b), "Making Sense of the Aggregator Bank," *The Economists' Voice*, 6:3, www.bepress.com/ev/vol6/iss3/art2, February 2009.
- Ausubel, Lawrence M., Peter Cramton, Emel Filiz-Ozbay, Nathaniel Higgins, Erkut Ozbay, and Andrew Stocking (2008), "[Common-Value Auctions with Liquidity Needs: An Experimental Test of a Troubled Assets Reverse Auction,](http://www.cramton.umd.edu/auction-papers.htm)" Working Paper, University of Maryland. www.cramton.umd.edu/auction-papers.htm. (Performing a test of the reverse auction methodology described above).