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Risk of Business Failure in a VUCA Environment: Determinants, Models and Management Issues - A Systematic Review of the Literature

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Abstract

Over the past decades, the global economy has faced a series of unexpected shocks, including the 2008 financial crisis, the Covid-19 pandemic in 2020, and the Russia-Ukraine conflict beginning in 2022. These events have exposed the structural vulnerabilities of firms operating in an environment increasingly described as VUCA: volatile, uncertain, complex, and ambiguous. Such successive crises have generated major economic repercussions, reflected in declining production levels, rising unemployment, reduced investment, and intensified inflationary pressures. In this unsettled context, some firms have been unable to sustain their activities, whereas others have strengthened their resilience by adapting rapidly to imposed changes.

The originality of this article lies in the implementation of an international systematic review based on an in-depth documentary analysis of several empirical studies, enabling the identification of the most recurrent and convergent failure factors reported in the international literature. This contribution is reinforced by the broad temporal scope of the research, covering nearly three decades of studies, and by the methodological structure inspired by the PRISMA approach.

The findings reveal that the determinants of business failure revolve around three main dimensions: financial factors,

managerial and organizational factors, and external contextual factors. This systematic review enhances the understanding of organizational vulnerability dynamics in an unstable international environment and provides valuable insights for strengthening firms' resilience.

Keywords: Organizational vulnerability, Resilience, PRISMA methodology, Internal factors; External factors, Predictive models, VUCA environment, financial risks.

Introduction

Over the past few decades, the global economy has experienced a succession of major crises that have profoundly disrupted production structures. These crises, whether the 2008 financial crisis, the Covid-19 pandemic or the Russian-Ukrainian war, have highlighted the fragility of many companies in an environment characterized by uncertainty, volatility and complexity. Some organizations have been unable to withstand these disruptions and have gone bankrupt, while others have developed the resilience to adapt (Snoussi & Ibenrissoul, 2024).

In light of this observation, the central question of our research is: **what are the determining factors of business failure in the international context?**

To answer this question, this article adopts a structured approach aimed at presenting the main theoretical approaches

to the concept of failure, before offering a systematic review of empirical work carried out at the international level, highlighting the recurring factors associated with failure.

1. Failure and related concepts

In an economic environment characterized by instability and uncertainty, managing the risk of failure has become a major concern for companies seeking to ensure their survival and sustainability. Organizations operate in a context where economic, financial and organizational disruptions are frequent, highlighting the need to understand the different forms of failure.

A multidimensional concept

Failure is a multifaceted concept, with multiple definitions depending on the discipline and objectives of the researchers. Since the pioneering work of Fitzpatrick (1932), several authors have attempted to define this complex phenomenon.

A review of the literature confirms that failure has a variety of meanings, which are often difficult to reconcile, and that there is no clear consensus on its definition. This conceptual heterogeneity is clearly evident in the various approaches proposed since the early 1990s:

Wruck (1990) defines corporate default in terms of financial distress¹, considering it to be a situation where cash flows become insufficient to meet current financial obligations. These obligations may include debts to suppliers or employees, litigation expenses, interest payments, etc.

In line with Wruck's thinking, Ooghe and Van Wymeersch (1996) explain financial distress as a lack of liquidity and high levels of debt leading to solvency problems.

According to INSEE, "a company is considered to be in default or bankruptcy when judicial reorganization proceedings are initiated against it. These proceedings are initiated when a company is unable to meet its current liabilities with its available assets."

Beaver (1966), in his article considered to be the cornerstone of work on predicting insolvency, defines it as the result of a company's inability to meet its commitments once they have reached maturity.

Furthermore, Altman (1968) considers any company that is insolvent or unable to meet its obligations to be bankrupt.

Crutzen and Van Caillie (2009) believe that a company in difficulty is "a company whose organizational and financial situation has deteriorated significantly".

The Basel Committee considers default to be the non-repayment of a loan granted by a bank and places particular emphasis on estimating the risk of default rather than the risk of bankruptcy.

In Moroccan legislation (Law 15-95, Article 560), default is linked to cessation of payments and characterizes a company that is unable to pay its debts when they fall due.

Based on the definitions we have examined, it appears that some authors consider default to be the initiation of legal proceedings, while others perceive it as a situation that results in a failure to pay (the inability to honor one's commitment). Consequently, many authors have attempted to define the concept of default in order to present a comprehensive overview of existing approaches, but analysis of these definitions reveals remarkable diversity in the terminology used to describe a company as being in default. These contributions have identified three major dimensions: economic default, financial default and legal default.

