Bad Banks in India
November 2020
# Contents

India – Banking sector Non-Performing Assets 3  
Impact of COVID-19 on Banking sector NPA 5  
Bad banks – An overview 6  
Bad banks – Prior experience and evolution 7  
Pros and Cons of establishing a Bad bank 8  
Bad bank – Alternatives 10  
Bad bank – Global experience 12  
Conclusion 14  
Appendix 15
India – Banking sector Non-Performing Assets (NPA)

The issue of Non-Performing Assets (NPAs) in the Indian banking sector has long been a subject of much discussion and scrutiny, impacting (PSU) banks’ capacity to lend in the past.

Introduction
A sound banking system is a prerequisite for developing a sound financial and economic system. However, the issue of non-performing assets is a huge hurdle in the smooth functioning of the banking system. A high level of NPAs indicates a high probability of credit default thereby reducing the overall efficiency and effectiveness of the lending system. It also significantly reduces the availability of credit, thus creating a problem not only for the banks but also for policy makers, affecting the economic growth of the country.

Banking NPA – Status (Pre COVID-19)
In the last few years, banks have been under the scanner because of increasing NPAs. The Gross NPA (GNPA) of all Scheduled Commercial banks (SCBs) in India in 2007-08 was INR 40,452 crores. Over the 11-year period since, the GNPA for SCBs increased to INR 9,36,474 crores at 31 March 2019, implying a CAGR of 33.06 per cent, far outstripping the growth of banking sector credit growth during the same period.

An analysis by Centre for Financial Accountability indicates this:

Between FY15 and FY19, if opening NPAs were based at 100, on an average, real slippages were being added at 67 per cent, recoveries with upgradation at 20 per cent, while write-off contributed above the recoveries at 22 per cent. This has resulted in cumulative NPAs increasing at 25 per cent (100+67-20-22=125) in the past five years.

The stress in PSU banks has increased significantly over the years

“The table below highlights that stress in PSU Banks has increased significantly from 5.0 per cent of gross advances at Mar-15 to 11.3 per cent of Gross advances at Mar-20.

Similarly, GNPA for all SCBs has increased from 4.3 per cent to 8.5 per cent during this period.
Table: Trend in Indian Banking NPA

<table>
<thead>
<tr>
<th>Country</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public sector Banks</td>
<td>5.0%</td>
<td>9.3%</td>
<td>11.7%</td>
<td>14.6%</td>
<td>11.6%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Private Sector Banks</td>
<td>2.1%</td>
<td>2.9%</td>
<td>4.1%</td>
<td>4.7%</td>
<td>5.3%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Foreign Banks</td>
<td>3.2%</td>
<td>4.2%</td>
<td>4.0%</td>
<td>3.8%</td>
<td>3.0%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Small Finance banks</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.2%</td>
<td>2.5%</td>
<td>2.0%</td>
<td>NA</td>
</tr>
<tr>
<td>GNPA (%) – All SCBs</td>
<td>4.3%</td>
<td>7.5%</td>
<td>9.3%</td>
<td>11.2%</td>
<td>9.1%</td>
<td>8.5%</td>
</tr>
<tr>
<td>GNPA – SCBs (INR TN)</td>
<td>3.2</td>
<td>6.1</td>
<td>7.9</td>
<td>10.4</td>
<td>9.4</td>
<td>NA</td>
</tr>
<tr>
<td>Gross Advances - SCBs</td>
<td>75.6</td>
<td>81.7</td>
<td>85.0</td>
<td>92.7</td>
<td>102.3</td>
<td>NA</td>
</tr>
</tbody>
</table>

Source: RBI Financial Stability Reports

“As per available numbers (some of which are provisional) at this point of time, the overall capital adequacy ratio for scheduled commercial banks (SCBs) stood at 14.8 per cent as in March 2020, compared to 14.3 per cent in March 2019. The CRAR of PSBs had improved from 12.2 per cent in March 2019 to 13.0 per cent in March 2020.

The gross NPA ratio and net NPA ratio of SCBs stood at 8.3 per cent and 2.9 per cent in March 2020, compared to 9.1 per cent and 3.7 per cent as on March 2019, respectively. The Provision Coverage Ratio (PCR) improved from 60.5 per cent in March 2019 to 65.4 per cent in March 2020, indicating higher resiliency in terms of risk absorption capacity.”

Shri Shaktikanta Das (RBI Governor) at a recent address at Seventh Banking & Economics Conclave on 11 July 2020

Global context
As per World Bank data, share of NPA to gross loans in Indian banking is significantly higher compared to developed western economies and also exceeds most other emerging economies, with an exception of the Russian Federation.

Large unresolved NPAs over a sustained period of time have proven detrimental to policy making and economic growth for many economies in the past.

NPA (%) on Gross loans

Background to rising NPA
As per an ex-RBI Deputy Governor, the stressed assets have been an outcome of excessive bank lending, in a relatively short period from 2009 to 2012, and to a concentrated set of large firms in a number of sectors such as infrastructure, power, telecom, metals (iron and steel, in particular), engineering-procurement-construction (EPC), and textiles.
Impact of COVID-19 on Banking sector NPA

As per RBI’s 21st Financial Stability Report (July 2020), macro stress tests for credit risk indicate that the GNPA ratio of all SCBs may increase from 8.5 per cent in March 2020 to 12.5 per cent by March 2021 under the baseline scenario. If the macroeconomic environment worsens further, the ratio may escalate to 14.7 per cent under very severe stress.

Additional NPA stress

The impact of the Covid-19 pandemic and the ensuing lockdowns is expected to add another layer of stress on the already stretched Indian banking system. As per a recent note by rating agency India Ratings and Research (Ind-RA):

“In a scenario wherein funding markets continue to exhibit heightened risk aversion, corporate stress could increase further by INR 1.68 lakh crore, resulting in INR 5.89 lakh crore of the corporate debt becoming stressed in FY21-FY22. Consequently, 20.8 per cent of the outstanding debt could be under stress in the agency’s stress case scenario.”

