Vanishing Gains to Trade in the Distressed Debt Market

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Abstract

In this paper, we build a theoretical model to analyze the gains to trade in the distressed debt market. In particular, we focus on two critical areas. First, we examine the range of Cash-Security Receipts ratios that allows the market to function. Second, we look at the relative return/ recoveries that need to be provided by the IBC and ARC-led processes in order for the market to be functional. Based on market data, we substitute values for the parameters to compute actual values for feasible ranges of Cash-Security Receipts ratios and returns on security receipts.

Key words: Asset Reconstruction Companies, Non-performing Assets, Insolvency and Bankruptcy Code, Debt Recovery.

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1. Introduction

The severity of the crisis in the Indian banking sector is best reflected in the fact that the level of NPAs in FY18 and FY19 is almost 3 times of the number in FY14. Banks are not only stifling the provision of credit but are also not able to effectively resolve or clean up their balance sheets to move forward. Credit growth is lower than trend and the cost of credit continues to remain high as reflected in the increasing spreads between banks' cost of funds and lending rates. Recovery mechanisms have been weak resulting in poor recovery of dues for banks. The spotlight has, thus, turned to Asset Reconstruction Companies (ARC) and their inability to absorb NPAs from banks. ARCs have been in existence since the promulgation of SARFESI Act in 2002. Albeit at a scale much below expectations, NPA sale transactions between banks and ARCs have taken place in the past to the extent that the ARCs have accumulated assets under management of approximately Rs 1 lakh crores (see Appendix 1 for details of market). However, there have been drastic regulatory changes in the recent past with the prescribed minimum cash investment in buying NPAs swinging from 5% to 90%. This has created the possibility of a major slowdown of activity in this market.

In this paper, we analyze the gains to trade in the distressed debt market (henceforth called the ARC market). In particular, we focus on two critical areas. First, we examine the range of Cash-Security Receipts ratios that allows the market to function. Second, we look at the relative return/ recoveries that need to be provided by the IBC and ARC-led processes in order for the market to be functional. To do so, we build a theoretical model which looks at the decision of banks to go for a self-initiated IBC process or to opt for the sale of NPAs to ARCs; and at the relevant parameter values that allow ARCs to get the desired return on their capital.

The rest of the paper is divided as follows: section 2 introduces our theoretical model and presents its results, section 3 discusses the results of our model and section 4 provides recommendations and concludes.

2. The Model

In this section, we explore the conditions required for viability of the market for distressed debt by examining the determinants of the decision of banks and ARCs to participate in the market.

Bank's decision

We assume that for a bank to sell NPAs to an ARC, the value it derives from the payouts under the IBC process should be lower than the payouts from the ARC. We use the following notation to model the bank's decision:

k: proportion of cash in NPA sale deal

C: deal value (this is the value at which the NPA is sold by the bank to the ARC and paid out with a combination of cash & SRs)

F_A*: sum of annual management fee to ARC*

S_I: $recovered\ value\ of\ the\ asset\ when\ the\ bank\ goes\ for\ IBC\ process$

S_A: $recovered\ value\ of\ the\ asset\ when\ the\ bank\ sells\ the\ NPA\ to\ ARC$

A bank would prefer to take the ARC route rather than the IBC if and only if:

$$S_I < kC + (1-k) * S_A - (1-k) * F_A$$

$$i.e.,\ k^* > \frac{(S_I - S_A + F_A)}{(C - S_A + F_A)} \qquad (1)$$

Note that S_I and S_A are functions of the expected payouts, and the time stamps of the payouts, under the IBC and ARC processes respectively, as well as of the discount rate, and the degree of risk aversion of the bank. We mask these underlying factors to focus on the cash-SR ratio as well as the gap between the returns accruing from the IBC and ARC processes required to allow the market to function.

Some preliminary observations can be made about the lower bound of k. If S_I and S_A , the returns from the IBC and the ARC are close to each other, then the lower bound can be approximated by $\frac{F_A}{(C - S_A + F_A)}$. This is strictly greater than 0 if and only if $C - S_A + F_A > 0$. If $C - S_A + F_A > 0, and\ S_A \geq C$, then $k \geq 1$, ie banks require a 100% cash deal.