(1) Economic failure

From an economic point of view, a company is considered to be in default when it is unable to adapt to the economic environment (Bescos, 1989). This means that the company is unable to achieve economic performance that is as good as that of its main competitors, as pointed out by Ooghe and Van Wymeersch (1986). If the company fails to develop and maintain a viable strategic position, and if it does not take the necessary measures and actions to turn its situation around, it runs the risk of sinking deeper into the failure process (Crutzen and Van Caillie, 2009).

(2) Financial failure

According to Malecot (1991), a company is considered to be in financial failure when it becomes insolvent and is no longer able to honor its debts with its available assets.

According to Ooghe and Van Wymeersch (1996), the process of financial failure begins with a lack of profitability resulting from excessive structural costs and insufficient added value. This imbalance makes it difficult, if not impossible, for the company to maintain its self-financing and liquidity. Excessive investment can exacerbate the lack of liquidity, leading the company to take on excessive debt and making it difficult to repay these debts due to lender mistrust (credit crunch). This puts the company in a difficult position when it comes to obtaining new financing. In the short term, the inability to take on more debt leads to cash flow problems and can eventually lead to insolvency.

¹ Anglo-Saxon literature traditionally uses the term "financial distress".

Thus, the combination of these two trajectories, financial and economic, can result in legal default, which confirms and formalizes the company's inability to honor its debts with its available resources (Guilhot, 2000).

(3) Legal default

Legal professionals use the term "insolvent companies" to describe companies that have experienced a cessation of payments, meaning that they can no longer repay their debts when due with available cash, or that are involved in safeguard proceedings.

Ferrier (2002) points out that, legally speaking, the term "insolvency" is associated with cessation of payments. In this regard, collective proceedings can lead to two possible scenarios for the company: liquidation of the structure, resulting in its disappearance, or the development of a continuation plan, aimed at judicial reorganization. It is also important to note that some companies in cessation of payments do not necessarily end up in liquidation. They may undergo structural changes such as mergers or takeovers, or even changes in legal form.

It is clear that there is currently no universally accepted definition of the concept of failure. The multitude of definitions can be explained by the diversity of theoretical and empirical work that has contributed to the analysis of this phenomenon. We therefore share the view of Luoma and Laitinen (1991) that corporate failure is not a sudden state of bankruptcy, but rather a dynamic phenomenon that begins with economic and commercial problems, continues with financial difficulties, and ultimately leads to a legal situation of insolvency in the absence of measures to redress the company's situation.

2. Research methodology

This research is based on a systematic review of the literature aimed at identifying the main factors explaining failure in the international context, using the PRISMA systematic review methodology.

The first step in the process was to identify relevant publications in three databases recognized for their international scientific coverage: Web of Science, Google Scholar and Scopus. The search covered the period 1996-2020, using various keywords such as: *business failure*, *SME failure*, *failure factors*, *failure prediction*, etc. This strategy

identified 434 publications, which formed the initial basis for the review.

Inclusion criteria

The articles selected meet the following criteria:

- explicitly address business failure;
- present an empirical study (quantitative or qualitative);
- include a sample of failing and non-failing companies;
- provide information on the variables studied and the methods used.

Exclusion criteria

The following were excluded:

- theoretical articles without empirical data;
- studies that did not clearly define default;
- studies with incomplete data;
- duplicates found in the databases used.
- Studies conducted in the Moroccan context²

Eligibility

After removing duplicates, the remaining publications were selected based on a quick read of the titles and abstracts, resulting in **229 studies** being selected for in-depth reading. A comprehensive analysis of these texts led to the exclusion of **206 studies** that did not fully meet the criteria. Ultimately, **23 empirical studies** were selected for the final qualitative synthesis. The complete study selection procedure is illustrated in Figure 1.

² Studies conducted in the Moroccan context have not been included in this systematic review, as they have already been the subject of a separate article published previously by the author: SNOUSSI N.

(2025) "The failure of Moroccan companies: A narrative review", *Revue Internationale des Sciences de Gestion* "Volume 8: Number 3" pp: 1664–1682.

