

# Improving Crisis Risk Management and Strategic Decision-Making Mechanisms in Pre-Crisis Situations in Construction Materials Enterprises

 O'rinboyev Doniyorjon Baxtiyorjon o'g'li

Teacher of the Department of Accounting and Finance, Ferghana State University, Uzbekistan

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**Abstract:** This article examines ways to improve crisis risk management and strategic decision-making mechanisms in pre-crisis situations in construction materials enterprises. The study focuses on the internal and external factors that weaken enterprise stability, including financial pressure, production inefficiency, supply disruptions, and market uncertainty. Special attention is given to early warning indicators, managerial flexibility, and the quality of strategic decisions. The paper argues that effective pre-crisis management should rely not only on financial control, but also on integrated monitoring, timely diagnosis, and adaptive strategic responses.

The proposed approach can help construction materials enterprises strengthen resilience, improve resource allocation, and maintain sustainable development under unstable business conditions.

**Keywords:** Construction materials enterprises, crisis risk management, pre-crisis situation, strategic decision-making, anti-crisis management, early warning indicators, financial stability, operational efficiency, risk assessment, enterprise resilience.

**Introduction:** Construction materials enterprises operate in a highly sensitive segment of the industrial economy. They are directly affected by fluctuations in demand, changes in raw material and energy prices, logistics disruptions, investment slowdowns, and instability in the broader construction sector. For this reason, crises in such enterprises usually do not emerge suddenly. In most cases, they begin with early warning signs such as declining liquidity, growing debt pressure, reduced profitability, lower production efficiency, falling sales, and delayed managerial responses. Research on economic resilience shows that early warning indicators can play an important role in identifying vulnerabilities before they develop into deeper crises (Hermansen & Röhn, 2015).

The relevance of this topic is explained by the strategic role of construction materials enterprises in the value chain of the construction industry. These enterprises supply the basic materials required for residential,

industrial, and infrastructure development. Therefore, any disruption in their activity can negatively affect the entire chain, from suppliers and contractors to final investors and consumers. In this sense, crisis risk management in such enterprises should not be limited to short-term financial analysis. It must also include production stability, supply chain reliability, cost control, technological readiness, and strategic adaptability.

In academic literature, crisis management is usually studied through several interconnected approaches. One group of studies emphasizes the importance of early diagnosis and early warning systems. Another focuses on performance measurement, managerial effectiveness, and integrated risk monitoring. For industrial enterprises, especially manufacturing-based ones, the quality of decision-making often depends on how well financial, operational, and strategic information is combined into a single management system (Hwang et al., 2020). This is particularly

important for construction materials enterprises, where production costs, capacity utilization, product quality, and market timing strongly influence business sustainability.

At the same time, pre-crisis situations require not only faster decisions, but also more accurate and better-structured ones. In unstable conditions, enterprises often become more centralized in decision-making, but excessive centralization may weaken the flow of real operational information and reduce managerial flexibility. As a result, the enterprise may react late, choose ineffective priorities, or fail to assess the real scale of the threat. In construction materials enterprises, where capital intensity is high and market conditions can change rapidly, this problem becomes especially serious.

In practice, many enterprises still face several weaknesses in crisis risk management. First, monitoring systems often rely on lagging indicators, which reflect problems only after they have already intensified. Second, strategic decisions are sometimes separated from operational realities. Third, risk management, financial control, and production management are frequently treated as separate functions rather than as parts of a unified mechanism. This reduces the enterprise's ability to detect pre-crisis conditions in time and respond in a coordinated manner.

The purpose of this article is to develop theoretical and practical approaches for improving crisis risk management and strategic decision-making mechanisms in pre-crisis situations in construction materials enterprises. To achieve this goal, the article identifies the main factors of pre-crisis instability, examines the role of early warning indicators, analyzes the logic of strategic decision-making under rising risk, and proposes an improved management mechanism adapted to the specific features of construction materials enterprises.

