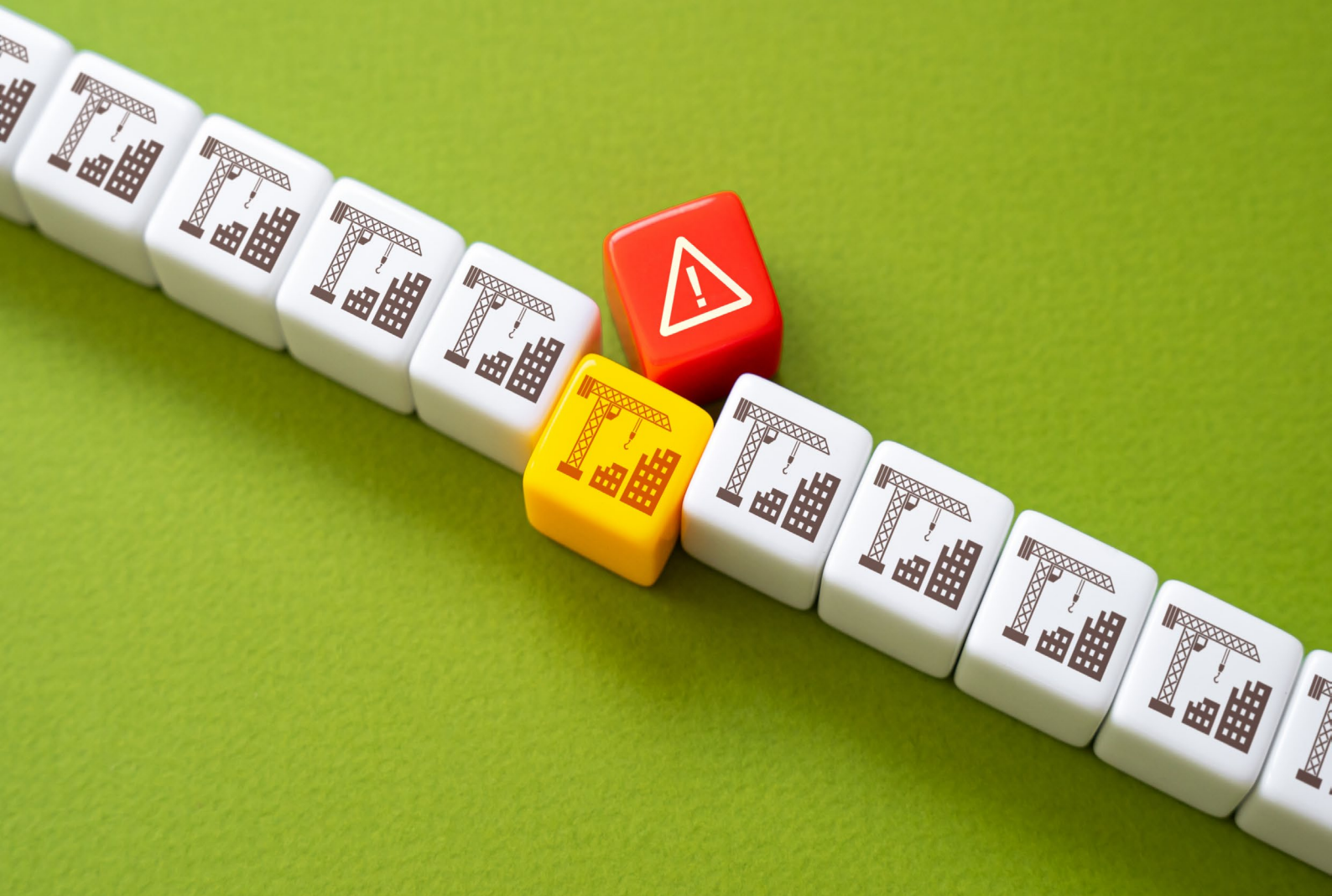
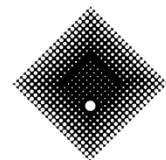




Safeguarding the Viability and Confidence of the Residential Construction Industry in the Face of Imminent Insolvency Risks



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TABLE OF CONTENTS

TABLE OF CONTENTS	iii
LIST OF FIGURES	vi
LIST OF TABLES	vii
DEFINITIONS & ACRONYMS	viii
EXECUTIVE SUMMARY	xi
1 INTRODUCTION	1
1.1 PROJECT CONTEXT	1
1.2 RESEARCH OBJECTIVES	2
1.3 REPORT OVERVIEW.....	3
1.4 REPORT STRUCTURE.....	3
1.5 SUMMARY.....	3
2 RESEARCH METHODOLOGY	5
2.1 RESEARCH APPROACH UTILISED IN THE STUDY	5
2.1.1 Literature review	5
2.1.2 Case study.....	7
2.1.3 Questionnaire survey	10
2.1.4 Interviews	11
2.1.5 Focus groups.....	12
2.2 SUMMARY.....	13
3 INSOLVENCY RISKS IN THE CONSTRUCTION SECTOR	14
3.1 GLOBAL CONSTRUCTION INSOLVENCY TRENDS AND STRUCTURAL RISK DRIVERS	14
3.1.1 Global construction insolvency context.....	14
3.1.2 Annual scientific production and economic cycles	14
3.1.3 Key risk domains shaping construction insolvency	15
3.1.4 Gaps between research focus and industry needs	16
3.2 CONSTRUCTION INSOLVENCY IN AUSTRALIA	19
3.3 DETRIMENTAL EFFECTS OF RESIDENTIAL CONSTRUCTION INSOLVENCIES ON STAKEHOLDERS	24

3.4	SUMMARY.....	25
4	CAUSES OF INSOLVENCIES IN THE RESIDENTIAL CONSTRUCTION INDUSTRY AND ILLEGAL PHOENIX PRACTICES.....	26
4.1	CAUSES OF INSOLVENCIES.....	26
4.1.1	Financial and market risks.....	27
4.1.2	Workforce and governance failures.....	28
4.1.3	Financial management failures	30
4.1.4	Project management failures.....	34
4.2	EVIDENCE FROM CASE STUDIES: PLAUSIBLE SIGNALS OF INSOLVENCY.....	35
4.2.1	Chronic liquidity stress	35
4.2.2	Fragile capital structures and leverage pressure	36
4.2.3	Structural unprofitability of core operations.....	36
4.2.4	Dependence on external financing during operating losses	36
4.2.5	Working-capital strain and payment-chain stress	36
4.2.6	Compounding financial distress	36
4.3	ILLEGAL PHOENIX ACTIVITIES AND MISCONDUCT.....	37
4.3.1	Governance failures	37
4.3.2	Unethical practices	38
4.4	SUMMARY.....	44
5	EARLY SIGNALS OF INSOLVENCY RISK.....	45
5.1	EARLY WARNING SIGNALS	45
5.1.1	Operational cost and schedule pressures.....	45
5.1.2	Contractual and organisational instability.....	47
5.1.3	Financial underperformance.....	47
5.2	EVIDENCE FROM CASE STUDIES: EARLY WARNING SIGNALS OF INSOLVENCY.....	47
5.2.1	Cross-case ratio-based early warning signals	48
5.2.2	Working-capital stress and payment-delay indicators.....	52
5.2.3	Cash-flow pattern-based early warning signals	56
5.3	SUMMARY.....	58
6	CONCLUSIONS.....	59
6.1	IDENTIFYING BUILDERS AT RISK OF INSOLVENCY	59
6.2	EARLY WARNING INDICATORS FOR CONSUMERS AND INDUSTRY	60

6.2.1	Consumer-Observable Early Warning Indicators	60
6.2.2	Financial and System-Level Early Warning Indicators.....	60
6.3	MITIGATION STRATEGIES	61
6.3.1	Education and Training.....	62
6.3.2	Early Intervention	63
6.3.3	Improving Builder Financial Compliance	64
6.3.4	Improving Consumer Awareness	64
6.4	Limitations.....	64
6.5	Future Research	65
REFERENCES.....		66
APPENDICES		71

LIST OF FIGURES

Figure 1 Research Approach	5
Figure 2 Review Methodology	6
Figure 3 Global publication trends on construction sector insolvency in relation to major economic disruptions.....	15
Figure 4 Distribution of global construction insolvency research across key risk and management domains.....	16
Figure 5 Evolution of construction insolvency research themes based on keyword co-occurrence analysis	17
Figure 6 Cluster map of the keyword co-occurrence analysis	18
Figure 7 Total insolvencies in construction pre-COVID19 vs. COVID19 vs. post-COVID19	20
Figure 8 Liquidity and capital structure ratios of an illustrative insolvent builder	50
Figure 9 Profitability and return ratios of an illustrative insolvent builder.....	51
Figure 10 Aged payables distribution of an illustrative insolvent builder	52
Figure 11 Aged receivables distribution of an illustrative insolvent builder	53
Figure 12 Cash-flow distribution of an illustrative insolvent builder	57

LIST OF TABLES

Table 1 Key financial ratio definitions and formulae.....	8
Table 2 Key financial ratios and risk thresholds.....	8
Table 3 Cash-flow pattern interpretation based on OCF, ICF, and FCF sign combinations	9
Table 4 Details of the expert interviews	10
Table 5 Detrimental effects to Contractor, Subcontractors, and Suppliers	11
Table 6 Interview participants' profile	11
Table 7 Total insolvencies cross-sector comparison pre-COVID19 vs. COVID19 vs. post-COVID19..	21
Table 8 Construction Company Size vs. Insolvencies	22
Table 9 Company Size (Other Sectors) vs. Insolvencies.....	23
Table 10 The detrimental impact of insolvency on stakeholders	24
Table 11 Ranked causes of insolvency in the residential construction industry	26
Table 12 Key Causes of Business Failure (reported by ASIC)	32
Table 13 Plausible insolvency signals from case-study evidence.....	35
Table 14 Most common corporate possible misconducts associated with insolvency under the Corporations Act 2001 and their reported incidence (ASIC reported data)	39
Table 15 Period in which the company became insolvent, according to reports alleging insolvent trading (ASIC reported data).....	41
Table 16 Basis for determining when the company became insolvent in reports alleging insolvent trading (ASIC reported data).....	43
Table 17 Indicators that the director had reasonable grounds to suspect the company was insolvent in reports alleging insolvent trading (ASIC reported data).....	43
Table 18 Early warning indicators categorisation.....	46
Table 19 Summary of financial ratio patterns across insolvent construction firms	48
Table 20 Aged payables and receivables analysis across selected insolvency cases (n=5)	54
Table 21 Patterns recognised from the cash flow analysis across the cases.....	57

DEFINITIONS & ACCRONYMS

Aged payables — Supplier invoices outstanding beyond their due dates.

Aged receivables — Customer invoices outstanding beyond their due dates.

Asset stripping — Transferring assets out of an indebted company for less than market value prior to liquidation to defeat creditor claims.

Capital structure — The composition of a firm's financing, typically the mix of debt and equity.

Cash-flow pattern analysis — Interpreting combinations of OCF, ICF, and FCF signs to infer financial health and distress trajectories.

Collusion with valuers/liquidators — Unethical cooperation to understate asset values or otherwise manipulate insolvency outcomes.

Current ratio (CR) — A liquidity ratio defined as current assets divided by current liabilities; used to assess short-term solvency.

Debt-to-equity ratio — A leverage metric comparing total liabilities to total equity to indicate financial risk.

Director reappointments — Re-engaging the same controlling individuals in successor entities to continue operations while shedding liabilities.

Domino effect — The cascading impact where one firm's insolvency causes financial distress across the supply chain.

Dummy director — A nominal director appointed in name only to conceal the identity of the true controller.

Enterprise risk management (ERM) — A structured process for identifying, assessing, and managing organisational risks.

Equity ratio (ER) — The proportion of total assets financed by shareholders' equity; a measure of capital resilience.

Financial distress — A state of sustained difficulty meeting financial obligations that typically precedes insolvency.

Financing cash flow (FCF) — Cash flows related to borrowing, repaying debt, or equity transactions.

Fixed-price contract — A contract requiring delivery for a predetermined price regardless of cost increases.

Grey literature — Non-peer-reviewed sources such as government reports, policy documents, and media releases used to supplement academic literature.

Illegal phoenix activity — Deliberate liquidation or abandonment of a company to avoid debts, followed by re-establishment of a new entity to continue the same business.

Insolvency — A condition in which a company or person cannot pay debts as they fall due; the legal and financial state that often triggers formal insolvency processes.

Insolvency risk — A broader concept encompassing exposure or vulnerability to insolvency, including systemic drivers and structural conditions that increase the chance of failure.

Investing cash flow (ICF) — Cash used for or generated by investment activities (e.g., purchase/sale of equipment).

Latent Dirichlet Allocation (LDA) — A topic-modelling method used to detect latent themes in text corpora.

Leverage — The degree to which a firm uses borrowed funds (debt) relative to equity to finance its operations.

Liquidity — The ability of a firm to convert assets to cash quickly to meet short-term obligations.

Liquidity stress — Persistent shortfalls in liquid resources that impair a firm's capacity to pay immediate liabilities.

Mixed-methods approach — Research design combining quantitative and qualitative methods to provide comprehensive insights.

Negative equity — A situation where total liabilities exceed total assets, leaving shareholders with no residual value.

Net profit margin (NPM) — Profitability metric showing net profit as a percentage of revenue.

Nominee builder — A licensed builder who permits another party to operate under their licence without providing proper oversight.

Operating cash flow (OCF) — Cash generated from core business operations.

Over-leverage — Excessive debt relative to equity that increases insolvency vulnerability.

Pre-insolvency adviser (dishonest) — An adviser who facilitates or encourages strategies to evade liabilities, including collusion to undervalue assets or orchestrate phoenixing.

Principal component analysis (PCA) — A statistical technique used to reduce dimensionality and identify underlying factor groupings.

Progress payments — Stage-based payments made to contractors as work milestones are achieved.

Project complexity — The degree of difficulty in coordinating design, sequencing, stakeholders, and technical tasks on a project.

Return on assets (ROA) — Profitability measure indicating how efficiently assets generate profit.

Return on equity (ROE) — Measure of return generated on shareholders' equity.

Rework — Corrective work required to fix defects, errors, or omissions.

Risk of insolvency — The probability or likelihood that an entity will become insolvent within a specified timeframe.

Scientometric analysis — Quantitative analysis of publication patterns and research networks.

Security of Payment (SOP) — Legislative mechanisms designed to ensure timely payment to contractors and subcontractors.

Statutory debts — Mandatory obligations such as GST, PAYG withholding, and superannuation that have priority in insolvency.

Supply-chain vulnerability — Exposure to disruptions in material supply, logistics, or supplier performance that affect project delivery.

Trading losses — Losses arising from normal business operations over a reporting period.

Undercapitalisation — Operating with insufficient equity or financial buffers to absorb shocks or sustain operations.

Variation order — A contract change that alters scope, cost, or schedule of work.

Working capital — Current assets minus current liabilities; a measure of short-term financial health.

Working-capital strain — Pressure on operations caused by delayed receivables, overdue payables, or insufficient cash to fund day-to-day activities.

EXECUTIVE SUMMARY

The Australian residential construction industry is experiencing high levels of builder insolvencies driven by a combination of structural, financial, operational, and regulatory vulnerabilities. The aim of this project is to propose mitigation strategies that can be effectively implemented to safeguard the viability and confidence of the residential construction industry in the face of imminent insolvency risks. Based on a mixed-methods study (including 49 insolvency case studies, surveys, interviews, and focus groups), the findings demonstrate that builder insolvency is systemic, multi-factorial, and driven by interconnected financial, operational, governance, and regulatory challenges rather than isolated events. Analysis revealed four core groups of insolvency causes:

1. **Financial and Market Risks** – Builders face intense financial pressure due to fixed price contracts, material price escalation, market volatility, rising interest rates, and policy shifts. Thin and declining profit margins, combined with limited access to restructuring mechanisms, significantly heighten insolvency exposure.
2. **Workforce and Governance Failures** – Skills shortages, reliance on inadequately trained workers, and low financial literacy among directors weaken operational performance. These issues are intensified by inconsistent regulatory enforcement and limitations in compliance monitoring contributing to broader systematic weaknesses.
3. **Financial Management Failures** – Weak cash flow management, poor accounting practices, under capitalisation, and strategic mismanagement are leading contributors to business failure. Persistently low profitability and under-pricing further erode builders' financial resilience.
4. **Project Management Failures** – Project complexity, design changes, rework, and contractual disputes cause cost overruns and delays. Limited enterprise risk management capability and poor internal coordination amplify operational and financial strain.

Survey respondents reported observing or suspecting illegal phoenix activity in the residential construction industry and identified practices they associated with such activity, including director reappointments under new entities, dummy directors, asset stripping and the involvement of dishonest pre-insolvency advisers. Across the case studies, three overarching categories of early warning signals were identified:

1. Operational cost and schedule pressures
2. Contractual and organisational instability
3. Financial underperformance.

These indicators rarely appear in isolation. Instead, insolvencies were typically preceded by clusters of warning signs, including tightening liquidity, escalating leverage, declining profitability, delayed payments, and adverse cash flow patterns. Their co-occurrence accelerates financial deterioration and minimises opportunities for recovery. Early intervention strategies must therefore focus on detecting combinations of early warning signals rather than individual symptoms.

To address these risks, the report proposes a structured mitigation framework centred on four themes: education and training, early intervention, strengthening financial compliance, and improving consumer awareness.

- **Education and training** aim to address critical capability gaps in financial literacy, business management, and risk management among builders. Targeted, practical, and sector-specific training embedded within continuing professional development frameworks can enhance decision-making and reduce exposure to financial distress.
- **Early intervention measures** focus on improving visibility of financial risks through tools such as automated financial alerts, business health checks, and digital project management systems, enabling timely corrective action.
- **Strengthening financial compliance** includes mandating financial audits and integrating business management requirements into builder licensing to improve transparency and accountability.
- **Consumer awareness initiatives** seek to equip clients with clearer guidance on due diligence, contract understanding, and early warning signs to support more informed decision-making.

The report highlights that insolvency in residential construction has broader implications beyond individual firms, including increased credit risk for financial institutions and potential tightening of lending conditions. Coordinated monitoring and early warning mechanisms are therefore essential to mitigate systemic impacts.

While the study provides valuable insights, its findings are primarily based on Victorian residential builders and may not fully represent other sectors or jurisdictions. Future research is recommended to expand the evidence base, develop predictive models for insolvency risk, and further explore behavioural and organisational responses to financial distress.

Overall, the report underscores the need for an integrated, industry-wide approach that combines capability development, early detection, regulatory reform, and consumer engagement to reduce insolvency risk and enhance the sustainability of the residential construction sector.

1 INTRODUCTION

The chapter introduces the context and rationale for this research by outlining the escalating concerns surrounding insolvency within the Australian residential construction sector. It emphasises the limitations of existing scholarship, particularly the lack of context-specific analysis that reflects the distinct conditions of the local industry. In doing so, it establishes the need for a more targeted and rigorous investigation into the factors shaping industry vulnerability. The chapter then presents the study's objectives followed by a report overview and report structure.

1.1 PROJECT CONTEXT

The construction sector plays a pivotal role in the development of assets and the growth of economies. In Australia, every \$1 worth of building activity supports around \$3 in economic activity across the economy (Australian Bureau of Statistics, 2023) and this multiplier effect is vital to preventing the economy from falling into a recession. Nevertheless, recent trends from 2022 to 2025 show a significant increase in insolvency risk within the residential construction industry. The surge, which began in 2022 and intensified through 2023 and 2024 before continuing into 2025, is largely attributed to escalating inflation, supply chain disruptions, and persistent labour and materials shortages. These pressures have severely eroded profit margins, particularly for firms operating under fixed-price contracts (Bu et al., 2023; Coggins et al., 2016; Stevens & Piracha, 2022). The recent increases in interest rates have also raised the debt-servicing costs for many construction firms, thus adding to financial pressures. These have resulted in the highest level of construction industry insolvency in the past decade as reported by the Australian Securities and Investments Commission (ASIC) (2025) statistics from 2022-2025.

Researchers and industry analysts have responded to these alarming trends by seeking to understand the underlying causes of insolvencies, the ways in which companies have been affected, and, importantly, what measures should be implemented to reduce future insolvency risks (Bu et al., 2023; Rolfe, 2023; Stevens & Piracha, 2022). Existing literature recognises a range of challenges at both local and global levels and offers broad recommendations for improving financial management within the construction sector (Alaka et al., 2017; Coggins & Lord, 2014; Okereke et al., 2021; Patel et al., 2022; Rokooei et al., 2022; Sang et al., 2014). However, there remains a clear lack of context-specific guidance tailored to the Australian residential construction industry. Much of the current research draws on international cases without fully accounting for the unique characteristics of the Australian market, regulatory environment, and industry structure. Moreover, the existing body of knowledge does not yet provide a comprehensive understanding of stakeholder perspectives on construction insolvencies — insights that are essential for accurately capturing the complexities of the issue and for developing practical and sustainable solutions (Assaad & El-Adaway, 2020; Buscombe et al., 2023).

To address these gaps identified in the existing literature it is first necessary to analyse the industry landscape to understand how it operates and responds under financial pressure. Developing this foundation requires a clear examination of the causes and effects of insolvencies, the early warning

indicators that signal emerging financial distress, and the detrimental impacts these failures have on builders, subcontractors, suppliers, clients and other key stakeholders.

Understanding these dimensions is essential, as it highlights not only the systemic vulnerabilities within the industry but also the practical barriers that prevent firms from responding effectively to rising risk. This knowledge base provides a critical platform from which meaningful and sustainable interventions can be developed.

Accordingly, this study aims to propose mitigation strategies to safeguard the viability and confidence of Victoria's residential construction industry. The proposed mitigation strategies identify builders experiencing financial difficulty, outlines early indicators for consumers and industry stakeholders, and proposes proactive strategies to mitigate the effects of insolvency on clients, subcontractors, and financial institutions in Victoria.

1.2 RESEARCH OBJECTIVES

The following objectives are established to guide the project, ensuring that each stage of the research contributes to a coherent and comprehensive understanding of insolvency in the residential construction sector. They operate collectively to illuminate the causes, impacts and early warning signs of financial distress. Together, they form the framework through which the study examines industry vulnerabilities and identifies measures capable of strengthening long-term resilience.

- **Objective 1:** Conduct financial and economic analyses of insolvent residential construction companies to understand any behavioural patterns leading to insolvency.
- **Objective 2:** Examine the key factors contributing to the insolvency risks of residential construction companies from the contractors' perspective.
- **Objective 3:** Investigate the early indicators and detrimental effects of insolvency on clients, subcontractors and financial institutions in the residential construction industry.
- **Objective 4:** Review existing literature on proactive measures adopted nationally/ globally to address similar issues.
- **Objective 5:** Propose mitigation strategies that identify residential construction companies that are experiencing financial difficulty, early indicators for consumers, as well as proactive strategies for mitigating the detrimental effects of such an event on clients, subcontractors and financial institutions in Victoria.

To achieve these objectives, the study employed a mixed-methods approach that combined quantitative analysis of case study data and survey responses with qualitative interviews from key stakeholders. A comprehensive review of existing literature complements these empirical components, ensuring the research was grounded in both current practice and established knowledge.

1.3 REPORT OVERVIEW

This report provides an in-depth analysis of the current state of insolvency in the Australian residential construction industry, examining the financial, contractual and operational pressures that have collectively increased the sector's vulnerability. It explores not only the structural conditions that have contributed to rising insolvency rates, but also the underlying causes, early warning indicators and the wide-ranging consequences experienced by builders, subcontractors, clients and financial institutions. By bringing these elements together, the report offers a clearer understanding of how insolvency unfolds within the residential construction environment and why its impacts extend well beyond the failing firm itself. The report concludes with proposed mitigation strategies to support early detection of financial distress, enhance industry resilience and reduce the severity of future insolvency events. The scope of the analysis is intentionally focused on case studies from Victoria and limited to residential builders, enabling a detailed and context-specific examination of the segment most acutely affected by recent insolvency pressures.