Next, we take the partial first derivatives of k^* with respect to $S_I,\ S_A,\ F_A\ and\ C$ to evaluate if the direction of change is as expected.

$$\frac{dk^*}{dS_I} = \frac{1}{(C - S_A + F_A)} > 0, \quad \text{if } (C - S_A + F_A) > 0$$

Intuitively, this makes sense because as S_I increases, i.e. the returns from the IBC process, the share of cash demanded by the bank k^* should increase.

Similarly, we take the first derivative of k^* with respect to S_A and obtain the following:

$$\frac{dk^*}{dS_A} = \frac{-C}{(C-S_A+F_A)^2} < 0$$

This implies that as S_A increases, k^* should go down. Again, this makes sense because as the rate of recovery from the ARC route increases, banks should be willing to accept lower levels of cash in NPA sale deal.

Next, we take the first derivative of k^* with respect to C and obtain the following:

$$\frac{dk^*}{dC} = \frac{(S_A - F_A) - S_I}{(C-S_A+F_A)^2} < 0, \text{ if } (S_A - F_A) < S_I$$

The above implies that as long as the returns from ARC process net of the fee earned by the ARCs is less than the returns from the IBC process, banks should be willing to accept lower levels of cash with an increase in value of the deal.

Next, we take the first derivative of k^* with respect to F_A and obtain the following:

$$\frac{dk^*}{dF_A} = \frac{C-S_I}{(C-S_A+F_A)^2} < 0, \text{ if } (C - S_I) < 0$$

Here, if deal value of NPA sale are expected to be greater than the returns from IBC process, then as the fee demanded by ARCs increases, the cash proportion demanded by banks will increase.

ARC's decision

We assume that for an ARC to buy NPAs from banks, the value it derives from the recovery and management fee must be more than its cost of capital. We use the following notation to model the ARC's decision:

k: proportion of cash in NPA purchase deal

C: deal value (this is the value at which the NPA is sold by the bank to the ARC and paid out with a combination of cash & SRs)

F_A*: sum of annual management fee to ARC*

S_A: $recovered\ value\ of\ the\ asset\ when\ the\ bank\ sells\ the\ NPA\ to\ ARC$

z: cost of capital of the ARC

Z: 1+z, gross cost of capital of the ARC

Note that S_A and F_A used in this equation have been taken to be the same as the value of the SRs and the management fees used in the objective function for the bank. While the expected payouts, and the time stamps of the payouts would indeed be the same, we need to assume that the discount rates and risk aversion

of the bank and the ARC are also the same. Or we can assume that they are not the same but operate to equalize the value accruing to the two entities.

An ARC would enter into a transaction if and only if:

$$\frac{V}{kC} = \left[-1 + \frac{S_A}{C} + \frac{\frac{(1-k)}{k} * F_A}{C}\right] > z$$

where $V = -kC + k * S_A + (1-k) * F_A$ is the value function of the ARC.

This implies,

$$\left(\frac{1}{k} - 1\right) * \frac{F_A}{C} > (z+1) - \frac{S_A}{C}$$

$$\left(\frac{1}{k} - 1\right) * F_A > Z * C - S_A$$

$$\bar{k} < \frac{F_A}{ZC - S_A + F_A} \qquad (2)$$

The upper bound is positive if and only if $ZC - S_A + F_A > 0$, and it is less than 1 if and only if $ZC > S_A$.

Finally, we take the partial first derivative of $\bar{k}$ with respect to $S_A, F_A, Z \; and \; C$ to evaluate if the direction of change is as expected.

$$\frac{d\bar{k}}{dS_A} = \frac{-F_A}{(ZC - S_A + F_A)^2} < 0$$

Intuitively, this makes sense because as S_A increases, the share of cash acceptable to ARCs should decrease.

Next, we take the derivative of $\bar{k}$ with respect to F_A and obtain the following:

$$\frac{d\bar{k}}{dF_A} = \frac{(ZC - S_A)}{(ZC - S_A + F_A)^2} > 0$$

If $ZC - S_A > 0, then \; as \; F_A$ goes up, $\bar{k}$ goes up - the higher management fees allows the ARC to accept a higher proportion of cash in the deal.