## METHOD

### 1. Crisis Risk Factors in Construction Materials Enterprises

Crisis risk in construction materials enterprises does not emerge from one isolated problem. In most cases, it develops through the combined influence of external shocks and internal weaknesses that gradually undermine financial stability, production continuity, and managerial flexibility. For this reason, crisis risk in this sector should be understood as a multidimensional phenomenon rather than a single financial or operational disturbance.

One of the most influential factors is market volatility. Construction materials enterprises are directly linked

to the overall performance of the construction sector. When construction activity slows down, demand for cement, bricks, glass, gypsum, concrete products, and related materials tends to decline as well. This weakens sales turnover, increases inventory pressure, and reduces cash inflows. In such conditions, even enterprises with solid production capacity may face growing financial stress because their output is no longer aligned with actual market demand. The broader construction value chain literature also shows that disruptions in one part of the chain often affect the stability of connected suppliers and producers, which makes construction materials firms especially sensitive to market fluctuations and demand cycles (World Bank, 2019).

Another major factor is dependence on raw materials and energy resources. Construction materials production is usually energy-intensive, which means that changes in electricity, gas, fuel, and transportation costs have a direct impact on production cost and profitability. If an enterprise cannot transfer these higher costs to the market, profit margins begin to shrink and competitiveness weakens. Over time, this may create a pre-crisis situation, especially when rising production costs are combined with unstable sales or growing debt obligations. In practice, this shows that cost pressure in such enterprises is not only an accounting issue, but also a strategic risk factor that directly affects resilience and business continuity (World Bank, 2019).

A further important source of vulnerability is weak financial and operational management. In many enterprises, the first signals of crisis appear in declining liquidity, imbalances between receivables and payables, unstable cash flow planning, and low reserve capacity. At the same time, internal inefficiencies such as outdated equipment, excessive waste, weak quality control, and low productivity increase the enterprise's exposure to shocks. Research on performance measurement in manufacturing confirms that sustainable enterprise management depends on integrated monitoring of multiple indicators rather than reliance on a few lagging results. This is especially relevant for construction materials enterprises, where financial stability, operational efficiency, and production performance are closely interconnected (Hwang et al., 2020).

The quality of management and strategic decision-making is also critical. In many cases, enterprises do not move toward crisis only because of external pressure, but because managers fail to identify warning signs early enough or respond to them in a coordinated way. Delayed decisions, fragmented information, weak planning, and poor interaction between departments

often accelerate the transition from instability to open crisis. Studies on early warning indicators suggest that vulnerability usually becomes visible before a full-scale crisis unfolds, which means that management quality largely determines whether the enterprise can recognize and address risk in time (Hermansen & Röhn, 2015).

Therefore, crisis risk in construction materials enterprises should be seen as the result of interaction between external instability and internal vulnerability. A pre-crisis situation usually begins long before collapse, at the stage when market pressure, cost growth, financial imbalance, and managerial weakness start reinforcing one another. For this reason, effective anti-crisis management must begin with a clear understanding of the full system of risk factors rather than with a narrow reaction to only visible financial symptoms (Hermansen & Röhn, 2015).

## 2. Early Warning Indicators

Early warning indicators are essential in pre-crisis management because they help enterprises detect vulnerability before it turns into open crisis. Their main value is not that they predict the exact moment of collapse, but that they reveal accumulating weaknesses early enough for management to respond in time (Hermansen & Röhn, 2015). In construction materials enterprises, this function is especially important because crisis usually develops gradually through declining demand, rising costs, weakening cash flow, and operational inefficiency rather than through one sudden shock.

In practical terms, early warning indicators should serve as a structured monitoring system that allows management to distinguish between temporary fluctuations and deeper signs of instability. If such indicators are selected correctly, they help managers move from reactive behavior to preventive decision-making. This means that the enterprise does not wait until losses become visible in final financial statements, but instead monitors the signals that usually appear beforehand, such as slower turnover, growing receivables, unstable capacity utilization, or cost pressure. OECD research shows that the strongest contribution of early warning models lies precisely in identifying the variables that should be monitored to detect vulnerability at an early stage (Hermansen & Röhn, 2015).

