

Early Warning Indicators of Bank Default Risk in Vietnam: A Credit Rating Perspective

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This report does not constitute a rating action.

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Key Takeaways

- **Based on an analysis of 15 historical cases involving bank defaults and near-default events, FiinRatings identifies 11 early warning indicators of default risk for Vietnamese banks.** These quantitative and qualitative indicators typically emerge several years before a default event and tend to recur, although the immediate causes of default vary from case to case. Quantitative indicators capture abnormalities in business models, asset and funding structures, capital buffers, asset quality, and liquidity, while qualitative indicators primarily reflect banks' risk position, fundings, and governance.
- **A notable paradox: less common warning indicators may provide stronger predictive value.** Based on their frequency of occurrence across the 15 cases and the consistency with which they appeared, the 11 indicators are classified into three groups according to their prevalence. Nevertheless, we notice that few indicators observed in only a limited number of banks were found to possess particularly strong signaling power in identifying institution-specific risks that could be overlooked.
- **The early warning indicators also demonstrates strong practical applicability in the current Vietnamese banking environment.** We performed testing on 12 currently active banks using data from 2020 to 2025, all of which cover four different credit rating and preliminary credit assessment categories ([AA] and above, [A], [BBB], and [BB]). Rather than assessing individual indicators in isolation, we evaluated both the presence and frequency of multiple early warning indicators for each bank. The results suggest that the indicators provides meaningful distinguishing power, with a clear divergence in the frequency of warning indicators across rating categories. **Banks with higher credit ratings ([AA] and above and [A]) exhibited relatively few warning signals, whereas the frequency of these indicators increased markedly among commercial banks in lower rating categories.**
- While the study is subject to certain limitations, we expect the proposed early warning indicator framework to provide an additional perspective for bank supervision, risk management, and credit assessment in Vietnam, particularly as the country's legal and regulatory framework for early intervention and banking supervision continues to evolve. The framework should also be reviewed and updated periodically to ensure that it remains aligned with changes in the current operating environment, market data, and the evolving risk profile of the Vietnamese banking system over time.

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Introduction

Context

The banking sector plays a central role in Vietnam's financial system, serving as the primary channel for capital allocation to the economy and exerting a direct influence on macroeconomic stability. Therefore, the safety and stability of the banking system are not only matters for individual credit institutions but also fundamental prerequisites for sustainable economic growth. As Vietnam continues to pursue high economic growth targets, the banking sector's financing role is expected to increasingly expand. However, the economy remains highly leveraged, with the credit-to-GDP ratio reaching approximately 146% at the end of 2025, while capital buffers and banks' loss-absorption capacity continue to vary considerably across the sector.

History has shown that Vietnam's banking system has repeatedly faced periods of severe stress. Following the Global Financial Crisis of 2008, the banking sector exposed significant weaknesses in asset quality, liquidity, and risk management, prompting a comprehensive restructuring programme during the 2011-2015 period. More recently, developments during the 2022-2023 period demonstrated that vulnerabilities at several credit institutions can spread rapidly across the financial system, requiring decisive regulatory intervention to preserve systemic stability.

Although these episodes occurred under different macroeconomic conditions, they share a common characteristic: banks experiencing financial distress rarely deteriorate abruptly. Before severe credit events occur or regulatory intervention becomes necessary, early warning signs typically emerge through the deterioration in asset quality, profitability, liquidity, capital adequacy, funding structure, or governance quality. **The early identification of these signals is therefore of importance for regulators, investors, and banks themselves in strengthening risk management.**

The need to develop effective early risk identification tools is also consistent with the authorities' direction of enhancing proactive supervision. The Law on Credit Institutions 2024 formally introduced an early intervention framework while further strengthening the legal framework governing special control and the resolution of weak credit institutions to identify and address signs of deteriorating financial soundness before risks become severe. This underscores the importance of detecting risk signals at an early stage, as solvency and liquidity problems are typically the culmination of risks that have accumulated over time within a bank's operations.

Research Objectives

Against this backdrop, **this research aims to develop a framework of early warning indicators for identifying the risk of default among Vietnamese commercial banks** by analysing quantitative and qualitative indicators, as well as business activities that typically emerge prior to periods of financial distress. Rather than seeking to predict the exact timing of an insolvency event, the study focuses on identifying indicators with meaningful early warning value and assessing their reliability, thereby supporting regulatory supervision, risk management, and credit rating assessments in the Vietnamese context.

Although numerous early warning models have been developed internationally, most are based on data from developed economies and do not fully capture the structural characteristics of Vietnam's banking system. Moreover, domestic empirical research on early warning indicators for banks, particularly from the perspective of credit rating analysis, remains relatively limited.

In addition to regulatory supervision and banks' internal risk management, **credit ratings serve as an independent, objective, and forward-looking assessment mechanism.** By comprehensively evaluating an institution's credit profile, financial strength, operating environment, and resilience to adverse shocks, credit ratings seek to identify deteriorating credit quality before risks are fully reflected in financial performance or market confidence. Consequently, the indicators employed in credit rating analysis can provide a valuable perspective for regulatory oversight, risk management, and investment decision-making.

Research Scope

To develop a framework of early warning indicators for identifying the risk of bank default, **the analyst team selected a total of 15 historical cases in Vietnam** (based on available data covering the 2008-2022 period) for analysis. These comprise 11 cases of bank default and 04 cases of banks that reached a near-default situation but proactively underwent restructuring. **A detailed description of the 15 cases is provided in [Appendix 01](#) of this study.**

We also note that Vietnam currently does not have a formal regulatory definition or credit rating classification for situations in which an entity fails to make timely payment of interest and/or principal on one or more debt obligations, commonly referred to as "default". **For the purposes of this research, the definition of default is based on [FiinRating's Policy and Definition and Recognition of Defaults](#).**

Research Methodology

The analyst team adopted a three-step methodology:

- i. **Developing an early warning indicator framework** (summarised in *Exhibit 01*, comprising both quantitative and qualitative indicators), based on historical bank default cases in Vietnam. The qualitative indicators were further benchmarked against selected international bank default cases (*Exhibit 20*) to strengthen the empirical basis of the framework and assess its applicability across different contexts;
- ii. **Evaluating and classifying the indicators** within the framework based on the frequency with which each indicator appeared across the 15 bank cases examined, while also assessing the degree of consistency of each indicator across different cases; and
- iii. **Testing the indicator framework** on a sample of currently operating Vietnamese banks. Specifically, the analyst team selected banks representing different credit rating categories to assess the appropriateness and practical applicability of the proposed early warning indicator framework.

During the research, we also observed that the predictive effectiveness of certain indicators may vary across economic cycles and different macroeconomic environments. Accordingly, **the proposed framework should be regarded as a dynamic framework that requires periodic review and adjust to reflect changes in the banking sector**, thereby maintaining and enhancing its effectiveness in the early warning of default risk.

Summary of Research Findings

Exhibit 01: Summary of Early Warning Indicators of Bank Default Risk

Quantitative Indicators	Qualitative Indicators
Indicator 1: Growth imbalances across Total Assets, Customer Loans and Customer Deposits	Indicator 1: Credit concentration risk
Indicator 2: Persistently low and declining Broad Liquid Assets-to-Total Assets ratio	Indicator 2: History of governance and compliance breaches
Indicator 3: Interest and Fee Receivable Days remain consistently and significantly above the industry median	Indicator 3: Concentrated control through related individual shareholders
Indicator 4: Growth in Non-Performing Loans (NPL) and Special Mention Loans (SML) significantly outpaces Customer Loan Growth	Indicator 4: Unusual funding practice
Indicator 5: Persistently high and rising Leverage Ratio	Indicator 5: Instability in the shareholding structure and management
	Indicator 6: History of restructuring and regulatory intervention

Details of the Quantitative Indicators

The research findings indicate that, prior to becoming insolvent, banks typically exhibit unusual movements across a range of financial indicators. Although the timing and magnitude of these changes vary from case to case, the quantitative indicators generally demonstrate a relatively high degree of consistency. The following section presents a detailed discussion of the characteristics and early warning value of each indicator included in the proposed early warning framework.

Indicator 1: Growth imbalances across Total Assets, Customer Loans and Customer Deposits

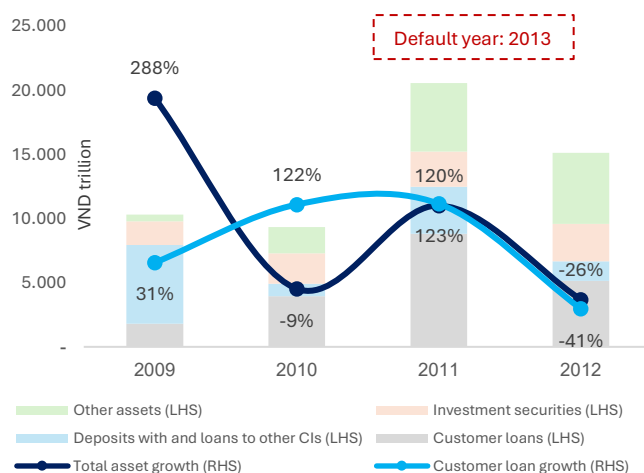
A common sign observed among banks that subsequently default is **a divergence in the growth rates** of key operating metrics. This indicator may manifest in a few forms, including: a significant disparity (i) between the growth rate of Total Assets and that of Customer Loans; or (ii) between the growth rate of Customer Loans and that of Customer Deposits. Such divergences reflect an unbalanced expansion between bank's asset base, core lending activities, and funding, thereby increasing liquidity risk and weakening bank's resilience to adverse shocks.

