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High Bids and Low Recovery: A Possible Case for Non-Performing Loan Auctions in India

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Abstract

This paper considers the possibility that the prices bid by asset reconstruction companies in India under a security receipt mechanism may not reflect the ultimate recoverable value of nonperforming loans. The paper establishes, using a model and simulations, that the price bid by asset reconstruction companies will reveal their own rational interest and can significantly exceed the recoverable value. The conclusions arrived in this paper raise concerns regarding the use of bids as an indicator of fair value on bank's financial statements. The paper offers certain recommendations to mitigate the impact of an erroneous auction design.

I. Introduction

The nonperforming loans (“NPLs”) on the balance sheet of Indian banks have increased significantly in the last few years, primarily owing to an intervention by Reserve Bank of India (“RBI”) forcing banks to recognise the problem rather than relying upon unviable restructuring and other mechanisms to delay the recognition (Pandey, 2016). Definition of an NPL varies across countries and there is no single definition *per se* to accommodate country-specific differences. International Monetary Fund (2005) defines a loan as nonperforming “when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons — such as a debtor filing for bankruptcy—to doubt that payments will be made in full”. RBI (2015) follows a definition similar to International Monetary Fund and requires banks to classify an asset as nonperforming if a loan’s principal or interest payment remains overdue for a period of 90 days¹. The use of Asset Management Companies (“AMCs”), organizations established with the specific purpose of either disposing NPLs transferred from banks or restructuring such NPLs, is one of the standard approaches to the resolution of banking crisis (Mako, 2001; Haley, 2000; Campbel, 2007; Classens et al, 1999; Caprio and Klingebiel, 1999; Kane, 1989 and 1999; Woo, 2000). Bank of International Settlement (2002) defines AMCs as “special purpose company set up by a government, a bank, or by private investors to acquire loans and other assets, a majority of which are impaired, for subsequent management (including restructuring) and in many cases, sale to investors.” Hryckiewicz (2014) cites intervention of AMCs in 62 instances in 25 countries. AMCs help stressed banks by addressing their stock problems (quantity of NPLs on balance sheets) and thereby improving regulatory capital and solvency outlook. In situations where AMCs relieve banks from NPL burden, banks are in a position to focus on improving flow measures (profitability,

credit disbursement amongst others) for continued viability (Klingebiel, 2000; Dziobek and Pazarbasioglu, 1997). There also exists a possibility of a principal-agent conflict and misalignment of incentives between Banks and AMCs in certain situations requiring careful monitoring and timely intervention (Kane, 1990; Klingebiel, 2000; Ingves et al, 2004; Terada-Hagivara and Pasadilla, 2004; Woo, 2000). Indian banks have also relied on AMCs (or ARCs as they are referred in Indiaⁱⁱ) to tackle growing NPL problem (Narang and Kaveri, 2016). Banks in India are allowed to sell NPLs to ARCs using a ‘security receipt mechanism’ where ARCs pay a small, upfront payment and the remainder amount is paid in form of security receipts (“SRs”). The paper demonstrates, using a model and a simulation, that the price bid by ARCs for NPLs under a security receipt mechanism may or may not reflect the ultimate recoverable value from the disposition of such NPLs. The paper also establishes that the price bid by ARCs will reveal their own rational interest and may not be aligned with the Bank’s recoverable value. Importantly, this paper illustrates multiple scenarios where bids made by ARCs in a rational setting can significantly exceed the recoverable loan value. This paper determines that the ARC’s entry value bears a limited relationship to seller’s exit value in many instances and therefore ARC bid cannot construe fair value of NPLs in isolation. The conclusions arrived in this paper raise concerns regarding the real financial strength and potential losses for Indian banks that have frequently used the sale of NPLs to ARCs to establish fair value. They also offer guidance to banks and regulators towards an effective auction mechanism design that can mitigate conflicts and align incentives between banks and AMCs. Rest of this paper is structured as follows. Section 2 explains the security receipt mechanism used by banks in NPL sales and introduces theoretical underpinnings of a ‘first price, sealed bid, contingent payment’ auction technique that bears similarities to security receipt mechanism. Section 3 reviews existing literature regarding objectives of ARCs, possible conflicts of interest between banks and ARCs, and

use of fair market value (FMV) approach in financial statements. In section 4, using a combination of model and simulation, I highlight the fallacy that auction of NPLs by Indian banks is an effective risk transfer mechanism that maximises seller utility and establishes fair market value of NPLs. Section 5 concludes this paper with a discussion of results and their implications for Indian banking economy.