For construction materials enterprises, early warning indicators can be grouped into several major categories. The first group includes financial indicators. Among them, the most important are liquidity deterioration, declining operating cash flow, rising short-term debt burden, slower receivables collection,

and imbalance between receivables and payables. These indicators matter because pre-crisis situations often begin with weakened financial flexibility. Even when production continues, the enterprise may already be losing its ability to finance raw materials, service obligations, or absorb temporary shocks. In such cases, financial indicators become the first visible signal that stability is being eroded.

The second group covers market indicators. These include declining sales volumes, reduced order inflow, falling market share, slower inventory turnover, increasing dependence on a narrow group of buyers, and reduced price competitiveness. In construction materials enterprises, market indicators are particularly sensitive because the sector depends heavily on the general pace of construction activity. If demand weakens, inventories begin to accumulate and production plans lose their economic justification. For that reason, market indicators often show the external side of a developing pre-crisis situation.

The third group consists of operational indicators. These include falling capacity utilization, increased downtime, higher defect rates, rising energy consumption per unit of output, raw material losses, delayed maintenance, and declining labor productivity. Research on manufacturing performance measurement emphasizes that enterprise sustainability depends on integrated monitoring across multiple operational dimensions rather than on a narrow set of final results (Hwang et al., 2020). For construction materials enterprises, this is highly relevant because operational inefficiency usually translates directly into higher unit costs, weaker quality stability, and reduced responsiveness to market change.

Another important category is supply chain indicators. These involve delivery delays, raw material shortages, disruptions in transport, higher logistics costs, dependence on a limited number of suppliers, and instability in procurement schedules. In cement and related construction materials industries, supply chain risk has been identified as a major source of vulnerability because production continuity depends on timely input flows and stable logistics coordination (Sangode et al., 2023). In practice, this means that even if financial reporting still appears acceptable, disruptions in supply processes may already signal a movement toward pre-crisis conditions.

At the managerial level, enterprises should also monitor strategic and organizational indicators. These include delays in decision-making, fragmented internal reporting, weak coordination between departments, lack of scenario planning, failure to update budgets in

response to changing conditions, and low responsiveness to warning signals. Such indicators are more difficult to quantify, but they are often decisive in explaining why some firms recover from pressure while others move deeper into crisis. A company may face the same external environment as its competitors, yet enter a pre-crisis stage earlier simply because management fails to interpret the signals correctly or to act on them promptly.

What matters most is not the isolated use of one or two indicators, but the creation of an integrated early warning system. A single indicator rarely explains the full risk picture. For example, declining liquidity on its own may be temporary, but if it appears together with slower sales, rising inventories, and falling capacity utilization, the enterprise is facing a much more serious warning pattern. Therefore, early warning indicators should be interpreted as a combined diagnostic system in which financial, market, operational, supply chain, and managerial signals are analyzed together.

From a strategic point of view, early warning indicators perform three functions. First, they support early diagnosis by identifying weak points before crisis becomes visible in final results. Second, they improve decision quality by giving management a clearer factual basis for action. Third, they strengthen enterprise resilience because timely detection allows the firm to adjust production, revise procurement plans, protect liquidity, and rethink market priorities before the situation becomes critical. In this sense, early warning indicators are not just analytical tools; they are part of the strategic management mechanism itself (Hermansen & Röhn, 2015).

Thus, for construction materials enterprises, the practical value of early warning indicators lies in their ability to connect day-to-day monitoring with long-term strategic stability. A well-designed indicator system allows the enterprise to see risk not after damage has already occurred, but at the stage when preventive action is still possible. That is exactly why such indicators should be treated as the foundation of pre-crisis management rather than as a secondary reporting instrument.