Form 1: Divergence Between Total Asset Growth and Customer Loan Growth

A substantial divergence between the growth rate of Total Assets and that of Customer Loans is a notable feature observed among many financially distressed banks prior to default, reflecting an unbalanced expansion of bank's operations, accompanied by unusual changes in the composition of its asset base.

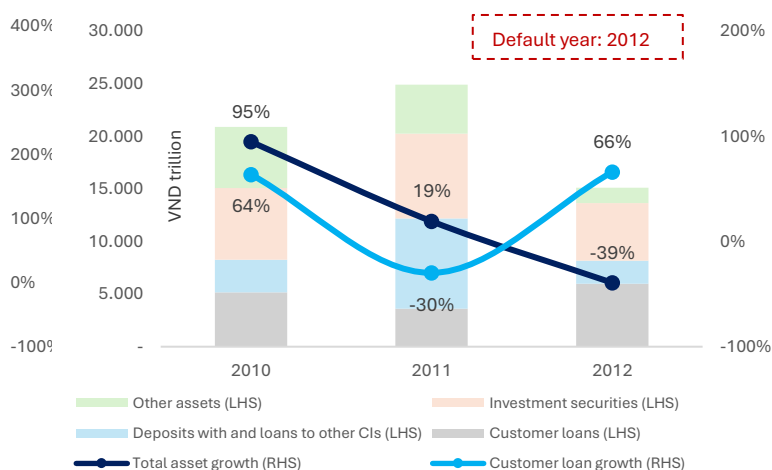
For example, Bank M exhibited significant fluctuations in the relationship between total asset growth and customer loan growth during the 2009-2012 period (*Exhibit 02*). Specifically, in 2009, the Bank's total assets increased by 288% YoY, driven primarily by the rapid expansion of deposits with and loans to other credit institutions ("CIs"), which accounted for approximately 60% of total assets. In contrast, customer loans grew by only 31% YoY and represented just 17% of total assets. In 2010, total assets declined by 9% as the interbank lending portfolio contracted, while customer loans surged by 122% YoY. The disparity in the annual growth rates of these two indicators narrowed in 2011, when both expanded by approximately 120%, before turning negative in 2012, preceding the Bank's default in 2013. This pronounced divergence between total asset growth and customer loan growth, together with substantial year-to-year shifts in the Bank's asset composition, reflects an unbalanced expansion of Bank M's balance sheet. In addition, the Bank's credit portfolio exhibited a high degree of concentration among related customers. These factors heightened the Bank's risk and were among the key contributors to its compulsory merger under the SBV's restructuring programme in 2013 (*Appendix 01*).

Exhibit 02: Total asset growth and asset structure compared with customer loan growth of Bank M (2009-2012)



Source: FiinRatings

Exhibit 03: Total asset growth and asset structure compared with customer loan growth of Bank G (2010-2012)



Source: FiinRatings

Another example of the divergence between total asset growth and customer loan growth can be observed at Bank G during the 2010-2012 period (*Exhibit 03*). Specifically, in 2011, the Bank's total assets continued to grow by 19% YoY, while customer loans declined by 30%, with customer lending accounting for only approximately 15% of total assets. As a result, the Bank's loan-to-

deposit ratio (LDR) stood at 58%. During the same year, the majority of the Bank's assets were allocated to non-lending assets, including deposits with and loans to other credit institutions, investment securities, and other assets, which accounted for around 34%, 32%, and 19% of total assets, respectively. In 2012, the significant gap between the two indicators persisted but reversed in direction, with total assets declining by 39%, while customer loans increased by as much as 66%.

Regarding asset composition, Bank G maintained a high proportion of non-lending assets. Specifically, during 2009-2012, investment securities accounted for approximately 32%-45% of total assets, while deposits with and loans to other credit institutions also represented a significant share, ranging from 11%-34% of total assets. By contrast, customer loans accounted for only 15%-36% of total assets, indicating the Bank's substantial reliance on investment activities and financial market transactions rather than traditional loans. This asset structure was consistent with the Bank's pre-restructuring business model, which focused on entrusted securities investment and interbank market transactions. Maintaining a high concentration of assets in investment securities made the Bank more vulnerable to developments in financial markets during the 2011-2012 period, when market liquidity and the value of investment portfolios declined. This business model significantly increased the Bank's market risk and was one of the key factors that ultimately led to its voluntary restructuring in 2012 ([Appendix 01](#)).

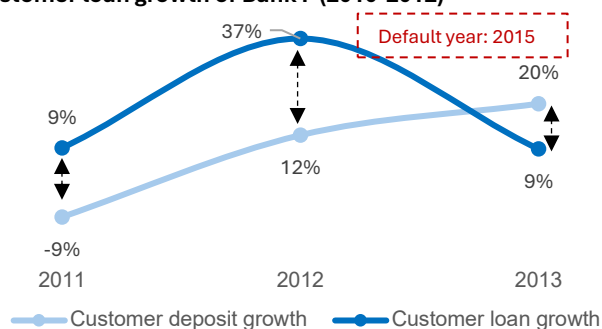
Accordingly, the divergence between total asset growth and customer loan growth in this case reflects not only a difference in the growth trajectories of the two indicators, but also an asset allocation and funding utilization model that differs materially from the conventional operating model of a commercial bank.

Form 2: Divergence Between Customer Deposit Growth and Customer Loan Growth

A significant divergence between the growth rate of customer deposits and that of customer loans reflects an imbalance between a bank's funding and lending activities. When customer loan growth consistently outpaces customer deposit growth over an extended period, banks may need to bridge the funding gap through less stable funding sources, thereby increasing liquidity risk and refinancing risk. Conversely, when customer deposits grow significantly faster than customer loans, this suggests that mobilized funds are not being deployed efficiently, forcing the Bank to allocate excess funds to other assets that may carry higher levels of risk.

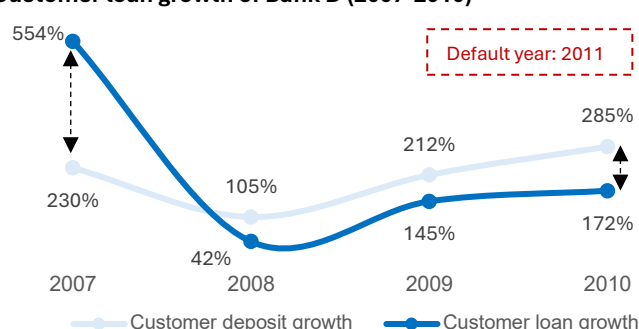
For example, Bank F recorded annual customer loan growth that significantly outpaced customer deposit growth during the 2011-2012 period. Specifically, in 2011, customer deposits declined by 9% YoY, while customer loans increased by 9%. In 2012, customer loans continued to expand by 37%, substantially exceeding the 12% growth in customer deposits. This trend is consistent with the Bank's strategy of extending concentrated credit to related companies while relying on high-cost funding through the off-book interest costs. The combination of funding pressure and deteriorating asset quality further heightened the Bank's liquidity risk, ultimately contributing to its inability to meet its debt obligations ([Appendix 01](#)).

Exhibit 04: Customer deposit growth compared with Customer loan growth of Bank F (2010-2012)



Source: FiinRatings

Exhibit 05: Customer deposit growth compared with Customer loan growth of Bank D (2007-2010)



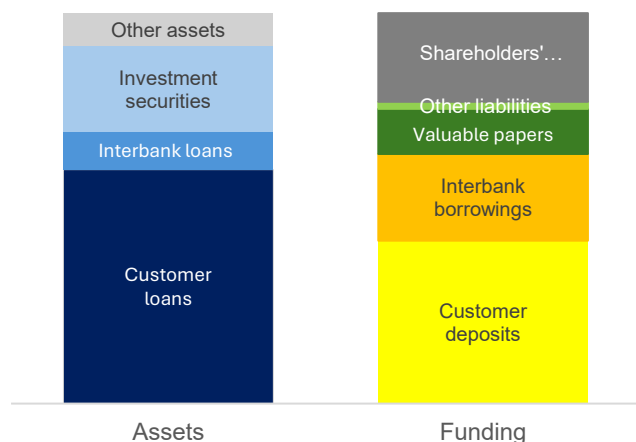
Source: FiinRatings

Similarly, prior to being defaulted, Bank D exhibited a prolonged divergence between the annual growth rates of customer deposits and customer loans during the 2007-2010 period ([Exhibit 05](#)). Specifically, in 2007, customer loans surged by 554% YoY, substantially outpacing the 230% growth in customer deposits. Conversely, during 2008-2010, customer deposit growth exceeded customer loan growth, reaching 105%, 212%, and 285%, respectively, compared with corresponding customer loan

growth of 42%, 145%, and 172%. However, the sharp increase in customer deposits during this period primarily reflected the Bank's need to support liquidity for its rapidly expanded loan portfolio.