II. Security Receipt Mechanism

Banks in India routinely sell NPLs to a trust floated by ARCs using a sealed bid, first price auction and purchase Pass Through Certificates (referred as Security Receipts (SRs)) underlying such trust. Figure 1 explains the transaction structure for an NPL sale under a security receipt mechanism.

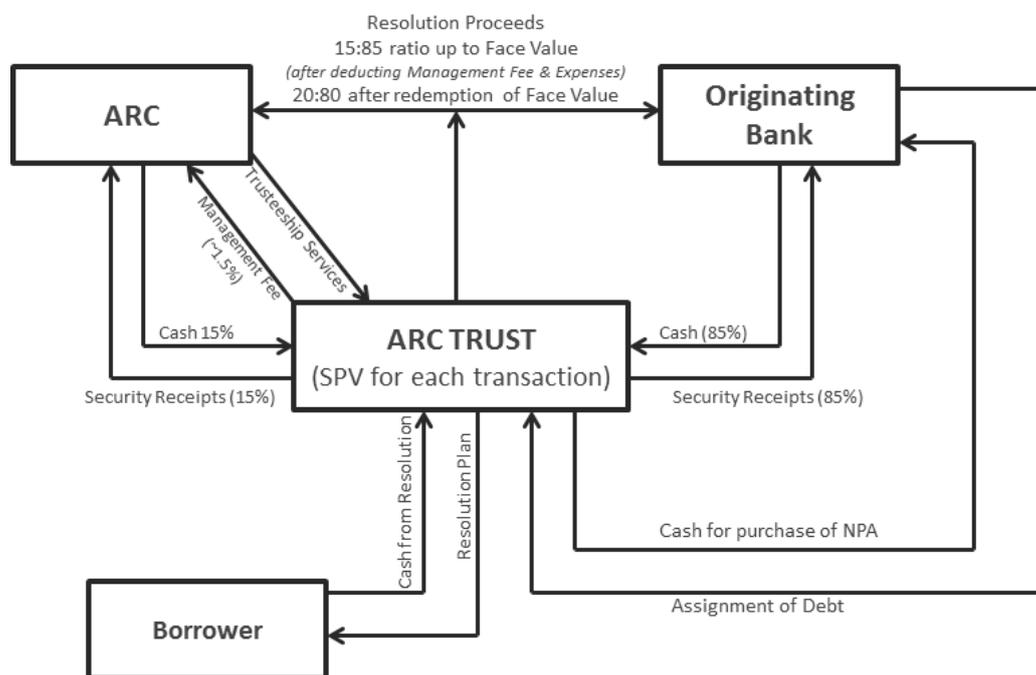


Figure 1: Transaction Structure for a typical Security Receipt Mechanism Auction

The proportion of SRs purchased by banks has been as high as 95 percentage of sale value in the past. RBI guidelines as of date restrict bank's maximum participation to 85 percentage of sale value and 15 percentage of SRs have to be mandatorily retained by ARC. These SRs are

classified as non-statutory liquidity ratio investments on the books of subscribing banks. The recovery for Banks on the SRs is entirely contingent upon the recovery made by ARC on the underlying NPLs resulting in a possibility that bank may have an impairment on its investment in SRs at a later date. In effect, the bank retains up to 95% of the risk on assets sold to ARCs and only *de minimis* risk is effectively transferred. Accounting policies for Indian banks regarding the sale of NPLs combined with loss aversion tendency may be motivations for this ineffectual risk transfer (Kahneman and Tversky, 1979; Levy, 1992).