RBI’s assessment of COVID-19 impact

- The RBI has warned that the GNPA ratio of all SCBs may increase from 8.5 per cent in March 2020 to 12.5 per cent by March 2021
- The GNPA ratio may also worsen to as high as 14.7 per cent by the end of the current financial year, if the adverse economic impact of the Covid-19 pandemic would be ‘very severe’
- Stress test results indicate that 5 banks may fail to meet the minimum capital level by March 2021 in a very severe stress scenario. This, however, does not take into account the proposed mergers or any further recapitalization.
- In the wake of Covid-19, the RBI had announced a six months loan moratorium for all term loans. The same was applicable from 1 March 2020 to 31 August 2020.
- As per RBI data, about 80 per cent of retail borrowers who had taken loans from public sector banks had availed of the moratorium. For NBFCs and small banks, that figure was 45.9 per cent and 73.2 per cent, respectively.
- The Covid-19 lockdown had a significant impact on all industrial activities in the economy resulting in major income loss. This has impacted their loan repayment ability.
- This may lead to Gross Domestic Product (GDP) contraction by 8.9 per cent in 2020-21
- The RBI projected that Capital Adequacy Ratio (CAR) ratio could slide to 13.3 per cent in March 2021 under the normal scenario and to 11.8 per cent under the very severe stress scenario.
- The RBI has stated that the Indian financial system remained stable, despite the significant downside risks to economic prospects in short term

The policy imperative

Industry participants and policy makers are evaluating multiple options on the way to control the impending NPA wave. There is added urgency because the government has put on hold any fresh reference to the NCLT under the Insolvency and Bankruptcy Code, 2016 (IBC) for one year.

Further, according to a report by Kotak Institutional Equities, banks have seen an average haircut of 88 per cent in the cases that were resolved in the October-December 2019 period, which was the highest percentage of haircut that lenders have had to take in a single quarter since the introduction of the IBC in 2016. The report states: “Barring a few cases, almost all resolutions in Q3 FY20 had a haircut of more than 60 per cent.”
Bad banks – An overview

With banking sector GNPs in India perhaps already above INR 10 lakh crore, and expected to increase to upwards of INR 15 lakh crore in the near future, there is an increasing ask to unburden the banking system of NPAs and expedite the recovery process.

Overview
One of the key ideas being deliberated is the formation of a Bad bank/s to help de-stress banking balance sheets.

A Bad bank is a corporate structure that isolates risky assets held by banks in a separate entity. It is established to buy toxic assets from a good bank at a price that is determined by the Bad bank, most likely with a haircut to the book value of the stressed loans being transferred. It may be controlled by the government, and apart from the government, other private players invest in its equity. It may raise loans from other participants. These transactions happen at arm’s length and a Bad bank is managed by professionals with domain knowledge of managing stressed assets.

The Indian Banks’ Association (IBA) recently submitted a proposal to the Finance ministry and the Reserve Bank of India (RBI) to set up a ‘Bad bank’ to take charge of c. INR 75,000 crore worth of non-performing assets (NPAs) and had requested the government to provide INR 10,000 crore of initial capital. As per media reports, IBA had proposed to set up an Asset Reconstruction Company (ARC), an Asset Management Company (AMC) and an Alternate Investment Fund (AIF). The ARC will be owned by the government, but the AMC and AIF will have participation from the public sector as well as the private sector, as per the proposal.

The proposed structure of a Bad bank is based on the earlier recommendations of a panel headed by former PNB chairman Sunil Mehta in July 2018, that had proposed formation of an AMC called ‘Sashakt’ for resolving large bad loans.

Illustrative Bad bank structure
An illustrative Bad bank structure could potentially work as outlined below. The illustration draws from Malaysia’s experience with their institutions ‘Danaharta’ and ‘Danamodal’ after the Asian crisis.

• The government could set up a bad bank (‘Bank X’) with an agreed upon capital base. The equity infusion could be funded via Government of India re-capitalization bonds issued to subscribers
• Bank X could acquire tranches of bad loans from across Banks/ NBFCs. Assuming average fair value of 40 per cent of book value of loans transferred, Bank X could acquire up to 2.5x worth of gross NPA from troubled lenders
• By transferring such assets to the Bad bank, the original institution could clear its balance sheet, although it would still be forced to take write-downs
• To protect the interests of taxpayers and to restore trust, this transfer would have to be done at fair market valuations i.e. at a discount to book value, as certified by Government appointed independent valuers
  – Steep haircuts in certain cases might lead to capital adequacy challenges in a few PSU and private Banks, necessitating recapitalization on a need-basis for these banks

– The fiscal implications would be similar to public sector bank re-capitalization. Over the years, the Government has been recapitalizing PSU banks and has already infused over INR 3.5 lakh crore in last five years. As per ICRA estimates, the capital requirements for PSU banks would be in the range of INR 20,000-55,500 crore in 2020-21 as against government planned budget of INR 25,000 crore for re-capitalization.
• If Bank X recovers more than the consideration paid on acquired NPA loans, it may be required to share a certain portion of such excess with the transferring banks. Any recovery below such fair value would be the sole liability of Bank X. This approach could help address the concerns around asset valuation for both the transferring lender/s and for Bank X and help build transparency and trust in the process.

Such Bank X is to be headed by specialized distressed asset professionals with proven integrity and experience. Also, the bank could have a finite lifespan to address NPAs.
Bad banks – Prior experience and evolution

While India has never had a Bad bank in the past, the concept is not new. The idea of setting up a Bad bank was first proposed in an Economic Survey conducted in January 2016. There were discussions on creating a Bad bank in 2018 as well, but it did not materialize.

The core purpose of the Bad bank would be to buy bad loans from banks at a discount, in order to attempt recover of money from various defaulters. The Bank would need to be a centralized agency in a position to take tough decisions. This section attempts to describe various points of view as to whether there is an actual need to set up a Bad bank in India and if yes, the design of such an institution.

**Case study: Industrial Reconstruction Bank of India (IIBI)**

- The Industrial Reconstruction Company of India was set up in 1971, with the purpose of rehabilitation of sick units.
- It was re-modelled as IIBI or Industrial Investment Bank of India in 1985 and was assigned the role of buying bad loans from commercial banks to recover these debts.
- However, IIBI became sick eventually due to lack of strict recovery laws. The Government had to infuse approximately INR 263 crores as grants to IIBI from 2004-2005 and from 2005-2006 for servicing its debts.
- There was also a proposal to merge IIBI and other institutions such as IFCI and IDBI, but the proposals were rejected; IBBI eventually closed down in 2012.