Furthermore, Bank D's assets and funding structure also highlighted the mismatch between its funding uses and core funding sources in 2009 (*Exhibit 06*). Specifically, customer loans accounted for approximately 60% of total assets, while customer deposits represented only 42% of total funding, resulting in a loan-to-deposit ratio (LDR) of 144%. The resulting funding gap was financed primarily through (i) deposits from and borrowings from other credit institutions and (ii) the issuance of valuable papers, which accounted for approximately 29% and 15% of total funding, respectively.

Exhibit 06: Asset and Funding structure of Bank D as of 31/12/2009

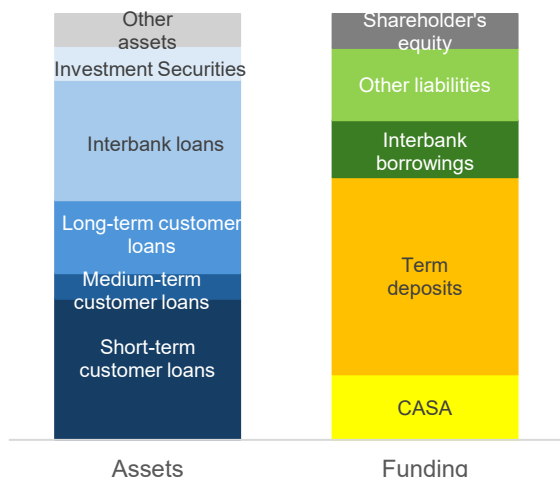


Source: FiinRatings

As of 2009, this asset and funding structure indicated that the Bank's lending activities relied heavily on funding sources other than customer deposits, reflecting the consequences of its earlier period of aggressive credit expansion. As described in [Appendix 01](#), Bank D's short-term funding is utilized to finance medium-and-long-term loans, with a significant concentration in real estate and real estate-related sectors. By 2010, although the Bank's asset and funding structure appeared more balanced in terms of scale, it was largely due to its aggressive mobilization of deposits to support the rapidly expanding loan portfolio; the underlying maturity mismatch that had accumulated over previous years remained unresolved. Consequently, the Bank's increasing reliance on short-term funding to finance medium- and long-term lending weakened its resilience to liquidity shocks, contributing to its default in 2011.

The two cases above demonstrate that the divergence between customer deposit growth and customer loan growth is not limited to situations where credit growth outpaces deposit growth, but may also occur in the opposite direction, with customer deposit growth significantly exceeding customer loan growth in consecutive years. Although the two manifestations differ, both reflect a lack of alignment between the Bank's funding sources and funding uses prior to the bank's default. Overall, the prolonged divergence between deposit growth and credit growth observed in both banks indicates a weakening linkage between funding generation and fund deployment. As such, it serves as a meaningful early warning indicator of the deterioration in the sustainability of a bank's operating model.

Exhibit 07: Asset and Funding structure of Bank P as of 31/12/2011



Source: FiinRatings

Additionally, to provide a benchmark for a sound asset and funding structure, we selected Bank P (not in the 15 research cases) as a reference institution (*Exhibit 07*). From a credit rating perspective, Bank P was assessed as a financially sound and stable bank as of 2011. At that time, the Bank's asset and funding structure reflected a resource allocation model consistent with the traditional business model of a commercial bank, in which lending activities accounted for the large component of the asset base and were funded primarily by customer deposits, a funding source generally regarded as more stable. Specifically, customer loans accounted for approximately 56% of total assets, while customer deposits represented around 67% of total funding, corresponding to a loan-to-deposit ratio (LDR) of 90%. In addition, investment securities and other assets each accounted for only about 8% of total assets.

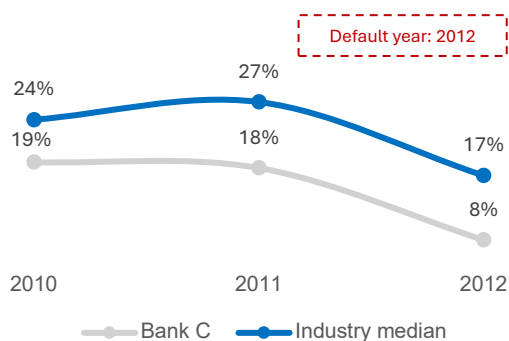
This comparison highlights the differences in asset allocation and funding structures across banks, thereby reinforcing our view that imbalances between funding mobilization and fund deployment constitute an important early warning indicator of a bank's risk of default.

Indicator 2: Persistently low and declining Broad Liquid Assets-to-Total Assets ratio

Another common early warning indicator observed prior to bank default is **a persistently low and gradually declining ratio of Broad liquid assets to Total assets**, reflecting the erosion of bank's liquidity buffer. This ratio measures the proportion of assets that can be readily converted into cash, including cash and cash equivalents, deposits with the State Bank of Vietnam (SBV), and deposits with and loans to other credit institutions. A declining ratio indicates that bank has fewer readily available resources to meet its short-term payment obligations and becomes increasingly reliant on external funding or on converting, pledging, or liquidating less liquid assets. Although maintaining a relatively low level of liquid assets may enhance profitability under normal operating conditions, a thin liquidity buffer reduces bank's resilience to liquidity shocks and increases its exposure to liquidity risk.

The research findings also show that Bank O maintained a very low ratio of Broad liquid assets to Total assets, at approximately 5%-8% during the 2017-2021 period, significantly below the industry median of 14%-17% (*Exhibit 09*). This was primarily attributable to the fact that the Bank's liquid assets did not expand in line with the growth of its total assets. Specifically, total assets increased from approximately VND 444 trillion to VND 703 trillion over the period, driven mainly by the expansion of customer loans as well as interest and fee receivables, while broad liquid assets grew only marginally and even declined during the 12-24 months preceding the Bank's default. Immediately after the Bank's misconduct and regulatory violations were made public, it faced a bank run and lost access to interbank funding (*having already declined gradually over the preceding years*). Against this backdrop, and with its liquidity buffer having remained at a low level for an extended period, the Bank no longer possessed sufficient readily available liquid resources to meet the surge in payment obligations. This significantly intensified liquidity pressure and ultimately resulted in the Bank's default.

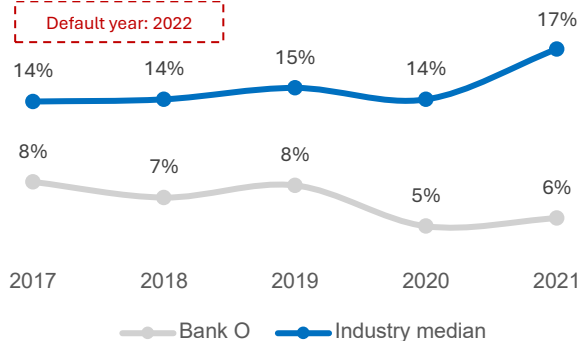
Exhibit 08: Broad liquid assets to Total assets of Bank C compared with the industry median (2010-2012)



Source: FiinRatings

Note: Broad liquid assets (FiinRatings – adjusted) = Cash, gold and gemstones + Deposits with the State Bank of Vietnam + Deposits with and loans to other credit institutions

Exhibit 09: Broad liquid assets to Total assets of Bank O compared with the industry median (2017-2021)



Source: FiinRatings

Similarly, Bank C consistently maintained this ratio at a level notably below the industry median throughout the 2010-2012 period, with the gap widening from approximately 5 percentage points in 2010 to 9 percentage points in 2012. This trend was likewise driven primarily by the Bank's rapid asset expansion in the years preceding its default (*with total assets growing by 132% and 37% in 2010 and 2011, respectively*), while the proportion of broad liquid assets remained persistently low. In the context of the Bank's aggressive credit expansion (*primarily to related companies in the real estate sector in the case of Bank C*), **this indicator points to a relaxation of liquidity risk management as the Bank's risk appetite increased**. As a result, the Bank's resilience weakened significantly, ultimately leading to its insolvency in 2012 amid adverse developments in the real estate market. Subsequent investigations also uncovered irregularities in the Bank's lending practices, including credit extensions that were in breach of regulatory requirements.