Auctions represent an antithesis of perfect competition – competition is existent only on the one side of the marketplace. Buyers (or sellers in a procurement auction) compete for goods (or service contracts) available in a limited quantity that are usually sold by a monopolistic or a monopsonistic party on the other side. There exist multiple forms of auctions; almost all of these auctions are variations of the rule applied to two key types of auction – First Price Sealed Bid Auction and Second Price Sealed Auction. In a First Price Sealed Bid Auction (which is strategically equivalent to a Dutch Auctionⁱⁱⁱ), buyers submit sealed bids and the bidder with the highest bid is awarded the item at his bid value (Vickrey, 1961). In a Second Price Sealed Bid Auction (which is strategically equivalent to an English Auction^{iv}), buyers submit sealed bids and the bidder with the highest bid is awarded the item at the second highest bid value. The auction mechanism used by Indian banks is a first price, sealed bid auction with two payment streams – Payment 1 with certainty at the time of winning the bid (which is equivalent to the ARC's participation interest) and Payment 2 in a form of debt security whose redemption is contingent upon the amount of overall recovery. Auctions with contingent payments were first analysed by Hansen (1985) where he showed that the second price auctions with contingent payment generate higher bid as compared to the second price cash auctions. Riley (1988) showed that the results of Hansen hold valid for the first price

auctions. DeMarzo et al (2005) analysed various forms of securities constituting contingent payment and held that higher utility of contingent payment auction mechanism is generalizable across a class of securities and auction types. Additional literature on non-cash auctions exists in the field of bankruptcy and corporate reorganisation (Aghion et al, 1992) and privatisation (Bolton and Roland, 1992).

Auctions with contingent payments create a valuation problem as a seller is forced to select the highest bid but the value of the bid itself is not known fully to the seller due to an attached contingency. For example, in an NPL sale where the seller receives a debt security of the underlying trust as a part of total payment, the value of such debt security is unknown until the debt is completely resolved either by restructuring or by disposition. Auctions with contingent payments, therefore, involve a signalling aspect where the bidder wants the seller to believe that he has the highest bid (Rhodes-Kropf and Viswanathan, 2000). While this signalling phenomenon does increase the bid amount, it may not increase the seller's expected revenue if contingencies evolve along an unfavourable dimension. Further, in situations where upfront investment by the bidder is low and the bidder is compensated for his efforts by Seller, auctions designed with contingent payment create misaligned objectives. Rhodes-Kropf and Viswanathan (2000) demonstrate this outcome in corporate bankruptcy situations where bankruptcy costs are small and the contingent bid is in the form of debt security. In these cases, the bids will be extremely high rendering *ex post* bankruptcy a virtual certainty and the seller may eventually end up repossessing the assets sold. Samuelson (1987) similarly shows the possibility of high bids that appropriate almost the entire surplus for the seller's benefit and consequently may result in an adverse selection and a principal-agent problem. This outcome has also been empirically observed in the case of spectrum sale in the United States (Cramton, 1997). The possibility of high bids exceeding true intrinsic value is

evaluated in the current setting, the case of NPL auctions by Indian banks to ARCs, as the first enquiry in this paper.

III. Existing Literature on objectives of AMCs, conflicts and fair market value

AMCs help stressed banks by addressing their stock problems (quantity of NPLs on balance sheet) and thereby improving regulatory capital and solvency outlook. In situations where AMCs relieve banks from NPL burden, banks are in a position to focus on improving flow measures (profitability, credit disbursement amongst others) for continued viability (Klingebiel, 2000; Dziobek and Pazarbasioglu, 1997). Woo (2000) identified facilitation of financial restructuring, high rate of recovery, speedy resolution and normalisation of capital markets as the objectives of a sound AMC. Osuji (2012) averred that effectiveness of AMCs is determined by issues of relief, restructuring, recovery, resuscitation, rehabilitation, responsibility, restitution and reoccurrence (RE-7 framework). Van-Suntum and Ilgman (2013) have identified three factors for an effective AMC solution– (a) transparent removal of toxic assets, (b) minimum costs to the public, and (c) curtailing moral hazard. Dziobek and Pazarbasioglu (1997) used six factors that capture the scale of financial intermediation, the efficiency of financial intermediation and the riskiness of *ex post* banking system to understand the impact of the intervention on bank's financial intermediation capacity. Klingebiel (2000) used success in sale or restructuring, crisis recurrence, resumption of real credit to private sector and growth of aggregate credit in real terms to evaluate the impact of AMC intervention. Hoshi and Kashyap (2010) used amount of asset purchase and recovery percentage to evaluate the effectiveness of AMCs in Japan.