**Case study: IDBI Stressed Asset Stabilization Fund**

- In 2004, IDBI (Industrial Development Bank of India) was provided with a bailout package to shift its bad loans to a Stressed Asset Stabilization Fund (SASF).
- The SASF was constituted by the Government of India as a special purpose vehicle (SPV) trust for acquiring NPAs of erstwhile IDBI.
- 636 stressed/non-performing cases with aggregate loans of over INR 9,000 crore were hived off to the SPV.
- However, it could only recover less than half at INR 4,000 crore at the end of March 2013, according to a 2014 audit report by the Comptroller and Auditor General of India (CAG).

**Case study: ARC model in India**

- In India, private asset reconstruction companies (ARCs) have been buying NPAs from various banks (29 registered ARCs operate in India currently), but the model has not yielded desired results.
- ARCs act merely as recovery agents because they lack the bandwidth to reconstruct any company under stress which is sold as a going concern.
- The efficacy of the ARC model is under question:
  - The Central Vigilance Commission (CVC) submitted a report to the government in May 2019 after examining cases above INR 50 crore that were sold to ARCs between 2013-14 and 2017-18 by PSBs.
  - The report mentions that, in at least 48 cases, assets were sold to ARCs below the realizable value of security.

**Low recovery:** Recovery of security receipts via ARCs sold by PSBs between 2013-14 and 2017-18 has been subdued.
Pros and Cons of establishing a Bad bank

While India could deliberate on the case for establishing a Bad bank, it is critical to evaluate the pros and cons for the same.

**In-house management Vs ‘Bad Bank’ setup: Key considerations**

When managing non-core assets, banks must decide between in-house management and a structured solution such as a ‘bad bank’. Whilst complex to set up, a structured solution gives a strong message to the market, optimizes the transfer of risk, facilitates straightforward portfolio sales and therefore makes rapid deleveraging simple, all whilst insulating the ‘good bank’, enabling it to recover from the crisis, and thrive.

**Key arguments in favor of establishing a Bad bank:**

Bad banks are more complex and time consuming to set up but have benefits both in terms of the core franchise and in terms of the non-core assets which are being worked out.

- **Frees management bandwidth** and specifically allows the management to:
  - Focus on driving the performance of the core business
  - Right-size the infrastructure for the organization

- **Quick resolution**: Pooling of bad assets under a single entity can help in terms of resolutions (quicker decisions) as and when growth improves and demand for these assets increase.

- **Plugs in loopholes in ARC model**: Private-run ARCs have not seen much success in resolving bad debts. International experience shows that a professionally run central agency with government backing could overcome the coordination and political issues that have impeded progress over the past years.

- **Domain expertise**: A dedicated Bad bank may be better than a number of PSU banks replicating similar departments in their respective organizations

- **Under a competent management and Board,** the
value of these stressed assets could be better preserved
- Domain focus could potentially help tap long-term pools of foreign and domestic capital via equity/debt issuance versus

• **Price Discovery:** A Bad bank may be better suited to fix the appropriate price. The transferring bank could make additional provisions in case the discovered cost is less than the book value and the Bank wants to retain the asset on its books.

**Capital relief:** Based on the existing prudential norms as defined by the RBI, NPAs are still accounted for in the branch books, whereas the corresponding advances are also adjusted for provisions and write-offs to arrive the Net Advances figure as published in the audited books of accounts.

**Key arguments against establishing a Bad bank:**

• **Potential steep haircuts:**
  - A prominent issue with Bad banks is not the need for it, but how to set it up, particularly when debt and equity capital is scarce and costly and fair value

  of the assets under consideration is estimated to be low.
  - Transfer at computed fair value with steep haircuts may cause a severe blow to bottom line of the transferring bank, preventing a full transfer of risk to the Bad bank as contemplated

• **Lack of buyer demand:** The price at which toxic assets are to be transferred may not be market-determined and price discovery may not happen

• A key challenge includes the need for rapid, reliable data collection and analysis:
  - Development of a detailed recovery/deleveraging plan
  - Design of a structure that meets capital objectives
  - Project based set up with cost base carefully aligned with asset recovery/deleveraging activity
  - Developing and managing appropriate resources in areas such as restructuring and recovery, commercial real estate, IT and portfolio sales/M&A

- The need to utilize restructuring techniques for non-core assets when the workout unit itself has an intensive workload
- The need for management to focus primarily on developing the core franchise (good bank) whilst appropriately managing the non-core assets

• **Ownership disputes:** Various options could be explored for the ownership of Bad banks - entirely government-backed funding, private funding, or a public-private partnership (PPP). While global Bad bank models with favorable outcomes were largely Government owned, many see advantage in having a Bad bank owned by the banks collectively. This would ensure that when a bad loan is resolved, the profits would accrue to the owners, i.e. the banks themselves. This would make the loss they booked on selling the non-performing assets at a discount, more palatable.
Bad bank – Alternatives

Many experts argue that the enactment of IBC regulations has reduced the need for having a Bad bank, as a transparent and open process is available for all lenders to attempt insolvency resolution.

A former RBI Dy. Governor had proposed two alternative models for a Bad bank in 2017:

**Private Asset Management Company (AMC)**
- This plan would be suitable for sectors where the stress is such that assets are likely to have economic value in the short run, with moderate levels of debt forgiveness.
- In terms of timeline, the banking sector could be asked to resolve and restructure, say its 50 largest stressed exposures in these sectors within a limited time frame of say, 6 months. The rest could follow a similar plan in six months thereafter.
- For each asset, turnaround specialists and private investors, other than affiliates of banks exposed to the asset, may be called upon to propose several resolution plans. Each resolution plan would lay out sustainable debt and debt-for-equity conversions for banks and cash flow prospects to facilitate the issuance of new equity and possibly some new debt to fund the investment needs. Each resolution plan would then get vetted and the asset rated by at least two credit rating agencies. The rating would assess the financial and economic health and management quality. Feasible plans would be selected such that they improve ratings a minimum of two credit ratings above threshold default level.
- Banks could then choose among the feasible plans. Haircuts taken by banks under a feasible plan would be required by government ruling as being acceptable by the vigilance authorities. Sustainable debt would be upgraded to standard status for all involved banks. The promoters, however, would have no choice as to what restructuring plan is accepted.
- At expiry of the proposed timeline, each exposure that is not resolved would be subject to a steep sector-based haircut for the bank consortium, possibly close to 100 per cent. The promoter would have to leave and these assets would be moved to the IBC.
- Such asset management company would be entirely private, similar to the “Phoenix” structure set up in Spain after 2012 to deal with bank NPAs in Machinery, Steel and Winery segments.