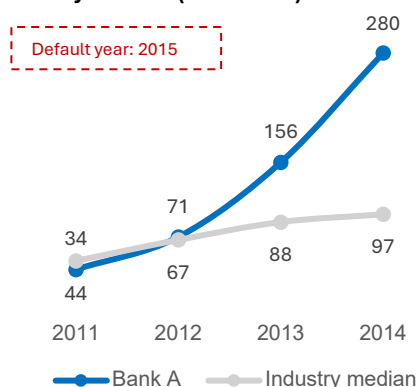
Indicator 3: Interest and Fee Receivable Days remain consistently and significantly above the industry median

Interest and Fee Receivable Days (calculated as the average of interest and fee receivables over two consecutive years divided by the average daily interest income and fee income) measure the gap between recognized revenue and the actual cash inflows generated from lending and fee-based activities. Our analysis indicates that, in many of the cases examined, interest and fee receivable days remained consistently and materially above the industry average for several years prior to the default event, reflecting the accumulation of interest receivables and potential deterioration in the bank's asset quality.

A persistently elevated and rising level of this indicator may reflect increasing difficulties in meeting their debt obligations, prolonged loan recovery processes, or the restructuring of loans exhibiting signs of deteriorating quality. Under such circumstances, the quality of bank's earnings is likely to weaken, signaling deterioration in asset quality and the recoverability of its loan portfolio. As interest receivables typically accumulate before loans are formally classified as non-performing, **persistently high and increasing interest and fee receivable days may serve as an effective early warning indicator of a bank's default risk**, complementing other indicators relating to profitability and asset quality.

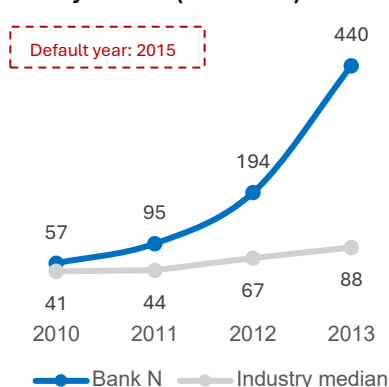
Specifically, Bank A's Interest and Fee Receivable Days increased markedly from 34 days to 280 days during the 2011-2014 period, while the industry median remained at only 44-97 days (*Exhibit 10*). This trend was primarily attributable to the Bank's high concentration of real estate lending during the prolonged downturn in the property market between 2011 and 2015, which caused interest and fee receivables to rise sharply from approximately VND 1,000 billion in 2011 to VND 5,600 billion in 2014. As discussed above, the sustained accumulation of interest and fee receivables indicates that an increasing portion of the Bank's reported income was recognized on an accrual basis rather than supported by actual cash collections, thereby weakening earnings quality and partially masking the deterioration in the Bank's underlying asset quality. At the same time, the build-up of interest in distressed loans increased collection risk and heightened the likelihood of substantial provisions in subsequent periods, adversely affecting the Bank's profitability. These factors ultimately contributed to Bank A becoming insolvent only two years after its interest and fee receivable days rose sharply above the industry median.

Exhibit 10: Interest and fee receivable days of Bank A compared with the industry median (2011-2014)



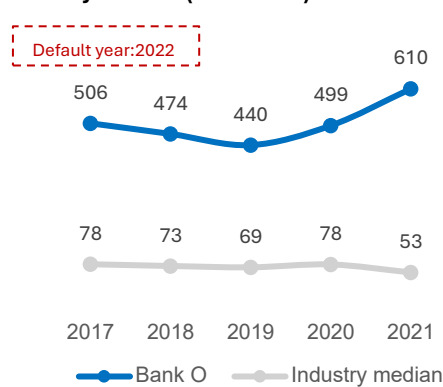
Source: FiinRatings

Exhibit 11: Interest and fee receivable days of Bank N compared with the industry median (2010-2013)



Source: FiinRatings

Exhibit 12: Interest and fee receivable days of Bank O compared with the industry median (2017-2021)



Source: FiinRatings

Note: Interest and fee receivable days (FiinRatings adjusted) = The average of interest and fee receivables over two consecutive years / [(Interest and similar income + Fee and commission income) ÷ 365]

Similarly, Bank N experienced a sharp increase in interest and fee receivable days during 2010-2013 (rising from 57 days to 440 days), significantly exceeding the industry median of 41-88 days. This trend reflected a deterioration in asset quality arising from the Bank's extensive lending and investment exposures to entities associated with its major shareholder group, leading to a rapid accumulation of receivables prior to its restructuring. Meanwhile, Bank O maintained this indicator at an exceptionally high level throughout the 2017-2021 period, ranging from 440 to 610 days, equivalent to 6.3-11.5 times the industry median over the same period. This was primarily attributable to the Bank's continued recognition of interest income on multiple loans that had been restructured several times but were neither appropriately classified as non-performing loans nor adequately provisioned. This pattern reflects the Bank's deteriorated asset quality prior to its inability to meet its debt obligations.

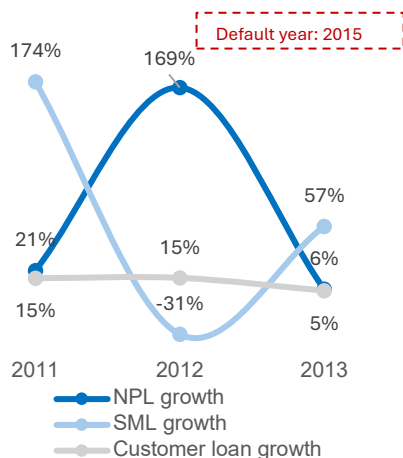
Indicator 4: Growth in Non-Performing Loans and Special Mention Loans significantly outpaces Customer Loan Growth

During the research, we observed that many banks experiencing default recorded **Non-performing loan (NPL) growth** (including Group 3-5 loans and VAMC bonds) and **Special-mention loans (SMLs a.k.a. Group 2 loans)** growing at a significantly faster pace than customer loan growth. This trend reflects a more rapid deterioration in asset quality relative to balance sheet expansion, while also indicating that credit risks had accumulated over multiple periods before the occurrence of the default event.

- The analyst team analysed the growth rates of non-performing loans (NPLs) and special-mention loans (SMLs) separately. This approach was adopted because analysing the two indicators independently provides insights into different stages of credit quality deterioration at a bank. Specifically, SMLs comprise loans that have shown early signs of credit deterioration and are considered an early warning indicator of credit risk, while NPLs represent loans where credit risk has already become more severe. Separating these two indicators allows for an assessment of the formation and progression of problem loans, rather than merely observing the overall size of problem assets. In addition, the level of NPLs may also be affected by loan resolution activities, such as write-offs, recoveries, or loan sales. This research primarily evaluates these two indicators in relation to customer loan growth.

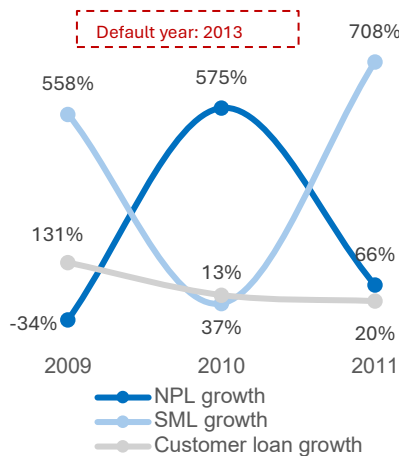
Specifically, at Bank J, customer loan growth gradually slowed from 131% in 2009 to 37% in 2010 and 20% in 2011. In contrast, Group 2 loans and non-performing loans increased sharply at certain points, with Group 2 loans rising by as much as 558% in 2009 and 708% in 2011, while NPLs surged by 575% in 2010 (*Exhibit 14*). Similarly, at Bank M, although customer loan growth remained high during the 2010-2011 period, Group 2 loans and NPLs increased significantly, reaching 917% and 188%, respectively by the end of 2011, approximately one year before the Bank experienced financial deterioration and became insolvent (*Exhibit 15*). Notably, **the sharp increases in Group 2 loans and NPLs observed at all three banks (J, M, and A) also reflected the consequences of concentration risk**, as a significant proportion of lending activities was extended to related companies or entities within the same ecosystem (*this conclusion was only identified after the default events of these banks*).