1.4 REPORT STRUCTURE

The structure of this report is outlined below, providing a clear guide to the progression of the research and the themes explored in each chapter:

- **Chapter One** introduces the report by outlining its purpose, providing essential background to the issue of rising insolvencies, and offering an overview of the chapters that follow.
- **Chapter Two** sets out the research methodology, detailing the data collection and analysis techniques employed to achieve the study's objectives.
- **Chapter Three** presents a comprehensive review of existing literature, establishing the current knowledge base, identifying gaps, and demonstrating the need for further investigation. It further analyses the detrimental effects of insolvency on various stakeholders.
- **Chapter Four** examines the causes of insolvency as identified through the literature review, questionnaire surveys and stakeholder interviews, and includes an in-depth analysis of case studies involving insolvent residential construction companies in Victoria.
- **Chapter Five** explores the early warning indicators of financial distress, drawing on the same mixed sources of evidence to highlight patterns that precede insolvency events.
- **Chapter Six** presents the conclusions of the study including proposed mitigation strategies, outlining proactive measures and future research directions aimed at strengthening industry resilience.

1.5 SUMMARY

This chapter provided an overview of the research project by outlining the background, rationale and objectives of the study, while also presenting the structure of the report to support clear and easy

navigation. Together, these elements established the foundation for understanding the purpose and direction of the research. The next chapter introduces the research methodology adopted in this study, detailing the approaches used to collect and analyse data in a rigorous and systematic manner.

2 RESEARCH METHODOLOGY

This section outlines the research process that guided the study from data collection through to analysis. The study employs a mixed-methods research strategy, integrating quantitative and qualitative approaches to develop a comprehensive understanding of insolvency within the residential construction sector. Participant quotations and de-identified characteristics are reported in accordance with the HREC-approved consent and confidentiality arrangements under reference ID HRE25-062. An overview of the research process is provided in **Figure 1** and further detailed in the sections that follow.

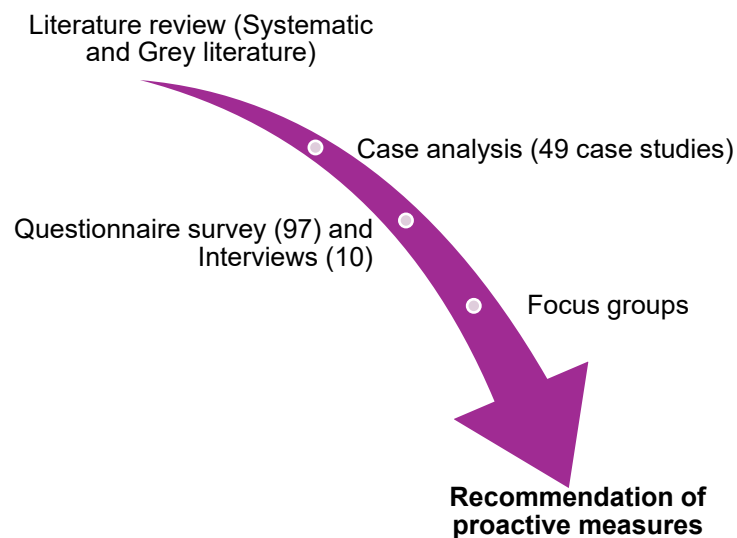


Figure 1 Research Approach

2.1 RESEARCH APPROACH UTILISED IN THE STUDY

The detailed research process is explained in the following sections.

2.1.1 Literature review

This study employed a dual-route systematic review approach (see **Figure 2**), integrating both peer-reviewed scientific literature and grey literature to investigate insolvency within the construction sector. Route 1 focused on scientific studies, offering globally relevant insights across the broader construction sector. Under route 1, metadata were initially sourced from Scopus, focusing on English-language publications between 2009 and 2024, yielding 466 records. After removing duplicates, 461 records were manually screened through title and abstract evaluation, narrowing the dataset to 178 studies. An additional 17 sources were identified using snowball sampling techniques. The analysis incorporated scientometric methods using VOSviewer and Biblioshiny to examine publication trends and networks. In parallel, Python-based Latent Dirichlet Allocation (LDA) was used to uncover latent themes. Thematic content analysis was used to explore materials in-depth to uncover factors contributing to insolvencies and early warning indicators of the insolvency risks in construction.

Secondly, a targeted grey literature review was conducted to explore insolvency and illegal phoenix activities in the Australian construction sector. The review involved defining the thematic framework, identifying relevant sources including government websites, regulatory bodies (e.g., ASIC, ATO), industry associations, and investigative reports, systematically searching for reports, policy documents, and media releases, screening for relevance and credibility based on publication date, source authority, and sector focus, and extracting and thematically synthesising insights. The analysis focused on four key themes: factors contributing to insolvency and illegal phoenix activities, early warning indicators, detrimental effects on stakeholders, and measures to mitigate associated risks. Further, this included identifying globally sourced industry, regulatory, and policy reports across all sectors, with a major focus on construction, to extract transferable proactive strategies relevant to the Australian residential construction sector. Also examined were Australian Securities and Investments Commission (ASIC) insolvency data from the period before the COVID-19 pandemic and across different industry sectors (pre-COVID and post-COVID periods). The findings are presented in Sections 3 and 5 and detailed in Appendix 1–8.

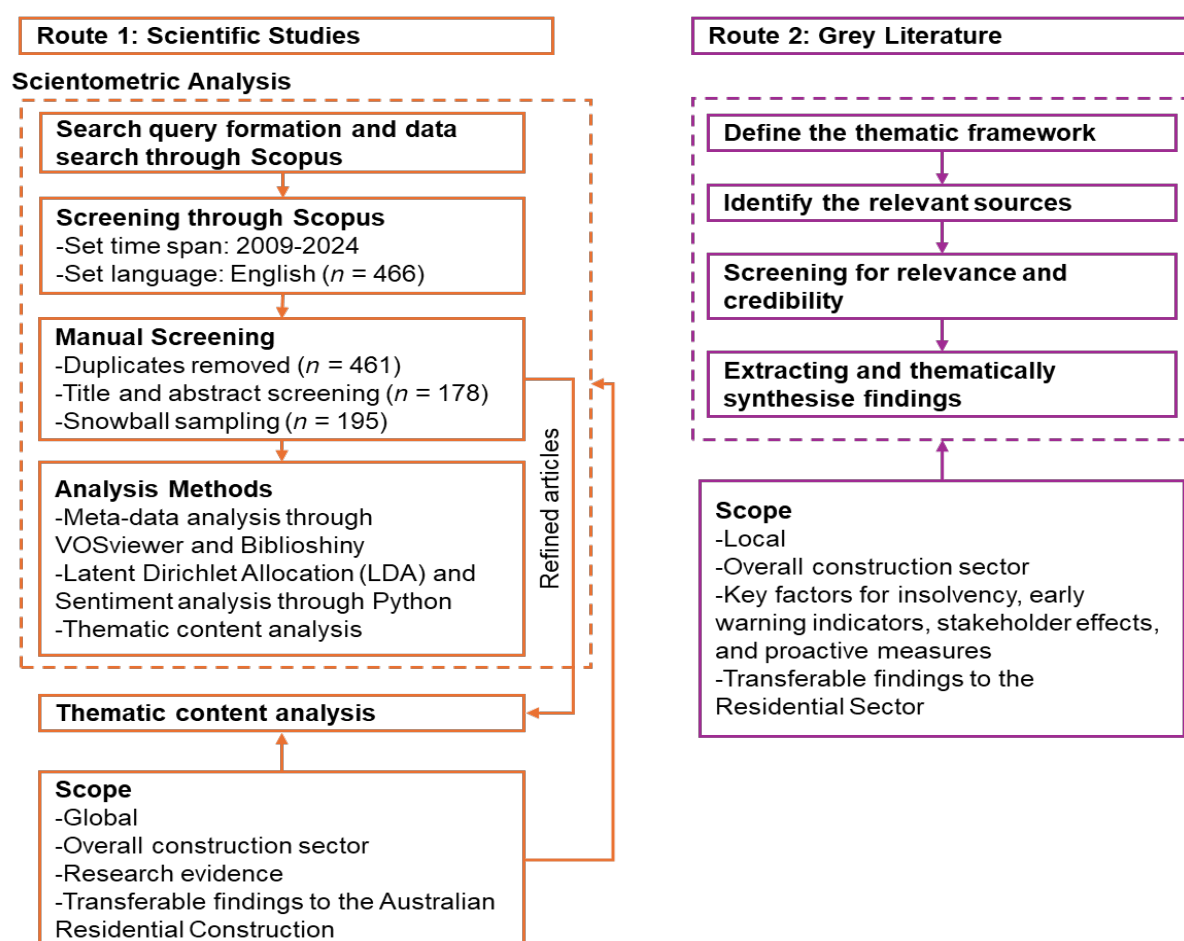


Figure 2 Review Methodology

2.1.2 Case study

2.1.2.1 Case identification and sample composition

The case-study-based analytical approach was designed to examine the dynamics of insolvency within the Australian residential construction sector. A total of 49 insolvency cases were compiled through direct engagement with court-appointed liquidators, involving a combination of formal requests, follow-up communications, and in-situ data collection during meetings with insolvency practitioners. Given the commercial sensitivity and confidentiality surrounding insolvency proceedings, access to firm-level financial records required substantial negotiation and professional trust-building, and data availability varied across cases. Of the 49 collected cases, 42 provided sufficient financial statement information to support ratio-based quantitative analysis and were retained for detailed assessment. The remaining cases were excluded from ratio calculations due to incomplete or unavailable financial disclosures. The resulting dataset represents a practice-proximate sample of insolvency cases that would not typically be accessible through publicly available databases alone. All case-study information presented in this report has been de-identified in accordance with the conditions governing access to the data.

The final analytical sample comprises a mix of residential builders and construction trade contractors, reflecting the heterogeneous structure of the residential construction supply chain. The majority of the collected insolvency cases involved general builders, accounting for 39 out of the 49 cases. The remaining 10 cases were distributed among specialist trades, enabling comparative insights into financial stress patterns across different firm roles within the sector.

The operational periods of the 42 insolvent contractors for which financial data were available varied considerably, ranging from 2 to 13 years. Most contractors had been operating between 3 and 8 years before becoming insolvent, with a single notable outlier at 13 years, indicating that insolvency affected both relatively new and more established firms.

The operational period distribution differed by contractor type: builders had a median operational period of 4.8 years, with most cases falling between 3 and 8 years, while specialist trades showed a slightly lower median of 4.4 years and typically operated between 3 and 6 years before becoming insolvent.

2.1.2.2 Data availability and analytical scope

For each of the 42 retained cases, the primary dataset includes balance sheets and income statements, enabling the computation of liquidity, leverage, profitability, and return-based financial ratios. In addition to core financial statements, a subset of cases provided supplementary financial documentation, including aged accounts receivable, aged accounts payable, and cash flow statements. Due to variability in disclosure practices, only five cases contained sufficiently detailed and internally consistent records to support deeper working-capital and cash-flow pattern analysis. These cases are therefore treated as illustrative rather than representative and are used to enrich interpretation rather than to derive statistically generalisable conclusions.

2.1.2.3 Financial ratio selection and risk classification

To identify emerging financial distress patterns preceding insolvency, six commonly used financial ratios were calculated for each firm-year observation as presented in **Table 1**. Each ratio was evaluated against established benchmark thresholds drawn from construction-finance publishing, as shown in **Table 2**. To enhance robustness and reduce sensitivity to short-term volatility, particular emphasis was placed on persistent signals, defined as ratios breaching risk thresholds for two or more consecutive years before insolvency. These persistent breaches are interpreted as stronger early warning signals than isolated short-term fluctuations. Also, rather than treating individual ratios in isolation, the analysis examines the co-occurrence of multiple adverse ratio signals, recognising that insolvency often emerges from compounding financial pressures rather than a single deteriorating indicator.

Table 1 Key financial ratio definitions and formulae

Ratio	Measure	Formula
Current Ratio (CR)	Liquidity	$\frac{\text{Current assets}}{\text{Current liabilities}}$
Debt-to-Equity Ratio (D/E)	Leverage	$\frac{\text{Total Liabilities}}{\text{Total Equity}}$
Equity Ratio (ER)	Capital structure resilience	$\frac{\text{Total Equity}}{\text{Total Assets}}$
Net Profit Margin (NFM)	Operating profitability	$\frac{\text{Net Profit}}{\text{Revenue}} \times 100$
Return on Assets (ROA)	Asset efficiency	$\frac{\text{Net Profit}}{\text{Total Assets}} \times 100$
Return on Equity (ROE)	Shareholder returns	$\frac{\text{Net Profit}}{\text{Total Equity}} \times 100$

Table 2 Key financial ratios and risk thresholds

Ratio	Risk threshold	Reference
Current Ratio (CR)	< 1.0, liquidity risk	(Business Queensland, 2021)
Debt-to-Equity Ratio (D/E)	> 2.0, overleveraged	(British Business Bank, 2025)
Equity Ratio (ER)	< 0.2, weak capital structure	(Gurung, 2025)
Net Profit Margin (NFM)	< 5%, thin operating profit margins	(Business Queensland, 2021)
Return on Assets (ROA)	< 5%, inefficient asset use	(Goncalves, 2023; Lev, 2024)
Return on Equity (ROE)	< 5%, poor shareholder returns	(Bailey, 2025; CFI Team, 2025)

2.1.2.4 Supplementary working capital indicators

Where detailed aged accounts data were available, additional working-capital indicators were derived to examine short-term liquidity stress and payment-chain dynamics. These include the proportion of receivables and payables that remain outstanding for more than three months, as well as changes over time in how receivables and payables age in the period leading up to insolvency. Such indicators are particularly relevant in the residential construction context, where delayed client payments, progress-payment structures, and subcontractor obligations can amplify liquidity stress even when headline financial ratios appear stable. Given limited data availability, these indicators are used to support interpretive depth rather than for cross-sample prevalence analysis.

2.1.2.5 Cash flow analysis

Cash flow analysis applied a pattern interpretation framework based on the sign and interaction of operating (OCF), investing (ICF), and financing (FCF) cash flows. Rather than analysing individual cash-flow values in isolation, this approach focuses on recurring sign-based combinations to infer underlying financial conditions. For example, sustained negative operating cash flow combined with positive financing cash flow may indicate reliance on debt or equity injections to fund operating losses, while negative operating and investing cash flows accompanied by declining financing inflows may signal asset divestment and constrained access to external funding. These patterns are interpreted as early warning signals of escalating financial distress, particularly when observed across multiple consecutive years. The interpretation logic used in this study is summarised in **Table 3** and was applied consistently in five cases with adequate cash-flow data. Given data limitations, the framework is used for illustrative and interpretive purposes rather than for statistical generalisation.

Table 3 Cash-flow pattern interpretation based on OCF, ICF, and FCF sign combinations

OCF	ICF	FCF	Plausible interpretation
+	-	-	Healthy: Business generates cash, reinvests, and repays debt or returns value
+	-	+	Aggressive growth: Cash-generating business raising capital for heavy investment
+	+	-	Asset divestment phase: Selling investments while operating strongly
Neutral / Low	-	+	Strained core operations: Need funding to invest, may lead to over-leverage
-	-	+	Red flag: Operating loss funded through borrowing while still investing
-	+	+	High risk: Selling assets and borrowing to cover losses
-	+	-	Critical: Selling assets but not even borrowing; no viable support mechanism
-	-	-	Terminal decline: Burning cash in all areas with no funding source

2.1.3 Questionnaire survey

A questionnaire survey was developed to capture insights from key stakeholders, including construction industry practitioners and consumers, regarding insolvencies in the Australian residential construction sector. The survey was organised into the following sections:

- Introduction
- Section 1: General Information
- Section 2: Insolvency Factors
- Section 3: Illegal Phoenix Activity
- Section 4: Early Warning Indicators for Insolvency
- Section 5: Detrimental Effects of Residential Construction Insolvencies on Stakeholders in Australia
- Section 6: Comments

The instrument was administered through the Qualtrics online platform and incorporated a range of question formats, including multiple-choice items, Likert-scale assessments, and open-ended written responses.

To ensure the clarity, relevance and rigour of the questionnaire, four expert interviews were conducted with academic and industry professionals. Their feedback informed refinements to the wording, structure and thematic focus of the survey. Details of the expert interviews are presented in **Table 4**.

Table 4 Details of the expert interviews

Expert #	Stakeholder type	Key input
1	Academic	Confirmed the insolvency factors, early warning indicators, and detrimental effects identified through the literature. Provided guidance on the structure and design of the questionnaire.
2	Builder	Confirmed the insolvency factors, early warning indicators, and detrimental effects identified through the literature.
3	Liquidator	
4	Quantity Surveyor	

The questionnaire survey was disseminated through multiple channels—including LinkedIn, university networks, and the Building and Plumbing Commission (BPC) via its social media platforms—allowing it to reach a broad cross-section of industry participants rather than a narrowly targeted group. The survey was open from 19 June 2025 to 10 August 2025, during which a total of 147 responses were received. The collected data were exported into Microsoft Excel for processing, after which 40 incomplete and 10 blank submissions were removed from the dataset. This resulted in 97 valid responses. Of these, 58 respondents (60%) identified as being from the construction industry, while 14 respondents (14%) participated as consumers. An additional 25 respondents (26%) indicated involvement in both the construction industry and consumer categories.

The survey data were examined in two ways. First, simple descriptive statistics were produced in Microsoft Excel to show general patterns in the responses. Second, a more detailed analysis was carried out in IBM SPSS using a method called Principal Component Analysis (PCA). This method helps group related ideas together so that the main themes become easier to understand. PCA was applied to three parts of the survey: the causes of insolvency, the causes of illegal phoenix activity, and the early warning signs of financial trouble. This process helped identify the key clusters of factors that commonly appear together.

The mean significance (average level of impact) of the detrimental effects for each stakeholder group was calculated, and these effects were subsequently ranked. This approach allowed for a clearer comparison of which impacts were perceived as most severe across different groups. As an illustration, **Table 5** presents the ranked detrimental effects reported by contractors, subcontractors and suppliers. The full list of ranked detrimental effects for each stakeholder group is presented in Section 3.3.

Table 5 Detrimental effects to Contractor, Subcontractors, and Suppliers

Detrimental effects	Mean significance
Financial collapse	4.3
Loss of profits	4.0
Reputational damage	3.9
Exposure to legal consequences (e.g. if complicit in phoenix activity)	3.9
Unsecured creditor status	3.8
Operational disruptions	3.7

2.1.4 Interviews

Ten semi-structured interviews were conducted to validate and deepen the insights obtained from the survey. Interviewees were recruited through a combination of snowball sampling and professional connections. To broaden the pool of potential participants, a public notice inviting interviewees was published on LinkedIn and shared through university networks. Details of the interview participants are categorised according to their role, the size of their current organisation and their years of industry experience. A summary of participant profiles is presented in Table 6. All interviews were audio-recorded with the participants' consent.

Table 6 Interview participants' profile

Code	Role in the residential construction sector	Years of experience
Interviewee 1	Builder	11–20 years
Interviewee 2	Developer	More than 20 years
Interviewee 3	Builder	More than 20 years
Interviewee 4	Builder	11–20 years
Interviewee 5	Building Surveyor	More than 20 years

Interviewee 6	Academic	11–20 years
Interviewee 7	Academic/Quantity Surveyor	11–20 years
Interviewee 8	Builder	11–20 years
Interviewee 9	Academic	11–20 years
Interviewee 10	Builder	More than 20 years

2.1.5 Focus groups

Two focus group discussions were conducted as part of the study to identify mitigation strategies for reducing risk of insolvencies in the small-scale residential construction sector that participants viewed as effective. The focus group method was chosen because it allows for detailed discussion of shared experiences, sector-specific challenges and collective perspectives. These insights are particularly valuable for developing practical and contextually relevant strategies that reflect the realities of industry practice.

2.1.5.1 Participants

Focus Group 1: Public Authorities and Industry Associations

Seventeen participants contributed to this session. They were purposively selected to capture perspectives from building regulation, industry oversight, sector advocacy, and residential construction practice. The group included participants with experience in regulatory processes, compliance monitoring, industry representation, builder support, and sector-wide policy implementation. This sampling strategy enabled discussion of the status quo, systemic challenges, practical industry concerns, and potential mitigation measures for reducing insolvency risk.

Focus Group 2: Residential Contractors and Builders

Five participants took part in the second focus group. All were residential builders, selected to obtain practitioner-level insights into practical strategies for mitigating or reducing the detrimental effects of insolvencies in Victoria. Their firsthand experience offered valuable perspectives on operational realities, financial pressures and the types of interventions most likely to be effective at the project and business level.

2.1.5.2 Data Collection

Focus Group 1

This focus group was conducted online via Microsoft Teams in a facilitated, semi-structured format, enabling participants to engage in guided discussion while also allowing space for open dialogue. The session examined participants' views on potential mitigation strategies that could be implemented at policy, organisational or industry levels. As part of the discussion, participants took part in an interactive activity using a Miro board, where they collaboratively sorted the identified mitigation strategies into short-term and long-term categories for both insolvency prevention and the prevention of illegal phoenix activity. This structured sorting task supported consensus-building and helped participants prioritise

strategies based on feasibility, urgency and potential sector-wide impact. The session was audio-recorded with participants' consent, and detailed notes were taken to support transcription. All contributions made on the Miro board were captured and exported as supplementary data.

Focus Group 2

Due to time constraints and the difficulty of coordinating a common meeting time, the second focus group was conducted through individual discussions with each participant. These discussions were audio-recorded with participants' consent, and detailed notes were taken to support the transcription process.

2.1.5.3 Data Analysis

Focus Groups 1 and 2

The audio recordings from both focus groups were transcribed and analysed using thematic analysis. Codes were developed from the interview transcripts as well as from the contributions captured on the Miro board. These codes were then organised into broader categories and refined into overarching themes that represent the proposed mitigation strategies.

2.2 SUMMARY

This chapter summarises the overall research design, outlining the literature review, case studies, questionnaire surveys, interviews and focus groups used throughout the project. These methods collectively provided both broad stakeholder insights and detailed, experience-based perspectives, strengthening the reliability of the findings.

The next chapter examines insolvency in the construction sector in greater depth, offering an overview of global trends and the Australian context to support the interpretation of the study's results.

3 INSOLVENCY RISKS IN THE CONSTRUCTION SECTOR

This section synthesises the key findings from the systematic literature review, the grey literature review, and the analysis of ASIC insolvency statistics. The literature reviews identify global research trends and critical knowledge gaps in construction sector insolvencies, while the ASIC data provides targeted insight into the Australian context. The section also examines the detrimental effects of insolvencies on stakeholders in the residential construction industry, drawing on findings from the questionnaire survey and supporting literature.

3.1 GLOBAL CONSTRUCTION INSOLVENCY TRENDS AND STRUCTURAL RISK DRIVERS

3.1.1 Global construction insolvency context

The global construction industry has been facing elevated insolvency rates in recent years, influenced by factors such as persistent inflation, high interest rates, supply chain disruptions, labour shortages, and broader economic uncertainties, including geopolitical tensions and delayed infrastructure projects (Jayan et al., 2025; Wang et al., 2024). These challenges have tightened profit margins, worsened cash flow problems, and resulted in a notable increase in insolvencies, especially for smaller firms and subcontractors (Kanapickienė et al., 2023; Okereke et al., 2021). Global business insolvencies overall surged by 10% in 2024, with projections for 6% growth in 2025 and 3% in 2026; construction is highlighted as a primary sector at risk, contributing significantly to these figures in regions like Western Europe, where it saw some of the largest increases (Boata et al., 2025). In the Asia-Pacific region, insolvencies climbed sharply in 2024, for instance, +41% in Australia and +40% in New Zealand, with construction ranking among the most affected sectors and expected to face ongoing challenges into 2025 due to trade-related pressures (APAC, 2024). On a global scale, the escalation in insolvencies is projected to endanger 2.3 million jobs in 2025, an increase of 120,000 from 2024, with construction making a substantial contribution (Boata et al., 2025).

3.1.2 Annual scientific production and economic cycles

Analysis of annual global research output on construction sector insolvency reveals clear temporal patterns that closely align with major economic cycles (Error! Reference source not found.). Notably, a sharp rise in publications occurred in 2010, shortly after the 2007–2009 global financial crisis, suggesting an increased academic interest in financial resilience and sectoral vulnerability (Chih & Hsiao, 2023). A second peak is evident in 2013, aligning with the aftermath of the European sovereign debt crisis, reflecting regional concerns over construction industry stability (Kräussl et al., 2016). More recently, a significant publication surge since 2022 corresponds to the post-pandemic COVID-19 economic recalibration, highlighting renewed interest in insolvency risks triggered by rising costs, global construction supply chain shocks and labour disruptions (Biswas et al., 2021). These trends suggest that insolvency risk management in construction remains largely reactive, with sustained analytical and policy focus emerging primarily after financial distress has materialised. The absence of consistent

attention during periods of relative economic stability highlights a structural weakness in proactive insolvency risk monitoring and early-warning capability.