**National Asset Management Company (NAMC)**
- The second model is an NAMC for sectors where the problem is not just of excess capacity, but possibly also of economically unviable assets in the short- to medium-term, such as in the power sector.
- The NAMC would raise debt for its financing needs, keep a minority equity stake for the government, and bring in asset managers such as ARCs and private equity to manage and turn around the assets.

*Figure: NAMC structure examples*
Advantages of the National AMC structure -

NAMCs are more complex and time consuming to set up but provide many advantages if a sector-wide solution is required:

- Single institution delivering greater transparency for investors, regulators and other stakeholders
- Facilitates a sector wide strategy and oversight
- Ability to enforce common standards and approach
- For regulators/ supervisors, a single entity to focus on rather than many
- Single funding structure and approach
- Allows common approach to common borrowers regardless of origination
- Centralized pool of underlying real estate collateral provides opportunity for central control and strategy for longer term benefit of the real estate market
- Control moves away from existing management

Key considerations - Assets

- There may be a large number of originating banks, which would make the set-up of a National Asset Management Company more complex
- Visibility over the current/end portfolio may be difficult, and it would be necessary to devise a common reporting template
- COVID-19 has affected SMEs across the industry spectrum, making management more complex than a single asset class, but furthermore, SME data is likely to be very poor
- Governments should look not only to take bad loans from banks, but carve out entire debtors which have borrowing from multiple banks, or the government, or have government guarantees
- Need to consider the structure and funding of new money requests (debt/equity/working capital)

Key considerations - Infrastructure

- Servicing could initially take place across a large number of originating banks. It would be necessary to amalgamate this and form a view on best practices. It would also be critical to set strong SLAs to ensure that reporting, KPIs, rights, obligations and incentives are clearly communicated
- In the medium term, the servicing could go out for tender in order to simplify and maintain tighter control
- High volumes would require standard viability testing and structures based on sustainable debt levels and EBITDA. It may be necessary to define debt sustainability at the industry level
- Technology would play a key role; The system could either allow servicers to run with their own technology (with common reporting) or design a common servicing platform for all players to use
In the past, multiple mechanisms and measures have been adopted by other jurisdictions to tackle increasing non-performing loans. Of these, the following countries are relevant to study from an Indian context.

<table>
<thead>
<tr>
<th>Country</th>
<th>Malaysia</th>
<th>Ireland</th>
<th>Thailand</th>
<th>Korea</th>
<th>Indonesia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMC regime</td>
<td>Public</td>
<td>Public</td>
<td>Public &amp; private</td>
<td>Public &amp; private</td>
<td>Public</td>
<td>Public</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>National AMC name</th>
<th>Danaharta</th>
<th>NAMA</th>
<th>SAM BAM</th>
<th>KAMCO</th>
<th>IBRA</th>
<th>Cinda (listed) Huarong (listed) China Orient, Great Wall, Galaxy, Provincial AMCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of National AMCs</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4+1+N</td>
</tr>
<tr>
<td>Current Status</td>
<td>Inactive</td>
<td>Live</td>
<td>Live</td>
<td>Live</td>
<td>Inactive</td>
<td>Live</td>
</tr>
<tr>
<td>Main asset type</td>
<td>Corporate</td>
<td>CRE</td>
<td>Mixed SME &amp; Retail</td>
<td>Corporate, public and households</td>
<td>Corporate</td>
<td>Corporate/SME</td>
</tr>
<tr>
<td>Key law/ regulation</td>
<td>Danaharta Act</td>
<td>NAMA Act</td>
<td>AMC Decree</td>
<td>KAMCO Act</td>
<td>Banking Law (law no. 10 of 1998)</td>
<td>Government banking reform</td>
</tr>
<tr>
<td>Key characteristics</td>
<td>Transfer of NPLs from target banks with a finite life AMC. Dealt with nearly 3,000 NPL accounts and its lifetime loan recovery rate of 58 per cent surpassed the typical 20-50 per cent range for similar agencies in Asia. Large strategic real estate focused. NAMA acquired 12,000 loans at a cost of €31.8 billion from five banks. NAMA adopted a consensual approach with the debtors towards resolution.</td>
<td>Mix of public and private sector solutions at national, bank and investor level. A key differentiator between TAMC and other AMCs, is that the former does not have the power to sell loans to third parties. However, it can Acquires and resolves financial institution’s NPLs and corporate restructurings. KAMCO purchased 30,000 odd NPLs with a face value of US$ 92 billion (won 110 trillion - 20 per cent of the GDP). The discount depended on the size of NPL portfolio and Country level effort to reduce NPLs from all banks. Since there was an influx of bad assets with negligible demand, realized sale value was low, resulting in losses at the AMC level (AMCs</td>
<td>Transfer of NPLs from target banks with a finite life AMC. In 2002, IBRA failed to accomplish its mandate and shifted its strategy to rapid asset disposition. Over the period, IBRA sold 60 per cent of its NPL portfolio and</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Key learnings from global experience

Based on global experience, key learnings for a prospective Indian Bad bank entity are as follows:

1. A common key success factor is substantial upfront government funding, with less reliance on other banks, borrowings or AMC bonds for capital. If the AMC/s are funded mainly through debt, they run the risk of accrued interest on bonds and loans exceeding the cash recovery from the resolution of NPAs.

2. The Bad bank entity/AMC could broaden its shareholder base by inviting participation from domestic and foreign institutional investors.

3. The Bad bank could be established with a finite lifespan to ensure better resolution and to reduce logjams.

4. The bad bank could include professionals outside government staff, with secondment from the private sector, including reputable banks, investment banks and international and sectoral experts.

