Effective Early Warning for Managing Non-performing Assets
Non-performing assets are one of the biggest challenges facing the global banking system, and particularly Indian banks. The extent of the challenge for nationalized banks is that non-action is no longer an option. This issue is likely to get worse due to the overall economic slowdown impacting most customer segments across banks' portfolio like MSMEs (micro, small and medium enterprises), large corporates, and agriculture to name a few.
Non-performing Asset Management – The Need for a Comprehensive Approach

Based upon our work across geographies, banks will require a comprehensive approach to non-performing asset (NPA) management that includes not just curative but also preventive actions across the credit life cycle.

While tools such as automated decision making, early warning solution, external credit data can further strengthen a bank’s existing credit origination and appraisal process and drive lower NPA formation, in our view post-facto measures such as default management, covenant enforcement, and independent collateral liquidation can help banks better manage their existing NPA stock. Figure 1 provides a high level overview of Accenture’s approach to NPA management.

Although we believe there are a number of gaps in the current credit capabilities of Indian banks, and those operating in Continental Europe and Latin America, the matter needs to be approached in a phased manner by focusing on a select few capabilities initially. Some of the capabilities that should be prioritized include external data acquisition for credit assessment models, early warning framework and collateral management for credit monitoring, soft landing and care programs for default management and centralized recovery and collection.

Figure 1: Accenture Approach to NPA Management

- Automated acquisition models and scorecards leveraging multiple sources of information e.g., firmographic, bureau, financial information, news flow, etc.
- Integration of centralized risk assessment models and branch level decision process
- Automated risk ratings systems
- Early warning systems
- Portfolio analytics and feedback
- Dynamic collateral management
- Default recognition
- Soft landing and care programs
- Loan restructuring
- Collection analytics
- Collection and recovery management
- Liquidation
- Debt sale
- Litigation management
- Automated centralized risk ratings systems
- Early warning systems based on analytics driven rules and qualitative inputs
- Dynamic collateral management with emphasis on periodic revaluation and prudent cross-collateralization logic
- Regulatory compliant default identification logic
- Segment based collections strategy including call-center capacity planning, propensity scorecards, dialer-manual mix, fraud scorecards, etc.
- Soft landing and care programs for corporate defaults and stressed assets
- Independent collateral liquidation and covenant enforcement teams
- Effective pricing of bad asset for optimizing debt-sale
- Standardized litigation management strategies

Source: Accenture, May 2014
Business Case for an Early Warning Solution

Through multiple engagements across large global banks, Accenture believes that implementing an early warning solution can help substantially reduce banks’ NPAs. A comprehensive early warning framework that included identifying the right customer segment, understanding the data landscape, formulating early warning triggers and creating a risk mitigation plan, resulted in 15-20% reductions in NPAs among some of the large global banks we have worked with.

An early warning solution can also help banks irrespective of scale, scope and region:

• Reduce the new NPA flows (and a resulting reduction in NPA stock)
• Maximize the recovered value and reduce the Exposure At Default with timely alerts
• Better utilize capital
Building an Early Warning Solution

Building an early warning solution (EWS) requires banks to adopt a custom approach that is specific to their portfolio needs. Accenture’s five step approach that combines a bank’s existing and new data sources within a strong analytical framework offers an effective solution.

1. Portfolio Prioritization

For banks to derive maximum value from an early warning solution within a short time-frame, they should prioritize select customer segments (MSME, Corporate, Retail) within their portfolio. Depending upon the composition of their portfolio, banks can consider factors like loan loss provisions, cyclicity of the portfolio, management view, regulatory guidelines, significant deterioration in credit quality, and risk mitigation levers, to prioritize. For example – while EWS for an MSME segment can significantly drive lower NPA formation, it might have limited impact on directed lending which is governed by specific regulatory requirements.

Additionally, a proof of value assessment through case studies can help drive additional insight into the relevance of an early warning framework and address portfolio requirements.