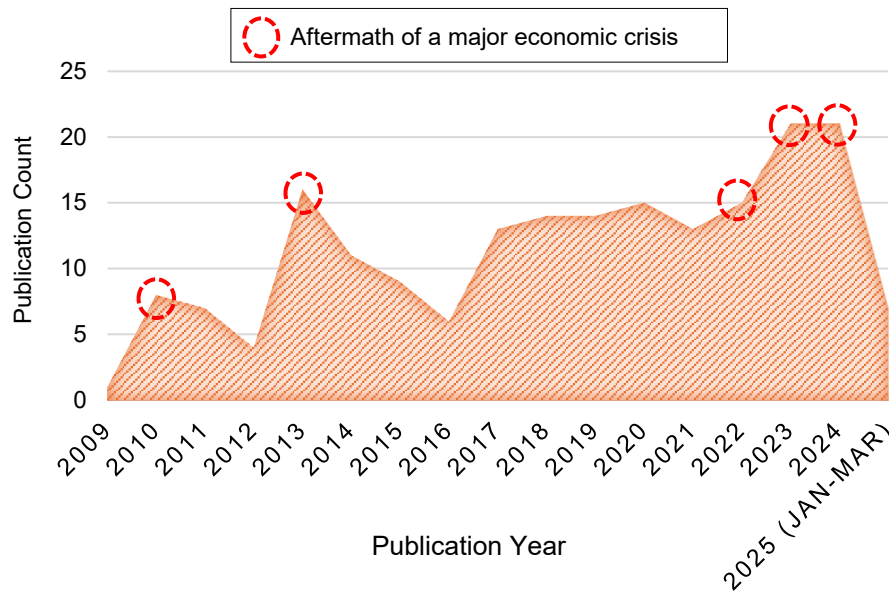


Figure 3 Global publication trends on construction sector insolvency in relation to major economic disruptions

3.1.3 Key risk domains shaping construction insolvency

The topic modelling brings together five key research areas relevant to the domain of insolvency risks in the global construction sector, as shown in **Figure 4**. The first theme, *risk and financial management in construction*, highlights strategic approaches to mitigating economic and operational risks through sound financial planning and economic analysis (Han, 2024; Jiang et al., 2024; Shibani et al., 2024). Closely related are *business impacts and cost factors*, which explore how market conditions, business decisions, and cost-related challenges influence project outcomes and the broader economic implications of strategic choices (Deep et al., 2022; Fadhil & Burhan, 2021; Nguyen et al., 2025). The third theme, *financial modelling and bankruptcy analysis*, focuses on the development and application of predictive financial models to assess insolvency risks and forecast financial health within the sector (Jeong & Kim, 2022; Toudas et al., 2024; Van & Toan, 2024). Complementing this is *project risk and cost management*, which emphasises techniques for identifying, analysing, and controlling project-specific risks and costs, including budgeting and cost control strategies (Akomea-Frimpong et al., 2024; Demirdöğen, 2023; Kazakovaa & Zavalishinab, 2024). Finally, research and data insights in construction projects emphasise the value of empirical research and data analytics in enhancing project management practices and informing evidence-based decision-making in construction (Coleman et al., 2023; Seidu et al., 2022; Seidu et al., 2021). Although these domains offer valuable insights, they are frequently examined in isolation. This fragmentation limits their effectiveness in addressing insolvency as a systemic, multi-level risk that spans firm behaviour, project delivery, and broader market and regulatory environments.

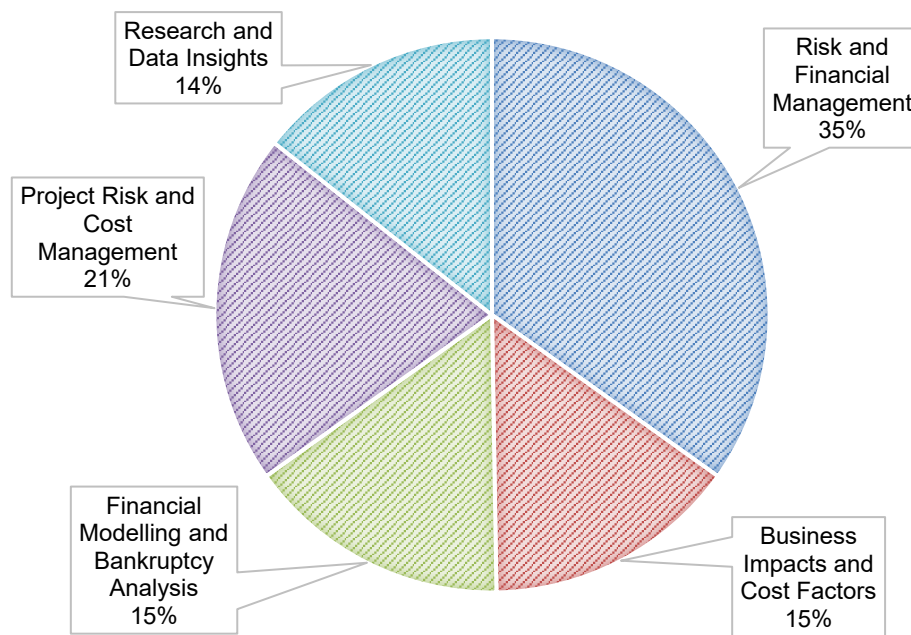


Figure 4 Distribution of global construction insolvency research across key risk and management domains

3.1.4 Gaps between research focus and industry needs

The keyword co-occurrence analysis reveals six thematic clusters that together map the global research domain on construction sector insolvencies, as shown in **Figure 5** and **Figure 6**. Cluster 1 centres on risk assessment and country-specific analyses, with frequent use of analytical methodologies such as the analytical hierarchy process (AHP) and decision-making models (Dikmen et al., 2010; Eskander, 2018). Cluster 6 complements this with a broader focus on capital and funding risks, including under-capitalisation and financial distress, challenges heightened by the pandemic (Mazur et al., 2023; Xu et al., 2023). Despite these diverse focuses, there is a noticeable gap in research specifically targeting the residential construction sector, which is especially concerning given its recent insolvency surge in countries such as Australia. The dominant focus on infrastructure and commercial domains signals a need for a more targeted research agenda that reflects the unique financial and regulatory challenges of residential construction.

Clusters 2 and 3 highlight a transitional phase in the research evolution. Cluster 2 is focused on sustainability and multi-criteria evaluation methods, such as fuzzy synthetic evaluation and value management, indicating an early integration of environmental and systemic considerations into construction sector risk frameworks (Akomea-Frimpong et al., 2024; Assaad et al., 2024). Cluster 3 introduces the use of artificial intelligence and predictive analytics in assessing financial management and credit risk, marking a technological shift toward data-driven solutions (Huang & Tserng, 2018; Jang et al., 2020). Together, these clusters reflect an increasing sophistication in both the tools used and the perspectives adopted to assess insolvency vulnerabilities. While technically robust, these efforts often appear decoupled from practical industry needs. The analysis shows a limited presence of stakeholder-oriented terms such as policy, regulatory collaboration, or contractor feedback. This highlights a critical gap in industry-level, stakeholder-based research, research that is collaborated with practitioners and oriented toward real-world insolvency prevention and mitigation strategies.

More recent clusters, particularly Clusters 4 and 5, are directly shaped by the pandemic. Cluster 4 captures the operational and legal disruptions triggered by COVID-19, including project delays, disputes, and diminished performance (Han, 2024; Krajníková et al., 2022). Meanwhile, Cluster 5 shifts the focus to firm-level financial stress, examining variables such as firm size and financial performance as predictors of insolvency (Kurniawan et al., 2022; Wang et al., 2025). These clusters represent an emergent research agenda responding to the acute financial challenges that surfaced during the global health crisis and continue to influence insolvency trajectories today.

Despite this progress, several research gaps remain. There is a notable lack of integrated, forward-looking insolvency forecasting models that bridge AI-driven analytics with traditional financial indicators. The keyword co-occurrence analysis shows that recent AI-related terms such as “artificial intelligence,” “Altman model,” and “financial management” (Cluster 3) are positioned separately from financial performance and capital-oriented terms such as “financial performance,” “capital,” “financial distress,” and “financial ratios” (Clusters 5 and 6). While AI appears in one cluster and financial metrics in another, the literature lacks synergy between these approaches. This structural separation suggests that predictive modelling developments are not yet fully integrated with firm-level financial diagnostics, limiting the construction of hybrid forecasting frameworks. Hence, this disconnect suggests that while insolvency analysis tools have evolved, their translation into practical, stakeholder-focused prevention and mitigation strategies remains limited. Without integrating AI-based predictive capacity with financially interpretable indicators, early-warning systems risk remaining technically sophisticated but operationally detached from the decision-making realities of contractors and regulators. Addressing this gap is essential for developing effective early-warning systems and policy responses tailored to the realities of residential construction.

3.2 CONSTRUCTION INSOLVENCY IN AUSTRALIA

Informed by global insolvency dynamics, this section analyses Australian construction insolvency patterns to distinguish cyclical shocks from persistent structural fragilities. Error! Reference source not found. highlights that insolvency levels in the Australian construction sector were consistently high

during the pre-COVID period (2010-2019), indicating underlying structural fragility well before the pandemic. On average, the sector recorded approximately 1,846 insolvencies per year, with some years, such as 2011-2012 (2,229 insolvencies), exceeding the post-COVID figure observed in 2023-2024 (1,952 insolvencies). Rather than being the root cause of financial distress, COVID-19 appears to have acted as both a temporary suppressor of insolvencies during 2020-2022 and a revealer of pre-existing vulnerabilities in the post-COVID period (2022-2025).

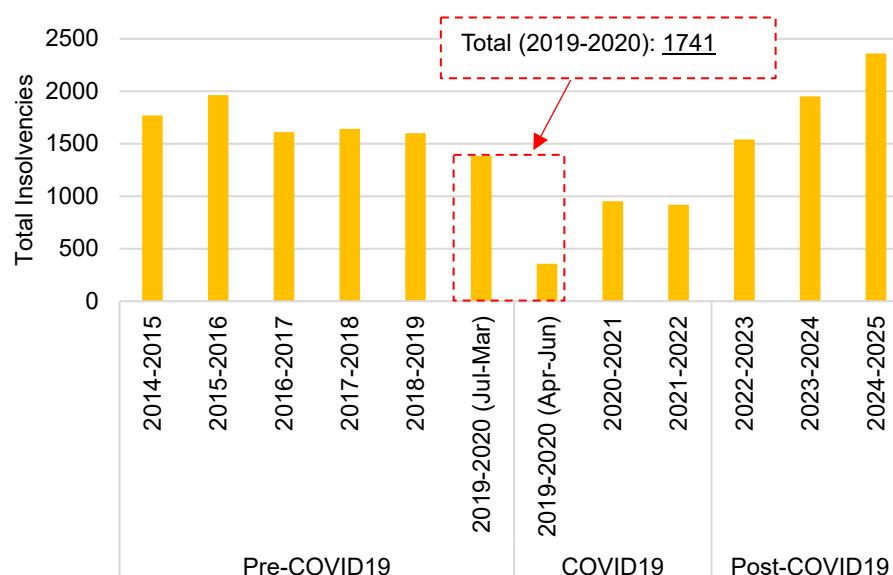


Figure 7 Total insolvencies in construction pre-COVID19 vs. COVID19 vs. post-COVID19

While all sectors experienced post-COVID insolvency surges, insolvencies in the construction sector increased by 67.68% in 2022-2023 (see **Table 7**), representing the highest single-year rise among sectors. Rising insolvencies in transport and warehousing (e.g., a 62.88% increase in 2023-2024) may be contributing to challenges faced by the construction sector, potentially by exacerbating material supply disruptions and cost pressures. However, this relationship should be interpreted cautiously, as direct causal linkages are not explicitly established within the available data.

Table 7 Total insolvencies cross-sector comparison pre-COVID19 vs. COVID19 vs. post-COVID19

Stage	Financial Year	Construction		Transport, postal and warehousing		Accommodation and Food Services		Retail Trade		Other (business and personal) services	
		No.	% Change	No.	% Change	No.	% Change	No.	% Change	No.	% Change
Pre-COVID	2010-2011	1,862		474		611		864		1,887	
	2011-2012	2,229	19.7%	607	28.1%	929	52.1%	1,024	18.5%	2,369	25.5%
	2012-2013	2,245	0.7%	532	-12.4%	817	-12.1%	904	-11.7%	2,220	-6.3%
	2013-2014	2,153	-4.1%	507	-4.7%	916	12.1%	870	-3.8%	2,481	11.7%
	2014-2015	1,770	-17.8%	458	-9.7%	870	-5.0%	739	-15.1%	2,350	-5.3%
	2015-2016	1,964	11.0%	546	19.2%	928	6.7%	768	3.9%	2,889	22.9%
	2016-2017	1,611	-18.0%	469	-14.1%	884	-4.7%	596	-22.4%	2,230	-22.8%
	2017-2018	1,642	1.9%	379	-19.2%	1,064	20.4%	592	-0.7%	2,150	-3.6%
	2018-2019	1,601	-2.5%	369	-2.6%	1,159	8.9%	617	4.2%	2,114	-1.7%
	2019-2020 (Jan-Mar)	1,385	8.0%	293	2.1%	880	3.3%	422	-18.2%	1,637	-0.7%
COVID	2019-2020 (Apr-Jun)	356		84		318		100		463	
	2020-2021	953	-82.7%	176	-114.2%	623	-92.3%	330	-58.2%	1,132	-85.5%
	2021-2022	919	-3.6%	201	14.2%	657	5.5%	264	-20.0%	707	-37.5%
Post-COVID	2022-2023	1,541	67.7%	229	13.9%	835	27.1%	364	37.9%	591	-16.4%
	2023-2024	1,952	26.7%	373	62.9%	1,095	31.1%	467	28.3%	742	25.6%
	2024-2025	2,361	21.6%	511	37.0%	1,588	45.0%	673	44.1%	1,054	42.1%

Table 8 and **Table 9** show that combined Micro and Small (<20 Full-Time Equivalent, FTE) represented 90-97% of insolvencies across all sectors, highlighting systemic fragility among smaller enterprises. 'Not known' records listed in the ASIC published records are omitted in these calculations. For instance, in 2023-2024 financial year 335 cases are listed as FTE is 'not known'. Across all four years (2020-2024), firms with fewer than 5 employees (micro) consistently accounted for the majority of insolvencies, ranging from 75.4% to 80.2% of total construction sector collapses. This confirms that insolvency risks are most concentrated among the smallest firms, likely due to minimal financial buffers, high dependency on cash flow, and limited risk management capacity. Thus, Micro and Small businesses are at the core of the insolvency crisis in Australia, particularly in the construction sector, which faces unique systemic risks.

Table 8 Construction Company Size vs. Insolvencies

Financial Year		Full-Time Equivalent (FTE) Employees*					% of < 20
		< 5 FTE (Micro)	5 - 19 FTE (Small)	20 - 199 FTE (Medium)	200+ FTE (Large)	Total	
2012-2013	N	1472	332	100	1	1905	94.7%
	%	77.3%	17.4%	5.2%	0.1%	100.0%	
2013-2014	N	1455	303	100	0	1858	94.6%
	%	78.3%	16.3%	5.4%	0.0%	100.0%	
2014-2015	N	1158	238	85	0	1481	94.3%
	%	78.2%	16.1%	5.7%	0.0%	100.0%	
2015-2016	N	1222	287	99	1	1609	93.8%
	%	75.9%	17.8%	6.2%	0.1%	100.0%	
2016-2017	N	1032	232	96	2	1362	92.8%
	%	75.8%	17.0%	7.0%	0.1%	100.0%	
2017-2018	N	1071	212	84	1	1368	93.8%
	%	78.3%	15.5%	6.1%	0.1%	100.0%	
2018-2019	N	1030	225	72	1	1328	94.5%
	%	77.6%	16.9%	5.4%	0.1%	100.0%	
2019-2020	N	1149	259	76	2	1486	94.8%
	%	77.3%	17.4%	5.1%	0.1%	100.0%	
2020-2021	N	671	120	44	2	837	94.5%
	%	80.2%	14.3%	5.3%	0.2%	100.0%	
2021-2022	N	625	130	50	2	807	93.6%
	%	77.4%	16.1%	6.2%	0.2%	100.0%	
2022-2023	N	1020	246	85	1	1352	93.6%
	%	75.4%	18.2%	6.3%	0.1%	100.0%	
2023-2024	N	1279	266	71	1	1617	95.5%
	%	79.1%	16.5%	4.4%	0.1%	100.0%	

*'Not known' records listed in the ASIC published records are omitted in these calculations

Table 9 Company Size (Other Sectors) vs. Insolvencies

Financial Year		Full-Time Equivalent (FTE) Employees*					
		< 5 FTE (Micro)	5 - 19 FTE (Small)	20 - 199 FTE (Medium)	200+ FTE (Large)	Total	% of < 20
Other (business and personal) services							
2020-2021	N	769	120	40	1	930	95.6%
	%	82.7%	12.9%	4.3%	0.1%	100.0%	
2021-2022	N	548	56	21	0	625	96.6%
	%	87.7%	9.0%	3.4%	0.0%	100.0%	
2022-2023	N	432	67	12	2	513	97.3%
	%	84.2%	13.1%	2.3%	0.4%	100.0%	
2023-2024	N	537	90	16	3	646	97.1%
	%	83.1%	13.9%	2.5%	0.5%	100.0%	
Accommodation and food services							
2020-2021	N	409	107	31	3	550	93.8%
	%	74.4%	19.5%	5.6%	0.5%	100.0%	
2021-2022	N	468	90	23	2	583	95.7%
	%	80.3%	15.4%	3.9%	0.3%	100.0%	
2022-2023	N	556	130	25	0	711	96.5%
	%	78.2%	18.3%	3.5%	0.0%	100.0%	
2023-2024	N	672	195	55	1	923	93.9%
	%	72.8%	21.1%	6.0%	0.1%	100.0%	
Retail trade							
2020-2021	N	228	49	22	4	303	91.4%
	%	75.2%	16.2%	7.3%	1.3%	100.0%	
2021-2022	N	190	34	7	0	231	97.0%
	%	82.3%	14.7%	3.0%	0.0%	100.0%	
2022-2023	N	264	56	13	1	334	95.8%
	%	79.0%	16.8%	3.9%	0.3%	100.0%	
2023-2024	N	324	61	19	2	406	94.8%
	%	79.8%	15.0%	4.7%	0.5%	100.0%	
Transport, postal, and warehousing							
2020-2021	N	130	18	11	2	161	91.9%
	%	80.7%	11.2%	6.8%	1.2%	100.0%	
2021-2022	N	147	30	4	0	181	97.8%
	%	81.2%	16.6%	2.2%	0.0%	100.0%	
2022-2023	N	151	35	13	0	199	93.5%
	%	75.9%	17.6%	6.5%	0.0%	100.0%	
2023-2024	N	227	39	18	3	287	92.7%
	%	79.1%	13.6%	6.3%	1.0%	100.0%	

*'Not known' records listed in the ASIC published records are omitted in these calculations

3.3 DETRIMENTAL EFFECTS OF RESIDENTIAL CONSTRUCTION INSOLVENCIES ON STAKEHOLDERS

In the residential construction industry, stakeholders are all the parties who are affected by or have an interest in a project. The main stakeholders affected by builder insolvency are homeowners/clients, contractors, subcontractors, suppliers, creditors, and employees (construction workers and site and management staff), and financial institutions such as banks and project financiers. Evidence from government and industry sources indicates that insolvencies can result in a range of detrimental effects across these groups, including unfinished homes, financial losses for subcontractors and suppliers, employment instability, and broader disruptions to project delivery and housing supply. For financial institutions, builder insolvencies may increase credit risk exposure, lead to loan write-offs or higher provisioning for potential losses and contribute to tighter lending conditions for construction projects. A compilation of these detrimental effects identified in government reports, investigative analyses, and media releases is provided in Appendix 6.

In cases involving illegal phoenix activity, these impacts may be further intensified, as liabilities are deliberately shifted away from the insolvent entity, leaving homeowners, subcontractors, and suppliers with limited prospects of recovering unpaid deposits, invoices, or entitlements.

The questionnaire survey findings on the detrimental effects of insolvency, including the relative ranking of impacts across different stakeholders, are shown in **Table 10**. Collectively, the detrimental effects underscore the widespread and cascading impacts of insolvency across all stakeholder groups, highlighting the critical need for early detection mechanisms and mitigation strategies for insolvencies in the residential construction sector.

Table 10 The detrimental impact of insolvency on stakeholders

Stakeholder	Detrimental effects	Rank
Client	Unfinished homes	1
	Increased number of construction defects	2
	Psychological stress	3
	Reduced home quality	4
	Delayed projects	5
	Lifestyle interruptions	6
	Increased costs due to reconstruction	7
	Declining willingness to invest in future home builds	8
	Financial loss resulting from unrecovered deposits	9
Contractor, Subcontractors, and Suppliers	Financial collapse	1
	Loss of profits	2
	Reputational damage	3
	Exposure to legal consequences (e.g. if complicit in phoenix activity)	4
	Unsecured creditor status	5

Stakeholder	Detrimental effects	Rank
	Operational disruptions	6
Creditors	High rates of unpaid debt, especially unsecured creditors	1
	Increased administrative burden	2
	Increased scrutiny	3
Employees	Delayed, unpaid wages and entitlements	1
	Job losses	2
	Psychological pressure	3
	Disruptions to career growth	4

3.4 SUMMARY

This chapter synthesises global and Australian evidence to demonstrate that construction insolvency is a persistent, structural challenge rather than a temporary outcome of economic shocks. Drawing on systematic and grey literature, bibliometric analyses, and ASIC insolvency statistics, it shows that insolvency risks intensify following major economic disruptions but are rooted in long-standing vulnerabilities related to cash flow dependence, cost escalation, fragmented risk management, and firm size. Although global research has advanced predictive models and analytical tools, these remain largely reactive and insufficiently integrated with stakeholder-oriented, preventative strategies, particularly for the residential construction sector. The Australian analysis reinforces this concern, revealing consistently high pre-COVID insolvency levels, a sharp post-COVID surge, and a disproportionate concentration of failures among micro and small firms. The chapter further highlights the cascading social, financial, and psychological impacts of insolvency across clients, contractors, suppliers, creditors, and employees. Collectively, the findings emphasise an urgent need for integrated, forward-looking early-warning systems and coordinated policy and industry responses customised to the realities of residential construction.

4 CAUSES OF INSOLVENCIES IN THE RESIDENTIAL CONSTRUCTION INDUSTRY AND ILLEGAL PHOENIX PRACTICES

Insolvency remains a persistent and significant challenge within the residential construction industry, with wide-ranging consequences for builders, contractors, subcontractors, workers, clients, and the broader economy. Gaining a clear understanding of the underlying causes of these insolvencies is essential for identifying effective strategies to reduce business failure and strengthen industry stability.

This chapter presents the research findings on the causes of insolvency within the residential construction sector and also examines the occurrence of illegal phoenix practices, which further exacerbate industry vulnerability. The analysis draws on multiple data sources, including academic and industry literature, questionnaire survey results, semi-structured interviews, and case studies.

4.1 CAUSES OF INSOLVENCIES

In the construction sector, insolvencies are rarely the result of a single factor. Global studies examining the causes of insolvencies reveal that, despite differences in country context, market maturity, and project type, several recurring themes emerge. The literature findings show that construction insolvency is driven by a combination of financial, managerial, contractual, and external macroeconomic factors. Appendix 3 list all identified causes in detail.

With respect to the residential construction industry, this study identifies a range of interrelated factors contributing to insolvencies. These factors can be broadly categorised into financial and market risks, workforce and governance failures, financial management failures, and project management failures, as shown in **Table 11**.