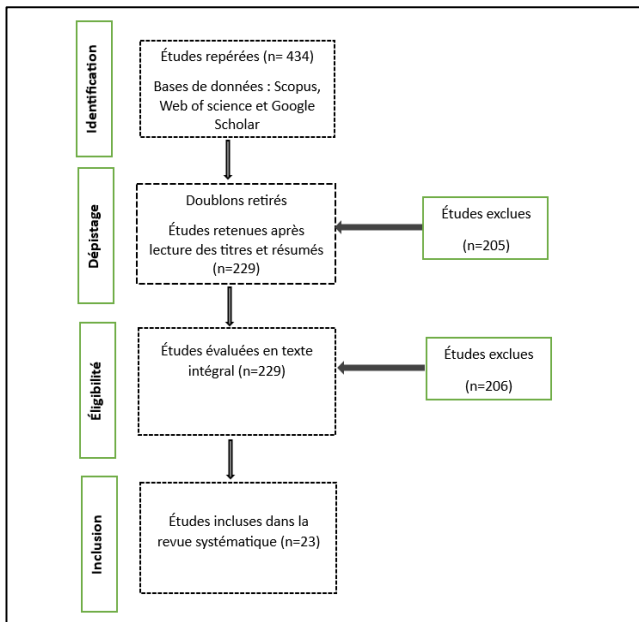


Figure 1: PRISMA diagram of the study selection process

Source: author

3. Analysis and discussion of results

The objective of this research is to explore the main studies on the analysis of business failure, highlighting the causes (financial and non-financial) and the main prediction models used in the international context.

The results of this research on business failure are described in Table 1, which provides a summary of the main studies. These conclusions will be presented according to the following elements:

- The sample construction phase
- The data collection phase
- The results analysis phase

Table 1: Summary of empirical work from the international context on failure

Reference	Nature of companies	Date of observations	Definition of failure	Sample structure	Nature and number of variables used	Data sources	Methods used	Result Variables selected	Good rating rate/Coefficient of determination
Beaver (1966)	American industrial companies	1954-1964	Payment incidents or bankruptcies	79 D and 79 ND classified by size and sector	14 accounting ratios	Moody's Industrial Manual ³	One-dimensional classification	The cash flow/debt ratio gives the best reclassifications.	Overall (87%)
Altman (1968)	American industrial companies	1945-1965	Bankruptcy filings	33 D and 33 ND grouped by size and sector	5 accounting ratios	Moody's Industrial Manual	ADL	Five ratios selected: - Net working capital/total assets -Reserves/total assets -EBITDA/total assets -Equity/total debt -Revenue/total assets	96% (D) 79% (ND)
Deakin (1972)	American industrial companies	1962-1966	Bankruptcy filings	32 D and 32 ND	14 accounting ratios	NP	ADL	Ratios relating to liquidity, profitability and debt	Overall (80%)

³ Moody's Industrial Manual contains data relating to the financial statements of industrial companies.

Agenti (1976)	NP	1 year	NP	-	-	-	Extensive research into books, articles, case studies, expert opinions (judicial administrators, bankers, analysts, accountants, etc.)	<p>Managerial shortcomings</p> <ul style="list-style-type: none"> • Management (lack of management, shareholders not involved in decision-making, poorly balanced management team, weakness at the finance function) • Accounting information: budget control, cash flow forecasting, cost control system, asset valuation (shortcomings due to weaknesses in finance) <p>Exogenous factors</p> <ul style="list-style-type: none"> • Change management: competitor trends, political, economic, social and technological changes 	-
CNME ⁴ (1976)	French industrial companies	1969 - 1975	Companies in a state of insolvency	125 companies in a state of insolvency	-	NP	Survey	The main cause of insolvencies is linked to management problems (accounting for over 50%)	-

⁴ C.N.M.E., 1976, "The origin of the difficulties of French companies that have gone into receivership", Economic Information Bulletin, No. 73, 4th quarter.

Larson and Clute (1979)	American SMEs	NP	SMEs experiencing financial difficulties	350 companies	-	Company financial records	Analysis of company financial records	<p>Managerial deficiencies:</p> <ul style="list-style-type: none"> -Personal characteristics (inflexible leadership, lack of innovation, decisions based on intuition, etc.) -Managerial deficiencies (lack of market segmentation, ineffective planning, etc.) -Poor financial management -Lack of financial resources 	-
Conan and Holder (1979)	French industrial companies	1970 - 1975	Industrial companies in difficulty	151 industrial SMEs	-	Reports submitted by chartered accountants or financial experts	Analysis of reports	<p>The most common cause of failure:</p> <p>A cyclical decline in turnover followed by poor organization of the company.</p>	-
Ohlson (1980)	American industrial companies	1970-1976	Bankruptcy filings	2,163 companies: 105 D and 2,058 ND	9 accounting ratios	NP	Logit regression	Four ratios selected relating to company size, financial structure, performance and liquidity.	D (79.8%) ND (91.4%)