Concerns that banks can use private AMCs for perverse reasons and not for the above mentioned objectives have been expressed in the literature. Klingebiel (2000) notes that

“They [private AMCs] can be used for window-dressing if assets are transferred at book value or above market value, i. e. not all losses are not taken at the bank level but some are effectively transferred to another entity.” Klingebiel (2000) also notes that large privately held centralised AMCs are rare – but in India, all AMCs as of date are private AMCs. Tanaka and Hoggarth (2006) suggest that in situations where there is no regulatory intervention, the management may take a gamble on the small chance that these loans may be recoverable. This practice is commonly known as a ‘gamble for resurrection’ (Baldursson and Portes, 2013; Campbell, 2007). Ingves *at al* (2004) highlight the inherent conflict of interest between AMC’s objectives of rapid resolution and its continued existence. Appropriate regulatory framework, high quality disclosures, and accounting regulations with strong monitoring and enforcement by the regulator, auditor, analysts and investors is a precondition before asset transfer to a private AMC or a spinoff of NPLs to a separately capitalised entity. To avoid an accounting chicanery, the assets should be transferred at their intrinsic economic value. But the valuation of NPLs is a difficult exercise with multiple uncertainties (Ingves and Lind, 1997). Since banks have an informational advantage over any ARC due to proximity with borrower affairs, banks may only transfer assets where the price agreed is above the intrinsic economic value (Van-Suntum and Ilgmann, 2013). In addition, it is possible that accounting standards regarding provisioning requirement inform bank behaviour. In such instances, banks will only transfer NPLs that attract a bid higher than the Net Book Value (“NBV”). A significant ownership interest of ARC in the transferred NPL will usually lead to situations where bids made by ARCs reflect the intrinsic economic value of NPL. The principal-agent conflict is completely eliminated when ARCs participation interest is hundred per cent (Samuelson, 1987). But in instances where ARC participation is not enough, and ARCs have an additional income stream besides participation in recovery proceeds, it is possible that a rational bid by ARC is in excess of true economic value. The

proposition that ARC bids can materially diverge from the true intrinsic value of NPLs, which is supported by both auction theory and AMC literature, constitutes the first enquiry in this research paper.

It is assumed by standard setters^v that the intrinsic economic value of an asset is captured adequately by the use of a fair-value accounting approach. The fair-value accounting approach reports assets and liabilities on the balance sheet at fair value on every reporting period and recognises the changes in fair value as gains and losses in the income statement^{vi} (Laux and Leuz, 2010). Financial Accounting Standard Bureau (2006) has published detailed guidelines for fair value accounting (FASB-157) and defines that “(f)air value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.” Indian Accounting Standard (AS 113) follows FASB definition verbatim. There is recognition by standard setters that market prices may not be available for various assets due to infrequent trading. AS 113 explicitly recognises this issue in its preamble by noting that “(w)hen a price for an identical asset or liability is not observable, an entity measures fair value using another valuation technique that maximises the use of relevant observable inputs and minimises the use of unobservable inputs.” It is also possible that market prices deviate from intrinsic values and therefore do not reflect an orderly transaction due to illiquidity or limits to arbitrage that ensure trading prices being equal to the intrinsic value (Shleifer and Vishny, 1992). In practice, the estimation of fair value typically uses a hierarchical approach. Market prices are considered as the best estimate of fair value if market conditions satisfy the quality criterion of fair value definition (Hitz, 2007). In situations where market prices do not have requisite quality or are unavailable, market prices of comparable instruments with a similar cash-flow are considered. As a last resort, prices are marked to an internally developed or publicly available

model. In the case of NPLs sold by Indian banks to ARCs, auction market is considered as an active market with necessary quality and the price paid for NPL by ARC winning the auction is considered as fair value. Banks adopt following accounting policy prescribed by RBI for NPLs sold to ARCs.

1. Once a bank sells its NPL to ARC, the NPL is removed from its books.
2. If the sale to ARC is at a price below the NBV (i.e., book value less provisions held), the shortfall is debited to the profit and loss account of that year. However, for assets sold on or after February 26, 2014, and up to March 31 2016, banks can spread such shortfall over a period of two years. For assets sold on or after 31st March, 2016 and up to March 31, 2017, banks can spread any shortfall over a period of four quarters. Banks can also use countercyclical / floating provisions for meeting any shortfall on the sale of NPLs.
3. Banks can reverse the excess provision on sale of NPLs, if the sale value is for a value higher than the carrying value, in the year the amounts are received. However, banks can reverse excess provision arising out of the sale of NPLs only when the cash received (by way of initial consideration and / or redemption of SRs) is higher than the NBV of the NPL.
4. When banks invest in the security receipts/ pass-through certificates issued by ARCs in respect of the NPLs sold by them, the sale shall be recognised in books of the banks at the lower of:
 - a. the redemption value of the SRs, and
 - b. the NBV of the NPL.