The following subsections discuss the research findings in detail under each of these categories, highlighting how the factors under each category contribute to insolvencies in the residential construction industry.

Table 11 Ranked causes of insolvency in the residential construction industry

Rank	Financial and market risks	Workforce and governance failures	Financial management failures	Project management failures
1	High-cost exposure	Using unskilled workers	Poor financial and accounting control	Project complexity and quality issues
2	External market conditions	Professional negligence	Strategic and operational mismanagement	Enterprise risk management failures
3	Financial restructuring difficulties	Disputes and internal conflicts	Under-capitalisation and liquidity issues	Disputes and internal conflicts
4	Low profitability and trading losses	Regulatory and governance gaps	Low profitability and trading losses	-
5	Government and policy constraints	-	-	-

6	Supply chain vulnerabilities	-	-	-
7	Industry/political and disaster-related risks	-	-	-

Note: Rankings are based on the factor analysis of questionnaire survey responses within each insolvency-cause category. A dash indicates that no additional ranked factor was identified under that category.

4.1.1 Financial and market risks

Financial and market risks are external factors that can impact residential builders, potentially affect their financial stability and lead to insolvency. Factor analysis of the questionnaire survey data identified and ranked seven underlying factors related to financial and market risks as discussed below.

4.1.1.1 High-cost exposure: Residential builders are highly exposed to cost risks, especially under fixed-price contracts, where cost escalations cannot be readily passed on to clients due to contractual and regulatory restrictions on cost escalation clauses in Victorian domestic building contracts (Consumer Affairs Victoria, 2025; Walsh et al., 2004). Survey findings ranked cost risk as the most significant factor, and this was confirmed by the interview participants. For example, interviewees noted that fixed-price contracts require builders to absorb shifts in external market conditions (see Section 4.1.1.2), exposing them to significant financial risks leading to distress.

“Once builders sign the fixed contract, they can’t change the prices with the client. Sometimes they can according to some clauses, but most of the times client is not willing to go for increase in costs.” (Interviewee 1 – Builder)

“Contracts don’t allow for escalation and when we get the price escalation and then potential supply chain issues, you know all those things compound on the builder.” (Interviewee 3 - Builder)

Therefore, for residential builders with limited financial buffers, this sustained cost exposure becomes unmanageable, increasing the likelihood of business failure and insolvency.

4.1.1.2. External market conditions: Adverse external market conditions such as poor economic performance, fluctuations in housing demand, and intense competition increase insolvency risk in the residential building sector (Coggins et al., 2016; Sang et al., 2014; Yung et al., 2025). In this environment, builders often have limited ability to pass on rising material costs and increasing costs due to labour shortages to clients, particularly under competitive or fixed-price contracts (Miletic, 2024). As a result, rising costs are absorbed by the builder, reducing profitability and intensifying cash flow pressures, which can ultimately lead to insolvency.

“Since COVID, all the material prices have gone up. So, they [builders] have struggled a lot because whatever that estimated price was, now it has gone over the roof. So, they couldn’t stick with the estimated figure.” (Interviewee 1 – Builder)

4.1.1.3. Financial restructuring difficulties: Financial restructuring allows distressed builders to reorganise their debts and operations to avoid insolvency. However, the residential builders struggle to

undertake effective restructuring due to late detection of financial stress, limited access to finance, and inadequate financial planning. For example, a recent Australian study supports these explanations, showing that residential construction insolvency is linked to weak financial planning, cash-flow pressures, delayed recognition of distress, and limited access to effective recovery pathways (Bryant et al., 2025). The study also found that firms often struggle to gain creditor approval for restructuring plans, indicating that system-level barriers reinforce firm-level weaknesses (Bryant et al., 2025).

4.1.1.4. Low profitability and trading losses: Literature review findings revealed that low profit margins are an intrinsic characteristic of the construction sector in Australia (Balatbat et al., 2010; Chan & Martek, 2017). When combined with high-cost exposure (as discussed in Section 4.1.1.1) due to fixed-price contracts and adverse external market conditions (as discussed in Section 4.1.1.2) resulting in increased costs, these thin margins leave little capacity to absorb cost shocks. As a result, even moderate cost escalations can quickly erode profitability, strain cash flow, and ultimately lead to insolvency for residential builders.

4.1.1.5. Government policy constraints: Government policies related to government stimulus, loans, and monetary expansion may temporarily reduce insolvencies, but their withdrawal led to increase insolvency risk (Wilson et al., 2023). The phase-out of COVID-19 measures such as the Homebuilder grant led to weaker housing demand and cash-flow pressures for builders who had expanded during the boom (Miletic, 2024). Tighter monetary policy and rising interest rates, reduced credit access, and exposed builders on fixed-price contracts to financial stress (Reserve Bank of Australia, 2022).

4.1.1.6. Supply chain risks: The risks in supply chain can lead to significant cost impact and subsequent losses due to the downtime (Ekanayake et al., 2022; Wedawatta et al., 2010). For example, during COVID-19 lockdowns, people not working, disrupted production and labour availability, leading to widespread supply shortages both domestically and internationally (Miletic, 2024). Australia faced shortages of key building materials, including structural timber, PVC pipes, and reinforcing steel, and combined with strong construction demand, these constraints drove sharp price increases of 20–34% in 2021 for some materials (National Housing Finance and Investment Corporation, 2022). The material shortages and sharp price increases in key building materials significantly impacted residential builders' financial stability and risk of project delays during this period ultimately leading to insolvency.

4.1.1.7. Political and disaster-related risks: External political and geopolitical disruptions, such as conflicts or trade disruptions, often drive-up fuel and material costs, further straining cash flow and profit margins. Natural disasters, including floods, bushfires, and storms, can damage worksites, delay projects, and trigger unexpected costs, compounding financial pressures (Thi Binh et al., 2025). Pandemics such as COVID-19, led to significant project delays, labour shortages and financial strain in the Australian construction industry (Gupta et al., 2025).

4.1.2 Workforce and governance failures

Workforce and governance failures refer to internal organisational issues that undermine operational efficiency and ethical practices. Factor analysis of the questionnaire survey data identified four

underlying factors related to workforce and governance failures. The following list presents these factors.

4.1.2.1 Skill gaps: Lack of sufficient number of qualified tradespeople can delay projects, increase rework, and escalate labour costs, defects reworks cost and overrun cashflow issues (Wilson, 2025). “Some interview participants expressed the view that the use of workers without adequate training may increase the risk of construction defects. Participants also identified communication barriers, including limited English proficiency, as a possible contributor to quality and coordination difficulties. For an example, Interviewee 4 explained:

“[...] you'll get, say, two or three people that are skilled [in painting or plastering], and seven or eight people that are watching the skilled people do it. So, they'll watch for an hour. They'll learn how to do it, and then they'll go and do it themselves. [...] they don't really have any formal training [...] and quite often it is a lot of overseas workers that are coming over. [...] they don't speak English, so it can be quite challenging on site in that respect as well.” (Interviewee 4 – Builder)

Interviewees (e.g. Interviewees 1, 3, and 4) explained that the unskilled labour is used typically for tasks such as painting or plastering rather than technical work such as plumbing, electrical installation, carpentry etc. Therefore, on its own, it does not directly lead to insolvency.

Interviewees identified deficiencies in both directors' business management knowledge and the capability of quantity surveyors and estimators to accurately prepare cost estimates under uncertain conditions. The directors are not required to have formal financial qualifications. This lack of financial literacy can result in poor cash flow management, underfunded employee entitlements, and increased risk of insolvency (Partis, 2025).

4.1.2.2 Interviewee perceptions of weaknesses in inspection and approval processes during construction: Several interview participants expressed concerns that weaknesses or perceived conflicts of interest in inspection and approval processes may contribute to defective work, rectification costs, disputes and financial strain. One participant expressed concern that personal relationships between project parties could create perceived conflicts of interest in inspection processes. **4.1.2.3 Internal conflicts:** Internal conflicts between management, staff, and construction workers raise costs, reduce productivity, and can cause costly litigation and reputational damage (Brockman, 2014) (Hammond, 2025). More details are provided in Section 4.1.4.

4.1.2.4 Regulatory governance gaps: This involves inconsistent regulatory enforcement and limitations in compliance monitoring contributing to broader systematic weaknesses in the residential construction sector. Some interview participants expressed concerns about inconsistent regulatory enforcement and limitations in compliance monitoring. They referred to alleged practices such as licence lending, nominee-building arrangements with inadequate oversight, misuse of permits and, in some instances, operating without appropriate authorisation. One building surveyor described an instance in which they believed construction had proceeded without the required approval and expressed concern about the timeliness and outcome of the subsequent regulatory response.

Some interviewees expressed a perception that builder licensing can, in some circumstances, rely heavily on evidence of prior experience and professional references. They considered this indicative of potential weaknesses in entry requirements and regulatory scrutiny. One interviewee expressed the view that, while the builder registration process involves demonstrating experience and completing an interview, applicants who have appropriate project evidence and supporting references from experienced builders may find the process relatively straightforward.

4.1.2.5 Financial compliance failures: Tax non-compliance is another regulatory vulnerability commonly exploited by financially distressed builders. Such businesses often defer or fail to meet statutory obligations owed to the ATO - including Goods and Services Tax (GST), Pay As You Go (PAYG) withholding, and superannuation guarantee contributions (Hutchens, 2024). The decision in *ASIC vs Plymin, Elliott and Harrison* (2003) (concerning a rice milling company), remains widely referenced for its articulation of general insolvency indicators. In that case, the Victorian Supreme Court identified the non-payment of statutory liabilities as one of several indicators of insolvency - alongside ongoing trading losses, overdue creditor payments, deteriorating relations with financiers, and dishonoured cheques. This demonstrates that tax non-compliance typically forms part of a broader pattern of financial distress characteristic of insolvent trading ("*ASIC v Plymin, Elliott & Harrison* [2003] VSC 123," 2003).

4.1.3 Financial management failures

The literature survey identified that the financial management failures in residential construction businesses as one of the dominant contributors to residential builder insolvency in Australia (e.g. (Coggins et al., 2016; Cooper et al., 2022; Hammond, 2025; Jayawardana et al., 2025; Nandasena & Skaik; QBE Australia Pacific, 2024). The factor analysis of the questionnaire survey data (discussed in Section 2.1.3) revealed four underlying factors associated with financial management failures. The results indicate that poor financial and accounting control was the highest-ranked factor contributing to financial management failure, followed by strategic and operational mismanagement (ranked second). Under-capitalisation and liquidity issues ranked third, while low profitability and ongoing trading losses were ranked fourth.

4.1.3.1 Poor financial and accounting control: Poor financial and accounting control includes inadequate cash flow management or excessive cash outflows, weak financial controls such as incomplete or poorly maintained financial records, accounting errors and delays in financial reports (Jayan et al., 2025). **Table 12** presents the causes of failures published by ASIC from 2010-2012 and 2018-2025. The results show that inadequate cash flow/high cash use is consistently the top cause of failure, peaking at 20.2% (2019-2020) and remaining high post-COVID19 (17.7% in 2024-2025). Poor financial control declined post-COVID19 (10.9% in 2021-2022 vs. 14.7% in 2017-2018), suggesting temporary relief from government support, but it remains a critical risk. The interview respondents observed that many small residential construction builders have limited financial management skills, particularly in areas related to cash flow management, financial planning, and ongoing assessment of business solvency.

For example, Interviewee 3 (a Builder) observed:

"I don't know if failure is the right word, but most small builders don't really have good financial management, so there's a lot of cash that is actually transacting through the business and it's coming in, in sort of lumps. So, they'll look at their bank account and go, Oh my God, I've got \$500,000 in the bank, not actually knowing that of that \$500,000 only \$30,000 is theirs. The balance is what we call progress claims in advance. So it's about understanding from a cash flow perspective that says I've got all this cash, but how much of it is business operating and revenue as opposed to costs for future subcontractors and the like, so [...] remember they're really time-poor, and they usually see things through an accounting lens. Most of their accounting is done in systems like MYOB or Xero."

Interviewee 4 (a Builder) added:

"[...] a lot of carpenters will [...] become builders, but they don't actually have any training or knowledge about financial constraints and financial things to do with running a business..."

The absence of a systematic and ongoing process for assessing the financial health of the company was also observed as a cause for poor financial and accounting control (Lyndall, 2025). Seven interview participants also highlighted the importance of financial health monitoring. For an example, Interviewee 3 (a Builder) highlighted the need for a simple tool that could help builders monitor the financial health of their business:

"It could be a very simple, filling these numbers. This is your overhead. If you're charging less than this, you should go and see an accountant because you're going backwards. Even though you're making money. Find efficiencies in your operations to reduce cost or you need to charge more or get your revenue up, or so. It should be very simple and include elements where numbers can be easily added."

Table 12 Key Causes of Business Failure (reported by ASIC)

Cause	2010-2011		2011-2012			2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025	
	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Under capitalisation	426	9.4%	508	9.2%		374	8.8%	414	8.6%	280	9.3%	282	9.7%	454	9.2%	613	9.7%	727	9.7%
Poor financial control including lack of records	582	12.8%	676	12.3%		622	14.6%	653	13.6%	327	10.9%	324	11.1%	519	10.5%	762	12.0%	945	12.6%
Poor management of accounts receivable	318	7.0%	358	6.5%		288	6.7%	331	6.9%	172	5.7%	200	6.9%	255	5.1%	362	5.7%	437	5.8%
Poor strategic management of business	775	17.0%	914	16.6%		703	16.5%	772	16.1%	499	16.6%	371	12.7%	663	13.4%	967	15.3%	1,241	16.5%
Inadequate cash flow or high cash use	783	17.2%	900	16.4%		844	19.8%	967	20.2%	556	18.5%	483	16.6%	850	17.2%	1055	16.7%	1,330	17.7%
Poor economic conditions	559	12.3%	724	13.2%		181	4.2%	181	3.8%	206	6.9%	276	9.5%	539	10.9%	634	10.0%	604	8.0%
Natural disaster	4	0.1%	26	0.5%		2	0.0%	7	0.1%	19	0.6%	21	0.7%	42	0.8%	97	1.5%	34	0.5%
Fraud	23	0.5%	31	0.6%		26	0.6%	33	0.7%	54	1.8%	21	0.7%	20	0.4%	42	0.7%	49	0.7%
DOCA failed	11	0.2%	16	0.3%		1	0.0%	4	0.1%	11	0.4%	7	0.2%	7	0.1%	8	0.1%	11	0.1%
Dispute among directors	44	1.0%	58	1.1%		41	1.0%	66	1.4%	32	1.1%	41	1.4%	36	0.7%	38	0.6%	42	0.6%
Trading losses	525	11.5%	675	12.3%		599	14.0%	678	14.2%	431	14.4%	422	14.5%	772	15.6%	856	13.5%	1,124	15.0%
Industry restructuring	21	0.5%	23	0.4%		16	0.4%	16	0.3%	1	0.0%	3	0.1%	9	0.2%	9	0.1%	17	0.2%
Business restructuring	0	0.0%	0	0.0%		0	0.0%	3	0.1%	4	0.1%	7	0.2%	10	0.2%	11	0.2%	21	0.3%
Other	482	10.6%	588	10.7%		571	13.4%	664	13.9%	411	13.7%	453	15.6%	779	15.7%	870	13.8%	932	12.4%
Total	4,553	100%	5,497	100%		4,268	100%	4,789	100%	3,003	100%	2,911	100%	4,955	100%	6,324	100%	7,514	100%

4.1.3.2 Strategic and operational mismanagement: Strategic and operational mismanagement include high-level decision-making failures related to financial difficulties of the business. As shown in **Table 12** poor strategic management is the second-largest cause (16.5% in 2024-2025), linked to failures in adapting to market shifts (e.g., post-COVID19 demand changes, labour shortages). These observations show that insolvencies in the construction sector are not driven by temporary shocks but by structural financial and strategic weaknesses and business and operational mismanagement. The consistency of these causes over a decade suggests that financial literacy, governance, and resilience planning are systematically underdeveloped across the sector.

The findings highlight that the above causes are related to limited business management skills in small scale builders, which contributes to poor risk management, contractual disputes, and slow responses to financial stress:

4.1.3.3 Under-capitalisation and liquidity issues: Under-capitalisation and liquidity issues occurs when builders operate with insufficient equity or working capital relative to their project scale, debt load and cash cycles (Yung et al., 2025). As a result, they rely heavily on debt, progress payments, or supplier credit, which erodes quickly under financial stress (Hassan, 2022). Construction firms in Australia are undercapitalised, with thin equity bases, making them prone to failure (O'Neill et al., 2025).

4.1.3.4 Low profitability and trading losses: Low profit margins and fixed priced contracts are an intrinsic characteristic of the residential construction industry (Jayan et al. 2025). Inadequate monitoring of profitability, and insufficient allocation of indirect costs mainly cause cash flow issues (Patel et al., 2022). The interviewee opinions revealed builders frequently use low profit margins, leaving no buffer when materials or labour costs rise:

“They're pricing their projects too low to get the job. The consumers, you know expectations then are too high. And so they find themselves in this tricky situation where they've priced it too low. Even though they know what they have to deliver, but they haven't actually told the consumer that's not deliverable because they don't want to lose the job.” (Interviewee 3 - Builder)

Three interview participants highlighted that poor estimation knowledge among builders can also contribute to financial failure. Small-scale builders often employ inexperienced estimators who may underprice projects. For an example Interviewee 7 mentioned:

“One of the biggest reasons is they [SME builders] don't know how to how to estimate in an uncertain economic condition. They didn't know how to price a project during such an uncertain situation”. (Interviewee 7 – Builder)

Therefore, even a small number of poorly priced jobs can be sufficient to push an otherwise viable residential builder into insolvency.

4.1.4 Project management failures

The factor analysis of the survey data revealed three underlying factors associated with project management failures.

4.1.4.1 Project complexity and quality issues: These issues are significant contributors to cost overruns, project delays, and financial distress in residential construction projects (Doloi, 2013). Multiple projects, frequent design changes, defective work, and rework, further intensify project complexity (Jayan et al., 2025) (Taha et al., 2022). Design defects can lead to significant rework, trigger contractor claims, cause schedule delays, and pose safety risks to construction workers and, in some cases, future building occupants if design intent is not properly resolved (Taha et al., 2022). For an example, interview findings highlighted that running multiple projects at the same time can make it difficult to progress each job and maintain steady cash flow:

“If you have multiple projects running at the same time, it can be a bit challenging where you're having to push different jobs forward to get money in so then you can finish other jobs so that when the money comes in, it doesn't necessarily go to that one project, it's going to get split up. And that's where that's usually a sign where you need to get things finished quite quickly. And usually when that happens, that's when a lot of people cut corners so that operational cost is reduced probably the most significant one for me. Which coincides with scheduling pressures, but again, that does come back to depending on the company.”
(Interviewer 4 – Builder)

4.1.4.2 Enterprise risk management (ERM) failures: Enterprise risk management (ERM) failures refer to situations where an organisation's systems, processes, or culture for identifying, assessing, managing, and monitoring risk do not operate effectively, resulting in unmanaged or poorly managed risks that lead to adverse outcomes. These are closely linked to weak business managerial practices of builders, including poor documentation, limited risk management awareness, knowledge and skills and limited use of risk management tools and techniques (Rostami et al., 2015). These deficiencies hinder effective risk identification, assessment, and monitoring, and reduce builder's ability to recognise early warning signs of insolvency risks.

4.1.4.3. Disputes and internal conflicts: Disputes in residential construction often stem from disagreements between builders and homeowners over payments, scope, quality and contractual obligations. Causes of these disagreements include vague contract terms, inconsistencies or omissions in the project scope, allowances or adjustments, differences between the initial quote and the final contract price, ambiguous or unreasonable progress payment conditions, unclear variation clauses, project schedule delays, uncertainty regarding the builder's warranty and sub-contractor disputes (Contracts Specialist, 2023; Hammond, 2025; Tariq & Gardezi, 2023). Although much of the literature focuses on external disputes, internal conflicts and disagreements between the management, staff and construction workers, increase inefficiencies and errors on projects, reducing productivity and driving up costs (Brockman, 2014). Disputes can result in expensive adjudication or litigation, draining financial resources and management attention (Hammond, 2025). For small residential builders who are reliant

on ongoing project pipelines, reputational damage due to customer complaints, and litigation records can be as harmful as direct financial loss.

As outlined above, residential builder insolvency can arise from a range of causes. The following section draws on case studies of insolvent builders to illustrate the specific factors that contributed to their collapse.

4.2 EVIDENCE FROM CASE STUDIES: PLAUSIBLE SIGNALS OF INSOLVENCY

Drawing on the financial and operational distress patterns identified across the 42 selected insolvency cases; this section synthesises plausible signals and mechanisms that may contribute to insolvency in the Australian residential construction sector as presented in **Table 13**. Rather than positing deterministic cause-and-effect relationships, the analysis interprets recurrent and persistent indicators observed before insolvency as signals of underlying structural and operational vulnerabilities.

The empirical distribution and numerical characteristics of these indicators are presented in Section 5.2, which provides the quantitative evidence underpinning the interpretive mechanisms discussed in this section.

Table 13 Plausible insolvency signals from case-study evidence

Observed distress pattern (case study outcomes)	Key indicators used	Insolvency signal
Persistent liquidity shortfalls across consecutive years	CR < 1.0 for ≥ 2 years	Chronic liquidity stress (see Section 4.2.1)
Rising or extreme leverage, including negative equity	D/E > 2.0 or negative; ER < 0.2	Fragile capital structures and leverage pressure (see 4.2.2)
Sustained operating losses	NPM < 0% for ≥ 2 years; ROA < 5%	Structural unprofitability of core operations (see 4.2.3)
Dependence on external funding during loss-making periods	Negative OCF with positive FCF (repeated)	Dependence on external financing during operating losses (see 4.2.4)
Delayed payments to suppliers and delayed receipts from clients	High proportions of AP, AR > 3 months	Working-capital strain and payment-chain stress (see 4.2.5)
Co-occurrence of multiple risk indicators	≥3 ratios breaching thresholds concurrently	Compounding financial distress (see 4.2.6)

*AP-Aged payables; AR-Aged receivables; CR-Current ratio; D/E-Debt/Equity; ER-Equity ratio; NPM-Net profit margin; ROA-Return on assets; OCF-Operating cash flow; FCF-Financing cash flow

4.2.1 Chronic liquidity stress

A substantial proportion (68.3%) of insolvent firms analysed exhibited persistent liquidity shortfalls, reflected in current ratios remaining below unity for at least two years before failure, with an average of 2.83 years of sub-unity liquidity. Such patterns suggest that many firms were operating with structurally inadequate short-term buffers, limiting their capacity to meet day-to-day obligations as they fell due.

Persistent liquidity stress may increase reliance on informal credit arrangements, delayed payments, or short-term financing, thus heightening insolvency risk over time.

4.2.2 Fragile capital structures and leverage pressure

High and rising leverage, including cases with extreme (debt-to-equity ratios ranging from 2.7 to 1353494.0) or negative debt-to-equity ratios, was frequently observed in the years preceding insolvency. These patterns are indicative of weak capitalisation and limited loss-absorption capacity, leaving firms highly exposed to revenue volatility, cost overruns, or delayed client payments. A weak equity base may also constrain access to additional financing, particularly under tightening credit conditions.

4.2.3 Structural unprofitability of core operations

Sustained negative net profit margins and deteriorating returns on assets were common across the case studies, suggesting that insolvency often coincided with persistent operating losses rather than isolated financial shocks. Such patterns may reflect misaligned cost structures, under-pricing, scope creep, inefficiencies in project delivery, or exposure to low-margin contractual arrangements, particularly in highly competitive residential construction markets.

4.2.4 Dependence on external financing during operating losses

Cash-flow analysis revealed that several firms continued operations during extended loss-making periods through positive financing cash flows, indicating reliance on debt or equity injections to fund negative operating cash flows. While such financing may temporarily sustain business activity, prolonged dependence may become untenable as borrowing capacity is exhausted or investor confidence deteriorates, increasing the likelihood of insolvency.

4.2.5 Working-capital strain and payment-chain stress

Elevated proportions of long-overdue payables and receivables were observed in five selected cases (before insolvency, payables overdue by more than three months often exceeded 50% of total payables, while receivables overdue beyond three months ranged between 30% and 70%), suggesting growing working-capital strain and payment-chain disruption. Delayed payments to suppliers may signal cash conservation efforts, while delayed receipts from clients can amplify liquidity pressures. Together, these dynamics may erode trust within the supply chain and further restrict access to trade credit, compounding financial distress.