Exhibit 13: NPL growth and Group 2 loan growth compared with customer loan growth of Bank A (2011-2013)



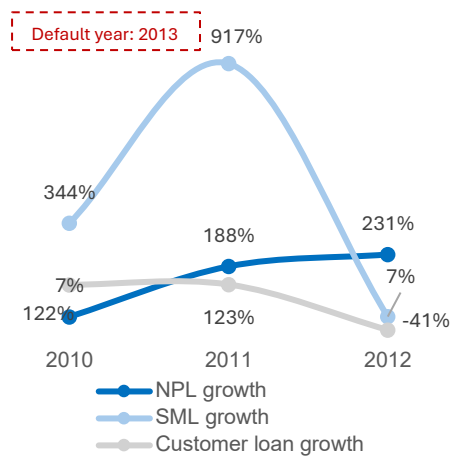
Source: FiinRatings

Exhibit 14: NPL growth and Group 2 loan growth compared with customer loan growth of Bank J (2009-2011)



Source: FiinRatings

Exhibit 15: NPL growth and Group 2 loan growth compared with customer loan growth of Bank M (2010-2012)



Source: FiinRatings

Notably, in several cases, Group 2 loans typically recorded a sharp increase before declining significantly in subsequent years, while NPLs began to rise materially. Specifically, at Bank M, Group 2 loan growth reached 917% in 2011, significantly exceeding the 188% growth in NPLs. In 2012, Group 2 loan growth declined to -41%, while NPL growth surged to 231%. A similar trend was observed at Bank A, where Group 2 loan growth increased by 174% in 2011 before declining to -31% in 2012, while NPL growth accelerated from 21% to 169% over the same period (*Exhibit 13*). This trend indicates that a significant portion of loans tends to accumulate in Group 2 before being reclassified as non-performing, reflecting a gradual deterioration in credit quality rather than a sudden deterioration. **This also provides a basis for credit rating agencies to assess loan migration trends in addition to the existing level of NPLs, in order to identify early signs of asset quality deterioration before such risks are fully reflected in reported NPL ratios.** Therefore, monitoring movements in both Group 2 loans and NPLs simultaneously can provide earlier warning signals than assessing NPLs alone.

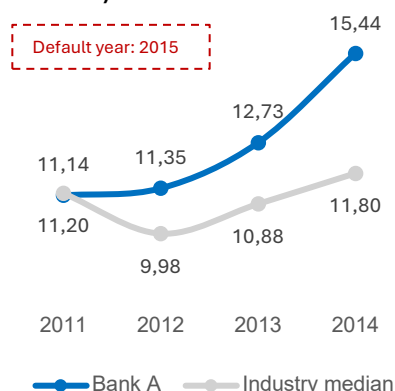
Indicator 5: Persistently high and rising Leverage Ratio

A common characteristic observed among banks prior to default is a persistently high and increasing leverage ratio (calculated as $\text{Total Assets} / \text{Equity}$) over multiple years. Although relatively simple in calculation, we believe this ratio provides a direct and transparent view of a bank's capital profile. In FiinRatings' bank credit rating assessments, we also use the leverage ratio as a complementary metric alongside the Capital Adequacy Ratio (CAR), which is significantly influenced by the risk weights assigned to different lending sectors (and, in the future, will also be determined based on banks' internal assessments).

Based on our analysis of default cases, when losses (asset quality deterioration or financial losses) occur, shareholders' equity serves as the first line of defense for loss absorption. **A bank with a high leverage ratio requires only a relatively small loss on its asset base to materially erode shareholders' equity, which may subsequently undermine the confidence of depositors and other funding counterparties, ultimately leading to a liquidity crisis and default.** Accordingly, we conclude that maintaining a high leverage ratio over many years is a clear indication of weakened resilience and serves as a early warning indicator of potential bank's default, particularly under adverse shocks or prolonged unfavorable economic conditions.

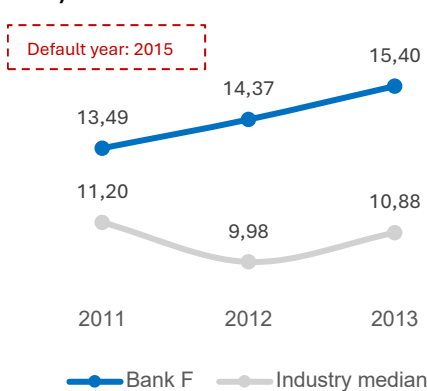
Specifically, in the case of Bank A, its leverage ratio increased significantly from 11.14x in 2011 to 15.44x in 2014, approximately 31% higher than the industry median at that time (Exhibit 16). This trend was also consistent with the Bank's business strategy during the period, which focused on expanding lending activities with high concentration in real estate-related sectors. In addition, substantial losses from gold trading activities had a significant adverse impact on the Bank's shareholders' equity. Consequently, when the real estate market deteriorated, the Bank's asset quality weakened, its limited capital buffer proved insufficient to absorb losses, ultimately causing the Bank to face a severe financial distress situation.

Exhibit 16: Leverage ratio (A/E) of Bank A compared with the industry median (2011-2014)



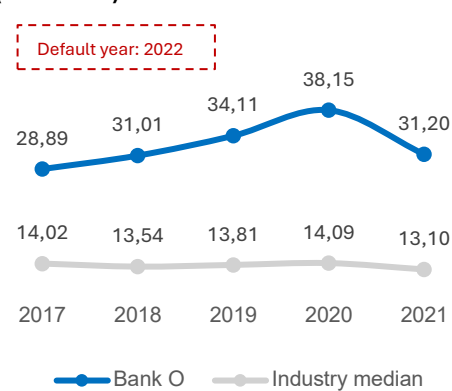
Source: FiinRatings

Exhibit 17: Leverage ratio (A/E) of Bank F compared with the industry median (2011-2013)



Source: FiinRatings

Exhibit 18: Leverage ratio (A/E) of Bank O compared with the industry median (2017-2021)



Source: FiinRatings

In the case of Bank F, the leverage ratio remained elevated at 13.49x - 15.40x during the 2011-2013 period, significantly above the industry median figures of 9.98x - 11.20x (Exhibit 17). Meanwhile, Bank O saw its leverage ratio increase from 28.89x to 38.15x during the 2017-2020 period, approximately 300% higher than the industry median of 13x-14x over the same period (Exhibit 18). In both cases, concentrated credit growth towards companies within the same ecosystem drove rapid total asset expansion, while underlying asset quality remained exposed to significant risks.

Notably, in the case of Bank O, regulatory capital adequacy indicators remained relatively stable during the 2017-2019 period, with the CAR maintained at 9%-10%, positive profitability, and continued growth in shareholders' equity. This suggests that conventional capital metrics did not fully capture the extent of risks accumulated on the Bank's balance sheet. However, when the very high Leverage ratio is considered alongside the abnormally elevated Interest and Fee Receivable Days (Indicator 3), the combination of these two indicators highlights a pattern of rapid asset expansion supported by a thin capital buffer, together with the accumulation of income that had not yet been converted into actual cash flows. **In the case of Bank O, these warning signals emerged 24-36 months prior to the Bank's insolvency, demonstrating their significant early warning value when assessed jointly rather than in isolation.**

Details of the Qualitative Indicators

In addition to quantitative indicators, our research shows that many banks also exhibit irregularities in their ownership structure, governance, business strategies, and operating models during the period preceding default. While quantitative indicators primarily reflect the consequences of risks that have already accumulated, qualitative indicators capture the underlying factors that contribute to the formation and escalation of risks within the Bank itself. **Therefore, qualitative warning signals often emerge earlier but are more challenging to identify clearly**, as they are not directly reflected in financial statements.

- We also note that the boundary between quantitative and qualitative indicators is not entirely distinct. Many qualitative characteristics can still be reflected through relevant quantitative metrics. **However, the classification adopted in this research is not based on the measurability of each indicator, but rather on the underlying nature of the risk that the indicator represents.** Accordingly, quantitative indicators primarily capture the consequences of accumulated risks through financial movements, whereas qualitative indicators reflect the underlying drivers or structural factors that contribute to risk escalation from an early stage.
- For example, credit concentration risk is considered a qualitative indicator; however, it can also be quantified through metrics such as the proportion of lending concentrated by industry, customer groups, or related parties.

Based on the analysis of the cases examined, we observe that qualitative indicators primarily fall into two core risk categories. The first category relates to irregularities in ownership structure and corporate governance, including concentrated ownership (*directly or indirectly*) through related shareholder groups, concentrated lending to companies within the same ecosystem, or governance misconduct. These factors may increase conflicts of interest, weaken independent governance frameworks, leading to higher risk appetite, greater concentration risk, and ultimately an adverse impact on the Bank's **Risk Position**. The second category relates to abnormalities in funding strategies and liquidity management, such as aggressive funding activities undertaken to address liquidity shortfalls. These practices indicate weakening funding base and increasing liquidity risk, thereby negatively affecting the Bank's **Funding and Liquidity profile**. From a credit rating perspective, these two risk categories also play a particularly important role in adjusting the overall assessment of a bank's credit profile.

Exhibit 19 summarizes the research findings on qualitative indicators.