There is a debate in the extant literature regarding the use of fair value and its effects. The arguments against the use of fair value include dangers from marking to model rather than

marking to market, concerns about excess earnings volatility, and feedback effects that could harm business climate and perpetuate systemic risk of higher order (Penman, 2007). There is no specific literature available on the appropriateness of fair value derived by auction bids of private AMCs while transferring bank NPLs. Literature does exist to point that assets are transferred in some cases to public AMCs at a price higher than fair value to aid bank recapitalization (Fung *et al*, 2004). The scarcity of literature is possible due to the fact that private AMCs are rare and a determination of transfer price to a public AMC from government owned banks is often an accounting exercise with limited economic implications. However, the literature on the definition of fair value and its utility relies heavily on the concept of exit value under a perfect exchange – i.e. the seller's exit value is equivalent to buyer's entry value (Barth and Landsman, 1995). Our second enquiry in this paper will be to evaluate whether this proposition holds true for NPLs sold under security receipt mechanism.

IV. Model and Simulations

A. Model

Let us assume that a Bank has extended a loan with the following details and the loan has turned non-performing prior to sale to ARC.

Loan Unpaid Principal Balance = L;

Market Value of underlying collateral at the time of resolution = A;

Value at which loan is bid by ARC = Y;

Recovery Percentage^{vii} = Z;

Probability of effecting collateral sale = P;

Probability of any other resolutions = Nil;

Percentage of Securities Receipt retained by ARCs (Participation Rate) = B;

Discount Rate for ARC = r; and

Annual Management Fee paid as a fixed amount to ARC = M

Let us also assume that all recoveries happen in one single instance at time ‘t’ expressed in years; annual management fee due to ARC is paid at the time of resolution; there are zero ‘out of pocket’ recovery expenses incurred by the ARC; ARCs have other avenues of investment that offer a yield at least equal to ‘r’; ARCs do not have liquidity constraints; and that $Z^*A \leq L$

Lemma 1: The price bid by ARCs for NPLs under security mechanism route is inversely proportional to the ARCs participation interest.

NPV of ARC investment (“NPV_a”) can then be written as per equation below:

$$NPV_a = BPZAe^{-rt} + tMe^{-rt} - BY \quad (1)$$

An ARC will bid for assets in all instances where $NPV_a \geq 0$. Therefore, bid by ARC in the auction^{viii} will be driven by equation (2) below:

$$NPV_a = BPZAe^{-rt} + tMe^{-rt} - BY = 0 \quad (2)$$

Above equation can be simplified as equation (3) below:

$$Y = PZAe^{-rt} + tMe^{-rt} / B \quad (3)$$

Equation (3) above leads to two important conclusions regarding (i) the effect of minimum participation mandated for ARC on price bid by ARC and (ii) the possibility of irrational bidding by ARC. As the percentage of securities receipt retained by ARCs (‘B’) decreases, the price paid by ARC for the loan acquired under SR route (‘Y’) increases without a change in any other loan variable such as the recovery rate or the probability of disposition. In situations where B is equal to zero or close to zero (ARC has no or minimum stake in the loan sold by the bank), Y reaches either infinity or an extremely high value.

Corollary 1: The price bid by ARC for NPLs sold under security mechanism route is not always linked to the true intrinsic value of NPL.

Term 'PZA' in equation (3) represents the true intrinsic value of the NPL. And for $P=1$ and $ZA=L$, i.e. certainty that the underlying collateral can be disposed strictly at value equal to the unpaid principal balance of the loan, it can be shown that:

$$Y \text{ is greater than or equal to the true intrinsic value in all instances where } tM / (B * (e^{rt} - 1)) > L. \quad (4)$$

The result that the price paid for a non performing loan can be higher than the true intrinsic value of the loan itself if above condition is met, though seemingly counterintuitive has an easy explanation. An ARC with limited participation interest will find it rational to bid more than the recovery value of loan since it is able to compensate for the loss on its investment in security receipts from its earnings through management fee. This result also shows that the value bid by ARCs for acquiring an NPL under SR route will be dominated by ARC's economic rationale and not by the potential recovery value of the loan, eventually resulting in a conflict of interest and misaligned incentives.