4.2.6 Compounding financial distress

Importantly, insolvency rarely appeared to stem from a single adverse condition. Instead, many cases exhibited multiple distress indicators concurrently, including liquidity shortfalls, leverage pressure, operating losses, and cash-flow dependence. This co-occurrence suggests that insolvency is more likely to arise from interacting and reinforcing mechanisms, where weaknesses in one key balance sheet component (assets, liabilities, and equity) amplify vulnerabilities in others. In 81% of the analysed

cases, multiple financial ratios entered the risk zone concurrently for at least two years before insolvency, indicating that financial distress typically emerges from compounded rather than isolated balance sheet weaknesses.

4.3 ILLEGAL PHOENIX ACTIVITIES AND MISCONDUCT

Although most construction insolvencies arise from financial, operational, and project management failures, government and regulatory sources, together with participant accounts, indicate that some construction insolvency matters may involve suspected or alleged illegal phoenix activity. Phoenixing occurs when directors intentionally liquidate a company to avoid liabilities and subsequently transfer business operations or assets to a new entity. In the residential construction sector, this behaviour represents an extreme manifestation of governance failure and may coexist with the financial and operational vulnerabilities identified elsewhere in this report. Examining phoenix activity therefore helps clarify how governance breakdowns can interact with financial distress and amplify insolvency risk within the sector.

Illegal phoenix activity occurs when directors intentionally liquidate or abandon a company to avoid paying its debts, then start a new entity at minimal cost to continue the same business (ASIC, 2025). Misconducts refer to improper or unethical behaviours that can worsen financial distress and contribute to insolvency. This practice leaves creditors, employees, and tax authorities unpaid, undermining fair competition and reducing public revenue (ATO, 2025). Appendix 4 presents the literature findings on cause of illegal phoenix activities. The survey findings showed 43 out of 77 respondents have observed or suspected illegal phoenix activity in residential construction industry indicating that it is perceived as a widespread and systemic issue within the industry. The questionnaire findings grouped factors related to illegal phoenix activity into two categories: governance failures and unethical practices as described in the following sections.

4.3.1 Governance failures

Governance failures were consistently identified by participants as a key enabler of phoenix activity within the Victorian construction sector. Participants described perceived governance failures as including manipulation of corporate structures, misuse of directorship arrangements and movement of assets in circumstances they associated with avoidance of liabilities. The following examples illustrate the ways in which poor governance practices create opportunities for phoenix operators to continue trading while evading financial and legal responsibilities.

Director reappointments under new entities: Participants described situations where the same individuals- or the “controlling minds” of a liquidated company - were reappointed to a newly formed entity that continued essentially the same business. According to participants account, this practice often involved transferring assets, contracts, or goodwill for little or no fair value, enabling directors to shed liabilities such as taxes, wages, or subcontractor payments while resuming operations with minimal interruption.

Dummy directors: According to participants, another governance failure involved the appointment of dummy or “figurehead” directors to either the failing company or the new phoenix entity. These individuals, often relatives, friends, or associates, had no involvement in the actual running of the business. Their appointment served to obscure the identity of the real operators and shield them from personal risk. As Interviewee 4 (Builder) explained, *“dummy directors are a popular one... a lot of people have companies in their family members’ names, but that family member will have nothing to do with the business... quite often it’s because if something happens to the business, they don’t want their house to get taken away.”* This practice was described as particularly common among individuals with large family networks who could rotate names across multiple entities.

Asset stripping: Participants also highlighted deliberate asset transfers from an indebted company to a related entity for less than market value. This practice, according to participants, allows directors to continue operating under a new structure while leaving creditors, employees, and government agencies unpaid. Interviewee 2 (Developer) noted that *“a lot of builders are well aware that they can phoenix their company one day, set up another one the next day and be off and running again... they’re perfectly happy to take all the money, put it into their wife’s account and close up shop.”*

Despite the prevalence of these behaviours, several participants (including interviewees 2, 8 and 10) observed that inconsistent regulatory enforcement in Victoria appear to be narrowing. They reported increased scrutiny from the regulatory body and a greater willingness to take action against illegal behaviour. While challenges remain, participants acknowledged that strengthened oversight is beginning to constrain some of the more overt governance failures that have historically facilitated illegal phoenix activity (Building and Plumbing Commission, 2026).

4.3.2 Unethical practices

4.3.2.1. Dishonest pre-insolvency advisers: ASIC (2025) and ATO (2025) materials identify dishonest pre-insolvency advisers as a potential facilitator of illegal phoenix activity. Those sources describe circumstances in which such advisers may approach financially distressed companies and coordinate with other professionals in relation to asset transfers or restructuring arrangements. The cited regulatory materials also identify risks associated with improper asset valuation and failures by professionals to discharge applicable duties..

4.3.2.2. Possible misconduct: In Australia, corporate misconduct associated with financial distress and insolvency is governed primarily by the Corporations Act 2001. The Act establishes a range of director-related offences designed to safeguard creditors and ensure proper financial governance. These offences are typically investigated and prosecuted by ASIC. Among the most frequently recorded offences are insolvent trading (Section 588G), failure to maintain adequate financial records (Section 286), breaches of directors’ duties, and other governance-related breaches that arise when companies experience financial distress. From 2020 to 2025, reports of possible insolvent trading and possible

breaches of directors' duties were the most frequently reported categories of possible misconduct in the ASIC data summarised in Table 14.

- Possible **Insolvent trading** under section 588G was the most frequently reported category, accounting for approximately 33–36% of reported possible misconduct across the period. These statutory reports identify possible misconduct and do not themselves constitute findings that a contravention occurred.. The highest proportional share of cases occurred in 2022-2023 (36%), while the highest volume of cases was recorded in 2024-2025 (1,955 cases). Construction projects often involve high debt and delayed cash flows, increasing insolvency risks. Directors may prioritise project continuity over solvency checks, risking liability under Section 588G for allowing debts while insolvent.
- Reported possible **breaches of directors' duties** under sections 180–184 were the second most frequently recorded category. These reports may indicate governance risks relating to care and diligence, good faith, conflicts of interest and use of information. However, the data record allegations or possible misconduct identified in statutory reports and do not establish that a breach was proven in each case. Economic pressures in construction (e.g., material cost spikes post-COVID19) may drive risky decision-making. Hence, these observations reveal that core director obligations, particularly regarding solvency awareness (insolvent trading) and fiduciary responsibility (directors' duties such as acting in good faith, acting for a proper purpose, avoiding conflicts of interest, not misusing information and duty of care and diligence), are potentially repeatedly violated.

Table 14 Most common corporate possible misconducts associated with insolvency under the Corporations Act 2001 and their reported incidence (ASIC reported data)

Possible misconduct	2020-2021		2021-2022		2022-2023		2023-2024		2024-2025	
	No.	%	No.	%	No.	%	No.	%	No.	%
Section 588G(1),(2), (3) - Insolvent trading	663	33.2%	682	33.7%	1,265	36.0%	1,535	32.5%	1,955	32.7%
Sections 180, 181, 182, 183, 184 - Directors duties	586	29.3%	591	29.2%	1,097	31.2%	1,385	29.3%	1,645	27.5%
Sections 286 & 344(2) - Obligation to keep financial records	333	16.7%	353	17.4%	581	16.5%	778	16.5%	1,019	17.0%
Section 530B - Requirement to provide liquidator with company's books	95	4.8%	108	5.3%	169	4.8%	251	5.3%	317	5.3%
Section 530A - Officers to help liquidator	88	4.4%	111	5.5%	142	4.0%	232	4.9%	368	6.1%

Possible misconduct	2020-2021		2021-2022		2022-2023		2023-2024		2024-2025	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sections 429, 438B & 475 - Report as to company's affairs	83	4.2%	92	4.5%	143	4.1%	326	6.9%	456	7.6%
Section 590 - Offences by officers or employees	65	3.3%	38	1.9%	37	1.1%	45	1.0%	56	0.9%
Other misconduct	64	3.2%	25	1.2%	39	1.1%	42	0.9%	44	0.7%
Offences under the Act or another Commonwealth or state or territory law not addressed elsewhere in the report	12	0.6%	14	0.7%	21	0.6%	77	1.6%	18	0.3%
Section 198G - Exercise of powers while under external administration	7	0.4%	4	0.2%	8	0.2%	13	0.3%	31	0.5%
Section 206A - Disqualified persons not to manage corporations	3	0.2%	6	0.3%	9	0.3%	6	0.1%	14	0.2%
Section 596AB - Agreements to avoid employee entitlements	0	0.0%	2	0.1%	5	0.1%	19	0.4%	5	0.1%
Section 588FDB - Officer's duty to prevent creditor-defeating dispositions	NA	NA	NA	NA	NA	NA	9	0.2%	41	0.7%
Section 588GAC - Procuring creditor defeating dispositions	NA	NA	NA	NA	NA	NA	2	0.0%	16	0.3%
Total	1,999	100%	2,026	100%	3,516	100%	4,720	100%	5,985	100%

4.3.2.3. Reported possible breaches of directors' duties: ASIC-reported data identify possible directors' duties misconduct as a recurring category in construction insolvency reports. **Table 14** highlights patterns of director misconduct under sections 180-184 of the Corporations Act 2001. Reported possible breaches of the duty of care and diligence (section 180) are the most common, accounting for around 41-47% of cases over the period, indicating ongoing weaknesses in financial

oversight and decision-making. The increase in 2022-23 aligns with a broader rise in insolvencies and may reflect heightened post-COVID financial pressures. Reported possible breaches of the duty to act in good faith (section 181) remain consistently high at around 29-31%, pointing to persistent governance challenges. Overall, the results suggest systemic governance weaknesses in construction insolvencies, reinforcing the need for strengthened oversight, director capability, and accountability.

4.3.2.4. Delayed recognition of insolvency risk: Table 15 shows a marked increase in prolonged insolvency periods, with cases extending more than two years prior to formal appointment rising from 33.1% in 2020–2021 to 55.1% in 2024-2025. These patterns may indicate delayed recognition of or response to financial distress. In construction, long project timeframes and deferred payment arrangements can obscure underlying cash-flow stress, which may contribute to delayed intervention and potential exposure under section 588G. The data show that fewer than 1% of reports identified insolvency as arising at appointment; however, the reasons for the timing cannot be established from these data alone. These delays tend to exacerbate losses for creditors and heighten legal risk for directors, underscoring the need for stronger early-warning indicators, improved director capability, and incentives for earlier engagement with restructuring or voluntary administration options.

Table 15 Period in which the company became insolvent, according to reports alleging insolvent trading (ASIC reported data)

Period in which company became insolvent	2020-2021		2021-2022		2022-2023		2023-2024		2024-2025	
	No.	%	No.	%	No.	%	No.	%	No.	%
At appointment	4	0.6%	1	0.2%	7	0.6%	8	0.5%	15	0.8%
1-3 months before appointment	30	4.6%	29	4.3%	40	3.2%	67	4.4%	48	2.5%
4-9 months before appointment	110	16.8%	100	14.9%	149	11.8%	174	11.4%	189	9.7%
10-15 months before appointment	145	22.1%	122	18.2%	200	15.9%	237	15.6%	280	14.4%
16-24 months before appointment	150	22.9%	143	21.3%	258	20.5%	244	16.0%	341	17.5%
Over 2 years before appointment	217	33.1%	277	41.2%	604	48.0%	792	52.0%	1,071	55.1%
Total	656	100%	672	100%	1,258	100%	1,522	100%	1,944	100%

4.3.2.5. Basis for determining insolvency:

Table 16 shows that balance sheet analysis remains the main method for assessing insolvency (51-73% of cases) but is increasingly combined with cash flow and trading history analysis to provide a fuller picture. The shift towards cash flow reflects legal emphasis on liquidity, while the low use of director-provided information highlights potential transparency and compliance gaps.

Table 16 Basis for determining when the company became insolvent in reports alleging insolvent trading (ASIC reported data)

Basis	2020-2021		2021-2022		2022-2023		2023-2024		2024-2025	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cash flow analysis	189	19.8%	229	34.1%	347	27.6%	445	29.2%	464	23.9%
Trading history analysis	358	37.6%	356	53.0%	655	52.1%	728	47.8%	882	45.4%
Balance sheet analysis	489	51.3%	486	72.3%	914	72.7%	1,054	69.3%	1,306	67.2%
Informed by director(s)	46	4.8%	42	6.3%	49	3.9%	62	4.1%	78	4.0%
Other	328	34.4%	332	49.4%	619	49.2%	755	49.6%	1,015	52.2%

4.3.2.6. Indicators of suspected insolvency: Table 17 shows that between 2020-2024, the most frequently cited insolvency indicators in insolvent trading reports were non-payment of statutory debts and negative financial statement trends, each appearing in over half of cases. Their consistent presence reinforces their relevance as warning indicators of insolvency risk; however, these data do not, by themselves, establish how or why individual directors responded to those indicators.

Table 17 Indicators that the director had reasonable grounds to suspect the company was insolvent in reports alleging insolvent trading (ASIC reported data)

Indicators of Insolvency	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Financial statements that disclose history of serious shortage of working capital and unprofitable trading	41.2%	58.8%	61.5%	56.2%	55.8%
Poor or deteriorating cash flow or evidence of dishonoured payments	25.9%	34.8%	30.1%	27.9%	26.4%
Difficulties paying debts when they fell due (e.g. evidenced by letters of demand, recovery proceedings, increasing age of accounts payable)	39.6%	57.0%	49.3%	53.2%	48.9%
Non-payment of statutory debts (e.g. PAYGW, SGC, GST)	54.0%	82.3%	86.6%	82.1%	83.2%
Poor or deteriorating working capital	32.0%	46.1%	45.6%	42.1%	38.6%
Increasing difficulties collecting debts	14.9%	18.9%	14.7%	13.6%	11.9%
Overdraft and/or other finance facilities at their limit	7.5%	10.6%	6.9%	8.0%	5.7%
Evidence of creditors attempting to obtain payment of outstanding debts	20.9%	31.4%	23.9%	25.6%	22.7%
Other	9.7%	13.8%	11.9%	12.2%	10.9%

4.4 SUMMARY

This chapter explores the multifaceted causes of insolvency and illegal phoenix activity within residential construction sector, drawing on literature reviews, surveys, interviews, and case studies.

Key causes of insolvency are:

- **Financial and Market Risks:** Builders face high financial exposure from fixed-price contracts, material price escalation, market volatility, supply chain disruptions, rising interest rates, and policy shifts. Thin profit margins and limited access to restructuring options further heighten insolvency vulnerability.
- **Workforce and Governance Failures:** Skills shortages, reliance on inadequately trained workers, low financial literacy among directors, weak governance practices, inconsistent regulatory enforcement, and limitations in compliance monitoring undermine business capability and sector resilience.
- **Financial Management Failures:** Poor cash flow control, inadequate accounting practices, under-capitalisation, strategic mismanagement, low profitability, and under-pricing reduce firms' capacity to absorb shocks and sustain operations.
- **Project Management Failures:** Project complexity, design changes, rework, contractual disputes, cost overruns, delays, weak enterprise risk management, and poor internal coordination place further operational and financial strain on builders.

Illegal phoenix activity often involves directors deliberately liquidating companies to evade liabilities before re-establishing new entities that continue the same business. Participants described recurring features they associated with suspected illegal phoenix activity, including director reappointments, the use of dummy directors and asset stripping. Regulatory sources and participant accounts also identified concerns relating to dishonest pre-insolvency advisers and possible improper asset valuations. These matters represent reported or suspected conduct rather than findings of misconduct in any identified case.

This chapter has identified that insolvency in construction rarely stems from a single cause; it usually results from a combination of financial, operational, and governance weaknesses. When these vulnerabilities are worsened by unethical practices, such as illegal phoenixing, early detection of potential insolvencies becomes especially important. The next chapter examines the key indicators that can help identify insolvency risk at an early stage.

5 EARLY SIGNALS OF INSOLVENCY RISK

The previous chapter examined causes of insolvency in the construction industry, highlighting the complex financial and market risks, workforce and governance failures and financial and project management failures that contribute to builder insolvency. This chapter presents the research findings on the early warning signals for detecting insolvency risk in the residential construction industry. Early warning signals are essential for identifying emerging signs of financial distress before insolvency occurs. The analysis draws on multiple data sources, including an academic and industry literature review, a questionnaire survey, semi-structured interviews and case studies. By synthesising evidence across these sources, the chapter identifies and discusses the key signals that indicate emerging financial distress and insolvency risk among residential builders.

5.1 EARLY WARNING SIGNALS

Early warning signals are measurable signs or conditions that indicate increasing financial distress and heightened insolvency risk within a business. The academic and industry literature presented in Appendix 5 emphasises that warning signals can be used to identify early financial and operational distress, escalating financial strain and critical insolvency risk. Appendix 5 compiles early warning indicators reported in government and regulatory body publications, investigative reports, and media releases related to construction insolvencies in Australia. These sources highlight a wide range of operational, financial, and organisational signals, such as declining revenue, cash flow deficiencies, delayed payments, supplier restrictions, and workforce instability, that may emerge as financial conditions deteriorate.

Based on the questionnaire survey findings, this study categorised early warning signals of insolvency risk into three groups, as shown in **Table 18** and discussed below:

1. Operational cost and schedule pressures
2. Contractual and organisational instability, and
3. Financial underperformance.

5.1.1 Operational cost and schedule pressures

These indicators reflect underlying inefficiencies in project planning, financial control, and supply chain management. Cost overruns were a primary indicator and were ranked first. Cost overruns often arise from inaccurate estimating, scope changes, and escalating prices, placing sustained pressure on project margins. Project schedule delays frequently accompany cost overruns, as disruptions in labour availability, material supply, or sequencing inefficiencies extend project durations and increase overhead costs.

Interview findings highlighted that frequent variation orders can also signal instability in project scope and design coordination, leading to rework, contractual disputes, and unplanned expenditure. As one interviewee noted:

“The other thing I’ll say is variations. Builders will have to deal with a lot of them. No one knows all the answers upfront when a contract is drawn up, and many factors can lead to variations.” (Interviewee 2 - Developer)

Table 18 Early warning indicators categorisation

Early warning signal category	Indicators
Operational cost and schedule pressure	Cost overruns
	Project schedule delays
	Frequent variation orders
	Late payments (customer payments and creditor payments)
	Increase in aged accounts payable
	Inventory and supply chain issues (material shortages, delivery delays, disrupting construction workflows)
Contractual and organisational instability	History of clients terminating contracts
	Workforce instability (e.g. high employee turnover, workforce layoffs)
	Regulatory delays and compliance issues (e.g. non-payment of statutory debts (e.g. PAYGW, SGC, GST))
	Conflicts among internal team members
	Frequent renegotiation of payment terms
	Contract disputes and poor documentation
Financial underperformance	History of poor financial performance (e.g. poor financial ratios, declining income, repeated trading losses)
	Overreliance on high-interest short-term finance

5.1.2 Contractual and organisational instability

The indicators under this category reflect weakened contract and business management of the builder and reduced confidence in the builder's capability to deliver the project. These include a history of clients terminating contracts, workforce instability such as high employee turnover or layoffs, regulatory and compliance issues, including non-payment of statutory obligations, and conflicts among internal team members. Additional indicators include frequent renegotiation of payment terms and contract disputes arising from poor documentation or unclear contractual arrangements. Together, these signals suggest organisational disruption and weakened contractual relationships, which may undermine project delivery and increase insolvency risk.

In more severe cases, persistent governance breakdowns and financial deterioration may also precede deliberate misconduct, including illegal phoenix activity, where directors liquidate companies to avoid liabilities and subsequently continue operations through newly established entities.

5.1.3 Financial underperformance

Financial underperformance is a primary indicator of insolvency risk, commonly evidenced through financial statements. Indicators such as poor financial ratios, declining income, repeated trading losses, and increased reliance on short-term financing can highlight cash flow weaknesses. In practice, these conditions may manifest through deteriorating liquidity and profitability ratios, shrinking revenue streams, and persistent operating losses that erode retained earnings. Greater dependence on high-interest short-term finance may also indicate that a firm is struggling to meet immediate obligations through normal operating cash flows, signalling heightened financial vulnerability.

The above-mentioned indicators can function as early warning signals that support proactive decision-making by builders, clients, regulators, and lenders, helping to reduce the likelihood of builder collapse. The following subsection examines examples of early warning indicators derived from insolvency case studies, illustrating how these indicators emerge over time and contribute to the escalation of financial distress leading to insolvency.

5.2 EVIDENCE FROM CASE STUDIES: EARLY WARNING SIGNALS OF INSOLVENCY

This section synthesises findings from the insolvency case studies into a set of early warning signals that may signal elevated insolvency risk in residential construction firms. The early warning signals are derived through a layered analytical approach, combining (i) cross-case financial ratio evidence, (ii) illustrative single-case trajectories used to demonstrate how distress unfolds over time, and (iii) cross-case synthesis of operational and cash-flow patterns using five cases with adequate cash flow data. Importantly, these indicators are interpreted as signals of heightened risk rather than deterministic predictors, with particular emphasis on persistence, co-occurrence, and escalation of distress signals.

5.2.1 Cross-case ratio-based early warning signals

Table 19 presents a summary of financial ratio patterns observed across 42 insolvency cases with available financial data and constitutes the primary empirical basis for identifying ratio-based early warning indicators.

5.2.1.1. Persistent liquidity stress

The results show that persistent liquidity stress was widespread across the sample. Specifically, 68.3% of firms recorded a current ratio below 1.0 for at least two years before insolvency, suggesting that liquidity pressures were typically structural rather than short-term.

5.2.1.2. Leverage and debt burden

Leverage-related indicators also emerged prominently. In the initial observation year, 75.6% of cases exhibited an extreme or negative debt-to-equity ratio, indicating that many firms entered the pre-insolvency period with already fragile capital structures. This pressure intensified closer to failure, with 76.2% of firms showing rising leverage in the final years before insolvency. Consistent with this, 69.0% of cases recorded a weak equity ratio below 0.2, reflecting limited loss-absorption capacity.

Table 19 Summary of financial ratio patterns across insolvent construction firms

Insight	Indicator	Builder	Trade	Builder	Trade	Total
Persistent liquidity risk	[%] of cases had a CR<1.0 for at least 2 years	21	7	65.6%	77.8%	68.3%
High initial debt burden	[%] of cases had a D/E at a range of 2.7 - 1353494.0 or a negative D/E ratio in the initial year	25	6	78.1%	66.7%	75.6%
Rising leverage	[%] of cases had a D/E>2.0 or a negative D/E ratio at least in the final 2 years before insolvency	24	8	72.7%	88.9%	76.2%
Weak capital base	[%] of cases had an ER<0.2 at least in the final 2 consecutive years before insolvency	23	6	69.7%	66.7%	69.0%
Thin net profit margins (NPMs)	[%] of cases had an NPM<5% for at least 2 consecutive years before insolvency	17	6	51.5%	66.7%	54.8%
Sustained net losses	[%] of cases had an NPM<0% for at least 2 consecutive years before insolvency	14	5	42.4%	55.6%	45.2%
Eroding ROA	[%] of cases had a ROA<5% for at least 2 consecutive years before insolvency	18	5	54.5%	55.6%	54.8%
Negative equity returns or flagged for double negatives	[%] of cases had a ROE<0% for at least 2 consecutive years before insolvency	20	4	60.6%	44.4%	57.1%

Insight	Indicator	Builder	Trade	Builder	Trade	Total
Compounding risk	[%] of cases had multiple ratios going to risk zone concurrently at least for the last 2 years before insolvency	27	7	81.8%	77.8%	81.0%

5.2.1.3. Profitability and return-based losses

Profitability and return-based indicators further reinforce findings from liquidity and leverage ratio analysis. More than half of the cases reported thin net profit margins below 5%, while 45.2% experienced sustained net losses for two or more consecutive years before insolvency. Deterioration in returns was also common, with over 50% of firms recording returns on assets below 5%, and 57.1% exhibiting negative returns on equity for at least two years. Notably, **Table 19** highlights that 81.0% of cases experienced multiple financial ratios simultaneously within defined risk zones during the final two years before insolvency. In practice, this meant that firms rarely exhibited a single isolated warning sign. Rather, liquidity shortages, rising leverage, and deteriorating profitability typically occurred together. For example, companies often faced current ratios below unity alongside high or negative debt-to-equity ratios and sustained negative or thin profit margins, indicating that several aspects of the balance sheet and operating performance were deteriorating at the same time.