Exhibit 19: Summary of qualitative indicators, descriptions, and illustrative examples

No.	Indicator	Description	Example
1	Credit concentration risk	Banks that subsequently experienced insolvency typically had less diversified loan portfolios, with lending activities concentrated among related parties or specific industries.	- Bank A: The loan portfolio was primarily concentrated among 9 customer groups and related parties. In addition, the Bank had significant exposure to gold trading activities during the 2011-2012 period. - Bank B: The 50 largest customers accounted for approximately 65% of total outstanding loans, with one customer representing an exceptionally large exposure, equivalent to around 83% of the Bank's charter capital. - Bank O: Approximately 93% of total outstanding loans (over VND 1 quadrillion accumulated over 10 years) were concentrated among companies within the same ecosystem. By 2022, around VND 677 trillion of these exposures were classified as difficult-to-recover debts.
2	History of governance and compliance breaches	Banks prior to default often exhibited governance, lending, liquidity, or regulatory compliance breaches, reflecting weaknesses in their internal control systems and risk management frameworks.	- Bank A was penalized for violations of funding regulations after applying deposit interest rates exceeding the regulatory cap of 14% per annum - Bank O and Bank M were subject to multiple regulatory sanctions for disclosure violations, including failures or delays to disclose information.
3	Concentrated control through related individual shareholders	Concentrated control by one shareholder or a group of related shareholders increases the risk of conflicts of interest, undue influence over lending, and weak corporate governance.	- Bank F: A shareholder indirectly held 62.97% of the Bank's shares through related individuals and companies. - Bank C: Prior to the transfer to new investors, a major shareholder held approximately 85% of the Bank's shares through 29 nominee individuals. - Bank O: A shareholder used 27 nominee individuals and legal entities to hold more than 80% of the Bank's shares.

No.	Indicator	Description	Example
4	Unusual funding practice	Banks may exhibit unusual funding practices, including persistently high deposit rates, off-book interest payments, or other funding measures aimed at attracting and retaining deposits; reflect increasing reliance on confidence-sensitive funding and liquidity pressure	- Bank A: Paid off-book interest expenses and offered deposit rates above the regulatory ceiling to retain customers; from 2011 to 2015, the Bank incurred more than VND 468 billion in such off-book interest payments. - Bank O: Maintained the highest deposit interest rates in the banking system during the 2022-2023 period (approximately 9%-10% per annum) in order to attract deposits.
5	Instability in the shareholding structure and management	Significant changes in controlling shareholders or frequent turnover in key management positions may indicate operational challenges, instability in strategic direction and governance, or underlying issues in the bank's management processes.	- Bank A: During 2010-2014, the Bank recorded large-scale share purchase and sale transactions conducted through related individuals and organizations (approximately 112 million shares with an estimated value of around VND 326.7 billion, equivalent to approximately 6.5% of the Bank's charter capital). - Bank E: During 2010-2011, the Bank experienced significant turnover in senior management, with 75% of Supervisory Board members and 67% of Board of Directors members being replaced. - Bank B: In 2011, approximately 72% of the Board of Directors members were replaced.
6	History of restructuring and regulatory intervention	Banks previously undergone restructure, consol., merger, or regulatory intervention measures due to financial difficulties, liquidity constraints, or asset quality issues. This indicates the presence of structural risks that may continue to affect credit profile if not totally addressed.	- Bank C: Had a history of mandatory restructuring following a prolonged period of losses and elevated non-performing loans - Bank O and Bank N: Were established through the consolidation/merger of weak banks as part of the broader banking system restructuring programme.

Source: FiinRatings

In addition, we conducted further research on cases of banks that experienced insolvency and/or severe distress in several Asian countries, including Thailand (Bangkok Bank of Commerce, Siam City Bank), Indonesia (Bank Century), India (Yes Bank), and China (Baoshang Bank). The selection the research scope including Asian banks was based on their certain similarities with Vietnam in terms of banking system structure, financial market development stage, and the completion of regulatory supervision and systemic risk management frameworks. The causes of distress for each bank are presented in [Appendix 2](#). Based on this analysis, the exhibit below summarizes the results of a comparison of the qualitative indicators identified in each case study, providing a reference basis for the development and evaluation of the early warning indicator framework.

Exhibit 20: Comparison of Qualitative indicators observed in bank default cases in selected Asian countries

Bank	Default time	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6
The Bangkok Bank of Commerce (Thailand)	1996	X	X				
Siam City Bank (Thailand)	1997	X	X				
Bank Century (Indonesia)	2008	X	X	X	X		X
Baoshang Bank (China)	2017	X	X	X	X		X
Yes Bank (India)	2020	X	X	X	X	X	

Source: FiinRatings

The comparative analysis indicates that qualitative indicators are not only observed among banks experiencing default in Vietnam but are also repeatedly identified across multiple banking distress cases in other Asian countries. Among

these indicators, **Credit concentration risk** (*Indicator 1*) and **History of governance and compliance breaches** (*Indicator 2*) were both identified in all 5/5 cases examined, suggesting that these two indicators have relatively broad applicability and are consistently present across banking distress cases. In addition, **Concentrated control through related individual shareholders** (*Indicator 3*) and **Unusual funding practice** (*Indicator 4*) were each observed in 3/5 cases, while indicators relating to **Instability in the shareholding structure and management** (*Indicator 5*) and **History of restructuring and regulatory intervention** (*Indicator 6*) appeared less frequently, reflecting their greater dependence on the specific circumstances of each bank. The fact that foreign banking distress cases share similar qualitative warning indicators with default cases in Vietnam further strengthens the empirical basis for using qualitative indicators as a supporting tool for the early identification of banking risks.

Classification of Early Warning Indicators

Based on the analysis results, we classify the indicators into three groups: (i) indicators with high prevalence and consistency, (ii) indicators with relatively high prevalence, and (iii) indicators requiring further consideration (*Exhibit 21*). The classification is based on the frequency of occurrence of each indicator across the 15 bank cases examined, while also taking into account the level of consistency observed among the cases. Accordingly, the first group comprises indicators that appeared in the majority of cases and demonstrated a high degree of recurrence; the second group includes indicators that occurred less frequently but were still observed in a significant number of cases; while the third group consists of indicators that are less prevalent but demonstrate stronger predictive value than conventional analytical metrics/criteria.

We also note that the above classification reflects only the frequency of occurrence of the indicators and does not necessarily represent their relative importance in identifying risks. In practice, certain indicators may appear in only a limited number of banks but still provide significant warning value when observed (*“low frequency, high signaling value”*). This may arise from the specific characteristics of a bank’s operations, business model, or individual circumstances, rather than reflecting the overall usefulness of the indicator within the early warning framework. Therefore, risk assessment should consider both the frequency of occurrence and the signaling value of each indicator, rather than relying solely on prevalence.

Exhibit 21: Summary and Classification of Early Warning Indicators for Banks Default Risk

No.	Qualitative Indicators	Occurrence frequency across the 15 cases examined	Classification
1	Credit concentration risk	14/15	(i)
2	History of governance and compliance breaches	13/15	(i)
3	Concentrated control through related individual shareholders	12/15	(i)
4	Unusual funding practice	8/15	(ii)
5	Instability in the shareholding structure and management	8/15	(ii)
6	History of restructuring and regulatory intervention	3/15	(iii)
No.	Quantitative Indicators	Occurrence frequency across the 15 cases examined	Classification
1	Growth imbalances across Total Assets, Customer Loans and Customer Deposits	15/15	(i)
2	Persistently low and declining Broad Liquid Assets-to-Total Assets ratio	14/15	(i)
3	Interest and Fee Receivable Days remain consistently and significantly above the industry median	12/15	(i)
4	Growth in Non-Performing Loans (NPL) and Special Mention Loans (SML) significantly outpaces Customer Loan Growth	11/15	(i)
5	Persistently high and rising Leverage Ratio	10/15	(ii)

Source: FiinRatings

Testing the Early Warning Indicators

To assess the applicability of the early warning indicators under current conditions, we apply the framework on a sample of **12 Vietnamese banks over the 2020-2025 period**. The sample was selected based on the analyst team's credit rating assessment, comprising banks with credit profiles spanning from **the [AA] and above category to the [BB] category**. These banks have been assigned either (i) Credit Ratings or (ii) Credit Estimates by FiinRatings based on public information. For each bank, the early warning framework was applied to assess its ability to identify potential warning signals. The results are summarized in the form of a heat map (*Exhibit 22*), illustrating the extent to which each indicator was observed throughout the assessment period.

For the quantitative indicators, the color intensity reflects the frequency of occurrence of each indicator over the six-year period from 2020 to 2025, ranging from green (least frequent – 0 occurrence) to red (most frequent – 6 occurrences). The indicator relating to the divergence between the growth of total assets, customer loans, and customer deposits may arise in two distinct forms (either between total asset growth and customer loan growth, OR between customer loan growth and customer deposit growth). Accordingly, the maximum number of occurrences for this indicator over the study period is 12. **For the qualitative indicators, the results are recorded using a binary variable, where a value of 1 indicates the presence of the indicator and 0 indicates its absence.**

The objective of this testing exercise is not to predict precisely the occurrence of default among these 12 banks, but rather to assess whether the early warning framework is capable of reasonably differentiating between banks with stronger and weaker credit profiles under current conditions.