Lemma 2: The price bid by ARC for NPLs sold under security mechanism route may not be equal to the price that the selling bank requires to ultimately recover the true intrinsic value.

The bid price Y_b that a bank should expect from ARC^{ix} when an NPL is sold under the security receipt mechanism to at least recover the true intrinsic value is derived as follows.

NPV of selling bank ("NPV_b") can then be written as equation (5) below

$$NPV_b = (1-B)*PZAe^{-rt} + BY_b - tMe^{-rt} - PZA^x \quad (5)$$

*For this NPV_b to exceed zero, $(1-B)*PZAe^{-rt} + BY_b$ should be greater than $tMe^{-rt} + PZA$.*

At equilibrium, loan price Y_b should be such that NPV_b is not negative and at least equal to zero.

Or $PZA = (1-B)*PZAe^{-rt} + B Y_b - tMe^{-rt}$, which can be expressed as

$$Y_b = PZA/B + tMe^{-rt}/B + PZA - PZA - (1-B)*PZAe^{-rt}/B$$

But we know from (3) earlier that $Y = tMe^{-rt}/B + PZA$, or

$$Y_b = PZA *(1-B)/B + Y - PZAe^{-rt} *(1-B)/B , or$$

$$Y_b - Y = PZA *(1-B)/B *(1 - e^{-rt}) \tag{6}$$

It can be shown that for all instances where $t>0$ and $r>0$, if there are real assets securing the loan with some recovery potential, Y_b is greater than Y .

B. Simulations

This subsection builds upon the findings from the model and illustrates various scenarios using simulations where above result - that the price bid by ARC can be higher than the intrinsic true value of the loan - holds true. Equations (3) and (6) were analysed using a range of values for the six input variables namely probability of disposition (P), recovery rate (Z), time to resolution (t), annual management fee (M), discount rate demanded by ARC (r) and participation rate of ARC (B). 18,750 scenarios were simulated using a unique combination of above variables and the simulation design is enclosed as table 1.

Table 1: Simulation design

	Collateral Value	Probability	Recovery Percentage	Year	Fee	Discount Rate	Participation Interest
	A	P	Z	T	M	R	B
Low	100	20%	20%	1	1	10%	5%
High	100	100%	100%	6	3	30%	25%
Step	0	20%	20%	1	0.5	5%	5%
Count of steps	0	5	5	6	5	5	5
Split	NA	1	5	25	150	750	3750

The key results from above scenario analysis are as follows:

1. ARCs will make a bid exceeding the true intrinsic value in 13,093 scenarios or in almost 70 per cent of cases.
2. ARCs, on an average, will bid twice the intrinsic value with the median value of bids at 1.33 and the mode at 1.92.

3. *The highest bid made by ARC is expected to be as high as 50 times the true intrinsic value of the loan. The summary statistics for estimated bids of ARC are attached as table 2.*

Table 2: Summary statistics for possible bids by ARC (Y)

Mean	2.07
Standard Error	0.02
Median	1.33
Mode	1.92
Standard Deviation	2.49
Sample Variance	6.20
Kurtosis	53.15
Skewness	5.64
Range	49.74
Count	18750.00
Largest(1)	49.94
Smallest(1)	0.20

4. *An evidence of overbidding by ARCs was found at all participation interest values (starting at 5% and ending at 25%) considered in the scenario analysis. The frequency of overbidding decreased with an increase in the Participation Interest in line with results of equation (4). Instances of overbidding stratified by participation interest are summarised in table 3.*

Table 3: Participation Interest and Bid Value

Participation Interest	Bid > Intrensic Value
5%	3536
10%	3013
15%	2529
20%	2157
25%	1858

We will select one extreme scenario and numerically discuss the rationality behind ARC bids in the excess of intrinsic value. In this scenario, the collateral value is 100, the probability of resolution is 20 per cent, the recovery rate is 20%, time till resolution is 6 years, annual management fee is 3, the discount rate is 10% and the participation interest is 5%. For these values of variables, ARC makes a bid (Y) of 200 as per the model and bank expects a bid

(Y_b) of 236 as per the model. It is critical to reemphasize that the intrinsic value of the asset is 4 ($100 \times 0.2 \times 0.2$) and the bid made by ARC is 200 or almost 50 times the intrinsic value. ARC makes a 5% upfront investment and therefore proposes to invest 10. ARC recognises that its recovery on investment will be only 0.2 (4×0.5) but is able to make this bid as it expects compensation of 18 (6×3) as the management fee. The receipt of 0.2 and 18, when adjusted for the time value at 10% discount rate and 6 years, results in time adjusted revenue of 10 for the ARC compensating it for the upfront investment.