2. Data Landscape

A comprehensive EWS solution utilizes a mix of the bank’s internal data as well as external data elements. While banks across regions have historically focused on traditional data sources, we have observed that recently more successful banks have differentiated themselves by leveraging non-traditional and powerful data that exists both within and outside their systems. For example; instances of bounced checks in customer’s deposit account, advance tax deposit receipts, stock market data, and more.

While evaluating alternate data sources, it is important for a bank to clearly articulate the value of these sources from a credit perspective and avoid the temptation of some of the new age source/techniques that offer limited incremental value, like sentiment analysis through social media.

The figure below illustrates various sources of EWS trigger information. These consist of information captured from external bureaus and public sources as well as internal trade line and customer payment behavior data.

Banks, particularly those operating in India may want to also consider evaluating these different data sources across the following dimensions:

- **Availability** – Although the data source might provide very rich information, a bank might not have access to it or the data might not be available in a very timely manner.
- **Usability** – This dimension would help govern whether the bank can use the information (e.g., regulatory restrictions) from an early warning perspective.
- **Reliability** – The focus here is whether the source of information is complete and accurate. Integrity of the data source would help determine how effective the source would be in identifying distressed clients and possibly avoiding raising unnecessary alerts which could be detrimental to the business.

Another dimension banks should consider while evaluating the different data sources is the frequency of updates (e.g., real-time, daily, monthly, bi-weekly).

The exercise of identifying and shortlisting data sources needs to be aligned to the bank’s portfolio segment. A generic approach may result in negative returns for the bank due to a large number of false alerts. This exercise can be time and resource consuming but banks can accelerate through this phase by leveraging tools such as Accenture’s Early Warning Trigger Library that contains a pre-defined set of triggers mapped by their relevance to each customer segment.

Source: Accenture, May 2014
Figure 3: Early Warning Data Landscape

**Early Warning Systems**

**Qualitative**
- Labor problems
- Frequent changes in plans
- Disputes amongst partners/staff
- Adverse changes to government policies
- Emergence of new technology

**External**
- Bureau
  - Decline in bureau scores - path and magnitude (e.g., CIBIL)
  - Name appearing in negative list
  - Increase in liens
  - Out-of-business flag
  - Severe delinquency flag

- Public sources
  - Name appearing in Ministry of Corporate Affairs defaulters list
  - Inability to raise supplies on unusual credit terms
  - Litigation filed in courts

- News feeds
  - Negative web sentiment through text mining
  - Adverse press releases on financial or operating performance
  - Fraud related news

- Financials
  - Declining current ratio or total net worth
  - Low cash to liability
  - Fudging of financials or auditor qualifications
  - Borrower reporting stressed financials
  - Delay in submission of stock statements or audited financials
  - Worse than expected financial performance

**Quantitative**

- Internal
  - Trade line information
    - Stress on other trade lines for the customer
    - Default on one or more repayment obligations
    - Invocation of guarantees
    - Loss of key customers
  - Payment/Attitudinal behavior
    - Increasing delinquency
    - High capacity utilization/Out of pattern behavior
    - Increasing percentage of customers with 60 or 90 days past due
    - Dishonored checks
    - Avoiding contact with bank
    - Increasing frequency of overdrafts in current accounts or return of checks (derogatory credit item)
    - Repeated extension request for repayment
    - Drop in internal ratings

**Source:** Accenture, May 2014
3. Early Warning Trigger

For an effective early warning framework, it is important to study the pre-default behavior of customers in the context of the various data elements. Defining triggers that can identify a problem before a customer faces severe credit challenges or is already past due/default can positively impact a bank’s ability to take appropriate action.

While studying the pre-default behavior of customers, it is important to identify key data attributes that show correlation with default behavior or stress scenario, for example, a small company with limited liquidity facing decline in sales. This can help define triggers and their relevance to the bank.