5. The NPAs should be transferred to AMCs at fair value considering a probable haircut and not at book value. If NPAs are transferred at book value, all losses would need to be taken at the AMC level. In a scenario of negligible demand and low realized sale value, this structure could lead to losses for the AMCs.

| sell foreclosed real estate to third parties. | the type of loan, with the highest prices paid for ordinary loans (67 per cent), lowest price was paid for unsecured ordinary loans (11 per cent) and the other loans ranged between 20-50 per cent. | the average recovery rate was 22 per cent, with 44 bank owners deemed to violate the regulations of Bank Indonesia. | achieved an overall recovery rate of 33.6 per cent, with cash recovery at 22.4 per cent. |
Conclusion

While there’s no official communication from the RBI about the creation of a ‘bad bank’ or a one-time loan restructuring proposal so far, a loan recast scheme for certain categories of borrowers has been announced.

As per a Government official, ”We have studied the banks’ proposal (bad loan). The fact is there are already market-led options available for asset reconstruction and it looks better that way,”

“The government is not keen to infuse equity capital into a bad bank, which has been recently proposed by the Indian Banks’ Association. The government’s view is that bad loan resolution should happen in a market-led way.”

NPAs in India have reached an alarming level, given short term and long term issues, combined with the stringent provisioning policies and guidelines of the Regulators and the ruling Governments. Lack of appropriate credit risk processes, lack of transparency in the operations and lack of democratic atmosphere in the banking industry and certain indiscriminate lending has added to the pile of NPAs. Major write-off provisions including unhealthy prudential write-off & IBC haircut provisions made during the last four years have further accentuated the problem. In most cases, it is the PSU Banks that are the worst hit because of such provisions. Smaller banks have also suffered given their presence as smaller consortium participants as well as lower diversification in loans.

To pivot towards sustainable lending going forward, the Government would need to act fast on resolving the NPA issue, bring in accountability with lenders and reforms to guard against a repeat of the bad loan cycle.
APPENDIX
BAD BANK – GLOBAL EXPERIENCE

In 1980s, the US based Mellon bank proposed the idea of ‘Bad Bank’ as a strategy to manage bad loans. The Grant Street National Bank (1988), held USD 1.4 billion of bad loans, that was later dissolved in 1995. Globally, ECB is working on a draft to manage bad debt piling due to Covid stress.

A. Malaysia – Danaharta-Danamodal

In 1998, Asian crisis severely impacted the Malaysian Banking system, the NPL ratio spiked from 3.6 per cent at June 1997 to 13.2 per cent by the end of 1998.

Although, short-term measures such as pegging exchange rate system to USD, capital controls and a fiscal stimulus package provided some relief, the government and central bank (BNM) realized the need for large scale resolution and jointly announced various measures:

- Setting up of an AMC (*Danaharta*) for acquiring NPLs and restructuring them to maximize recovery, a banking recapitalization agency once NPLs are sold (*Danamodal*) and a *Corporate Debt Restructuring Committee (CDRC)*.

BNM provided incentives such as recapitalization to banks who achieved sell off NPLs to *Danaharta*.

- Consolidation through mergers

**Figure: Revival strategy implemented**

<table>
<thead>
<tr>
<th>Bank</th>
<th>Corp Debt Restructuring Committee (CDRC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Facilitate</td>
</tr>
<tr>
<td></td>
<td>Sell NPLs with a haircut</td>
</tr>
<tr>
<td></td>
<td>Restructure debts</td>
</tr>
<tr>
<td></td>
<td>Issue bonds</td>
</tr>
<tr>
<td></td>
<td>Restructure</td>
</tr>
<tr>
<td></td>
<td>New loans</td>
</tr>
<tr>
<td></td>
<td>Borrowers</td>
</tr>
<tr>
<td></td>
<td>Special funds</td>
</tr>
<tr>
<td></td>
<td>Restructure of small distressed loans</td>
</tr>
<tr>
<td></td>
<td>Inject capital</td>
</tr>
<tr>
<td></td>
<td>Danaharta (AMC)</td>
</tr>
<tr>
<td></td>
<td>Danamodal</td>
</tr>
</tbody>
</table>

**Malaysia bad bank experience - outcome**

With the above cohesive efforts, the government and BNM were able to curtail NPLs (down from 13.2 per cent in CY1998 to 7.6 per cent in CY04) and achieve consolidation by bringing down the number of commercial banks to 10 from 50.

- *Danaharta* dealt with nearly 3,000 NPL accounts and its lifetime loan recovery rate of 58 per cent surpassed the typical 20-50 per cent range for similar agencies in Asia.

- *Danamodal* infused over RM 7 billion in CY99 and CY2000. As of November 2003, all banks, except RHB Bank Berhad, repaid their loans and it was closed by end-2003.

- The *CDRC* resolved 47 cases with total debt amounting to RM 43.9 billion, with 83 per cent of recovery proceeds in cash, redeemable instruments and re-scheduled debts.

With the banking system coming back on track, stock prices of large Malaysian banks shot up during that period.
B. Ireland - NAMA

Background: In late 2008, post the collapse of construction and property markets and crash in bank share prices, the Irish government announced a blanket guarantee of all Irish bank liabilities amounting to €440 billion, or twice the annual gross domestic product (GDP). The guarantee was based on the belief that banks needed temporary liquidity but were intrinsically solvent. Due to the steady downfall of bank share prices and property prices, the government injected capital into three largest Irish banks; Anglo Irish, Allied Irish Banks and Bank of Ireland (government injected €3.5 billion in the latter two banks in return for preference shares).

In March 2009, a report on options for resolving troubled property loans proposed the creation of National Asset Management Agency (NAMA). Few reasons why NAMA was preferred: 1) The property had not yet reached rock bottom 2) The government had to exit from blanket guarantee as the Irish sovereign debt was unfavorably priced and there was no plan on Irish banks’ capital adequacy problems. 3) Re-establish credibility in the Irish banking system.

Mandate and legal powers: NAMA was created by an Act of Parliament in November 2009 with the following objectives:

- To acquire impaired assets from the credit institutions participating in the NAMA scheme
- Deal expeditiously with the assets
- Protect, or otherwise enhance their value, in the interests of the state
- Insofar as possible and consistent with those purposes, obtain the best achievable financial return for the state

NAMA established special-purpose vehicle (SPV), to avoid consolidation of the Irish public accounts. The National Management Agency Investment Limited (The Master SPV purchases, manages and sells the distressed assets and issues debt securities to purchase assets) is owned at 51 per cent by three private companies and 49 per cent by NAMA. Under the shareholders’ agreement between NAMA and private investors, the former exercises a veto over decisions taken by the company.