If the selling bank is aware of *ex post* recovery rate and the probability of resolution assumptions of ARC, it should expect an even higher price of 236 to ultimately receive the true intrinsic value of 4. These results clearly illustrate the fallacy of relying upon ARC bid as the true intrinsic value of NPL. We will now analyse the impact of using ARC bid as an indicator of fair value by the selling bank. Let us assume that bank has extended a loan of 80 against the above collateral value of 100. We will consider two scenarios, one where the bank has made limited provisioning and other where the bank has made full provisioning.

Scenario 1: We will assume in this scenario that the bank has provisioned only 15% towards this NPL (NBV = 68). If ARC bids 200 for this NPL and makes an upfront investment of 10, bank will transfer the asset from its books at 68. The bank is able to defer the additional losses of 64 ($68 - 4$) to a later date (a date when either NAV of SR declines or SRs have to be compulsorily redeemed which is typically 6 years from the date of sale). The financial assets of the bank in this case are overstated by 64.

Scenario 2: We will assume in this scenario that the bank has already provisioned completely towards the NPL (NBV = 4). If ARC bids 200 for this NPL and makes an upfront investment of 10, the bank will transfer the asset from its books at 4. The bank is thus able to

book a profit of 6 on the day of sale. The income of the bank in this case is overstated by 6 in the reporting period.

V. Discussion and Conclusion

The paper demonstrates that the price bid by ARCs for NPLs under a security receipt mechanism may or may not reflect the ultimate recoverable value from the disposition of such acquired NPLs. We have established that the price bid by ARCs will reveal their own rational interest and may not be aligned with the Bank's ultimate realisable value. We have illustrated multiple situations where ARCs are economically incentivised to make bids that far exceed the fair value of NPLs. In these situations, earnings for ARCs are generated at the expense of public sector banks initially and taxpayers ultimately. This shortcoming in the auction mechanism design needs to be addressed by the banks and regulators. Some of the solutions to this avail will include (a) a floating ARC participation interest to be included as a core bid parameter along with the loan value, (b) mandating that the payment of management fee to ARC will be contingent upon achieving certain minimum recovery rate and (c) instituting punitive measures including revocation of license in case recovery on assets fall continuously below a certain threshold for an ARC.

This paper also determines that due to buyer's limited participation in the purchased assets and the contingent nature of bid payments, buyer's value bears a limited relationship to seller's exit value in certain instances. In such situations, use of fair value accounting on selling bank's financial statements can lead to a misrepresentation and an overstatement of asset values. Banks (along with regulators, standard setters and auditors) cannot rely solely upon ARC bids to establish fair value and need to corroborate bid values with their internal models to avoid misrepresentation on financial statements.

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ⁱ A detailed definition of NPL as per RBI is available in RBI master circular referenced in this paper.

ⁱⁱ Acronyms 'AMC' and 'ARC' have been used interchangeably throughout this paper.

ⁱⁱⁱ An auction type where the auctioneer starts with a high asking price that is reduced incrementally until a bidder is willing to accept the auctioneer's price.

^{iv} A typical, open-outcry, ascending auction.

^v Refers to various accounting regulatory bodies across the world that form the International Forum of Accounting Standard Setters.

^{vi} A direct contrast to fair value approach is an historical accounting approach where assets are marked to the historical purchase value.

^{vii} Recovery Percentage = Proceeds from Collateral Disposition / Market Value of collateral at the time of resolution

^{viii} Auction mechanism usually adopted by Banks selling assets to ARCs.

^{ix} Under assumption that ex post probability of resolution and recovery rate of Arc is known to the bank.

^x Assuming that probability of recovery is neither impacted positively nor negatively by the intervention of ARC.