

# CRA Insights: Credit Crisis

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## In this issue

Under the Troubled Asset Relief Program, the Treasury plans to use reverse auctions to purchase troubled assets and restore liquidity.

Challenges arise from the complexity and diversity of the distressed assets, and the risk that only the worst of these assets may be purchased. This article discusses factors the Treasury and its auction manager need to consider in designing the auction, as well as steps bidders need to take to prepare to participate.

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## Treasury's reverse auctions: Much is at stake

TARP, the troubled asset relief program to address the credit crisis, will have major ramifications in the US and world economies for years to come. The plan relies on market mechanisms to purchase troubled mortgage-related assets from current holders and sell them after the market recovers. A key market mechanism in the plan is a reverse auction format in which the US government will be the buyer, and holders of troubled assets will bid to sell their assets to the government. The intent is to restore liquidity in the marketplace and minimize any potential negative impact on taxpayers.

There is a great deal at stake. If the auctions are not designed and conducted properly, they could do more harm than good. If participants in the auctions are not well-versed in these types of auctions, and well-prepared to participate in them, there will be, at best, significant lost opportunity.

What challenges lie ahead?

### Restoring liquidity requires distinguishing assets

Defining which market to target for restoring liquidity is vital to achieving the objectives of the plan. If a range of assets is bid into a reverse auction by current holders of the assets without distinguishing (and pricing accordingly) differences among them (year of origination, maturity, coupon, likelihood of loan repayment, etc.), then only the worst of the troubled assets will be purchased. And if all winning bidders are paid the same clearing price — i.e., uniform pricing is used — without distinguishing the assets appropriately, all “winning” assets selected will be paid the same price, so that the worst assets will earn inframarginal profit. This is counter to the objective of promoting liquidity in the more desirable troubled assets.

### Addressing pricing uncertainty

Some time after the Treasury purchases troubled assets, it intends to re-sell the assets when the housing sector and the economy have recovered to a “normal” state. For now, there is no functioning market to reveal a “normal” price for the troubled assets. The hope is that the reverse auctions will jump-start the market and that as the purchases of the troubled assets restore liquidity in the marketplace, the market will start functioning.

Uncertainty about the prices at which the Treasury will be able to re-sell the troubled assets at a future date introduces the potential for a negative impact on taxpayers, in that the Treasury might purchase the assets at a price that is substantially higher than what it can recoup from the re-sale of the assets when the economy recovers at a future date.

## How CRA can help bidders

- Analyze the proposed auction to identify how bidders might be able to influence the process and design
- Analyze the selected auction process to help determine how bidders can best position themselves and participate
- Assess troubled assets to determine how they fit into the rest of a bidder's portfolio in the context of the auction
- Assess competitors' positions, valuations, and likely strategies
- Develop bidding strategies and tactics that best meet the bidder's needs and objectives
- Customize tools that make it easier to participate in an auction and to refine bidding strategies as the auction process unfolds
- Advise on logistics – determining who the bidding team is, assigning responsibilities, developing the infrastructure, and setting up the war room facilities
- Develop and participate in mock auctions so clients can gain invaluable practice and experience
- Provide real-time support to monitor and interpret the auction to refine and recommend bidding strategies and tactics

On the other side of the transaction, the uncertainty in “normal” market value means bidders might end up selling their assets at the auction at prices below the price in a recovered market. This effect could be important for bidders without an immediate need for the proceeds from their sale of troubled assets in the auction. It might discourage them from bidding in the auction to the extent they believe they forego the option of a higher price (relative to the auction price) in the recovered market.

## Balancing auction design and implementation issues

There is no one auction process that is appropriate for all markets and all situations. But a successful auction requires sufficient interest, appropriate design, effective bidding rules, and careful preparation and implementation.

To determine the best auction design for a particular situation, a number of key factors must be considered: the intended objectives, the types of assets or products being bought and sold, and the characteristics of the likely participants. Which of these factors are pertinent in the current context, and how can auctions be designed to address the idiosyncratic aspects of the troubled asset markets?

## Valuing diverse troubled assets

The key challenge in the current scenario is that many of the troubled assets are heterogeneous with nearly-unique attributes that affect their values. The value of a typical troubled asset is linked to expected future cash flows from a wide variety of loans (home loans, credit card loans, auto loans, etc.). As a result, loan-specific characteristics (origination year, fixed or adjustable rate, interest only, loan to value ratio, frequency of rate resets, level of documentation, etc.) and borrower-specific characteristics (FICO score, debt-to-income ratio, demographic characteristics, etc.) distinguish one troubled asset from another, giving rise to wide variations in their value.

One way of getting around this is for the Treasury to use some of its \$700B authorization to buy up troubled assets without regard for asset heterogeneity. But this would only enhance the downside risk for taxpayers, as sellers would likely dispose of their least valuable assets under such an arrangement. Thus, some standardization, pooling, or categorization across the assets is needed, regardless of whether a formal reverse auction or some other

mechanism is used. Pooling or standardization of the heterogeneous troubled assets could be based on loan and/or borrower-specific characteristics. But this is not straightforward (except for relatively straightforward assets like mortgage pass-throughs) because it would be extremely difficult to map back to the loans on which the more complex troubled assets are based.

Heterogeneous products raise key auction design issues that are distinct from the product design issue of collecting the vast variety of troubled assets into standardized pools. These are discussed next.

### **Quantity of troubled assets to be purchased cannot be fixed**

The outstanding amount of the wide variety assets of troubled assets is unknown to the Treasury. Therefore the portion of the \$700B to be spent on purchasing the troubled assets has to be allocated among the diverse assets so as to have a contestable auction in each class of asset – that is, supply by current holders needs to exceed the quantity that the Treasury agrees to purchase subject to Treasury's spending limit.