Banks can define either simple or complex triggers. Simple triggers that are single-dimensional and are easy to capture and track, often fail to include the interdependencies that exist in the real world and therefore could be less predictive (e.g., decline in sales). Whereas complex triggers which are derived from several simple triggers can be much more powerful predictors of business distress than a simple variable. These variables can be combined using advanced statistical techniques along with business intuition and expert judgment (e.g., two consecutive quarters with declines in year-over-year (y-o-y) advance tax deposit of greater than 25% (based on bank information) and declines in employee count greater than 20%).

After defining the triggers that will be used, Accenture recommends banks consider evaluating each one of them on two important dimensions: hit rate and signal strength.

Hit rate: Of the total number of customers flagged by the trigger, how many of the customers ended up in default

Signal strength: The average time lag between the trigger point and the actual default event

Having triggers which are high on both dimensions is very important. A trigger with a high hit rate but very low signal strength is irrelevant as it does not provide the bank with any time to action since the customer would already be in default (e.g., customer missing two scheduled loan repayment indicators a distress giving this trigger a high hit rate but low signal strength as the time lag between the trigger and default is too short). In comparison a trigger that looks into two consecutive y-o-y declines in the advance tax deposit will have high signal strength – as this would indicate the client is experiencing stress in its business model and might experience credit difficulties in coming months, giving the bank more time to take appropriate risk mitigation measures.

4. Composite Risk Index (CRI)

How banks bring together different triggers and integrate them into score/watch-list categories is important for a successful implementation of an early warning solution. After relevant triggers are shortlisted for different segments and portfolios based on signal strength and hit rate analysis, each of these triggers will be assigned an overall impact score based on statistical analysis of the bank’s historical data, business intuition and expert judgment.

For each customer, a composite index score is generated based on number of triggers hit, impact of triggers, type of triggers and correlation between triggers using the following logic.

Step 1: Define triggers and assign an impact score for each of the triggers; group together correlated triggers into categories based on correlation matrix.

Step 2: Identify the trigger within each trigger category that has maximum impact score for each customer. Simple addition of scores from correlated triggers will overstate the stress significantly.

Step 3: Correlation adjusted summation of impact scores of selected triggers with maximum impact score from each trigger category are used to come up with a final composite score.

Step 4: Design a rating scale to group customers into different groups based on final composite score.

Incorporating all the triggers into a composite risk index will provide financial institutions with a normalized score that enables them to monitor a multitude of customers simultaneously on a standardized scale.

5. Risk Mitigation Action Plan (RMAP)

Developing and implementing an early warning framework is not very meaningful unless banks are ready to integrate it with their customer management processes and up-skill their credit officers. Identifying a customer in distress will not yield any result until the Bank Credit Officer clearly understands the action that he/she is required to take.

Action plans that contain a pre-defined set of mandatory action items (e.g., initiating recovery, soft-landing, additional covenants) along with certain recommended items (e.g., re-underwriting, request updated financials) for each risk score/category are important.

In addition, banks should create a work-flow system to effectively manage and action the cases that are triggered by the system.

Figure 4: Early Warning Solution – Trigger Hit Rate versus Signal Strength

Source: Accenture, May 2014
Technology Options: Early Warning Solution

While creating a framework, defining the triggers and integrating them into a score is very important, technology plays a crucial role in enabling the success of an early warning solution.

Although banks have a multitude of options available for implementing, early warning solutions are often most effective if they are integrated with a bank’s customer management systems and enabled through the bank’s existing database and analytics solutions.

The system does not need to be very complicated as long as it can meet the bank’s requirements. Solutions can range from a simple excel based tool to a custom solution as long as it integrates with the different data sources and connects with the downstream systems for actioning by the credit officers.

A common fallacy is to take the easy route and implement an out of box generic EWS application that will not take into account the specific circumstances of the bank and thus not deliver the desired business impact in NPA reduction. A standalone EWS application can further complicate the IT application landscape of the bank and undermine its NPA management program.
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