Next, we take the derivative of $\bar{k}$ with respect to C and obtain the following:

$$\frac{d\bar{k}}{dC} = \frac{-Z}{(ZC - S_A + F_A)^2} < 0$$

As the deal value increases, the proportion of cash in the deal acceptable to the ARC should go down. This is because the ARC would like to strike a balance between value of its overall recovery from the asset and the cash offered to the bank.

Next, we take the derivative of $\bar{k}$ with respect to Z and obtain the following:

$$\frac{d\bar{k}}{dZ} = \frac{-C}{(ZC-S_A+F_A)^2} < 0$$

As the expected return on capital for the ARC increases, the cash component offered in NPA purchase deal will be lower. This is because with increase in Z, the cash component the ARC can afford needs to be lower.

3. Theoretical Results

Range of Feasible Cash-SR Ratios

Combining (1) and (2), we obtain a range of k between which the market could function (the overall range for k is between 0 & 1).

$$\frac{F_A}{ZC-S_A+F_A} > k > \frac{(S_I-S_A+F_A)}{(C-S_A+F_A)} \qquad (3)$$

We find values for the range of k for chosen values of the parameters, normalizing C at 100. In the table below, F_A is the sum of annual fee earned by the ARC at the rate 2.5% per annum for a period of 3 years. Z represents the expected return on capital for an ARC which is assumed to be 18% per annum. The range of value of $S_A$is taken from 70% to 100% of the total value of the NPA sale deal. We take two scenarios where S_I is 0.95 and 0.75 respectively of S_A.

F_A	7.5	fee over 3 years (f*C)		
Z	1.18	(return on capital)		
C	100			
S_A	70	80	90	100
upper bound for k	0.14	0.16	0.21	0.29

S_I	0.95*S_A			
S_I	67	76	86	95
lower bound for k	0.11	0.13	0.17	0.33

We can see three scenarios in which $\bar{k}$, the upper bound for k is greater than k^*, *the* lower bound for k, resulting in the possibility of a transaction. As shown below, if S_A is significantly greater than S_I then the bank will be willing to go for a no-cash deal.

F_A	7.5	fee over 3 years (f*C)		
Z	1.18	(return on capital)		
C	100			
S_A	70	80	90	100
upper bound for k	0.14	0.16	0.21	0.29

S_I	0.75*S_A			
S_I	53	60	68	75
lower bound for k	- 0.27	- 0.45	- 0.86	- 2.33

The Required Value Creation by ARCs

ARCs typically add value by bringing in fresh capital to the financial system, through developing a core competence in dealing with stressed assets, and securitization. In this section we use equation (3) to look at the values of S_A that would consistent with a viable distressed loan market.

Equation (3) can be re-written as

$$F_A\,(C - S_A + F_A - ZC + S_A - F_A) > (S_I - S_A)\,(ZC - S_A + F_A)$$

$$(S_I - S_A) < F_A\,(1 - Z) * \frac{C}{(ZC - S_A + F_A)}$$

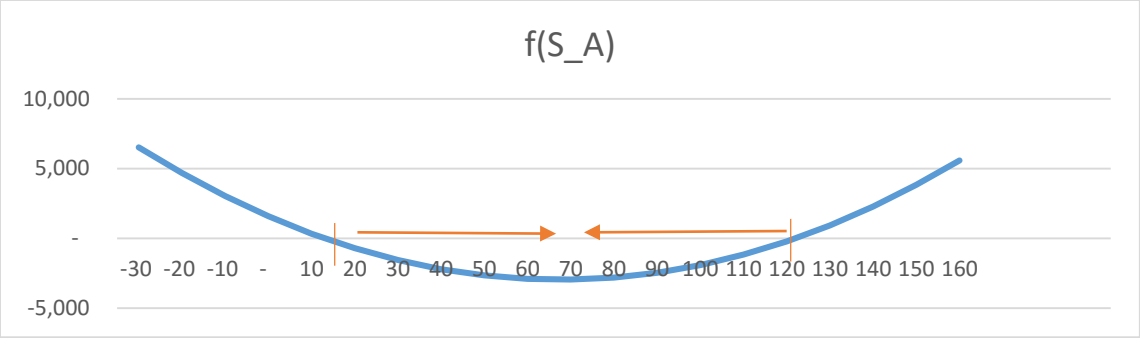
$$\boldsymbol{S_A^2} - (ZC + F_A + S_I) * \boldsymbol{S_A} + [S_I(ZC + F_A) + F_A(1 - Z)C] < 0$$