### 3. Strategic Decision-Making Mechanism

In pre-crisis situations, strategic decision-making should not be reduced to isolated emergency actions. It should function as a structured management mechanism that helps the enterprise recognize risk, interpret its scale, choose an appropriate response, and coordinate implementation across key business units. In construction materials enterprises, this is especially important because crises usually develop under the combined pressure of declining demand, cost

escalation, supply instability, and internal inefficiency. Under such conditions, the quality of strategic decision-making often determines whether the enterprise stabilizes the situation early or moves into a deeper phase of crisis (OECD, 2015).

A sound strategic decision-making mechanism begins with timely recognition of weak signals. At the pre-crisis stage, management rarely faces complete certainty. Instead, it receives fragmented information: sales may be slowing, production costs may be rising, inventories may be growing, and financial flexibility may be weakening at the same time. The first task of strategic management, therefore, is not to wait for perfect information, but to build the capacity for sense-making — that is, to identify which signals are temporary and which indicate a more serious structural threat. Strategic crisis management literature shows that early interpretation of complexity is one of the core conditions of effective decision-making under pressure (OECD, 2015).

The second element is diagnostic assessment. Once warning signals are identified, the enterprise must determine the nature and depth of the problem. This requires management to answer several critical questions: Is the threat primarily financial, operational, market-based, or supply-related? Is it short-term or structural? Is the enterprise facing a local disturbance or a broader strategic imbalance? At this stage, the role of diagnosis is to prevent superficial reactions. If management misidentifies a structural crisis as a temporary fluctuation, it may delay serious action. If it treats a temporary problem as a systemic collapse, it may overreact and waste resources. Therefore, strategic decision-making must be based on diagnosis, not panic.

The third element is generation of response alternatives. A pre-crisis situation rarely allows only one solution. Management usually has to compare several strategic options: reducing production volumes, revising procurement schedules, tightening liquidity control, postponing investment projects, diversifying clients, adjusting the product mix, or reorganizing internal costs. In this phase, strategic decision-making should be scenario-based rather than linear. Research on decision processes suggests that procedural rationality improves the quality of strategic choice because it forces firms to compare alternatives systematically instead of relying only on intuition or political pressure within the organization (Petrou, 2020). For construction materials enterprises, this matters greatly because wrong decisions at this stage may lock the firm into higher costs, idle capacity, or deeper market losses.



The fourth element is selection of priorities and allocation of resources. In pre-crisis conditions, resources are limited, and management cannot solve every problem simultaneously. Strategic decision-making therefore requires prioritization. The enterprise must decide which risks are critical, which functions must be protected first, and where available financial, human, and operational resources should be directed. In many cases, the immediate priority is to protect liquidity and maintain production continuity. In others, the key issue may be preserving market share, securing raw material flows, or safeguarding the most profitable product lines. The main point is that decision-making should follow a logic of strategic concentration rather than fragmented response.

The fifth element is organizational coordination. Even a well-designed strategic decision loses effectiveness if departments act separately. In construction materials enterprises, decisions on finance, production, procurement, logistics, and sales are tightly interconnected. A choice to reduce inventories, for example, affects procurement schedules, production volumes, storage costs, and customer service. A liquidity protection measure may influence maintenance budgets, transport planning, or sales conditions. For this reason, strategic decision-making in pre-crisis situations should be cross-functional. It must connect top management with operational units and ensure that decisions are translated into coordinated action rather than remaining at the level of formal directives.

Another critical element is speed combined with discipline. Crisis research shows that under disruption, management teams often face intense time pressure and emotional strain, which can distort judgment and reduce decision quality (Netz et al., 2020). This means that enterprises need mechanisms that are not only fast, but also disciplined. Fast decisions without structure may create confusion, while over-analysis may result in dangerous delay. The right mechanism is one that allows quick action, but through predefined channels of reporting, escalation, responsibility, and review. In practice, this may involve crisis committees, threshold-based escalation rules, scenario templates, and regular management review sessions tied to early warning indicators.