5.2.1.4. Evolution of early warning signals in an insolvent builder

To demonstrate how ratio-based early warning signals may evolve, **Figure 8** and

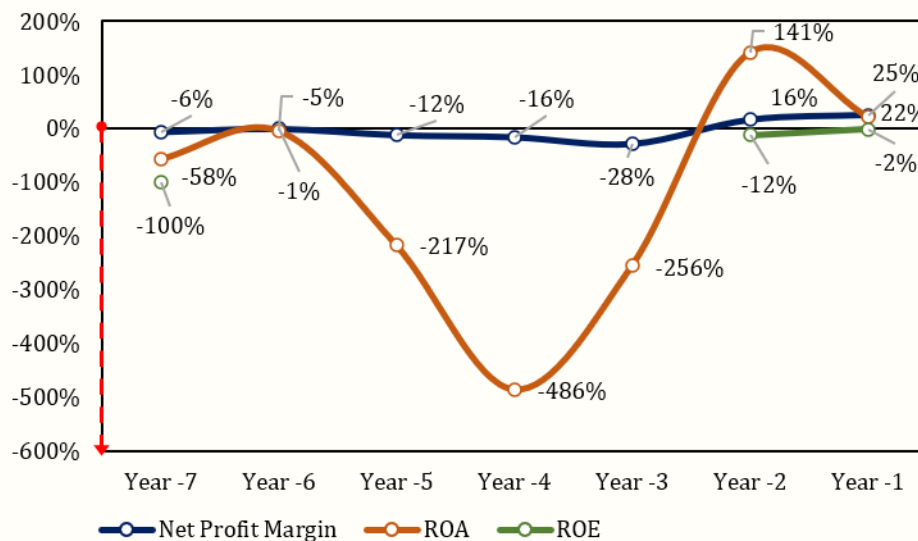


Figure 9 present the financial ratio trajectories of a single illustrative insolvent builder. This case is used solely to illustrate the sequencing and interaction of distress signals identified in the broader dataset. **Figure 8** shows a pronounced decline in liquidity, with the current ratio falling from above unity to well below 0.1 in the period immediately preceding insolvency. At the same time, leverage escalated sharply, with the debt-to-equity ratio transitioning from a positive value to extreme negative levels (see **Figure 8**), indicating sustained operation under negative equity conditions. Profitability and return ratios

similarly

deteriorated

(see

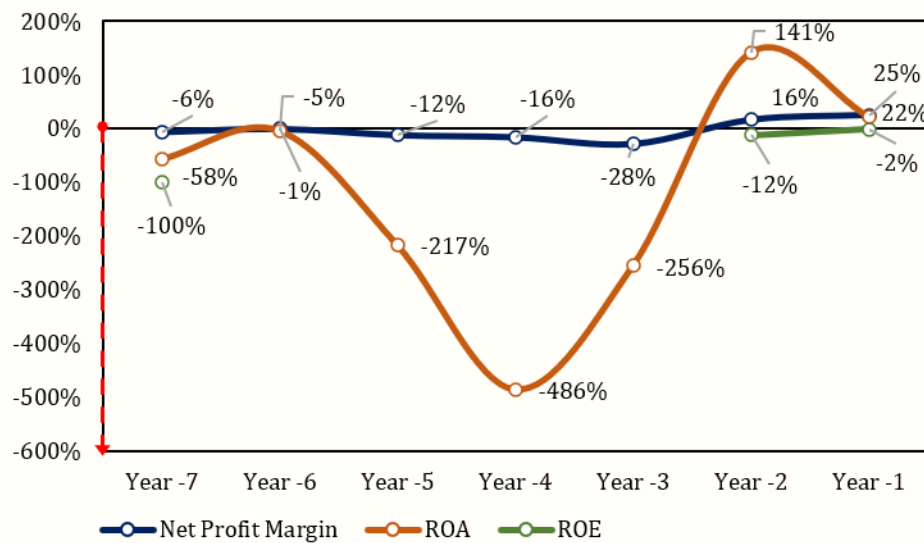


Figure 9), with NPMs remaining negative for multiple years and ROA and ROE reaching deeply negative values. Although brief improvements are visible in later periods, these gains did not translate into sustained financial stability, illustrating how temporary recoveries may coexist with underlying structural weakness.

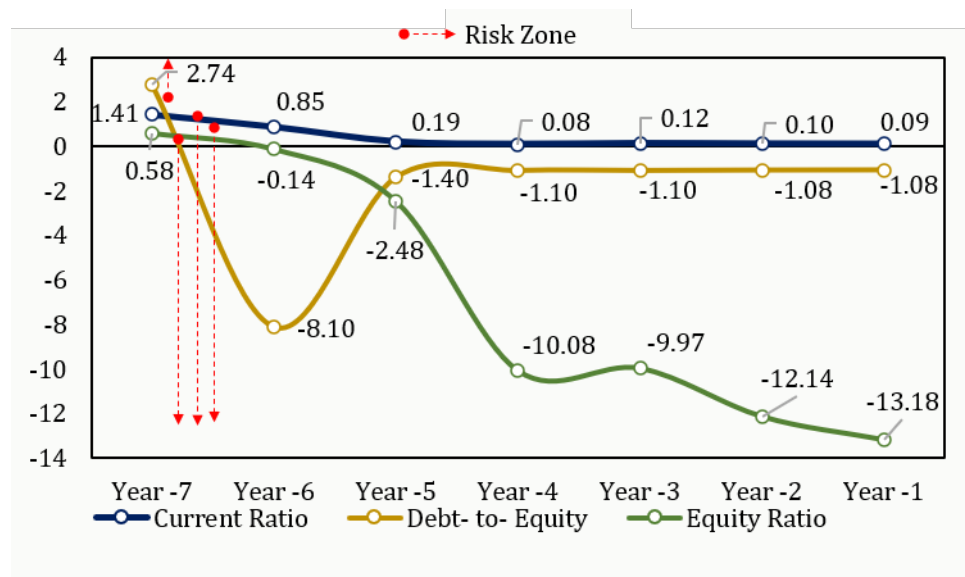


Figure 8 Liquidity and capital structure ratios of an illustrative insolvent builder

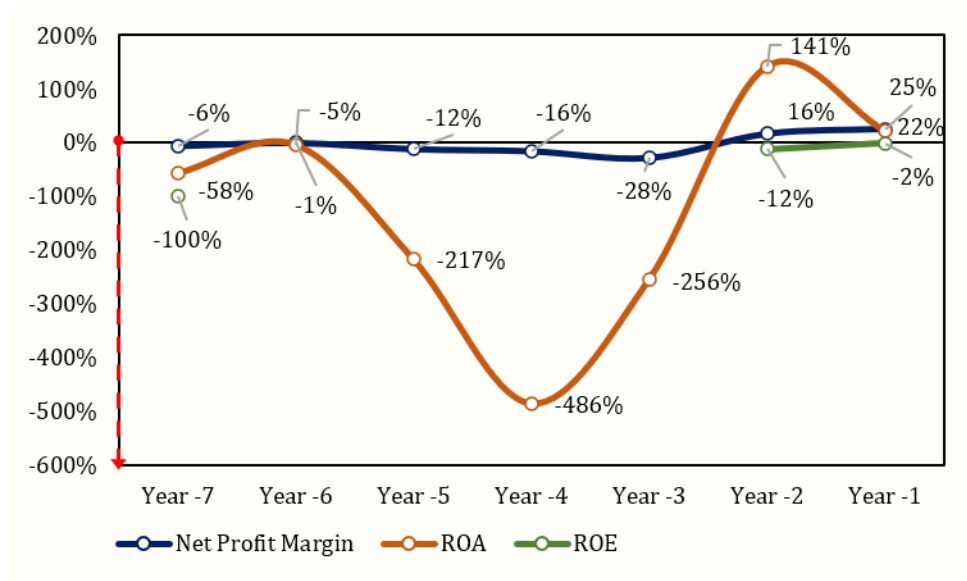


Figure 9 Profitability and return ratios of an illustrative insolvent builder

5.2.2 Working-capital stress and payment-delay indicators

Operational-level early warning signals are illustrated through the aged payables and receivables profiles shown in

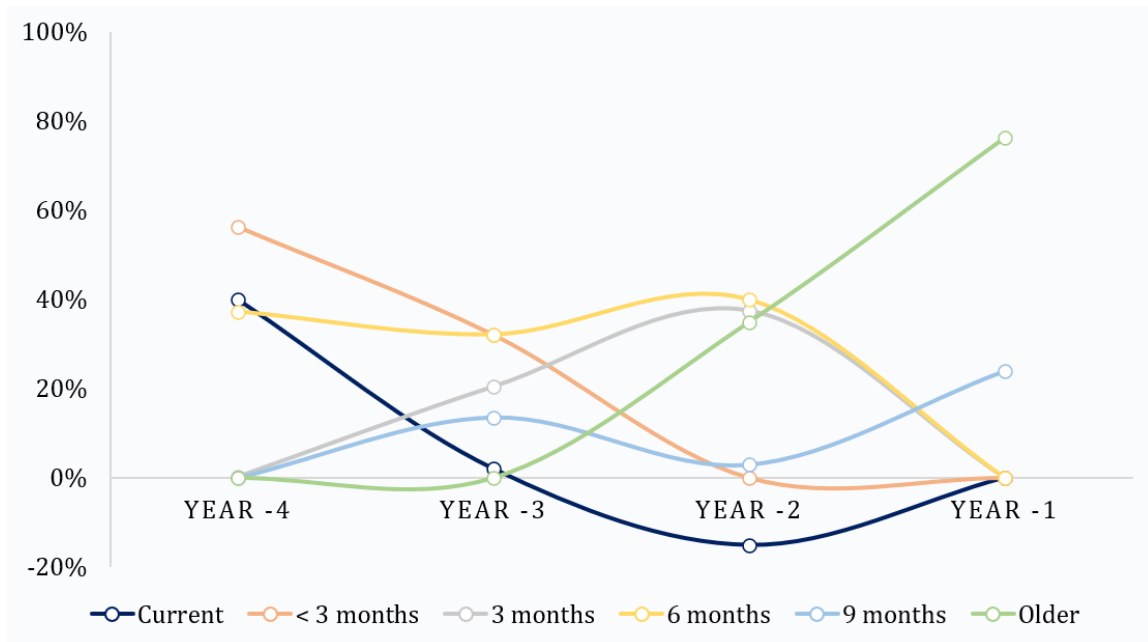


Figure 10 and **Figure 11**, using the illustrative insolvent builder to demonstrate how payment delays may evolve in practice. In this case, the proportion of payables outstanding beyond three months increased markedly over time, transitioning from a situation where most payables were current or less than three months overdue to one where 100% of payables were overdue in the period immediately preceding insolvency. Notably, a large share of these obligations shifted into the six-month and “older” categories, indicating prolonged delays in settling supplier accounts.

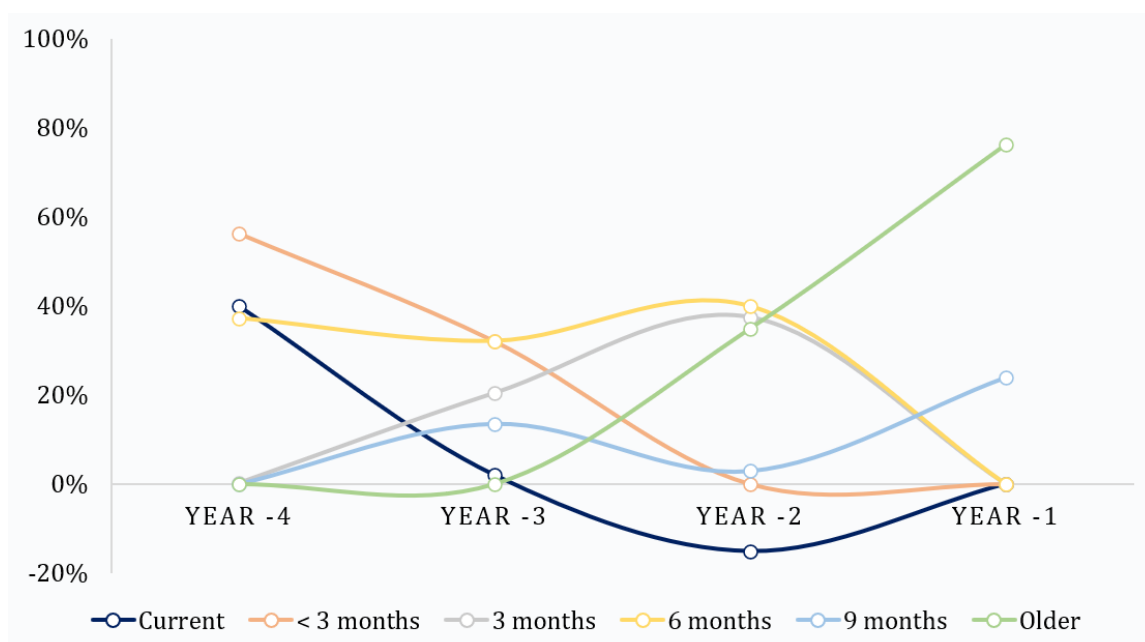


Figure 10 Aged payables distribution of an illustrative insolvent builder

A similar deterioration is observed in the receivables profile. In multiple years before insolvency, older receivables accounted for around one-quarter of total outstanding receivables, while the proportion classified as “current” was comparatively low or zero. In one year, receivables outstanding for more than three months exceeded 50% of total receivables, highlighting significant delays in cash inflows. Although some extreme values observed in the receivables data may reflect accounting adjustments or write-offs, the overall trajectory points to persistent payment-collection difficulties rather than isolated anomalies.

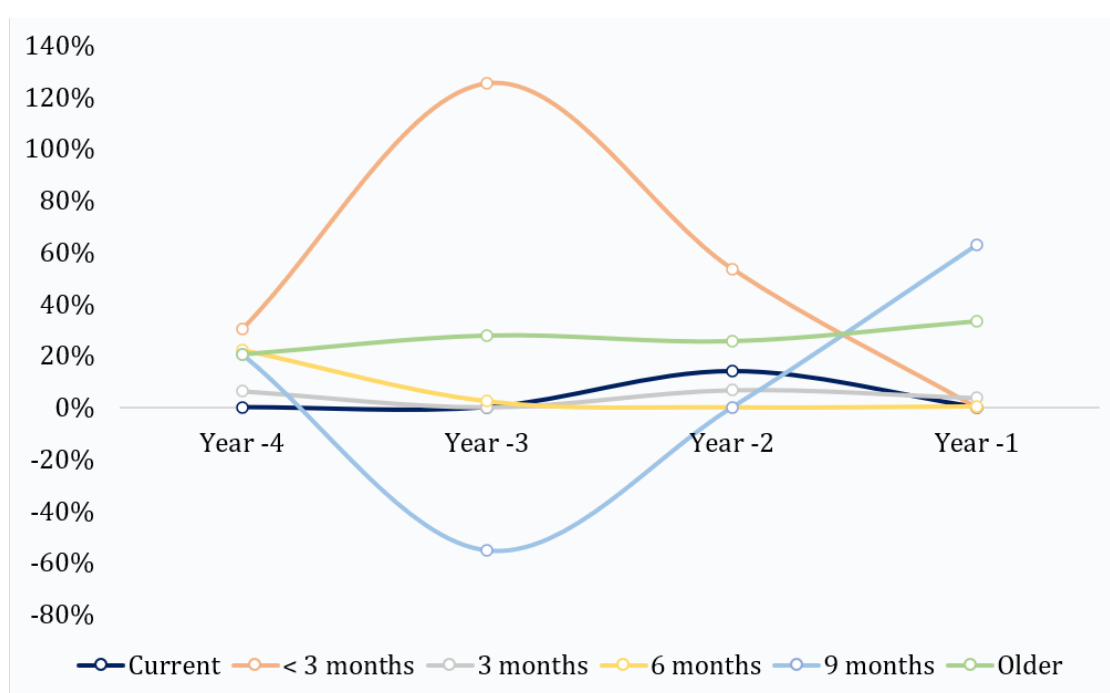


Figure 11 Aged receivables distribution of an illustrative insolvent builder

The broader relevance of these patterns is supported by the AP-AR analysis (see **Table 20**), which summarises payment-delay characteristics across multiple insolvency cases with adequate data. Across these cases, payables overdue by more than three months commonly exceeded 50% of total payables, while receivables overdue beyond three months frequently ranged between 30% and 70% in the years preceding insolvency. In several cases, both overdue payables and overdue receivables increased concurrently, suggesting a tightening working-capital position and growing strain within the payment chain. Together, the illustrative case evidence and cross-case synthesis indicate that persistent and escalating payment delays, particularly when both payables and receivables are affected, may serve as an operational early warning signal of insolvency risk, especially when observed alongside sustained liquidity stress and leverage pressure.

Table 20 Aged payables and receivables analysis across selected insolvency cases (n=5)

Builder	Year	AP* > 3 Months	AR** > 3 Months	Total AP/ Total AR	Total AR/ Total AP	Overdue AP	Overdue AR
Case A	-4	37.46%	69.55%	3.13	0.32	93.64%	99.99%
	-3	66.05%	-25.21%	2.20	0.45	98.05%	100.00%
	-2	100.00%	32.40%	0.55	1.81	115.10%	86.03%
	-1	100.00%	100.00%	0.65	1.55	100.00%	100.00%
Case B	-6	14.44%	6.30%	1.16	0.86	14.44%	6.30%
	-5	21.45%	9.46%	0.84	1.20	21.45%	9.46%
	-4	21.16%	9.12%	1.40	0.72	21.16%	9.12%
	-3	30.47%	10.98%	1.33	0.75	30.47%	10.98%
	-2	11.03%	5.11%	2.88	0.35	11.03%	5.11%
	-1	62.22%	26.94%	3.82	0.26	62.22%	26.94%
Case C	-3	6.98%	24.15%	0.16	6.44	6.98%	24.15%
	-2	75.92%	41.49%	0.05	20.07	75.92%	41.49%
	-1	57.28%	66.42%	0.40	2.50	57.28%	66.42%
Case D	-5	59.73%	33.94%	0.40	2.52	59.73%	33.94%
	-4	71.55%	65.88%	0.23	4.42	71.55%	65.88%
Builder	Year	AP* > 3 Months	AR** > 3 Months	Total AP/ Total AR	Total AR/ Total AP	Overdue AP	Overdue AR
Case D	-3	43.10%	74.09%	0.25	4.06	43.10%	74.09%

	-2	70.64%	55.71%	0.21	4.66	70.64%	55.71%
	-1	76.15%	58.65%	0.78	1.28	76.15%	58.65%
Case E	-2	-	100.00%	-	-	-	100.00%
	-1	100.00%	100.00%	15.41	0.06	100.00%	100.00%

*AP-Aged payables; **AR-Aged receivables

5.2.3 Cash-flow pattern-based early warning signals

Further early warning insight is provided through the analysis of operating, investing, and financing cash-flow patterns.

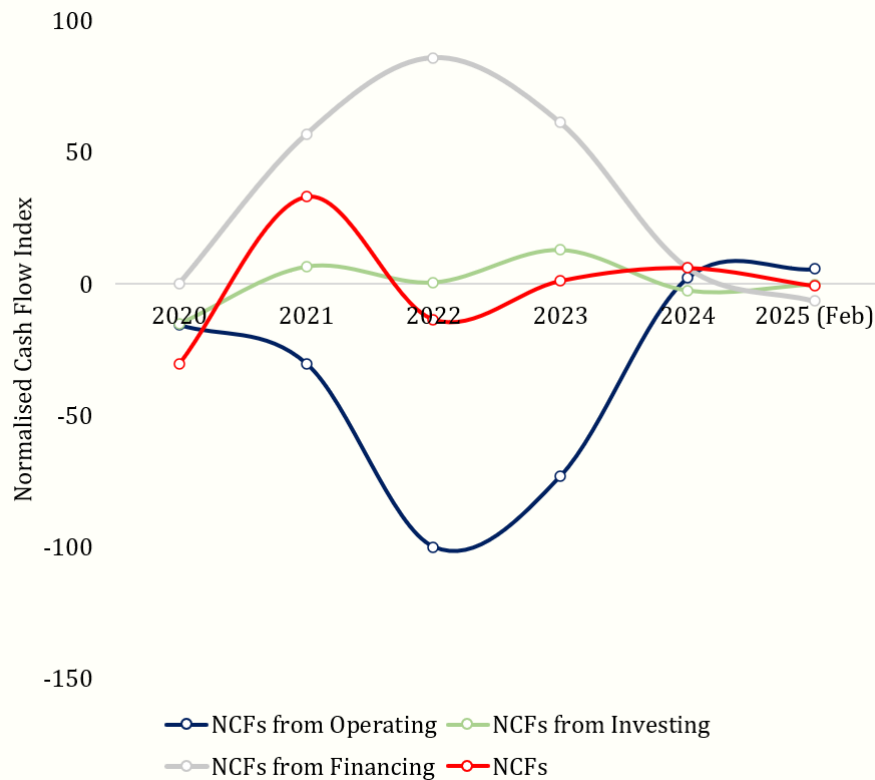


Figure 12 presents the cash-flow distribution of the illustrative insolvent builder, showing repeated periods of negative OCF over multiple consecutive years before insolvency. In this case, negative OCF persisted for four consecutive years, indicating that the core business was not generating sufficient cash to sustain operations. During the same period, this case recorded positive FCF in four years, suggesting reliance on external funding, such as debt or equity injections, to offset operating losses. This configuration of negative OCF combined with positive FCF illustrates how operating distress may be temporarily masked by access to external finance. Although OCF turned marginally positive in the final years before insolvency, the concurrent reduction and eventual reversal of financing inflows coincided with renewed pressure on overall cash positions, highlighting the fragility of funding-dependent recovery.

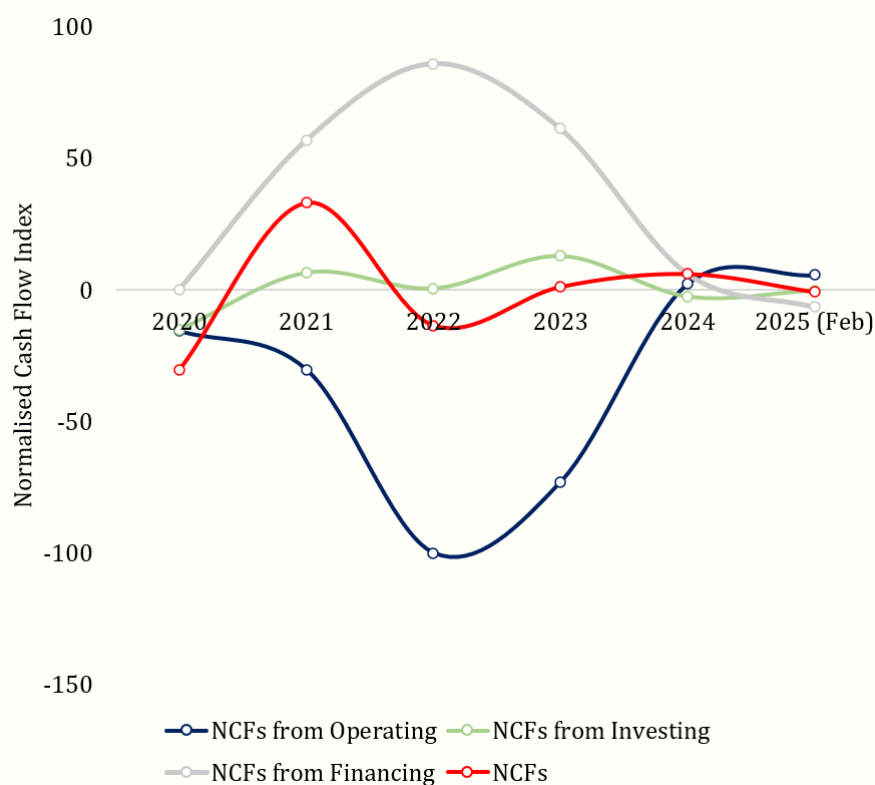


Figure 12 Cash-flow distribution of an illustrative insolvent builder

The broader relevance of these patterns is synthesised in **Table 21**, which summarises recurring cash-flow configurations across five insolvency cases. Across these cases, repeated negative OCF was observed for between one and four consecutive years, while negative OCF combined with positive FCF occurred in at least one to four years per case, indicating a common reliance on external funding during loss-making periods. In several cases, sharp reductions in ICF coincided with ongoing operating losses, suggesting asset divestment or curtailed capital expenditure as firms attempted to sustain liquidity. In a smaller number of observations, more severe configurations were identified, including periods where negative OCFs and ICFs co-occurred with positive FCFs, indicating continued investment despite operating losses funded through borrowing. These patterns, while less frequent, point to heightened insolvency risk where multiple cash-flow stress signals converge. Collectively, the illustrative case evidence and cross-case synthesis indicate that persistent negative OCF, particularly when sustained through external financing, may function as a critical early warning signal of insolvency, especially as access to new funding diminishes.