One way of addressing this is to let the auction design determine the quantity to be purchased through a two-sided auction, where participants can determine whether they want to buy or sell or both. In the proposed one-sided reverse auctions in the TARP bill, the Treasury is the only buyer. In two-sided auctions, other financial institutions including sovereign wealth funds could participate as buyers of the troubled assets.

### **Bid selection criteria are non-unique**

Even when quantity purchased has been determined so as to make TARP auctions contestable, heterogeneous products raise an additional key auction design issue. Bidders need to know that their bids will be evaluated according to bid selection criteria common to all bidders. Otherwise, effectively there will be individual one-on-one negotiation, which is neither practical nor consistent with the objectives of timeliness and transparency that underlies the TARP. In the TARP auctions, there will need to be several schemes to select winning bids.

One approach is for the auctioneer to establish a fixed "quantity" of assets that it will purchase and a reservation price (the price above which the buyer will not buy), and select winning bids based on the lowest bid prices that do

not exceed the reservation price. Alternatively, the auctioneer could establish a class of assets (for example, the year of origination of the underlying loans) for which it will purchase a fixed quantity, but leave it up to the auction to determine how much of each type of asset in the class to purchase, based on price relationships among the assets established by the auctioneer. This would effectively allow the auction to determine the mix of winning bids within the asset class. This bid selection criterion was used in auctions to buy back US Treasury securities during 2000-2002. The list of bonds that the Treasury intended to buy back along with the total amount to be purchased was announced by the US Treasury, leaving the bidders to determine the mix of winning bids.

### **The "winner's curse" needs to be mitigated**

The troubled assets have a strong common value component in that their value is tied to general economic conditions, interest rates, and conditions in real estate markets in particular – which are uncertain and yet common to all participants. Of course there is a private value component, too, to the extent the heterogeneity of the assets provides uncorrelated value. But common value gives rise to the "winner's curse" problem, and this needs to be addressed in auction design. In a reverse auction, winning bidders will be those who bid the lowest prices, which risks offering prices that are too low. Bidders take this winner's curse into account by bidding prices higher than they would without having to worry about the winner's curse problem. Auctions can be designed to address the winner's curse so that bidders do not need to bid artificially high prices.

One way to mitigate the winner's curse is to use uniform pricing (all winning bidders receive the same clearing price) rather than paid-your-bid pricing (each winning bidder receives the price it bid) in order to encourage sellers to bid their true valuations. This argument formed the basis for a switch to uniform price auctions for US treasuries in the 1990s.

Another way is to conduct multiple rounds of bidding. The winner's curse would be mitigated via the price discovery that takes place at the end of each round from the release of information about other bidders' valuations.

Yet another alternative to mitigate the common risk that both the buyer and sellers face is to use contingent pricing whereby the taxpayers/Treasury and the sellers split the difference between the auction price and the resale price of the asset. The auction price could differ from the “normal” price at which assets will be sold in the future when the market recovers.

### The process must account for the related values of assets

The assets should be auctioned at the same time to the extent possible, rather than individually, one by one. This is because they clearly are related in value: some assets are substitutes and some assets are complements. Bidders would be able to price-arbitrage among substitutable assets and to pursue selling packages of complementary assets, leading to greater value realized and lower prices paid. Simultaneously auctioning the assets would provide a more effective price discovery process, less risk, and more accurate market valuations.

### The differences in bidders must be addressed

The number of bidders (sellers) is not a problem, but asymmetry among them poses a challenge. Asymmetry arises from differing prepayment probabilities of securities they hold, and different abilities to map loan information into a price (asymmetries in bid preparation costs).

For auctioneers, one way of handling informational asymmetries could be to distinguish between competitive and non-competitive bids, and allow only the less sophisticated bidders like thrifts to bid non-competitively. Non-competitive bids are allotted in full (the Treasury buys all the troubled assets) at the market clearing price in the competitive part of the auction. This is a common format to sell or buy back Treasury securities across the globe. Some flexibility will be needed as the bidding process reveals valuations from other bidders. Understanding the bidding process and auction rules, and the opportunities they present, will be critical for each bidder.

### The stakes are high

The auction design and process need to take into account the factors above. Otherwise the reverse auctions in the TARP may not achieve the goals of establishing liquidity and confidence and minimizing any negative impact on taxpayers. The government’s credibility will be damaged,

and uncertainty and risk may increase, causing more harm than good. Bidders need to be prepared in establishing valuations and in understanding the auction process and the opportunities it presents.

*CRA International advises clients on auction and market design, implementation, participation, valuations, competitor assessments, bidder support and strategy, software and electronic trading platforms, regulatory and litigation support, and more. We have provided these services to clients in various industries, including financial markets, commodities, energy and environment, telecommunications, transportation, natural resources, aerospace & defense, and health care.*

### How CRA can help auctioneers

- Consider alternative auction designs and determine the optimal format
- Develop detailed bidding rules that are clear and unambiguous
- Maximize the level of participation in the auction process
- Advise on developing bidder-qualification criteria
- Assist in developing the auction documents
- Customize the bidding platform and software to implement the auction design and bidding rules
- Assist in educating and training participants, and conducting mock auctions
- Assist in conducting the auction and managing the platform
- Provide post-auction assessment and recommendations for refinements going forward

## Credit Crisis Task Force

The full magnitude and impact of the current economic crisis are not yet known. But undoubtedly, the effects on both financial institutions and global business will be profound and lasting. To provide insight into the complex issues raised by the current crisis, CRA has formed a multi-disciplinary Credit Crisis Task Force. We have the expertise to help you both understand the issues and advise you on how best to address them.

## CRA International

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Founded in 1965, CRA has headquarters in Boston and 26 offices across North America, Europe, Asia Pacific, and the Middle East.

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