We let $[S_I(ZC + F_A) + F_A(1 - Z)C] = N$, and obtain a quadratic in S_A and find its roots as follows:

$$S_{A1} = \left(\frac{1}{2}\right) * ((ZC + F_A + S_I) + ((ZC + F_A + S_I)^2 - 4N)^{\frac{1}{2}})$$

$$S_{A2} = \left(\frac{1}{2}\right) * ((ZC + F_A + S_I) - ((ZC + F_A + S_I)^2 - 4N)^{\frac{1}{2}})$$

For the market to function, the value of recovery by the ARC from NPAs needs to lie between S_{A1} and S_{A2}. Both the roots of the quadratic are positive for feasible values of the parameters and the quadratic has the shape as shown below.



The gains to trade are maximized when the function achieves its minimum. From the diagram we can see that gains to trade are maximized when S_A is neither too high nor too low. The quadratic function above achieves a minimum when S_A is in the vicinity of 0.75*C.

Now, we will find the minimum value of the quadratic function defined above.

$$S_A^2 - (ZC + F_A + S_I) * S_A + [S_I(ZC + F_A) + F_A(1 - Z)C] = 0$$

Taking the first derivative, we obtain:

$$2\,S_A - ZC - F_A - S_I = 0$$

$$S_A = \frac{(ZC + F_A + S_I)}{2}$$

Taking the second derivative, we obtain:

$$2 > 0$$

This implies that the quadratic function has a minimum at $S_A = \frac{(ZC + F_A + S_I)}{2}$

4. Discussion of Results

Our model shows that for realistic ranges of parameter values, the ARCs would not be willing to offer more than 20-30% cash. The analysis must be subject to several caveats. First, we have assumed that the value of S_A and F_A used in the equation for the ARC is the same as the value of the SRs and the management fees used in the objective function for the bank. If the ARC is less risk averse than the bank the upper bound would change, and could well increase. However, we do not see any reason for this to be the case. In fact, we believe that the opposite is true.

There are many factors driving banks to reduce NPAs beyond the factors included in the simple model above. As long as an NPA remains on the bank's balance sheet, it adversely impacts the various financial

& operational performance ratios of the bank. For example, the Returns on Assets ratio (Profit after tax/ Total Assets) of the bank are lower because the NPA continues to reflect in the denominator and there is no income from that asset which could reflect in the numerator. So, all else equal, banks have an incentive to shrink their balance sheets by selling off NPAs. Looked at from this lens, whatever the bank can recover from the sale of an NPA helps increase the numerator and reduce the denominator. All else equal, banks would like to find a buyer who could give them, at least, the book value of the NPA before the asset is fully provided for. Any proceeds from an asset that has been fully provided for will add to the profitability of the banks resulting in write-back of the provisions and, as a result, should favorably impact managers' compensation as well. As a result of these factors, the bank, unlike the ARC, could be modelled as a risk-loving entity.

Further, the stressed assets/ NPA market in India is characterized by the dominance of Public Sector Banks in loan origination and value of NPAs. As of March 2018, top 4 PSBs contributed more than 40% of total NPAs in the system and top 10 banks (all) contributing 68%. At an overall level, PSBs contributed 86% of all NPAs in the system followed by private sector banks at ~12% and foreign banks at 1.3%. Hence, the proceedings of the ARC market are also impacted by the motivations of the RBI and the Ministry of Finance. The government has a vested interest in making sure that growth remains on track. A high level of NPAs send the wrong signal to investors. The government would want to avoid been seen as spending taxpayers' money to support large corporates in a country with several other competing objectives to achieve.

For these reasons we believe that while the upper limit of k would accurately reflect the incentives of the ARCs, the true lower bound of k could be lower than the bound calculated here, on account of the operation of extraneous considerations.

Hence, the current RBI directive that imposes a minimum cash-SR ratio of 90% is likely to choke the market.

5. Recommendations and conclusion

The redemption of SRs in the past has been far from satisfactory from the point of view of banks. The expected value-addition/ intermediation by the ARCs is not taking place on account of the following reasons:

1. The business cycle has severely impacted certain infrastructure related sectors. NPAs are concentrated in these industries, so the true value-add by pooling & securitizing assets in diversified industries is not taking place.