Table 21 Patterns recognised from the cash flow analysis across the cases

Pattern	Plausible interpretation	Unit/Index	B04	B12	B20	B25	B46
OCF (+) AND ICF (-) AND FCF (-)	Healthy: Business generates cash; Reinvest; Repaying debt or returning value	Years observed	0	0	0	1	0

Repeated negative OCF	Core business not generating cash	Consecutive years	4	2	3	3	1
FCF (+) AND OCF (-)	Debt or equity used to fund losses	Years observed	4	1	2	4	1
ICF (+) AND OCF (-)	Asset sales to fund operational losses	Years observed	3	2	1	2	No Inv. ¹
OCF (-) AND ICF (-) AND FCF (+)	Operational losses, still investing, funded by borrowing (Severe risk)	Years observed	1	0	0	3	No Inv.
All negative (OCF, ICF, FCF)	Complete cash burnout across all categories	Years observed	0	1	1	0	0
		Final year position	F	T	F	F	F
No investment AND OCF (-)	No capital spending (stagnation) and loss	Years observed	0	0	1	1	2
OCF (-) AND ICF (+) AND FCF (-)	Selling assets to stay afloat, no new funding (Critical liquidity issue)	Years observed	0	1	0	0	No Inv.

¹No Inv. refers to no investment

5.3 SUMMARY

Across the analysed cases, early warning signals rarely appeared in isolation. Instead, liquidity stress, leverage pressure, profitability erosion, payment delays, and adverse cash-flow patterns frequently emerged concurrently and intensified over time. Evidence indicates that insolvency risk is more likely to escalate when multiple early warning signals persist together, reinforcing one another and accelerating financial deterioration. From an early-intervention perspective, the co-occurrence and persistence of several early warning signals may therefore warrant greater attention than any single indicator considered independently.

6 CONCLUSIONS

This report investigated the insolvency risks facing the residential construction industry in Australia to identify mitigation strategies capable of reducing insolvency risk and improving industry resilience. Drawing on a mixed-methods research design comprising 49 insolvency case studies, a survey, interviews, and two focus groups, the findings confirm that insolvency in the residential construction sector is systemic, multi-factorial, and interconnected across financial, operational, governance, and regulatory domains.

This chapter synthesises the findings of the study and presents a practical mitigation strategies for addressing insolvency risk within the residential construction sector. These focus on three key areas:

1. identifying builders experiencing financial difficulty,
2. outlining early warning indicators relevant to consumers and industry stakeholders, and
3. proposing mitigation strategies to reduce the impact of insolvency on clients, subcontractors, and financial institutions.

6.1 IDENTIFYING BUILDERS AT RISK OF INSOLVENCY

The findings demonstrate that residential construction insolvencies rarely arise from a single isolated event. Instead, builders experiencing financial distress typically exhibit an accumulation of reinforcing vulnerabilities across financial, operational, governance, and project management domains. The study identified several recurring characteristics associated with builders at heightened risk of insolvency:

- **Financial and market risks:** Financial pressure arising from fixed-price contracts, market volatility, and supply-chain disruptions. Thin profit margins, rising interest rates, and policy changes related to government stimulus and loans further intensify financial stress, while limited access to effective restructuring mechanisms increases vulnerability to insolvency.
- **Workforce and governance failures:** Skills shortages, reliance on inadequately trained labour, and gaps in leadership capability, governance practices and financial oversight undermine organisational performance. These challenges are further compounded by inconsistent regulatory enforcement and limitations in compliance monitoring contributing to broader systematic weaknesses.
- **Financial management failures:** Deficiencies in cash-flow management, accounting practices, and strategic financial planning are dominant contributors to insolvency. Under-capitalisation and liquidity constraints limit firms' ability to absorb economic or project-specific shocks, while low profitability and persistent under-pricing amplify financial risk.
- **Project management failures:** Project complexity, frequent design changes, and contractual disputes lead to cost overruns and schedule delays. Weak enterprise risk management and internal coordination issues further strain financial and organisational resources.

Further, the findings also indicate that some participants and regulatory sources associate insolvency with suspected or alleged improper conduct, including illegal phoenix activity. Participant accounts and regulatory materials identified reported or suspected practices including director reappointments, use of dummy directors, asset stripping and possible involvement of dishonest pre-insolvency advisers or improper asset valuations. Such behaviour reflects governance failures and may occur alongside the financial, operational, and contractual warning indicators identified in this study. Common characteristics include governance failures such as director reappointments under new entities, use of dummy directors, and asset stripping, as well as unethical practices involving dishonest pre-insolvency advisers and collusion with valuers or liquidators to undervalue assets. These behaviours highlight the importance of stronger governance oversight and regulatory monitoring within the residential construction sector.

6.2 EARLY WARNING INDICATORS FOR CONSUMERS AND INDUSTRY

The analysis identified several early warning indicators associated with emerging builder financial distress. These indicators provide practical signals that consumers, subcontractors, financial institutions, regulators, and industry professionals can use to identify potential insolvency risks before business failure occurs.

6.2.1 Consumer-Observable Early Warning Indicators

Consumers often have limited visibility of a builder's internal financial position. However, the findings identified several observable warning signs that may indicate increasing financial stress, including:

- repeated project delays or unexplained work stoppages,
- sudden increases in variation claims or requests for accelerated payments,
- declining communication quality or responsiveness,
- frequent subcontractor turnover,
- visible reductions in site activity or workforce availability,
- requests to substitute specified materials with lower-cost alternatives, and
- increasing disputes regarding contract scope, timelines, or payments.

These indicators in isolation do not necessarily confirm insolvency risk. However, the presence of multiple warning signs occurring simultaneously may indicate increasing builder financial or operational distress.

6.2.2 Financial and System-Level Early Warning Indicators

The analysis identified three overarching categories of early warning indicators associated with residential builder insolvency: 1. operational cost and schedule pressures, 2. contractual and organisational instability, and 3. financial underperformance. Evidence from the 49 analysed insolvency

cases shows that such indicators seldom occur in isolation. Instead, signs of distress such as tightening liquidity, rising leverage, deteriorating profitability, delayed payments, and adverse cash-flow patterns typically emerge simultaneously and intensify over time. The concurrence of multiple indicators accelerates financial deterioration and significantly reduces opportunities for recovery. Consequently, early-intervention efforts should prioritise the detection of clusters of financial warning signals rather than focusing on any single indicator.

At the industry and organisational level, the study identified several recurring financial indicators associated with builder insolvency. Analysis of the 49 insolvency case studies showed that financial distress typically emerges through clusters of concurrent warning signals rather than a single indicator.

Common indicators included:

- tightening liquidity,
- rising leverage,
- deteriorating profitability,
- delayed creditor payments,
- adverse cash-flow patterns,
- increasing taxation liabilities,
- inability to secure project financing, and
- growing contractual disputes.

The concurrence of multiple indicators significantly accelerates financial deterioration and reduces opportunities for recovery. Consequently, early-intervention efforts should prioritise the identification of clusters of warning indicators rather than relying on individual measures in isolation.

Beyond direct industry participants, insolvencies in the residential construction sector also have implications for financial institutions. Builder failures can increase credit risk exposure for banks and project financiers, potentially leading to higher provisioning for impaired loans, loan write-offs, and tighter lending conditions for future residential construction projects. These financial system implications reinforce the importance of early-warning mechanisms and coordinated monitoring of builder financial health to reduce contagion risks across the broader construction financing ecosystem.

6.3 MITIGATION STRATEGIES

The following mitigation strategies structured across four themes are designed to reduce insolvency risk, strengthen industry capability, improve early detection of financial distress, and minimise adverse impacts on consumers, subcontractors, financial institutions, and the broader residential construction sector:

1. Education and training

2. Early Intervention
3. Improving builder financial compliance, and
4. Improving consumer awareness.

Appendices 7 and 8 list these strategies in full.

6.3.1 Education and Training

While many residential builders are technically competent in construction delivery, they may lack adequate knowledge in cash-flow management, budgeting, contract administration, and risk management. This skills gap increases their exposure to financial distress and disputes with clients, subcontractors, and suppliers. Therefore, improving builders' understanding of business operations and financial management is critical to reducing insolvency risk within the residential construction industry.

Short-term actions should prioritise the rapid strengthening of financial and managerial capabilities among those directly responsible for operating and managing residential construction business. Key actions include:

- Targeted training in financial literacy, business management and project management to build the business operators' capacity to better understand cash-flow requirements and contractual obligations.
- Insolvency awareness programs for builders, directors and accountants to help them recognise early signs of financial distress
- Guidance to support builders for sudden market changes such as cost escalations, supply disruptions and demand fluctuations (e.g. scenario planning and risk assessment).

To maximise reach and impact, training programs should:

- Be practical, role-specific, and flexibly delivered, including after-hours and online options.
- Be embedded within structured Continuing Professional Development (CPD) programs.
- Have CPD content tailored to the differing needs of builders across various business sizes and operational roles.
- Extend training pathways to subcontractors and emerging participants entering the residential construction industry, including individuals at the apprentice or business-registration stage.
- Be developed and delivered through coordinated partnerships between industry associations and industry regulators for credibility, consistency, and sector-wide impact.

Over the long term, there is a need for stronger professional standards in the sector, particularly in relation to business management capabilities among company directors. Introducing compulsory business management qualifications is one potential approach to addressing these gaps, for an example, mandating formal business education as part of builder licensing requirements (Bryant et al.

2025). Strengthening the technical understanding of pricing and rate build-up for estimators and quantity surveyors can support more accurate costing practices and help address under-quoting, which might contribute to insolvency risk. The training should be integrated into higher education curricula, in collaboration with professional bodies such as Australian Institute of Quantity Surveyors (AIQS).

6.3.2 Early Intervention

Early intervention plays a critical role in identifying financial distress before it escalates into insolvency, enabling builders to take corrective action at a stage when recovery is still possible. Effective early-intervention measures must therefore focus on improving visibility of financial pressures, promoting proactive behaviours, and ensuring that builders, subcontractors, and associated professionals have access to the right information and support at the right time.

Short-term early-intervention measures should focus on giving builders timely visibility of financial risks before they escalate such as:

- Embedding simple financial alert tools into bookkeeping and accounting software such as dashboards, pop-ups and automated warnings for rising debt or declining income can help operators recognise issues they may otherwise overlook.
- Tailored communication campaigns could be coordinated by industry associations to provide builders with timely guidance and reminders. These campaigns could encourage practices such as performing regular financial health checks and engaging early with financial counselling services to proactively manage financial risk.

Over the long-term key strategies could include:

- Encourage builders to implement project management platforms to track budgets, schedules, and cost estimates as a strategy to mitigate insolvency risk. Such platforms provide real-time visibility into project performance, enabling timely corrective action, reducing cost overruns, and supporting better financial decision-making. Additionally, training may be required to ensure builders can effectively utilise digital technologies. Integrating these programs within professional development frameworks or CPD modules may help improve builders' managerial, and technological skills.
- Develop an "early warning business health check" app or tool that help small scale builders quickly assess financial health using key ratios (e.g., current ratio, debt-to-equity, equity ratio etc.). The tool can be offered as a free or low-cost online resource, with integrated artificial intelligence (AI) to enhance usability by providing automated interpretation of results, personalised risk alerts, and tailored guidance on recommended corrective actions.

6.3.3 Improving Builder Financial Compliance

Strengthening builder financial compliance emerged as a key area of focus. This section outlines short- and long-term strategies aimed at improving financial transparency, and ensuring builders have the managerial capacity required to operate sustainably within the residential construction sector.

Short-term priorities should focus on strengthening builder financial compliance to reduce immediate insolvency risks such as mandating financial audits for builders, requiring all registered builders to undergo an independent financial audit every year to ensure books of accounts are properly maintained. To balance accountability with industry capacity, a risk-based approach could be adopted where audit frequency and depth vary according to turnover, project scale, and past compliance history.

Long-term mitigation strategies recommend strengthening builders' financial and managerial capability and establishing preventive regulatory safeguards to reduce insolvency risk. Mandatory business management education should be incorporated into builder licensing requirements to equip builders with essential skills in budgeting, cash flow management, risk assessment, and contract administration. However, focus group findings indicated that such requirements could be burdensome for smaller builders and should be implemented in a way that reflects industry realities. This recommendation is supported by Bryant et al. (2025) who advocate not only for mandating formal business education but also for embedding it in CPD, with completion tied to builder licence renewal. The Australian Institute of Building (AIB) (2021) also proposed that the qualifications linked to each builder registration tier should extend beyond technical skills to include business management training matched to the responsibilities of the relevant registration level.

6.3.4 Improving Consumer Awareness

Consumers may be unfamiliar with key contract terms, due-diligence steps, and indicators of builder reliability, which can increase exposure to financial and project risks. Strengthening access to clear, practical guidance can therefore play a role in helping consumers make more informed decisions and better navigate the residential building process. The study findings highlighted the value of resources from Consumer Affairs Victoria and ASIC for improving consumer awareness and suggested reviewing and updating current checklists and guides to better assist consumers in selecting reputable builders and understanding contract terms.

6.4 Limitations

This study is subject to several limitations that should be taken into account when interpreting its findings:

- The case-study sample, while unique, was not randomly selected and relied heavily on the willingness of liquidators to provide access. As a result, the sample may not fully capture the diversity of builders operating across Australia or the full spectrum of insolvency behaviours.

- The study deliberately focuses on residential builders in Victoria, meaning findings may not be fully transferable to:
 - commercial construction, and/or
 - infrastructure projects.

6.5 Future Research

Building on the findings and limitations of this study, several avenues for future research are recommended to strengthen understanding of insolvency dynamics in the residential construction industry and to enhance early-intervention capability across the sector:

- **Expansion of case study data across jurisdictions and sectors:** Future research should incorporate a larger and more diverse dataset of insolvency cases to improve generalisability and support evidence-based national policy reform, including:
 - commercial and infrastructure construction, where contractual structures, financial models, and risk exposures differ significantly from residential building.
 - jurisdictions beyond Victoria, to examine the influence of differing regulatory frameworks, licensing systems, and dispute-resolution mechanisms on insolvency trends.
- **Development of predictive early warning models:** While this study identified clusters of early warning indicators, the future work should investigate developing predictive analytics or machine-learning models capable of forecasting insolvency risk in real time.
- **Future research:** could further examine the behavioural and organisational factors that shape how builders respond to financial stress, including the influence of cultural norms, risk perceptions, and informal networks. In addition, evaluating the effectiveness of different education and professional development approaches related to mitigating insolvencies (e.g. improving financial literacy) could inform the design of targeted interventions that are better aligned with the practical realities of small and micro-builder operations.

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APPENDICES

Appendix 1 Factors contributing to insolvency in the construction sector

Section reference: 2.1.1

Reference	Factors	Sector scope	Country/Region	Type of research
(Patel et al., 2022)	Underbidding, poor business management skills, poor financial control, overtrading, illegal phoenix activity, domino effect, diversification, cash flow problems, overwhelming contract claims, predominance of trade credit	General construction sector	India	Empirical
(Deep et al., 2022)	Lack of efficient planning, execution constraints, external constraints, client-induced constraints, project constraints	Real estate construction	India	Empirical
(Stevens & Smolders, 2023)	Chaotic work acquisition, misaligned tenders, suboptimal contract agreements, high competition, unpredictable cash flow, low net profit margins	General construction sector	Australia	Theoretical analysis
(Amca et al., 2025)	Inflation, supply chain disruption, political instability, financial volatility	General construction sector	Europe	Empirical
(Annamalaisami & Kuppuswamy, 2021)	Cost overruns due to poor planning, rework, inaccurate cost estimates, price escalation, labour shortages	Building construction	India	Empirical
(Akomea-Frimpong et al., 2024)	Operational losses, mismanagement, corruption, COVID-19 impact, climate change damages	PPP* infrastructure projects	Ghana	Empirical
(Mahamid, 2024)	Cash flow problems, conflict, bidding strategy, political instability, low profit from competition	Construction contracting firms	Palestine	Empirical
(Wibowo et al., 2024)	High debt, low liquidity, poor profitability, financial inefficiency, debt restructuring issues	Private and government construction firms	Indonesia	Empirical
(Coleman et al., 2023)	Procurement fraud, refusing project manager's instructions, poor logistics, insolvency, poor cash flow, political changes	Public construction projects	Zambia	Empirical

Reference	Factors	Sector scope	Country/Region	Type of research
(Xu et al., 2023)	Labour shortage, safety and health risks, financial instability, material delays, contract insolvency	General construction sector	Singapore	Empirical
(Navandar et al., 2022)	Lack of experience (private), lack of managerial experience (government)	Private and government construction firms	India	Empirical
(Fadhil & Burhan, 2021)	Government insolvency, financial and administrative corruption, delayed payments, security crisis	Public construction projects	Iraq	Empirical
(Hanh, 2020)	Gross domestic product (GDP) volatility, lending rate fluctuation, inflation, high leverage, overinvestment	General construction sector	Vietnam	Quantitative
(Assaad et al., 2024)	High debt, poor financial structure, mismanagement, low cash flow, weak governance, lack of human capital	General construction sector	Multi-country	Meta-analysis
(Kazakovaa & Zavalishinab, 2024)	Financial instability, project inefficiency, lack of early warning systems	General construction sector	Russia	Analytical modelling
(Oyeyipo, 2023)	Top management resistance, organisational barriers, ownership type, poor enterprise risk management (ERM) awareness	Construction contracting firms	Nigeria	Empirical

*PPP- Public-private partnerships

Appendix 2 Early warning indicators for construction insolvency

Section reference: 2.1.1

Reference	Indicators	Country/Region
(Karas, 2017)	Working capital/Total assets (WC/TA), EBIT/Interest, EBITDA/Interest (EBIT- earnings before interest and taxes; EBITDA- earnings before interest, taxes, depreciation and amortisation)	Czech Republic
(Semenova & Vitkova, 2019)	Return on assets (ROA), Return on equity (ROE), Current Ratio	Czech Republic, Spain
(Toudas et al., 2024)	Altman Z-Score (key inputs: profitability, leverage, liquidity), Ohlson O-Score (key inputs: financial ratios, firm size/status), Zmijewski Score (ROA, leverage, liquidity)	Greece
(Van & Toan, 2024)	WC/TA, Equity to total debt, Revenue to total assets (Asset turnover ratio)	Vietnam
(Balina et al., 2021)	Profitability ratios, Revenue trends, Liquidity ratios, Asset structure, Capital dynamics	Poland
(Alaka et al., 2017)	Profitability, Liquidity, Leverage, Management efficiency (O) ¹ , Poor cash flow	UK
(Mahamid, 2024)	Delayed payments, Frequent variation orders (O), Poor work quality (O), Rework (O), Project delays (O), Poor cash flow, Conflict between parties (B) ² , Local political conditions (ME) ³	Palestine
(Wibowo et al., 2024)	Low profitability, Critical liquidity, High debt ratio, Poor efficiency, Debt dependency, Short-term debt burden	Indonesia
(Coleman et al., 2023)	Sole proprietor ownership (B), Procurement fraud (L) ⁴ , Poor project compliance (B), Lack of logistics (O), Poor cash flow, Industrial actions (B), Government changes (ME)	Zambia
(Annamalaisami & Kuppuswamy, 2021)	Cost overruns due to inaccurate estimates, Inflation (ME), Delays in procurement (O), Regulatory delays (L)	India
(Assaad et al., 2024)	High leverage, Organisational structure issues (B), Poor human capital (B), Contract disputes (L), Material inventory issues	Global

¹O-Operational, ²B-Behavioural, ³ME-Marker/External, ⁴L-Legal; all others are financial indicators (F)

Appendix 3 Results from Australian industrial and regulatory reports on insolvency and illegal phoenix activities

Section reference: Section 4.1

Category	Report		
	Australian Construction Sector Outlook - QBE 2024	Insolvency and Illegal Phoenix Activity in the Construction Industry: An Analysis of the Current Measures in Place and Potential for Law Reform 2022	An Update on Insolvency in the Australian Construction Industry, White Paper, 2022
1. Factors Contributing to Insolvency and Illegal Phoenix Activities	High borrowing costs	Structural contracting chains	Fixed-price contracts
	Delayed projects and fixed-term contracts	Trade credit reliance and poor payment practices	Supply chain disruptions and infrastructure bottlenecks
	Workforce shortages	Undercapitalisation	Low cash buffers and high receivables exposure
	Supply chain disruptions and cost escalations	Poor business management skills	Labour shortages
		Inconsistent regulatory enforcement	Asset stripping and director reappointments under new entities
2. Early Warning Indicators	Financial: Rising insolvency rates, decreased revenue, high input costs	Financial: Undercapitalisation, poor cash flow, increasing reliance on trade credit	Financial: Requests for advance payments, aggressive progress claims, or invoice inflation
	Operational: Project delays, site theft, workforce vacancies	Operational: Collapse of upper-tier contractors causing ripple insolvencies (Domino effect)	Operational: Delayed milestones, workforce reductions, removal of plant/equipment, high staff turnover
	Legal: Compliance pressures under new building codes	Legal: High incidence of statutory breaches under the Corporations Act	Legal: Suspicious statutory declarations, director's history with failed companies
	Market/External: Interest rate hikes, geopolitical risks, material shortages	Market/External: Economic pressure to underbid and win contracts, leading to margin erosion	Behavioural: Changes in company name/directors with the same management/staff, secrecy about financial status
		Behavioural: Director resignations to avoid liability, backdating, and repeat use of assetless companies	

Category	Report		
	Australian Construction Sector Outlook - QBE 2024	Insolvency and Illegal Phoenix Activity in the Construction Industry: An Analysis of the Current Measures in Place and Potential for Law Reform 2022	An Update on Insolvency in the Australian Construction Industry, White Paper, 2022
3. Detrimental Effects on Stakeholders	Home buyers: Decline in confidence due to builder failures	Subcontractors: Loss of payments and livelihood due to cascading insolvency	Principals/Owners: Clawback risks from voidable transactions, loss of control in restructuring
	Builders/Developers: Increased risk of administration, squeezed margins	Creditors: High rates of unpaid debt, especially unsecured creditors	Contractors/Subcontractors: Financial collapse, exposure to legal consequences if complicit in phoenix activity
	Workforce: Job insecurity due to project delays and insolvencies	Employees: Job losses and unpaid entitlements	Government/Economy: Up to \$3.5 billion lost annually from phoenixing
	Supply chain: Pressure on suppliers to meet timelines/costs under stressed conditions	Government/Economy: Billions lost annually in unpaid taxes and compliance costs	
4. Proactive Measures to Mitigate Risks	Supply chain diversification and contingency planning	Director Identification Number (DIN) reform and beneficial ownership registers to enhance director traceability	Early identification and legal inquiry into contractor viability
	Investment in training and safety	Stronger creditor protections under the Combatting Illegal Phoenixing Act (e.g., s588FDB, s588GAB)	Understanding contractual rights, including enforcement of security, novation, and step-in clauses
	Insurance protection and tailored risk strategies	Director education programs and business management training	Use of safe harbour reforms for responsible restructuring
	Engagement with industry bodies for regulatory alignment and advocacy	Security of Payment (SOP) reforms and potential national SOP scheme	Vigilance on the ipso facto clause enforceability to avoid wrongful termination
		Minimum capital requirements for construction businesses	DINs and asset recovery reforms for phoenix control
		Improved regulatory oversight and enforcement mechanisms	