A further component of the mechanism is adaptation and feedback. Strategic decision-making in pre-crisis situations should not be treated as a one-time event. Conditions may continue to change after the initial decision is made. Demand may deteriorate further, energy prices may rise again, or supply disruptions may intensify. Therefore, every strategic decision should include a feedback loop: what indicators will be

monitored after implementation, how success or failure will be measured, and under what conditions the decision will be revised. Recent research on proactive crisis response in manufacturing shows that adaptive performance improves when organizations combine early action with knowledge creation, integration, and implementation rather than relying on static plans alone (Feng et al., 2024).

For construction materials enterprises specifically, the strategic decision-making mechanism should be built around five practical stages: signal detection, diagnosis, scenario evaluation, priority selection, and adaptive control. Signal detection relies on early warning indicators. Diagnosis clarifies the source and seriousness of risk. Scenario evaluation compares alternative strategic responses. Priority selection directs scarce resources to the most critical areas. Adaptive control ensures that implementation is continuously monitored and corrected when necessary. This sequence helps management move from fragmented reaction to structured strategic control.

Thus, the strategic decision-making mechanism in pre-crisis situations should be understood as an integrated process rather than an isolated managerial act. Its effectiveness depends on how well the enterprise interprets signals, diagnoses vulnerabilities, evaluates alternatives, coordinates departments, and adapts decisions over time. In construction materials enterprises, where external instability quickly interacts with internal cost, production, and liquidity pressures, such a mechanism becomes one of the main conditions of resilience and sustainable survival (World Bank, 2019; OECD, 2015).

#### **4. Improved Management Model**

An improved management model for construction materials enterprises should be built on the idea that crisis prevention is more effective than crisis response. In many enterprises, management systems begin to react only after the main symptoms of instability have already become visible in financial losses, declining profitability, or serious production disruptions. However, in pre-crisis conditions, effective management requires a different logic: the enterprise must identify vulnerabilities earlier, connect monitoring with strategic analysis, and transform fragmented information into coordinated managerial action. For this reason, the improved management model proposed in this study is based on integration, adaptability, and preventive control rather than on isolated anti-crisis interventions (Hermansen & Röhn, 2015).

At the core of this model is the integration of five

managerial blocks: risk identification, early warning monitoring, analytical diagnosis, strategic decision-making, and adaptive control. These blocks should not function as separate administrative routines. On the contrary, they must operate as parts of one unified management cycle. The first block, risk identification, focuses on detecting the main internal and external threats that may weaken the enterprise. At this stage, management defines the key areas of vulnerability: market decline, cost escalation, supply chain instability, financial imbalance, technological inefficiency, and managerial rigidity. The purpose is not simply to create a list of risks, but to understand where the enterprise is most exposed and why.

The second block is early warning monitoring. Once the main risk areas are identified, the enterprise must establish a system of indicators that continuously tracks the condition of these areas. This block includes financial, market, operational, supply chain, and organizational indicators. The role of monitoring is to provide management with timely information before instability deepens into crisis. In an improved model, monitoring should be regular, selective, and decision-oriented. This means that indicators are not collected for reporting alone; they are selected because they help management recognize deteriorating conditions early and respond before the enterprise enters a destructive phase (Hwang et al., 2020).

The third block is analytical diagnosis, which turns raw signals into meaningful managerial conclusions. Not every deviation indicates serious crisis risk. Some fluctuations may be temporary, while others may reveal a structural problem. Therefore, the management model should include a diagnostic stage where changes in indicators are interpreted in terms of source, scale, and urgency. For example, declining liquidity may reflect temporary payment delays, but if it appears together with slower sales, rising inventories, and increased debt pressure, it signals a much deeper vulnerability. Diagnosis helps management avoid two common mistakes: underestimating serious threats and overreacting to short-term fluctuations.