2. ARCs typically add value by bringing in fresh capital to the financial system. That has also not happened pending improvement in the legal and regulatory infrastructure around recovery and resolution of distressed assets. As at end of FY17, ARCs had assets under management approximately Rs 80,000 crores with a net worth of Rs 4500 crores (both CRISIL estimates). With effect from 1 April 2019, the RBI has mandated ARCs to have a minimum capital base of Rs 100 crores- this was previously at Rs 2 crores.

As a result, the regulator believes that banks are merely dressing up their books through transactions on the ARC market. The move to 90% cash transactions has been driven by this consideration as per the 01 September, 2016 RBI circular with Guidelines on Sale of Stressed Assets by Banks. Our analysis above indicates that the move is likely to exercise a chilling effect on transactions, as there are no parallel moves to increase the viability of the SR market.

The following measures enable greater value realization in the SR market (thereby promoting genuine transformation of the bank's balance sheet) without choking the ARC market:

1. Further improvement in the legal infrastructure concerning recovery/ business reorganization.

2. A well-functioning (broad & deep) secondary market in SRs. This could result in ARCs being able to rotate capital faster rather than having their funds tied up in assets that take very long to turn to cash. In turn, banks would be encouraged to use the ARC avenue more.

3. The presence of at least a few ARCs with deep pockets and turnaround expertise would help given the large size & concentration of NPAs in certain sectors.

4. Allowing sale transactions by banks to take place on a commercially viable basis within a broad band. Flexibility in decision making to PSB bank managers rather than the fear of vigilance investigation in future would encourage them to get this market going. The required stringency needs to be shown in standards for loan origination.

Putting in place these measures would go a long way in kick starting what is now a moribund market.

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Appendix 1: Distressed debt market in India

Participants in the Indian stressed assets market include the following: securitization company, reconstruction company, other banks, NBFCs and FIs. Asset Reconstruction Companies (ARCs) came into existence with the introduction of SARFAESI Act, 2002 wherein specific assets could be sold & recovered by specialist companies. Total assets under management (AUM) of ARCs currently stand at approximately Rs 1 lakh crores. There are a total 29 registered ARCs in India and Edelweiss is the largest with approx. Rs 45,000 crs AUM. Capital requirement for ARCs is minimum of 15% of assets or Rs 100 crs and was to be met by 31Mar19. Capital requirement was previously Rs 2 crs.

While banks in India have a preference (for reasons discussed in the next section) for all cash deals for selling NPAs, typically the sale process has two components: cash and security receipts (SR). Other than banks, Security Receipts can be bought by Qualified Institutional Buyers as defined by RBI. Banks sell assets either via an auction (typically PSBs) or though bilateral arrangements (preferred by Private Banks). The ARC transfers the acquired assets to one or more trusts at the price at which the financial assets were acquired from the originator.

ARCs have three streams of cash flows: management fee, redemption of SRs, incentives based on early recovery or any upside in collections (transaction specific). In a 15/85 (cash/SR) structure, the trust issues 15% SRs to the ARC in cash (which in turn will be paid to the bank) and the balance in SRs; for e.g. in the gross loan value of Rs 100 sold to ARC at Rs 60, bank will receive Rs 9 (15% of Rs 60, which was funded by ARC in the trust) in cash and Rs 51 (balance) in the form of SRs. Assuming that recovery happens in the fifth year, the trust expenses and management fees are paid first and then SRs are redeemed. In case of excess recovery, usually ~20% of the upside is shared by the ARC (note: upside arrangement varies from transaction to transaction).

Albeit with limited success, various changes in regulations have been made in the last few years to facilitate scale up of business of ARCs. From 2016 onwards, sponsors of ARCs can have 100% stake vs 50% limit earlier. 100% FDI in ARCs is now allowed under the automatic route. With respect to investing in SRs, 100% FII/ FPI investment is now allowed as compared to 74% limit previously.

ARCs typically recover/ redeem SRs with the help of corporate turnaround, sale of assets and restructuring of debt. Under the IBC regime, if ARCs own >66% share of loans, they can drive the company towards resolution without disputes or need for coordination with other Financial Creditors.