Keasey and Watson (1987)	English companies	1970-1983	NP	73 bankrupt companies and 73 healthy companies	(28 financial ratios) ⁵ And 18 non-financial variables ⁶	NP	Logit regression	Three models emerged from their study: - MF: 6 ratios selected - NFM: 6 factors selected -Mixed model: 4 factors selected	G (67.7%) G (75.3%) G (82.2%)
Lussier (1995)	Young American companies (0 and 10 employees)	NP	It adopts Dun & Bradstreet's definition (1994): failures of companies involved in legal proceedings or voluntary actions involving losses for creditors.	216 companies: 108 healthy 108 bankrupt companies	15 non-financial variables (NFV) Non-financial model	Bankruptcy court files (questionnaires)	Stepwise discriminant analysis	Managerial deficiencies -Capital (starting with insufficient capital), - Lack of planning (business plan, strategies), - Lack of external professional advisors, - Lack of incentives to attract or retain quality employees), - Lack of experience in the industry, record keeping and financial control,	G (75%)

⁵ The financial ratios used in model 1 (MF) consist of 28 ratios covering various aspects of company performance such as profitability, liquidity and indebtedness.

⁶ The non-financial variables used in model 2 (MNF) consist of 18 elements, nine of which are dichotomous variables.

Theng and Boon (1996)	Asian SMEs, all manufacturing, trade and service sectors.	1991	NP	56 SMEs	-	Singapore Manufacturers' Association	Survey	<ul style="list-style-type: none"> -Management deficiencies (lack of product knowledge, lack of management experience and skills, etc.) -Under-capitalization -Financial resources (lack of cash flow analysis, liquidity, budgets or forecasts, etc.) -Exogenous factors (economic recession, high interest rates, etc.) 	-
Blazy and Combier (1997)	French companies, all sectors combined	1991	Companies subject to collective proceedings	800 companies	-	Insolvency proceedings files provided by the Paris Commercial Court registry.	Survey	<ul style="list-style-type: none"> Causes of failure: -Accidental causes -Market problems -Financial difficulties -Information and management issues -Macroeconomic factors of fragility -Production costs and structure -Company strategy. 	-

Baldwin et al. (1997)	Canadian companies, all sectors combined	01/03/1996 31/08/1996	Canadian companies that declared bankruptcy (between 01/03/1996 and 31/08/1996)	550 companies	-	NP	Survey	<p>Managerial deficiencies</p> <ul style="list-style-type: none"> • Most common internal causes of bankruptcy: general managerial skills, financial planning and management, inexperience, lack of marketing skills, strategic issues (planning, innovation strategy), human resources management, etc. <p>External factors</p> <ul style="list-style-type: none"> • Economic slowdown in the market and intensified competition 	-
Huang and Brown (1999)	Australian SMEs, all sectors combined	NP	NP	973 SMEs	-	NP	Survey	<p>-Management deficiencies:</p> <p>Management of promotion, market research, employee training and development, planning and managerial inexperience</p> <p>-Under-capitalization at start-up</p>	-

Sullivan et al. (1998)	Small American businesses	NP	Companies subject to legal proceedings	3,284 businesses	-	NP	Survey	<p>Main factors contributing to failure:</p> <ul style="list-style-type: none"> -Competition -Financing (cost of capital, debt, etc.) - Internal company problems (management errors, loss of customers, etc.) -Disputes with the tax authorities -Disputes with business partners (creditors, etc.) - Personal problems affecting the manager (accident, divorce, illness, etc.) -Force majeure (fraud, accident, natural disaster, etc.) 	-
Longenecker (2001)	Large Russian companies in the manufacturing and service sectors	NP	NP	53 companies	-	NP	Survey	<p>Management deficiencies</p> <ul style="list-style-type: none"> - Lack of experience, poor communication, lack of marketing skills, - Lack of guidance, direction, and planning, 	-

								<ul style="list-style-type: none"> - Ineffective control practices - Inability to manage change, poor customer relations and service, ineffective managers ineffective, -Lack of training and workforce development. 	
Jabeur & Fahmi (2014).	French SMEs	2006-2008	Companies that were the subject of an initial declaration of legal proceedings before the commercial court in 2009	400 healthy companies 400 failing companies	33 financial ratios	Diane database	AD Logit regression	<p>Financial determinants of default (9 ratios) relate to the following topics:</p> <p>Liquidity, management, productivity, profitability</p>	AD (98%) RL (95.97%)
Cultrera (2016)	Belgian SMEs	2015	NP	7 specialists in the field of bankruptcy in Belgium	-	Specialists in the field (lawyers and insolvency practitioners, financial managers, research and development consultants)	Individual interviews (interview, semi-structured) with specialists in the field (lawyers and bankruptcy professionals)	<p>Key factors in explaining bankruptcy:</p> <ul style="list-style-type: none"> - Lack of anticipation of the environment - Absence of regular administrative control - Lack of management skills - Upstream (suppliers) and downstream (customers) dependency 	-