Establishment and early years: By the end of 2010, most of the loans acquired from the participating banks had been transferred to NAMA. Instead of using Asset Quality Review (AQR) to access transfer price, NAMA used discounted cash flow of the collateral values and appointed real estate appraisers to value c. 10,700 properties. In parallel, the Central Bank of Ireland implemented two rounds of forward-looking capital requirements assessments in 2010 and 2011. Together, it resulted in cumulative capital requirements of €79 billion (46 per cent of 2011 GDP).

NAMA adopted a long-term economic valuation methodology; an uplift factor to reflect anticipated proceeds from the property sales when market conditions normalized. The average uplift factor was 8.5 per cent against the projected disposal receipts by 5.25 per cent.

NAMA acquired 12,000 loans at a cost of €31.8 billion from five banks. The face value of the loans and associated financial derivates acquired was €74.4 billion which led to crystallizing losses in banks of €42.6 billion (or 57 per cent of the amount owned by borrowers). In the end, NAMA acquired 90 per cent of the identified eligible loans and the value was removed from the books of banks. It issued government-guaranteed bonds of €30.2 billion to banks and remaining €1.6 billion was paid by the issue of subordinate debt on NAMA’s financial performance.

Performance: NAMA’s performance is measured by cash generation from its portfolio, ability to repay its debt and invest in its asset and manage debtors (82 per cent of the portfolio, rest are managed by the banks). All the debtors had to agree to business plans; to generate both recurring and sales income.

NAMA adopted a consensual approach with the debtors, which meant; 1) the debtors had to agree to schedules of the asset and loan sales 2) reverse certain asset transfers 3) grant NAMA charges over unencumbered assets and 4) putting rental income from investment assets controlled by debtors within NAMA’s control. If the debtors failed to comply, enforcement actions were taken.

A key aspect of NAMA’s work has been to provide funding on a commercial basis (to complete existing projects and commence new projects). A total of €1.6 billion was approved for residential and commercial developments, with a raise up to €3 billion for residential development and delivery of the Dublin Docklands Strategic Development Zone; a fast-track planning area earmarked to provide commercial accommodations for the growing foreign direct investments in Ireland.

Challenges: After six years, NAMA faces challenges with respect to staffing: Initially NAMA
remunerated staff at par to private sector and implemented bonuses but since it falls under the public sector it had to eliminate the latter and cut wages, which resulted in losing critical staff members. Although in recent years, NAMA introduced a retention scheme with redundancy payment if staff remained until the institution was wound up. The other challenge was cleaning up of the banking system: NAMA could not clean up the bad assets of the banking as it extended beyond land and development loans. The non-performing loans (NPLs) in Irish banking system at the end of 2014 accounted to 23 per cent of the total loans. Establishment of a standalone AMC to deal with land development loans and complimentary policies to deal with small NPLs such as a new personal insolvency framework and accelerated write-off policies are necessary as banks could not classify the loans.
C. **Thailand - TAMC**

**Background:** Prior to 1997, the Thai economy grew at an annual rate of c.10 per cent that later resulted in large current account deficit, appreciation of the exchange rate, increase in short-term foreign debt and a weaker financial sector leading to a financial crisis that depreciated the baht and downfall of economic activity, investment, consumption, and export demand.

Total assets in the financial sector amounted to THB 8.9 trillion ($212 billion or 190 per cent of the GDP), of which the commercial banks accounted for 64 per cent of the total. As the economy grew, demand for real estate increased whereby banks lent funds despite the supply outpacing the demand. With the financial crisis, borrowers with loans defaulted that caused the level of NPLs in commercial banks to raise to 48 per cent by 1999 from 12 per cent in 1997.

Several strategies were adopted by the Thai authorities to reduce the level of NPLs in the banking system, one of which was the establishment of Corporate Debt Restructuring Agency that facilitated the restructuring of the loans by the banks and their borrowers. Later, a law was passed to encourage banks to establish their own asset management companies (AMCs) as subsidiaries. However, the authorities followed the practice of other Asian countries and established a government-owned and operated AMC.

**Establishment of TAMC:** The Thai Asset Management Company (TAMC) was established by an Emergence Decree (Law) on June 8, 2001 as a state agency. The goal was to consolidate the management of sub-quality assets of the financial institutions and AMCs; to restructure the debts and/or reorganize the debtor’s business operations, an effort to return the firm to profitability and enable it to repay its debts. Majority of the sub-quality assets transferred to TAMC were from state-owned banks and obligations of larger borrowers involved in multi-creditor transactions.

A key differentiator between TAMC and other AMCs, is that the former does not have the power to sell loans to third parties. However, it can sell foreclosed real estate to third parties. TAMC allows a period of twelve years from the date of the law (June 7, 2013), although there are several intermediary dates that may result in TAMC to cease its operations earlier than the latest allowed date.

Initial capital of TAMC was one billion baht all owned by the Financial Institution Development Fund (FIDF), a separate legal entity within the Bank of Thailand (BoT-established in 1980s); to provide liquidity and solvency support to financial institutions. BoT issued short-term notes to fund the initial capital of TAMC. To increase capitalization TAMC issued shares to the public or any other person approved by the Council of Ministers, the remaining unsold shares was purchased by FIDF.

In short, TAMC was established not as a liquidation authority, but as a re-establishment and restructuring agency with a focus on revival and continuation of businesses to enable them to repay their debts and strengthen the larger economy.

**Organization structure and oversight:** TAMC board of directors appointed by the Minister of Finance and approved by Council of Ministers comprises of a Chairman and 11 other members, of which at least one must be a representative of the Federation of Thai Industries, another from Thai Chamber of Commerce and third from Thai Bankers Association. The directors, with a term of six years has a board policy of setting powers; operational rules, regulations and procedures and are responsible to supervise the general affairs of TAMC.

The internal audit committee appointed by the board is outsourced to Pricewaterhouse Corporation (PwC) and the external auditor is performed by the Office of Auditor General. It also appoints an executive committee who has the powers, duties and responsibilities to manage the sub-quality assets acquired from the financial institution.

TAMC organizational structure includes four asset management departments and one business restructuring department. The former is responsible for assessing the viability of borrowers and businesses; to plan, implement and monitor debt restructuring schemes. While the business restructuring department manages the restructuring plans to support the AMC and business restructuring process.