The fourth block is strategic decision-making, which transforms diagnosis into action. At this stage, management evaluates alternative responses and chooses the most effective strategic option. In construction materials enterprises, these responses may include revising production plans, reducing non-essential expenditures, protecting liquidity, reorganizing procurement schedules, diversifying customer channels, improving energy efficiency, or concentrating resources on the most profitable product lines. The improved model assumes that

strategic decisions should not be made spontaneously. They should follow a structured sequence in which alternatives are compared, priorities are selected, and responsibilities are clearly assigned. This strengthens the quality of managerial response and reduces the risk of fragmented or contradictory actions (OECD, 2015).

The fifth block is adaptive control and feedback. This is one of the most important differences between a traditional management system and an improved one. In many enterprises, once a decision has been made, management assumes that implementation alone is enough. In reality, pre-crisis conditions are dynamic, and external or internal circumstances may change rapidly. Therefore, the management model must include mechanisms for reviewing outcomes, reassessing indicators, and correcting actions if the chosen strategy does not produce the expected effect. In this sense, adaptive control allows the enterprise to remain flexible and responsive rather than locked into a rigid plan.

From a structural point of view, the proposed model can be described as a closed-loop management mechanism. It begins with risk mapping, moves into continuous monitoring, then into diagnosis, strategic choice, implementation, and feedback, after which the cycle begins again on an updated basis. This closed-loop character is important because crisis risk in construction materials enterprises is never static. It changes under the influence of the market, energy costs, logistics conditions, investment trends, and the internal state of the enterprise itself. A management system that does not continuously renew its information and decisions cannot remain effective for long.

An important practical feature of the model is its cross-functional nature. In construction materials enterprises, risk management cannot be assigned to only one department. Financial specialists may detect liquidity problems, but these problems are often linked to production inefficiency, delayed sales, procurement imbalances, or external market decline. For this reason, the improved model requires coordination among finance, production, logistics, procurement, sales, and top management. Only such coordination allows the enterprise to interpret signals correctly and choose measures that are realistic across the whole organization. The model therefore treats anti-crisis management not as a narrow financial function, but as an enterprise-wide governance mechanism.

Another key characteristic of the proposed model is strategic selectivity. Under pre-crisis conditions, enterprises rarely have enough resources to address every weakness at once. The improved model

therefore assumes that management must rank risks according to urgency and impact. Priority should be given to the areas that have the strongest influence on enterprise survival: liquidity protection, production continuity, key customer retention, essential procurement stability, and preservation of the most competitive product segments. This selective approach helps prevent the dispersion of limited resources and strengthens the practical effectiveness of anti-crisis measures.

The model also gives special importance to managerial responsibility and communication. In many enterprises, crisis risk intensifies not only because of objective difficulties, but also because of unclear roles, slow reporting, and weak internal communication. Therefore, an improved management model should define who is responsible for signal monitoring, who performs diagnosis, who approves strategic decisions, and who supervises implementation. It should also ensure that warning information moves quickly from operational units to top management and that management decisions return to departments in a clear and coordinated form. Without this communication discipline, even a well-designed model may fail in practice.

In sectoral terms, this model is especially suitable for construction materials enterprises because it reflects the specific features of the industry: high capital intensity, strong dependence on energy and raw materials, sensitivity to construction cycles, and close interdependence between production and market timing. In such enterprises, crisis rarely begins as a purely financial event. More often, it develops through a chain of linked disruptions — slowing demand, rising costs, lower turnover, pressure on liquidity, and delayed managerial response. The improved model is designed precisely to break this chain at an early stage by strengthening diagnosis, coordination, and preventive action (World Bank, 2019).

Thus, the improved management model proposed in this article can be summarized as a preventive and adaptive system that unites monitoring, analysis, decision-making, and control into one coherent mechanism. Its main advantage lies in the fact that it allows construction materials enterprises not only to react to instability, but also to anticipate it, evaluate its trajectory, and intervene before a full crisis emerges. In this way, the model supports stronger resilience, more rational use of resources, and higher strategic readiness in an uncertain business environment.