Exhibit 22: Summary of testing results for the 12 banks in the form of a heat map (2020 - 2025)

No.	Quantitative indicators and Frequency	[AA] and above			[A]			[BBB]			[BB]		
		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	Growth imbalances across Total Assets, Customer Loans and Customer Deposits (0-12 times)	5	4	2	1	8	8	7	8	10	8	7	10
2	Persistently low and declining Broad Liquid Assets-to-Total Assets ratio (0-6 times)	0	4	6	2	1	2	2	0	0	5	3	0
3	Interest and Fee Receivable Days remain consistently and significantly above the industry median (0-6 times)	0	0	0	0	0	6	0	6	4	6	5	4
4	Growth in NPL and SML significantly outpaces Customer Loan Growth (0-6 times)	2	4	3	5	3	2	5	4	5	2	2	3
5	Persistently high and rising Leverage Ratio (0-6 times)	0	0	0	0	0	0	0	6	5	6	5	2
No.	Qualitative indicators	[AA] and above			[A]			[BBB]			[BB]		
		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	Credit concentration risk	0	0	0	0	0	0	0	0	1	1	1	0
2	History of governance and compliance breaches	0	0	0	0	0	0	1	0	1	0	1	1
3	Concentrated control through related individual shareholders	0	0	1	1	1	1	1	1	1	0	1	1
4	Unusual funding practice	0	0	0	0	0	0	0	1	1	0	1	0
5	Instability in the shareholding structure and management	0	0	0	0	1	1	1	1	1	0	1	1
6	History of restructuring and regulatory intervention	0	0	0	0	1	1	0	0	0	1	1	0

Source: FiinRatings

Note:

(i) Banks were selected based on their **Credit Ratings** or **Credit Estimates**, using publicly available information.

(ii) Banks are anonymized and referred to as **B1–B12**.

Overall, the testing results indicate that the early warning framework is capable of reasonably distinguishing between banks with different credit ratings/credit estimates, reflected in the varying frequency of the warning indicators. Specifically, banks in the higher rating categories ([AA] and above and [A]) exhibited relatively few early warning indicators. In contrast, the frequency of these indicators increased noticeably among banks with lower ratings, particularly those rated [BBB] and below. These findings suggest a relationship between the frequency of early warning indicators and the banks' credit rating assessments. Building on these results, the testing results are further analyzed by separating the quantitative and qualitative indicators to provide deeper insights into the distinct risk characteristics associated with each credit rating category.

Regarding the quantitative indicators, the testing results also reveal clear differentiation across the credit rating categories: Higher-rated banks primarily exhibit indicators associated with capital growth and liquidity pressures, whereas lower-rated banks additionally display warning signs relating to capital profile, asset quality, and imbalances in the growth rates of total asset, customer loan, and customer deposit.

- For banks rated **[AA] and above** and **[A]**, indicators relating to persistently high leverage ratios and abnormally elevated Interest and fee receivable days were largely absent or observed only infrequently, reflecting these banks' stronger risk management capabilities, more effective asset quality control, and greater ability to sustain operating performance. Nevertheless, **liquidity-related indicators were more commonly observed within these rating categories**. This is primarily attributable to the operating characteristics of large banks, which play a key role in providing credit to the economy. As a result, they typically face stronger loan growth demand and must maintain stable funding sources to support such growth.
- Within the **[A]** category, in particular, indicators relating to the divergence between customer loan growth and customer deposit growth were more evident, reflecting the challenge of sustaining business growth while maintaining prudent financial safeguards. By contrast, while higher-rated banks primarily exhibit liquidity-related pressures, banks in the **[BBB]** and **[BB]** categories face greater funding pressures, as reflected in elevated leverage ratios and imbalances between their asset and funding structures. These characteristics increase earnings volatility and make such banks more vulnerable to adverse economic and market conditions.
- Regarding Interest and fee receivable days, banks in the **[BBB]** and **[BB]** categories, as well as several banks in the **[A]** category, tended to record higher levels than the industry average. Compared with the typical range of 30-60 days currently observed among domestic banks, we consider a level exceeding 90 days to be a warning indicator that warrants close monitoring. The significance of this indicator may be further amplified when combined with **credit concentration risk**, one of the qualitative indicators included in the early warning framework.

Regarding the qualitative indicators, the testing results suggest that the differences across credit ratings are primarily driven by the stability of factors, including ownership structure, governance quality, and risk appetite in banks' business models.

- **Qualitative indicators were virtually absent among the highest-rated banks, while they began to appear more frequently from the [A] category onwards.** Banks rated **[AA] and above** share a track record of stable operations, strong market positions, well-established governance frameworks, and relatively transparent ownership structures.
- Within the **[A]** category, qualitative indicators were observed more frequently, primarily relating to greater complexity in ownership structures and changes in senior management personnel. This is also the category where concerns regarding the stability of governance and strategic direction begin to emerge more clearly.
- For the lower-rated categories (**[BBB]** and **[BB]**), qualitative indicators did not exhibit significant differences in terms of their frequency of occurrence. Rather, the differentiation lay in the nature of the risks captured by each indicator, reflecting the distinct characteristics of individual banks.

These findings suggest that the early warning framework not only reflects the increasing level of risk across different credit ratings, but also helps differentiate the distinct risk characteristics of each group of banks. Overall, we assess that the preliminary testing results support the usefulness of the framework as a complementary tool for providing an early warning perspective on banks' credit profiles. Furthermore, combining quantitative and qualitative indicators can enhance the effectiveness of early identifying banks that may deteriorate credit quality or face an elevated risk of default in the future.

Conclusion

The findings suggest that bank insolvency in Vietnam is typically the result of a prolonged accumulation of risks, with multiple warning signs that can be observed before severe credit events or regulatory intervention take place. Although the immediate causes of distress vary across individual cases, these signs tend to recur consistently across both quantitative and qualitative dimensions. Based on an analysis of 15 historical cases involving Vietnamese banks that experienced insolvency, together with a comparison of selected regional cases, this study develops an early warning framework comprising indicators that demonstrate relatively high recurrence and practical signaling value.

Beyond its research contribution, we expect this early warning framework to provide an additional practical perspective for bank supervision, risk management, and credit assessment in Vietnam. From a credit rating agency's perspective, combining quantitative and qualitative warning indicators with an assessment of a bank's business model, governance, and operating environment can facilitate the earlier identification of deteriorating credit profiles, before such risks are fully reflected in financial performance or market confidence. As Vietnam continues to strengthen its legal and regulatory framework for early intervention and banking supervision, complementary early warning tools such as this framework can support a more proactive approach to banking supervision.

We also acknowledge several limitations of this study. First, data availability for banks that experienced default remains constrained due to incomplete public disclosure and limited data continuity across reporting periods, particularly for the period immediately preceding the default event. This may affect the ability to validate certain warning indicators in greater detail. Second, the current classification of warning indicators is based primarily on their frequency of occurrence and therefore does not fully capture the relative impact of each indicator on default risk. In addition, the relevance and signaling power of certain indicators may vary depending on a bank's business model, risk appetite, and institution-specific circumstances, while the sample size of the study remains relatively limited.

Accordingly, the presence of one or several warning indicators should not be interpreted as direct evidence of default occurrence. Rather, these indicators should be assessed in association with financial metrics, qualitative factors, and the specific operating context of each bank. In our view, this framework should serve as a complementary analytical tool to support bank analysis, supervision, and credit assessment, rather than as a standalone basis for drawing conclusions about the financial health of a credit institution.

Finally, we expect this early warning framework to continue evolving as market data become more comprehensive, the legal and regulatory framework continues to mature, and the Vietnamese banking system enters new stages of development. Expanding the sample, quantifying the relative impact of individual warning indicators, and validating the framework across different economic cycles will further enhance its practical applicability and analytical value.