								- Failure to position the company to exploit a competitive advantage	
Valaskova et al. (2018)	Slovak companies, all sectors combined	2015-2016	NP	105,708 companies	19 financial ratios	Amadeus database	RLM	6 ratios selected: -Working capital -Working capital/total assets -Current assets/total assets - Operating profit/total assets - Cash and cash equivalents/total assets - Current liabilities/total assets	R-squared (0.391)
Kamaluddin et al. (2019)	Listed industrial companies in Malaysia	2014-2015	NP	150 companies	Financial ratios (cash flow ratios): liquidity, solvency (3), profitability and efficiency ratios	OSIRIS and annual report	RLM	3 ratios selected: Cash flow ratio Solvency ratio Profitability ratio	R-Nagelkerke (0.338)
Boubakary (2020)	Cameroonian SMEs, all	NP	Commencement of legal proceedings (liquidation/receivership)	150 companies:	2 financial ratios	NP	RLM	Five factors selected: ⁷ Lack of liquidity, low debt capacity, business	R-Nagelkerke (0.855)

⁷ A business environment that is not conducive to development is characterized by obstacles such as complex administrative formalities, infrastructure deficits, corruption, etc.

	sectors combined			75 healthy SMEs and 75 failing SMEs	6 qualitative variables			environment not conducive to development, incompetence and strategic thinking of managers, and inability to respond effectively to change.	
Denton (2020)	Small businesses in Liberia, all sectors combined	2020	NP	237 businesspeople	-	Data is collected using a questionnaire	Survey	<p>Six factors contributing to failure:</p> <ul style="list-style-type: none"> - Poor business planning (no business plan, even before start-up) - Lack of entrepreneurial skills - Lack of customer relations - Lack of management skills - Insufficient funding (inadequate financing) - Inappropriate location - Lack of staff satisfaction - Lack of government support - Ignorance of competition 	-

Mokhtari, 2022	Algerian SMEs, all sectors combined	NP	Companies in default	84 companies: 42 insolvents 42 healthy	- 2 financial ratios (general liquidity) and debt - 7 qualitative variables	The data is collected using a questionnaire completed by managers of SMEs that are either still in business or have ceased trading	Binomial logit regression	7 determining factors selected: - Lack of liquidity - Limited access to bank credit - Business environment - Incompetence of managers - Long processing times for credit applications - Size of SMEs - Inappropriate legal form	R-Nagelkerke (0.885)
NP: Not specified; G: Overall; D: Defaulting companies; ND: Non-defaulting companies; LDA: Linear discriminant analysis; DA: Discriminant analysis; MLA: Multiple linear regression									

Source: author

To analyses these studies, we chose to focus on three key dimensions: sample construction, data collection methods and analysis of results, including the explanatory variables selected and the performance indicators of the models (good classification rate or coefficient of determination).

(1) The sample construction phase describes the definition of default, the study period and the characteristics of the sample (sector, size, number of defaulting and non-defaulting companies, etc.). These elements play a crucial role in determining the representativeness of the sample and influence the quality of the study.

- Definition of failure: the choice of failure for the companies making up the study sample differs depending on the author. Some consider a company to be failing as soon as a payment default occurs, while others consider it to be failing as soon as legal proceedings are initiated, either through receivership or liquidation.

- Study period: we can see from this table that the aggregate periods range from 2 to 10 years. However, it is interesting to note that the data provided by Altman (1968) covers an exceptionally long period of 20 years.

- Sample characteristics: analysis of the studies listed reveals that some studies are based on a limited number of companies, while others are based on large samples. In the majority of studies, the sample was chosen for its representativeness and coverage of several sectors (commerce, industry, services, etc.). Thus, the sample sizes used in studies comparing non-failing firms with failing firms vary considerably.

(2) With regard to the data collection phase, the information needed for the analysis comes from various sources, such as the collective proceedings files handled by the relevant commercial courts, Moody's industrial manual, company financial files, reports filed by chartered accountants or financial experts, databases (Diane, Amadeus), and specialists in the field (lawyers, financial managers, executives, etc.). Most survey-based studies have focused primarily on causes related to managerial and organizational aspects, while those using data from banks and commercial courts have focused on financial factors.