**Rules for assets:**

- **Asset acquisition:** TAMC divides the financial institutions into two: 1) more than 50 per cent owned by the government or FIDF include single and multiple-creditor loans that are expected to account to 80 per cent of the total asset transfers and 2) privately owned institutions are permitted to transfer multi-creditor NPLs.
- **Asset Transfer:** All sub-quality assets owned by the government or FIDF owned institutions as of December
31, 2000, including assets where the financial institution and borrower are involved in a lawsuit to settle the debt and assets, but have not received a verdict from court, must transfer to the TAMC. On the other hand private financial institution may transfer sub-quality assets to the TAMC on certain conditions, to name a few, 1) the asset must be a NPL as of December 31, 2000 and be secured with two or more creditors and the debtors must be a juristic person 2) aggregate book value of the borrower’s debts to all creditors must be at least THB 5 million and 3) the financial institution and the debtor cannot enter into a restructuring agreement within 30 days of the coming into effect 4) prior to the effect of the law, the Bankruptcy Court cannot have approved a rehabilitation plan that includes the NPL in question.

- **Transfer price of assets**: The transfer price acquired form the government or FIDF owned financial institutions is the market value of underlying collateral where from private financial institution is lesser of the market value of the underlying collateral or the book value of the transferred assets minus statutory reserves required by BoT.

- **Gain-loss sharing agreement applied to transferred assets**: TAMC and the transferring institution share in the gain and losses generated by the assets under management, but not on equal basis. If a gain is recorded, any amount up to 20 per cent of the transfer price of the asset will be shared equally and the additional gain will to go transferring institution (on aggregation the first 20 per cent gain should not exceed the difference between the book value and the transfer price of the asset) and above this will belong to TAMC. In case of loss suffered, when the amount recovered from the asset is less than the transfer price, i.e., less than 20 per cent of the transfer price will be borne by the transferring financial institution, equal to 20 per cent of the transfer price will be shared equally and further losses will be the sole responsibility of TAMC.

- **Amount and types of transferred assets**: Assets are not transferred to TAMC on an ongoing basis. Through June 30, 2002, 4,631 cases with the total book value of THB 18 billion in five tranches was transferred to TAMC at an average transfer price to book value of 33 per cent.

**Resolution of transferred assets and debtor cases**: TAMC can resolve and collect transferred assets and is limited by the law to certain strategies. As of August 2002, the number of resolved cases reached 800 with a total book value of THB 293 billion of which, 61 per cent were approved for debt/ business restructuring or rehabilitation in the Bankruptcy court while the rest were resolved by foreclosure of collaterals, final receivership of assets, or verdict by the Civil Court.
D. Korea - KAMCO

**Background:** Until 1999, Korea experienced a twin currency and banking crisis. Large current account shortfalls, highly leveraged corporate sector, strong reliance on short-term external financial and currency mismatch for both debtors and creditors contributed to the crisis. Korea’s financial system, in terms of total assets represents more than twice of its annual 2001 GDP of which 60 per cent accounts to the lending amount from the commercial banks. The estimated peak level of non-performing assets (NPAs) is said to have exceeded KRW 100 trillion (18 per cent of GDP) and official and market estimates of NPAs as a ratio of loans outstanding for the commercial banks reached 8 per cent and 15 per cent respectively.

To stabilize to economy and financial system, large-scale International Monetary Fund (IMF) support package of USD 60 billion and government financial resources was injected into the economy. The government relied on Korean Asset Management Company (KAMCO).

**Establishment of KAMCO:** KAMCO was established in 1962, as a subsidiary of the state-owned Korean Development Bank (KDB) for the purpose of liquidating KDB’s performing assets. In 1966, it purchased NPAs from other financial institutions and over the years it developed into a specialized real estate management company. Fast forward to 1997, KAMCO was reorganized pursuant to the “Act on Efficient Management of Korea Asset Management Corporation” (KAMCO Act) as a public nonbank financial corporation, under the supervision of the Financial Supervisory Committee (FSC). The government owns 42.8 per cent of KAMCO and the remaining is split between KDB and other financial institutions.

KAMCO was focused on the acquisition, management and disposition of NPAs. In addition, it supported the financial institutions through purchase of NPAs; perform as a “bad-bank” that engages in corporate restructuring by extending loans, debt-equity swaps, payment guarantees and recover public funds through the efficient management and disposal of assets.

The Act required NPL resolution activities to be conducted through Non-Performing Asset Management Fund (The NPA Fund) with a separate legal entity and different funding sources.

**Organization structure:** KAMCO is governed by 11-member Management Supervisory Membership which consists of the managing director of KAMCO, representatives from the Ministry of Finance and Economy (MOFE), Ministry of Planning and Budgeting, the FSC, the Korea Deposit Insurance Corporation, the deputy governor of KDB, two representatives from banking industry and three professional recommended by the managing director. Public Fund Oversight Committee led by the MOFE monitors the NPA fund.

**Funding:** The NPA Fund’s principal source of financing NPL purchased was issued by government-guaranteed bonds. KAMCO raised a total of USD 18 billion (won 21.5 trillion) through the issuance of bonds, from assessments on financial institutions in proportion to their holdings of NPAs and a loan from KDB. It recycled USD 15 billion of recovered funds to support its purchases. Maturity of the bonds was within one-five year, carried fixed and floating coupons and yielded a market rate of interest. Since the bonds were guaranteed by the government, they carried zero percent risk weight for regulatory capital purposes, a strong incentive for banks to sell NPLs and improve their capital base with a minimum 8 per cent capital adequacy ratio.

**Asset acquisition:** KAMCO was authorized to purchase NPLs from various financial institutions; commercial banks (bulk purchases – 56 per cent of face value), merchant banks, investment trusts, insurance companies and securities firms. NPLs that had multiple creditors and whose removal was considered critical to restructuring of the organizing institution were purchased on priority.

KAMCO purchased 30,000 odd NPLs with a face value of USD 92 billion (won 110 trillion – 20 per cent of the GDP). The discount depended on the type of loan, with the highest prices paid for ordinary loans (67 per cent), lowest price was paid for unsecured ordinary loans (11 per cent) and the other loans ranged between 20-50 per cent.