## RESULTS AND DISCUSSIONS

The results of this study show that crisis risk management in construction materials enterprises

becomes effective only when it is organized as an integrated system rather than as a fragmented set of financial or operational measures. The analysis confirms that pre-crisis situations in such enterprises usually emerge not from one sudden disturbance, but from the cumulative interaction of market decline, cost pressure, liquidity deterioration, supply instability, and managerial delay. This means that the core problem is not merely the existence of risk factors, but the enterprise's inability to detect their interaction early and respond in a coordinated way.

One important result is that financial indicators alone are insufficient for identifying pre-crisis conditions. In traditional practice, management often focuses on profitability, debt burden, or liquidity ratios only after deterioration becomes visible in reporting. However, the findings suggest that by the time these final indicators clearly worsen, the enterprise may already be in an advanced phase of instability. A more effective approach requires combining financial signals with market, operational, and organizational indicators. This supports the argument that early warning systems should be multidimensional rather than narrowly accounting-based (Hermansen & Röhn, 2015).

The study also demonstrates that market and operational signals often appear earlier than final financial decline. For example, falling order inflow, slower inventory turnover, lower capacity utilization, rising unit costs, and higher energy intensity may emerge before serious liquidity problems become fully evident. This finding is especially important for construction materials enterprises because their performance depends heavily on the rhythm of construction activity, input costs, and production continuity. Therefore, enterprises that monitor only accounting outcomes risk missing the stage at which preventive action is still possible.

Another important result concerns the role of management quality. The analysis shows that similar external pressures do not produce identical outcomes in all enterprises. Firms exposed to the same demand slowdown or cost increase may experience very different trajectories depending on how quickly management recognizes the signals, evaluates alternatives, and coordinates action. This suggests that pre-crisis vulnerability is shaped not only by objective economic conditions, but also by the internal capacity of management to interpret and respond to uncertainty. In this sense, managerial flexibility and diagnostic competence become strategic resources rather than auxiliary functions (OECD, 2015).

The proposed management model also reveals that integration between departments is one of the decisive

conditions of resilience. In construction materials enterprises, finance, production, procurement, logistics, and sales are deeply interconnected. When these units operate separately, warning signals remain fragmented and decisions become delayed or contradictory. By contrast, when monitoring, diagnosis, and decision-making are integrated across departments, management gains a more realistic picture of enterprise vulnerability and can respond more selectively. This confirms the practical relevance of a cross-functional anti-crisis mechanism.

From the discussion perspective, the findings support the view that pre-crisis management should be preventive, not reactive. In many enterprises, crisis management still begins at the stage of visible decline, when management is already forced into cost-cutting, emergency borrowing, or abrupt production reduction. Such responses may be necessary, but they are usually more expensive and less effective than preventive intervention. The present analysis suggests that a preventive model — based on signal detection, diagnosis, scenario evaluation, priority-based decision-making, and adaptive control — provides a stronger basis for enterprise stability.

The discussion also highlights that construction materials enterprises require sector-specific anti-crisis logic. Unlike firms in less capital-intensive sectors, these enterprises are highly sensitive to energy prices, raw material flows, logistical disruptions, and fluctuations in the construction cycle. Their crisis risk is therefore more systemic and less likely to be solved through isolated financial corrections alone. The implication is that anti-crisis mechanisms in this sector must combine strategic and operational thinking: protecting liquidity is necessary, but so is maintaining production continuity, cost discipline, and market positioning (World Bank, 2019).

At the same time, the findings show that early warning indicators have value only when they are linked to action. Monitoring itself does not prevent crisis. Its practical importance depends on whether indicator changes trigger timely diagnosis, responsible discussion, and realistic strategic choice. If enterprises collect data but do not use it for structured decisions, the monitoring system becomes formal rather than functional. This means that the true effectiveness of early warning models lies not only in information generation, but in their connection with management responsibility and adaptive response.