(3) The analysis phase of these studies, conducted in an international context, is based on a cross-referenced approach combining two methods: an exploratory approach and a predictive analytical approach.

The first approach is based on questionnaire surveys, semi-structured interviews with specialists in the field, and analysis of company reports or financial records. Its objective is to identify the causes likely to lead to failure. These studies show that the common factors explaining failure are linked to the external environment, such as competition, high interest rates, etc.), but also to internal factors, in particular poor organization and management of the company (lack of

planning, poor financial management, lack of administrative control, etc.), the personal characteristics of the manager and/or owner, lack of experience and skills, lack of innovation, decline in turnover, etc.

As for the second approach, several statistical models or methods (discriminant analysis, logistic regression, linear regression, multiple linear regression, neural networks, etc.) have been used. The objective is to determine the factors that may explain failure and to predict it. The common feature of these methods is to construct an explanatory and predictive model of failure that differentiates between two groups of companies, namely failing and non-failing companies. Some researchers have examined this phenomenon based on quantitative factors through the selection of a battery of financial and accounting ratios (Beaver, 1966; Altman, 1968, Sami Ben Jabeur, 2014, etc.). Other researchers have opted for qualitative factors related to managerial, organizational and strategic aspects (Argenti, 1976; Loredana, 2016; Denton, 2020, etc.), while some authors have combined the two characteristics (Boubakry, 2020).

According to the research carried out, most studies focusing on the analysis of financial ratios show that there is a common subset of variables that explain failure. These variables include debt, profitability, liquidity and management, and are taken into account independently of the chosen prediction model.

In summary, it is important to note that it is difficult to determine which study is the most reliable for identifying the causes and predicting default, as the methodology followed by each researcher may be influenced by various factors taken into account when conducting their study (size effect, sectoral trends, etc.). Researchers have not reached a consensus on the choice of variables that determine and predict failure. Although many studies have focused on quantitative aspects, few have taken qualitative aspects into account. In general, there is no consistent and accepted list of variables that can predict and explain this phenomenon.

Conclusion

The aim of this study was to examine the main theoretical approaches to business failure and to identify, through a systematic review of the international literature, the most recurrent explanatory factors and the prediction models used in various economic contexts. Analysis of empirical studies has shown that the majority of the determinants of failure are internal factors, particularly financial, managerial, organizational and strategic factors. However, external factors, such as macroeconomic conditions, competitive pressures and changes in the institutional framework, also contribute significantly to the vulnerability of companies, particularly in environments characterized by the volatility, uncertainty, complexity and ambiguity inherent in the VUCA context.

On a theoretical level, this systematic review confirms the multidimensional, progressive and cumulative nature of failure. It highlights the complementarity between economic, financial and organizational approaches, as well as the diversity of conceptual models that attempt to capture the dynamics leading to failure. The study also enriches our understanding of various related concepts (bankruptcy, insolvency, financial distress, organizational difficulties), which are often used interchangeably but refer to distinct realities.

Methodologically, the application of the PRISMA approach is an important contribution. It ensures rigor in the selection of studies while providing a systematic structure for an international corpus covering nearly three decades of research. This approach makes it possible to identify robust trends in the literature, despite the heterogeneity of the methodologies used in the studies reviewed.

From a managerial perspective, the results offer essential recommendations for executives and decision-makers. They provide benchmarks for identifying weak signals that herald difficulties, strengthening governance mechanisms, improving internal processes, consolidating financial management and developing resilience strategies adapted to unstable environments. These lessons appear particularly useful in an international context marked by intensifying crises and increased uncertainty.

However, this study has certain limitations. The wide methodological heterogeneity of the studies reviewed in terms of definitions of failure, analysis periods, sample sizes and statistical models limits the possibility of establishing a global and universal consensus on the most relevant predictive variables.

In view of these limitations, several avenues for future research can be considered. First, it would be useful to compare different countries, which would provide a better understanding of how failure factors vary depending on the context. Furthermore, the development of hybrid models combining financial and non-financial variables, using quantitative, qualitative and possibly big data approaches, would be a promising avenue for refining failure prediction.

This systematic review thus contributes to a better understanding of the phenomenon of failure from an international perspective and highlights the conceptual, methodological and practical levers that can be used to anticipate and prevent difficulties that could compromise the survival of businesses.

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