Appendix

Appendix 01: Overview of banks default cases used in the study

No.	Bank	Case Overview
1	Bank A	Bank A experienced an inability to meet its debt obligations during 2011-2015 and was placed under special control in 2015. The primary drivers were substantial losses from gold trading activities, high exposure to real estate lending amid a frozen property market, rising NPLs, as well as governance deficiencies and irregularities in lending to related individuals. Also, the Bank's practice of paying off-book interest to retain depositors eroded shareholder equity and weakened profitability.
2	Bank B	Bank B experienced an inability to meet its debt obligations during 2011-2012 and underwent a compulsory merger in 2012. This was primarily driven by concentrated credit exposure to several high-risk sectors and large borrowers, together with a severe maturity mismatch between its short-term fundings and medium to long-term loans and bond investments (with tenors of 5-10 years). As these major borrowers encountered financial distress, the Bank's NPL rose to a level significantly above the industry average. The maturity mismatch forced the Bank to maintain elevated deposit interest rates to preserve liquidity, resulting in higher funding costs and prolonged liquidity pressure.
3	Bank C	Bank C experienced an inability to meet its debt obligations, primarily due to concentrated ownership and concentrated lending to affiliated companies of its management. During 2011-2015, the Bank was used as a financing vehicle for related shareholders and executives, with opaque loan documentation, poor-quality collateral, and unrecoverable investments, resulting in a severe deterioration in asset quality, substantial accumulated losses and deeply negative shareholders' equity amounting to tens of trillions of VND. Consequently, the Bank was placed under special control in 2015, before being subject to a mandatory transfer in 2025.
4	Bank D	Bank D experienced an inability to meet its debt obligations and was subject to a compulsory consolidation at the end of 2011. The primary cause was the Bank's effective takeover by a shareholder group through nominee individuals and legal entities, resulting in the use of short-term funding to finance medium- and long-term loans, predominantly in the real estate sector. In addition, weaknesses in controlling advances against securities sale proceeds, together with interconnected cross-deposit arrangements among financially distressed banks, intensified liquidity pressures and heightened contagion risk.
5	Bank E	Bank E experienced financial distress during the 2011-2012 period and has been restructured. The primary causes were rapid scale expansion that outpaced the Bank's governance and risk management capabilities, resulting in concentrated lending to related parties and heightened asset quality risk. In addition, the Bank's income structure lacked diversification, with net interest income accounting for virtually all operating income, reflecting its high reliance on lending activities. Furthermore, an indirect cross-ownership structure with another financially distressed bank under the same shareholder group further increased credit concentration within the related-party ecosystem.
6	Bank F	Bank F experienced an inability to meet its debt obligations during the 2010-2015 period and was acquired by the SBV through a compulsory acquisition at zero VND in 2015. The primary cause was the dominance of a major shareholder group, which led to concentrated lending to related companies, and eventually deteriorating asset quality, with NPLs rising rapidly. In addition, the Bank paid off-book interest to retain depositors, driving up funding costs and reflecting sustained liquidity pressure.
7	Bank G	Bank G encountered financial distress during the 2011-2012 period and has since been successfully restructured, supported by new strategic shareholder group's capital increase and shift in its business strategy. The primary cause was its business model's heavy reliance on entrusted securities investments and interbank market transactions, leaving the Bank highly vulnerable to the downturn in financial markets. In addition, its complex ownership and governance structure, characterized by overlapping corporate entities, heightened governance risk and weakened the effectiveness of oversight. The Bank was successfully restructured following the entry of a new strategic shareholder group, which injected fresh capital and redirected its business strategy towards lending and digital banking. The Bank currently operates normally in the market.
8	Bank H	Bank H experienced significant operational challenges during the 2011-2015 period, primarily due to its growth strategy's heavy reliance on the interbank market. As system-wide liquidity tightened, the Bank's operation and financials deteriorated. In addition, the Bank was exposed to cross-ownership structures and related-party transactions, while asset quality continued to weaken and non-performing loans increased. Consequently, Bank H was merged with another bank in 2015.
9	Bank I	Bank I experienced an inability to meet its debt obligations during the 2010-2015 period and was acquired by the SBV through a compulsory acquisition at zero VND in 2015. The primary cause was the manipulation of the Bank's operations by its controlling shareholder group, including the artificial inflation of charter capital through the issuance of fictitious bonds and the direction of extending credit to affiliated companies without adhering to proper credit appraisal procedures or conducting adequate collateral verification. As a result, the Bank accumulated a substantial volume of unrecoverable loans, causing non-performing loans and accumulated losses to exceed its capacity to absorb and resolve them.
10	Bank J	Bank J encountered financial distress due to its heavy reliance on the interbank market, deteriorating asset quality, and the influence of its major shareholder group, under whose direction the Bank was used to conduct interbank transactions and extend credit to related parties. Consequently, the Bank underwent a merger in 2013.
11	Bank K	Bank K experienced an inability to meet its debt obligations and underwent compulsory consolidation in 2011. The primary cause was the Bank's effective takeover by the same shareholder group through nominee individuals and corporate entities. At the same time, the Bank maintained a severely mismatched funding and asset structure, with short-term funding sources used to finance medium- and long-term loans, the majority of which were concentrated in the real estate sector. Its participation in a network of

		reciprocal interbank deposits with other financially distressed banks further heightened liquidity risk and increased the potential for systemic contagion.
12	Bank L	Bank L was merged in 2015 under the Banking Sector Restructuring Plan for credit institutions. The primary reason was its relatively small scale and inability to raise additional capital following the failure of its equitization plan, which constrained its financial capacity and limited its growth prospects. In addition, the Bank relied heavily on funding from the interbank market and refinancing facilities provided by the (SBV), while deteriorating asset quality, rising non-performing loans, and substantial losses incurred by its subsidiary adversely affected its financial performance.
13	Bank M	Bank M experienced an inability to meet its debt obligations during the 2011-2013 period and underwent a compulsory merger in 2013. The primary cause was the Bank's rapid capital expansion and credit growth, which outpaced its governance and risk management capabilities. In addition, a shareholder group exercised effective control over the Bank through an indirect ownership structure while simultaneously controlling another financially distressed bank, resulting in concentrated lending to affiliated companies and related parties. The Bank also maintained exceptionally high deposit interest rates (approximately 14% per annum) to attract medium- and long-term funding, which increased funding costs and intensified liquidity pressure.
14	Bank N	Bank N was merged under the Banking Sector Restructuring Plan for the 2011-2015 period. The primary cause was the cross-ownership and the controlling of a major controlling shareholder group across both banks, which resulted in extensive lending and investment exposures to related parties. In addition, the Bank's asset quality deteriorated, with rising non-performing loans and receivables, complicating the restructuring process and leaving a substantial volume of problem assets that required continued resolution following the merger.
15	Bank O	Bank O was established through the consolidation of three weak banks. The bank experienced a default event in 2022, although underlying vulnerabilities had been accumulating since 2012. The deterioration was primarily driven by controlling shareholders who dominated the bank's operations, concentrated lending within its ecosystem, and committed serious breaches of prudential regulations, ultimately leading to default and reliance on support of the SBV.

Appendix 02: Overview of International Banking Cases

No.	Bank	Case Overview
1	The Bangkok Bank of Commerce - Thailand	The Bangkok Bank of Commerce encountered severe financial distress during the 1995-1996 period as a result of extensive unsecured lending to related parties and politically connected borrowers to finance real estate speculation and merger and acquisition transactions. Consequently, the Bank's asset quality deteriorated sharply, NPLs increased significantly, and it was hit by a bank run. In May 1996, the Bank was placed under the control of the Financial Institutions Development Fund (FIDF) under the supervision of the Bank of Thailand. By August 1998, the scale of losses had become too substantial for recovery, leading to the Bank's official closure and subsequent liquidation. This remains one of Thailand's most significant banking failures in the period immediately preceding the Asian Financial Crisis.
2	Siam City Bank - Thailand	Siam City Bank is a representative example of a Thai bank that was severely affected by the Asian Financial Crisis. The Bank pursued an aggressive growth strategy by relying on short-term USD borrowings from international markets to finance medium- and long-term Thai baht-denominated lending, primarily concentrated in the real estate sector. Following the devaluation of the Thai baht in 1997, the Bank incurred substantial losses and became insolvent, prompting intervention by the Bank of Thailand. The Bank was subsequently recapitalised and nationalised before being merged in the next period.
3	Bank Century - Indonesia	Bank Century was established in 2004 through the merger of three financially distressed banks. Despite subsequent restructuring efforts, the Bank continued to exhibit weak asset quality, inadequate corporate governance, and significant exposure to illiquid foreign securities and structured investment products. suffered substantial losses and became increasingly difficult to realise, contributing to a sharp deterioration in the Bank's capital position. As the capital adequacy ratio turned negative, the Bank experienced a severe liquidity crisis and a bank run. Subsequent investigations uncovered accounting fraud and the misappropriation of Bank assets by the controlling shareholder. The Indonesian government was ultimately forced to implement a bailout and officially take over the Bank in November 2008.
4	Yes Bank - India	Yes Bank experienced an inability to meet its debt obligations primarily due to its high risk appetite, characterised by concentrated lending to highly risky corporate groups while failing to fully recognise the true credit quality, allowing non-performing loans to remain concealed for an extended period. By 2020, mounting capital erosion, declining market confidence, and a wave of deposit withdrawals triggered a severe liquidity crisis. The Reserve Bank of India (RBI) imposed a moratorium on the Bank, replaced its board and senior management, and implemented a restructuring plan led by a capital infusion from the State Bank of India (SBI), together with several other major commercial banks. The restructuring was successfully completed, and the Bank continues to operate as a going concern to date.
5	Baoshang Bank - China	Baoshang Bank was taken over by Chinese regulators in 2019 due to severe weaknesses in its credit risk profile, governance, and operations. For many years, the Bank was controlled by a dominant shareholder group and used as a vehicle to extend credit to related parties through a network of intermediary corporate entities. Unapparent corporate governance concealed the Bank's true asset quality, while its heavy reliance on interbank market funding to maintain liquidity. The takeover marked China's first regulatory intervention in a commercial bank in nearly two decades, signalling a significant shift in the authorities' approach to banking sector risk management.

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