A further discussion point concerns strategic selectivity under limited resources. In pre-crisis situations, enterprises cannot address all vulnerabilities simultaneously. The findings indicate that

management should concentrate first on the areas with the highest survival value: liquidity protection, stable procurement of critical inputs, preservation of the most viable product lines, retention of key customers, and operational efficiency in core production processes. This selective logic prevents the waste of scarce resources and makes crisis response more disciplined.

Overall, the results confirm that the proposed improved management model has practical value because it helps enterprises move from passive observation to active stabilization. Its main contribution lies in connecting early warning indicators with diagnosis, decision-making, and adaptive control inside one closed-loop mechanism. For construction materials enterprises, this integrated model creates stronger conditions for resilience because it addresses both the external drivers of crisis and the internal weaknesses that allow those drivers to deepen into open instability.

Thus, the discussion leads to a broader conclusion: in construction materials enterprises, crisis risk management is most effective when it is treated not as a temporary emergency tool, but as a continuous strategic function of management. Enterprises that institutionalize early diagnosis, cross-functional coordination, and adaptive strategic choice are better positioned to withstand pre-crisis pressure and preserve long-term development potential (Hwang et al., 2020).

## CONCLUSION

In conclusion, crisis risk management in construction materials enterprises should be treated as a continuous strategic function rather than as a temporary response to visible decline. The study has shown that pre-crisis situations usually develop gradually through the interaction of market instability, rising production costs, liquidity pressure, supply chain disruptions, operational inefficiency, and delayed managerial reaction. For this reason, the main challenge is not only to overcome crisis after it emerges, but to recognize its early signs and prevent its deepening at the pre-crisis stage.

The analysis confirms that effective anti-crisis management in this sector requires an integrated approach. Financial indicators alone are not enough to detect growing instability. A more reliable system must combine financial, market, operational, supply chain, and organizational indicators within a unified early warning framework. At the same time, these indicators become useful only when they are linked to diagnosis, strategic evaluation, and timely managerial response. In other words, information has value only when it supports action.



The article also demonstrates that the quality of strategic decision-making plays a decisive role in enterprise resilience. Under pre-crisis conditions, management must be able to identify weak signals, assess their seriousness, compare response alternatives, set priorities, and coordinate implementation across departments. In construction materials enterprises, this is especially important because the sector is highly dependent on energy resources, raw material supplies, production continuity, and changes in construction demand. Therefore, fragmented or delayed decisions significantly increase the risk of deeper instability.

Based on the results of the study, it can be argued that the most effective management model for construction materials enterprises is a preventive and adaptive one. Such a model should integrate risk identification, early warning monitoring, analytical diagnosis, strategic decision-making, and feedback control into a single closed management cycle. Its practical advantage lies in the fact that it enables the enterprise not only to react to crisis, but also to anticipate risk, evaluate its trajectory, and intervene before the situation becomes destructive.

From a practical point of view, several recommendations can be proposed. First, construction materials enterprises should introduce an integrated early warning system that regularly tracks liquidity, sales dynamics, inventory turnover, capacity utilization, unit costs, energy consumption, and procurement stability. Second, enterprises should strengthen cross-functional coordination among finance, production, procurement, logistics, and sales divisions so that warning signals are interpreted in a unified way. Third, strategic decisions in pre-crisis conditions should be based on scenario analysis and clear prioritization of limited resources. Fourth, special attention should be given to liquidity protection, cost discipline, stable supply of critical inputs, and retention of the most sustainable product and customer segments. Fifth, management should establish a feedback mechanism that continuously evaluates the results of implemented decisions and corrects them when conditions change.

Thus, the improvement of crisis risk management and strategic decision-making mechanisms in pre-crisis situations is one of the key conditions for ensuring the long-term sustainability of construction materials enterprises. Enterprises that rely on early diagnosis, coordinated management, and adaptive strategic action are better prepared to withstand instability, reduce the probability of deep crisis, and preserve their development potential in a volatile business environment.

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