In 1997, to stabilize the financial sector KAMCO purchased in bulk to speed up the transfer process where the final settlement price was close to the loan loss provisioning rates then in effect and was subject to negotiation of ex-post individual settlement agreements. Post 1998, a central feature of these arrangements was a recourse arrangements or put/call option that allowed either KAMCO to return (put option) or the seller to request (call option) the return of the loans if the initial bulk purchase price and the eventual resolution price differed. Although, as the market matured and stabilized and with more information available on price transactions, KAMCO abandoned
the put/ call option and the sellers were free to decide whether to accept the price or not.

**Asset disposition:** KAMCO’s overall resolution strategy combined disposition and medium-term debt workout and restructuring. KAMCO’s disposition strategy can be divided into four broad categories depending on the nature and size of the NPL:

- **Bulk loan resolution:** Bulk sales were attractive as they resolved large number of loans that resulted in substantial cash flows and attracted foreign investments through an international bidding process. KAMCO used asset-bidding securitization (ABS), involved the transfer of NPLs to SPV which then issued securities, payable from the collection of all the NPLs in public market. KAMCO issued a total of 14 ABS transactions for 18 per cent of the face value of loan resolutions while recovering 12 per cent of the face value of the underlying securities and 99 per cent of their purchase price.

- **Establishment of joint venture(s):** KAMCO sold large portfolios to joint ventures and equity partnerships. A joint venture in which KAMCO holds 50 per cent ownership interest were established to manage and dispose real estate or to enhance recovery values through corporate restructuring.

- **Foreclosure, public auctions and individual loan sales:** KAMCO sold assets through courts, by public auctions and to directly to corporates.

- **Loan workout or restructuring:** Restructuring was either conducted through an informal out-of-court framework or under the less efficient court ordered program.

As of December 2002, KAMCO resolved USD 54 billion of its USD 92 billion in assets, at an average recovery rate of 46.8 per cent of face value.
E. Indonesia – IBRA

Background: Indonesia experienced the worst economic crisis due to the Asian financial crisis in mid-1997. The crash of the rupiah exchange rate and rise in interest rates caused defaults from the corporate sector which resulted in numerous banks to experience liquidity shortage and insolvency. In 1998, GDP contracted by 14 per cent, inflation increased to 45 per cent and interest rates soared to 70 per cent. The authorities were forced to take extraordinary measures to provide liquidity, capital and restructure the banks under the newly created Indonesian Bank Restructuring Authority (IBRA).

Establishment of IBRA: IBRA was created on January 26, 1998 for a period of five years as a bank restructuring agency to administer the deposit guaranty and to restructure banks. It was established under the minister of finance; the chairman was appointed by the president and other members were appointed by the central bank. In addition, it was agreed that upon dissolution the remaining assets belonged to the state.

IBRA’s role was expanded to include: (i) managing the NPLs from banks that have been closed, nationalized or jointly recapitalized by government and their shareholders and (ii) negotiate and manage settlement agreements with the controlling shareholders of the closed banks. The initial mandate lacked guidelines governing the division of supervisory responsibilities between Bank Indonesia and IBRA which led to confusion within the public, banks and organizations. In the end, Bank Indonesia reassumed responsibility for supervision and IBRA was the agent.

The Banking Law Amendments and Implementing Regulations remained silent regarding governance and transparency. Changes were introduced by the World Bank and IMF but were ineffective. Over time IBRA improved; operating results were reported to the legislative, financial results were audited in accordance with generally accepted accounting principles and published, budget was revised and approved on a gross base and IBRA’s goals on recovery were publicly disclosed and tracked.

Funding: IBRA was funded by the Indonesian budget. The bonds were not issued instead government directly issued bonds to recapitalize the banking sector. Annual recovery targets for IBRA were established whereby the proceeds were remitted directly to the government to reduce the budget deficit.

Organizational issues: IBRA’s organizational structure was divided into three business lines: banking restructuring, asset management and shareholder settlements. Each department focused solely on its business excluding the other divisions, which led to each area maintaining its own internal database and operating systems resulting in inconsistency in data. The other issue was IBRA recorded the loan assets at gross book value rather than market value resulting in overestimation of realizable value. The public confidence dipped losses were observed in early sales rather than recoveries.

Asset disposition and Bank sales: IBRA closed 54 banks, nationalized 21 banks and held 6 jointly recapitalized banks. Banks were mainly returned to private ownership through transparent auction process with majority stakes sold to the market or blocks to the majority owner. In total IBRA recovered Rp 19 trillion from sale proceeds and dividends from its equity holdings.

The asset management unit managed NPLs with a book value of Rp 346.7 trillion (27 per cent of 2000 GDP). IBRA’s NPL portfolio accounted to 90 per cent of NPLs in the system and were segmented by loan type with different resolution strategies applied to each category.

In 2002, IBRA failed to accomplish its mandate and shifted its strategy to rapid asset disposition. The loan sales were conducted through a transparent, market-based process with the floor price determined by an in-house assessment of each loan’s market value. Over the period, IBRA sold 60 per cent of its NPL portfolio and the average recovery rate was 22 per cent, reflecting poor quality of loans and the time spent before the sale.

The shareholder settlements unit pursued former bank owners who has misused liquidity support. A total of 44 bank owners deemed to violate the regulations of Bank Indonesia. The funds could be recovered if the former owner transferred assets of enough value to IBRA. The other option was to appoint a representative on the board of the corporation, leaving the existing members with full access to and control over the assets. By 2004, when IBRA dissolved, it only had recovered 22.4 per cent of the Rp 130.3 trillion owned by former owners.

Performance and winding up: IBRA was discounted as of February 2004. Although it performed well as a bank resolution agency, it was comparatively less successful with respect to maximizing recovering through loan restructuring and shareholders settlements. Over
the period of six years, IBRA recovered Rp 151 trillion or 23 per cent of the Rp 650 trillion cost of the crisis. Remaining Rp 275 trillion assets were transferred to a newly established AMC under the Ministry of Finance.
Connect with US

Uday Bhansali
udaybhansali@DELOITTE.com

Sumit Khanna
sumitkhanna@DELOITTE.com

Sanjoy S Dutta
sanjoydatta@DELOITTE.com

Sneha Prithviraj
snprithviraj@deloitte.com