Appendix 4 Factors contributing to insolvency and illegal phoenix activities in the Australian construction sector (Results from government and regulatory body websites, investigative reports, and media releases)

Section reference: 4.3

Factor	Description	References
Rising construction input costs	Building materials costs have increased by more than 20% since the start of 2021, compressing profit margins and straining finances.	1. RBA. Financial Stability Review – October 2022. <i>Box C: Financial Stress and Contagion Risks in the Residential Construction Industry</i> . https://www.rba.gov.au/publications/fsr/2022/oct/box-c-financial-stress-and-contagion-risks-in-the-residential-construction-industry.html
Labour and materials shortages	These shortages have led to construction delays, with detached homes averaging 12 weeks longer to complete, and in some cases, even longer, eroding profitability on fixed-price contracts.	2. QBE. (2024). <i>Insolvency risk management in the Australian construction sector</i> . https://www.qbe.com/au/news/construction-insolvency-risks
Fixed-price contracts and profitability decline	Over 25% of the largest 200 builders recorded operating losses in the year to March 2022, up from 15% the previous year, due to fixed-price contracts signed before cost increases.	3. Hassan, Trisha. (2022). Insolvency and Illegal Phoenix Activity in the Construction Industry: An Analysis of the Current Measures in Place and Potential for Law Reform. https://classic.austlii.edu.au/au/journals/UNSWLawJLStuS/2022/16.html
Liquidity issues	Builders' liquidity buffers, measured as cash and short-term assets, are typically less than 3 months of turnover, around 25% lower than non-construction businesses of similar size as of June 2020, making them vulnerable to cash flow disruptions.	4. ASIC (2023). Illegal phoenix activity. https://asic.gov.au/for-business/small-business/closing-a-small-business/illegal-phoenix-activity/
Increased interest rates	Higher interest rates, a factor since 2022, have raised debt-servicing costs, with the RBA noting this increases insolvency risks, particularly for indebted firms.	5. Elsie Kinsella. (2022). In Australia there are more insolvencies in the construction sector than any other, and consumers are paying the price. https://www.abc.net.au/news/2022-04-01/building-companies-going-broke-consumers-half-built-homes/100929896
Subcontractor impact	Builders rely heavily on subcontractors, with 40% of total liabilities being short-term unsecured trade credit (unpaid invoices) in June 2020, twice as much as other businesses, exacerbating cash flow pressures when payments are delayed.	6. Bradley Hastings, Peter Swan. (2024). Construction nightmares: How builder bankruptcies are costing Aussie homeowners millions. https://www.unsw.edu.au/newsroom/news/2024/10/construction-nightmares--how-builder-bankruptcies-are-costing-au
Undercapitalisation	Many construction firms are undercapitalised, with thin equity bases, making them prone to failure.	7. Australian Bureau of Statistics. (2024). Overseas Migration. https://www.abs.gov.au/statistics/people/population/overseas-migration/latest-release

Factor	Description	References
Dishonest pre-solvency advisers	Unregulated advisers encourage phoenix activity, maintaining networks of 'friendly' professionals, including valuers and liquidators, to undervalue assets and strip value.	8. Australian Bureau of Statistics. (2024). Building Activity, Australia. https://www.abs.gov.au/statistics/industry/building-and-construction/building-activity-australia/latest-release
Low asset valuations by friendly valuers	Assets may be transferred to new or related companies for less than their market value, leaving liabilities with the old entity and reducing the assets available to satisfy creditors (ASIC, 2023).	
Dummy directors	Fake directors, often relatives or associates, are appointed to disguise real perpetrators, complicating enforcement.	
Lack of oversight and enforcement	Inadequate regulatory scrutiny, with some liquidators failing to investigate or report, enables phoenix operators to benefit.	
Demand pressures	Net migration of 518,000 in 2023 (Australian Bureau of Statistics) heightened housing demand but supply lagged.	
Low commencements	New dwelling starts hit a 10-year low in 2024.	

Appendix 5 Early warning indicators of insolvency risks in the Australian construction sector (Results from government and regulatory body websites, investigative reports, and media releases)

Section reference: 5.1

Factor	Description	References
Early financial and operational distress		1. RBA. Financial Stability Review – October 2022. Box C: Financial Stress and Contagion Risks in the Residential Construction Industry. https://www.rba.gov.au/publications/fsr/2022/oct/box-c-financial-stress-and-contagion-risks-in-the-residential-construction-industry.html 2. Brendan McGurk. (2024). Construction Insolvency: Preventive Strategies for Contractors & Builders. PROCORE. https://www.procore.com/en-au/library/preventing-construction-insolvency 3. David Hodgson. (2020). <i>Understanding the early warning signs of insolvency</i>. Grant Thornton. https://www.grantthornton.com.au/insights/blogs/understanding-the-early-warning-signs-of-insolvency/ 4. Yara Murray-Atfield and Dan Oakes. (2023). <i>Porter Davis clients left without homes or insurance to have deposit repaid by Victorian government</i>. https://www.abc.net.au/news/2023-04-20/porter-davis-clients-left-without-insurance-victorian-government/102245452 5. Bradley Hastings, Peter Swan. (2024). Construction nightmares: How builder bankruptcies are costing Aussie homeowners millions. https://www.unsw.edu.au/newsroom/news/2024/10/construction-nightmares--how-builder-bankruptcies-are-costing-au
Falling sales	Declining revenue signals reduced demand or loss of competitiveness.	
Poor liquidity ratios	Low current or cash ratios indicate difficulty meeting short-term obligations.	
Cash flow deficiencies	Forecasts showing inability to cover expenses.	
Loss of major clients	A key client going bankrupt or leaving can disrupt revenue.	
Stock issues	Frequently out-of-stock materials suggest poor inventory management.	
Overdraft reliance	Constantly maxed-out bank overdrafts indicate cash shortages.	
Delayed creditor payments	Aging debts stretching beyond terms.	
Late customer payments	Clients consistently paying late reduce cash inflows.	
Director's foregoing salaries	A sign of prioritising personal income over business survival.	
Repeated trading losses	Ongoing losses erode financial stability.	
Overexpansion	Rapid growth without sufficient capital (i.e. growing broke).	
Related company failures	Insolvency of a related entity affecting finances.	
Refinancing rejections	Banks declining loan applications signal perceived risk.	
Tax compliance issues	Arrears or non-lodgement of Business Activity Statements (BAS).	
Escalating financial strain		
Non-payment of superannuation	Failure to pay employee super contributions.	
Lack of business sales interest	No buyers are interested in acquiring the business.	
Supplier restrictions	Being placed on stop supply, stop credit, or cash-on-delivery terms.	

Factor	Description	References
Creditor repayment plans	Negotiating payment schedules to manage debts.	
Unpaid essential services	Delays in paying rent or utilities.	
High staff turnover	Loss of key personnel due to instability.	
Bad debt write-offs	Large provisions for uncollectible debts.	
Auditor disputes	Conflicts over financial reporting accuracy.	
Creditor demands	Uncontested creditor demands for payment.	
Partial payments	Paying creditors in instalments rather than full amounts.	
Forced shutdowns	Sending staff on holidays during abnormal closures.	
Critical insolvency risk		
Stock repossession	Creditors removing stock under Retention of Title clauses.	
Litigation	Facing judgment debts or legal action.	
Wage delays	Inability to pay employee wages on time.	
Eviction notices	Receiving notices for unpaid rent.	
ATO notices	Receiving a Section 222AOE Notice (Director Penalty Notice) from the Australian Taxation Office.	
Wind-up applications	Formal applications to liquidate the company.	
Other indicators		
Inability to pay invoices on time	A key indicator of cash flow issues.	
Frequent renegotiation of payment terms	Regularly altering supplier agreements to delay payments.	
Cost-driven project changes	Unexpected workforce or project adjustments to cut costs.	
Poor claims documentation	Slow or inaccurate documentation of variations or progress claims.	
Increased disputes	More conflicts over progress claims or variations.	
Unexplained delays	Delays in contract deliverables without clear reasons.	

Appendix 6 Detrimental effects on stakeholders due to insolvencies in the Australian construction sector (Results from government and regulatory body websites, investigative reports, and media releases)

Section reference: 3.3

Stakeholder	Description	References
Consumers (Homeowners)		1. RBA. Financial Stability Review – October 2022. Box C: Financial Stress and Contagion Risks in the Residential Construction Industry. https://www.rba.gov.au/publications/fsr/2022/oct/box-c-financial-stress-and-contagion-risks-in-the-residential-construction-industry.html 2. Brendan McGurk. (2024). Construction Insolvency: Preventive Strategies for Contractors & Builders. PROCORE. https://www.procore.com/en-au/library/preventing-construction-insolvency
Lost deposits	Consumers often lose substantial deposits paid to builders.	
Unfinished homes	Projects are left incomplete, leaving homeowners with partially built properties.	
Unsecured creditor status	Homeowners rank low in the insolvency process, reducing recovery chances.	
Limited insurance protection	Builder’s insurance has restrictions, such as claims only after five weeks or caps at 20% of build value in some states.	
Subcontractors		3. David Hodgson. (2020). <i>Understanding the early warning signs of insolvency</i> . Grant Thornton. https://www.grantthornton.com.au/insights/blogs/understanding-the-early-warning-signs-of-insolvency/ 4. Yara Murray-Atfield and Dan Oakes. (2023). <i>Porter Davis clients left without homes or insurance to have deposit repaid by Victorian government</i> . https://www.abc.net.au/news/2023-04-20/porter-davis-clients-left-without-insurance-victorian-government/102245452
Unsecured creditor status	Unpaid invoices leave subcontractors with little recourse.	
Ongoing costs	They must cover materials and labour without payment, risking their own insolvency.	
Dependency risks	Subcontractors working with one builder face higher risks if that builder fails.	
Construction industry		5. Bradley Hastings, Peter Swan. (2024). Construction nightmares: How builder bankruptcies are costing Aussie homeowners millions. https://www.unsw.edu.au/newsroom/news/2024/10/construction-nightmares--how-builder-bankruptcies-are-costing-au
Low profit margins	Fixed-price contracts become unviable with rising costs, reducing profitability.	
Cash flow disruptions	Insolvencies lead to unpaid suppliers and stalled projects.	
Ponzi-like risks	Builders delaying supplier payments and taking on new projects to stay afloat can mimic Ponzi schemes.	
Households (beyond Homeowners)		
Small business owners	Mortgage borrowers rely on construction income, and insolvencies can lead to personal debt issues.	

Stakeholder	Description	References
Employment instability	Construction accounts for 10% of Australian employment, and job losses affect household incomes.	
Banks		
Low direct exposure	Lending to construction is less than \$40 billion, or 0.8% of bank assets.	
Indirect risks	Defaults by households reliant on construction income could increase non-performing loans.	
Broader economy		
Related industries	Suppliers, architects, and other sectors face reduced demand.	
Government revenue	Lower activity reduces tax and fee income.	
Housing supply	With net migration at 518,000 in 2023 and dwelling commencements at 10-year lows in 2024, insolvencies increase housing shortages.	

Appendix 7 Mitigation strategies for insolvencies in the Australian construction sector (Results from government and regulatory body websites, investigative reports, and media releases)

Section reference: 6.3

Strategies	Description	Reference
1. Financial and Contractual Strategies		1. RBA. Financial Stability Review – October 2022. Box C: Financial Stress and Contagion Risks in the Residential Construction Industry. https://www.rba.gov.au/publications/fsr/2022/oct/box-c-financial-stress-and-contagion-risks-in-the-residential-construction-industry.html 2. Brendan McGurk. (2024). Construction Insolvency: Preventive Strategies for Contractors & Builders. PROCORE. https://www.procore.com/en-au/library/preventing-construction-insolvency
1.1 Adopt Flexible Contracts		
Cost pass-through contracts	For projects with developers, use contracts that allow cost adjustments post-signing to mitigate losses.	
Renegotiate existing contracts	Work with clients to adjust existing fixed-price contracts to reflect current costs, reducing financial strain.	
Adjust new contracts	Raise prices on new contracts and shorten quote acceptance periods to align with market conditions.	
1.2 Conduct financial health checks		
Contractor assessments	Perform regular financial health checks on contractors, especially if they request payment changes or submit aggressive claims.	
Audit rights	Leverage contractual audit powers to review financial reports and engage external experts for detailed inquiries.	
Public data monitoring	Review publicly available financial reports to identify potential risks early.	
1.3 Secure assets and equipment		
PPSA compliance	Review interests under the Personal Properties Securities Act 2009 (PPSA) and ensure leased or bailed equipment is registered to prevent loss.	
Equipment inventory	Maintain an inventory of contractor equipment to facilitate transitions if a contractor fails.	
2. Operational strategies		
2.1 Improve cash flow management		
Renting equipment	Opt to rent rather than purchase equipment to avoid large payments during economic downturns, preserving cash reserves.	

Strategies	Description	Reference
Enforcing payment boundaries	Set firm payment terms with suppliers and collect interest or fees on late payments to maintain liquidity.	
Centralising financial data	Use construction project financial platforms, to centralise budget and spending data, providing real-time visibility into financial health.	
2.2 Leverage technology		
Project management platforms	Implement platforms for tracking budgets, cash flow, and cost estimates in real time, enhancing decision-making.	
Estimating software	Use software with historical rate tables to produce accurate job cost estimates, reducing the risk of underquoting.	
Workforce planning	Optimise workforce scheduling to minimise labour costs, offsetting the impact of rising material prices.	
2.3 Diversify service offerings		
Sub-contracting labour	Offer permanent labour to other companies during downturns to generate additional revenue.	
Market awareness	Stay informed about supply chains, material availability, labour laws, and the financial health of project partners to anticipate risks.	
3. Risk monitoring and early warning systems		
3.1 Actively monitor warning signs		
Project execution issues	Slowdowns, delays in material procurement, removal of plant/equipment, and high staff turnover, particularly among key leadership	
Commercial issues	Requests for payment changes, aggressive invoicing (e.g., progress claims, variations, extensions of time), late financial reports, and rumours of borrowing or restructures.	
3.2 Establish monitoring systems		
Project progress reviews	Implement systems to regularly review and document project progress.	
Staff vigilance	Train all staff, including on-site personnel, to recognise and report insolvency signals.	

Strategies	Description	Reference
4. Relationship and stakeholder management		
4.1 Maintain key relationships		
Sub-contractor engagement	Retain key sub-contractors and suppliers, potentially novating contracts if permitted.	
Upstream/downstream management	Maintain strong ties with project management, financiers, and suppliers to manage obligations effectively.	
4.2 Focus on transparency		
Due diligence checklists	Create and enforce checklists for vetting suppliers and subcontractors.	
Financial transparency	Advocate for open discussions about financial risks with partners.	
5. Legal and regulatory awareness		
5.1 Understand contractual rights		
Termination and security rights	Review rights related to termination, security, step-in, novation, and audit, particularly if a contractor is at risk of collapse.	
Ipsa facto clauses	Be aware of restrictions on ipso facto clauses, which may apply in administration or schemes of arrangement, with exceptions for large contracts or critical projects.	
Documentation access	Ensure access to critical documentation (e.g., design, permitting) to facilitate transitions if a contractor fails.	
5.2 Seek legal advice early		
Early consultation	Engage legal advisors for suspected insolvency, especially for termination decisions, security calls, or suspected illegal phoenix activity.	
Phoenix activity reporting	Report suspected phoenix activity to ASIC or ATO, as it costs the economy up to \$3.5 billion annually.	
5.3 Safe harbour awareness		
Exercise caution	Be cautious when dealing with contractors under safe harbour, as transactions may be voidable in liquidation.	
Seek legal guidance	Consult legal experts before engaging with such contractors.	

Appendix 8 Proactive mitigation strategies for insolvencies from a cross-sector perspective using global industrial, regulatory and policy reports

Section reference: 6.3

Report	Proactive Measures	Remarks
Trends in Large Corporate Bankruptcy and Financial Distress, Cornerstone Research 2024	Liability management transactions (LMTs) such as uptiering, drop down, and double dip to access liquidity and extend debt maturities.	The report focuses on large corporations across industries. These financial structuring tools are applicable to construction firms with complex debt portfolios, especially where private equity (PE) sponsorship or syndicated lending is involved.
	Contract reforms: Following the 2020 Serta Simmons case, a rise in uptier blocking provisions in new loan agreements, from 40% to over 85% within two years.	
	Creditor cooperation agreements to ensure coordinated restructuring efforts among lenders.	
	Out-of-court restructuring using LMTs to reduce leveraged loan default rates and avoid formal bankruptcy proceedings.	
The Global Risks Report, World Economic Forum, 2024	Localised risk management strategies leveraging targeted investments and adaptive regulation to buffer sectors such as construction from inevitable shocks.	While not residential construction-specific, these measures align with systemic financial risk mitigation relevant to the construction industry in a volatile environment.
	Cross-border coordination and global risk governance efforts to stabilise economies and supply chains, potentially relevant for global construction inputs.	
	Research and innovation funding focused on climate resilience and infrastructure can mitigate long-term insolvency exposure in construction.	
	Private sector collaboration to align on risk reduction practices across industries, including high-risk sectors like construction.	
	Monitoring and preparing for systemic transitions like climate and technological shifts to future-proof sectoral resilience.	
UK NAO Report on Carillion Collapse, 2018	Strategic supplier risk monitoring framework used by the UK Cabinet Office to assess financial and performance risks of key suppliers, with tiered risk levels and contingency escalation.	While not specific for residential construction, these public sector measures offer transferable frameworks for private-sector risk governance in construction supply chains.
	Regular financial risk assessments and performance ratings, including amber/red designations, to flag contractors like Carillion for closer scrutiny.	
	Use of crown representatives and partnership managers to oversee supplier relationships and ensure performance accountability.	
	Government contingency planning protocol initiated post-profit warning, involving cross-agency collaboration and scenario-based planning for key public contracts.	

Report	Proactive Measures	Remarks
	Improved contract information systems and centralised oversight to identify exposure across departments.	
	Government refusal to bail out insolvent contractors discourages moral hazard and enforces market discipline.	
Allianz Global Insolvency Outlook, 2024	Interest rate easing to support corporate margins and cash flows, especially in capital-intensive and cyclical sectors like construction.	
	Deleveraging and balance sheet restructuring by firms adjusting to high-interest rate environments.	
	Regulatory reforms: Proposals for harmonising EU insolvency frameworks and electronic invoicing to improve transparency and financial oversight.	
	Monitoring working capital requirements (WCR) and Days sales outstanding (DSO) to pre-empt liquidity issues, with sector benchmarks indicating construction firms are vulnerable.	
	Macroeconomic stimulus through consumer credit and infrastructure investment , indirectly boosting the construction sector's resilience.	
	Avoidance of over-reliance on short-term financing , as significant corporate debt is due to mature by 2026, heightening refinancing risks.	
	Targeted risk tracking by identifying sectors and countries most at risk, aiding strategic contingency planning.	
	Policy coordination across regions , acknowledging the global spread and sectoral concentration of insolvency risks, particularly in construction.	
Allianz Insolvency Report, 2023	Strengthening financial buffers through high cash holdings, though these are now depleting.	While not solely focused on residential construction, these measures are applicable to the sector due to its high exposure to credit risk, low margins, and cyclical demand patterns.
	Monitoring working capital requirements (WCR) to track liquidity stress, especially in high-risk sectors like construction.	
	GDP growth stimulation identified as essential to stabilise insolvency trends; current growth below required thresholds.	
	Sector-specific analysis to identify and support the most vulnerable industries (construction, retail, etc.) before insolvency escalates.	
	Learning from past financial crises (e.g., GFC) to model and forecast insolvency scenarios, preparing contingency strategies.	

Report	Proactive Measures	Remarks
	Global coordination and policy flexibility to respond to inflation, credit tightening, and external shocks impacting the construction sectors.	
Dun and Bradstreet Global Bankruptcy Report, 2023	Reinforcing the fundamentals of credit risk management using the “5Cs” framework: Capacity, Capital, Character, Collateral, and Conditions.	While not solely focused on residential construction, these measures are broadly applicable to the sector, especially given its exposure to credit and supply chain risks.
	Monitoring credit information and supply chain linkages to detect upstream/downstream vulnerabilities early.	
	Using firm-level intelligence tools to anticipate cash flow stress and assess credit health under tightening conditions.	
	Central banks’ macroeconomic measures (e.g., liquidity infusion, regulatory relief) played a role in postponing bankruptcies post-COVID, though many of those supports have ended.	
	Digital credit risk analytics and scenario modelling to identify early warning signs and formulate response strategies in vulnerable sectors like construction.	
CEE Insolvency Study 2024 (Coface)	Enhanced credit risk monitoring systems , such as Coface’s scoring tools and late payment indices, to track financial stress and insolvency likelihood.	While focused on the CEE region broadly, these tools and measures are highly transferable to the residential construction sector due to its high insolvency incidence.
	Deployment of restructuring proceedings , with Poland using these tools extensively to avoid liquidations, 92% of total proceedings were restructurings in 2023.	
	Use of insolvency probability scores based on financial reporting trends, e.g., delayed filings and overdue payments, triggers early alerts.	
	Country and sectoral risk assessments , updated quarterly to inform risk exposure and pre-empt insolvency spikes in vulnerable sectors like construction.	
	Investments in automation and production process efficiency to offset labour shortages and rising wage costs, as seen in Poland.	
	Restructuring frameworks and legal reforms in several CEE countries aimed at facilitating early recovery and business continuation.	
	Macro-level resilience strategies , such as EU fund utilisation and infrastructure spending, though unevenly applied across the region.	
Global Sovereign Debt Monitor 2024	Establishment of a codified sovereign debt workout mechanism proposed to ensure predictable and fair restructuring processes.	While primarily focused on sovereign debt in developing

Report	Proactive Measures	Remarks
	Binding participation of all creditors in debt relief , especially private lenders, through legislative action by creditor countries like Germany.	nations, these strategies offer scalable frameworks that could influence national policy around debt restructuring and fiscal stability, including in construction-driven economies under high external debt pressures.
	Linking debt relief with climate finance , proposing debt cancellation as a mechanism to enable investment in sustainable infrastructure and resilience.	
	Temporary moratoriums on debt service in response to climate or natural disasters, supporting economic continuity.	
	Independent evaluations of past restructuring processes , to guide the formation of fairer, more sustainable international debt policies.	
International Insolvency and Restructuring Report 2024/25	Luxembourg's 2023 Reorganisation Law introduces early-stage preventive measures like amicable settlements, judicial reorganisation by collective agreement, and asset transfers to third parties , aimed at preserving business continuity and avoiding value-destructive bankruptcy.	These measures, while Luxembourg-specific, offer adaptable frameworks for sectors like construction, where early detection, stakeholder coordination, and preventive restructuring are crucial to mitigating insolvency risk.
	Encouraging creditor engagement before filing for bankruptcy , such as open discussions with boards to explore restructuring, and preventing premature insolvency declarations.	
	Trustee-led recovery processes , including annulment of transactions during the hardening period and director liability actions under Art. 495 and 495-1 LCC, to improve creditor outcomes.	
	Third-party litigation funding to support asset recovery when the estate lacks resources, offering financial sustainability in proceedings.	
	Clarification of director duties , emphasising loyalty, good faith, and company-centric decisions even in distress, along with legal consequences for misconduct leading to bankruptcy.	
Baker McKenzie Global Restructuring and Insolvency Guide, 2024	Restructuring plans under new debtor-in-possession regimes (e.g., Australia) allow directors to retain control while formulating recovery plans for small businesses under financial stress.	Though not construction-specific, these legal and procedural innovations apply to residential construction firms facing cash flow distress, especially SMEs under \$1 million liabilities.
	Creditors' schemes of arrangement are used as pre-insolvency tools to compromise debt and restructure before formal insolvency triggers occur.	
	Voluntary administration procedures , including Deed of Company Arrangement (DOCA), to trade through insolvency and return better value to creditors than immediate liquidation.	
	Judicial and creditor oversight mechanisms to enhance transparency and fairness during restructuring proceedings.	

Report	Proactive Measures	Remarks
	Supervisory role of court-appointed practitioners and administrators for balancing creditor and debtor interests during reorganisation.	
	Limited liability protection for administrators incentivising participation in risky but necessary restructuring activities.	