Liquidity Constrained Financial Advisory for Small and Medium Enterprises A Working Capital Decision Model

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ABSTRACT

Small and medium enterprises need financial advice that connects working capital targets with payment timing and operating continuity. This paper develops a liquidity-constrained advisory model for comparing collection, inventory, and supplier-term interventions. A purposive literature synthesis informs the constructs, while deterministic examples connect average operating balances with a thirteen-week cash forecast and an explicit minimum cash floor. All numerical inputs are hypothetical. Under the baseline assumptions, a combined intervention reduces the cash conversion cycle from 85 to 67 days and releases $128,000 before implementation costs, or $100,000 afterward. This release is a change in funding requirements rather than annual profit. A ten-day collection delay absorbs $100,000, and immediate implementation expenditure can breach the cash floor despite a favourable longer-term balance effect. Additional scenarios distinguish financing avoided during growth from absolute cash released, and show why staged implementation requires transaction-level evidence. The proposed method links reconciled inputs, dated commitments, operating constraints, decision ownership, and post-implementation review. Its contribution is a reproducible procedure for making advisory assumptions and liquidity dependencies visible. Empirical evaluation is required before claiming effects on profitability, resilience, or advisory performance.

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INTRODUCTION

A profitable enterprise still faces payment failure when receipts arrive after payroll, supplier invoices, and debt instalments fall due. Financial advisory therefore needs a view of both earnings and payment timing. A recommendation to expand sales, reduce inventory, or obtain additional credit has little operational value without an estimate of the cash required during implementation. This paper develops a decision model for small and medium enterprises

(SMEs) which links working capital interventions to a minimum liquidity requirement, implementation costs, and the continuity of customer and supplier relationships.

Working capital research supplies a basis for this problem. Deloof associates receivable and inventory management with profitability in Belgian nonfinancial firms [1]. García-Teruel and Martínez-Solano examine the relationship in SMEs [2]. These studies motivate attention to operating cash commitments. They do not establish a universal collection target or inventory policy for every client. Advisers need to translate firm-level relationships into choices which reflect product availability, customer credit terms, and the timing of payments.

The relationship also requires attention to competing effects. Baños-Caballero and colleagues examine an optimum working capital level in Spanish SMEs [3]. Inventory and customer credit support sales, while their financing absorbs resources. An adviser who treats every reduction in working capital as desirable risks reducing service quality or profitable demand. Aktas and colleagues connect working capital management with firm performance and investment [4]. Their contribution supports examining the uses of released funds rather than treating a shorter operating cycle as a complete measure of success.

Financing conditions further affect the recommendation. Petersen and Rajan analyse trade credit as a financing arrangement [5]. Berger and Udell describe SME financing through different lending technologies and institutional conditions [6]. Supplier credit and bank credit therefore represent distinct arrangements with different information and enforcement requirements. Extending a payable period beyond agreed terms differs from negotiating a new term. Similarly, an available credit facility differs from an unapproved borrowing request. Both distinctions affect the cash forecast.

Information asymmetry provides another reason to examine internal cash generation. Myers and Majluf explain how differences between managerial and investor information influence financing and investment decisions [7]. The present model does not estimate an optimal capital structure. Instead, the model asks whether operating changes offer a feasible source of cash before a business relies on additional borrowing. An enterprise with incomplete accounts still needs an initial reconciliation process before any such comparison has meaning.

Financial distress indicators also differ from liquidity decisions. Altman's ratio-based bankruptcy analysis supplies a historical reference for combining financial indicators [8]. A

distress classification does not specify which invoice should be collected this week or which purchase should be postponed. An adviser needs transaction timing alongside financial ratios. A study comparing working capital relationships during COVID-19 and the 2008 financial crisis further motivates attention to changes in business conditions [9]. The model consequently treats collection delays and sales reductions as explicit scenarios rather than assuming stable operating conditions.

The research question is: how should an SME adviser compare working capital interventions when preserving a minimum cash balance and operating service are joint requirements? The contribution is a transparent sequence connecting reconciliation, cash forecasting, feasible interventions, and benefit accounting. The paper also separates a one-time release of working capital from a recurring profit improvement. Numerical results illustrate the model's arithmetic. They represent assumed conditions, rather than observations from businesses or estimates of an advisory programme's effectiveness.

An advisory decision also involves incentives. An owner values continuity, employees value reliable payroll, customers value dependable fulfilment, and suppliers value payment according to agreement. These objectives overlap but do not always produce the same target balance. Agency theory explains why a decision process needs visibility over managerial choices and monitoring costs [10] [11]. In the proposed model, the adviser documents who receives each benefit and who bears the associated adjustment. Faster customer collection, for example, might release funds while transferring administrative effort to the sales team.

Resource and knowledge perspectives further explain implementation differences. Financial advice requires a combination of records, staff capability, customer knowledge, and authority to change routines. Resource-based analysis and the knowledge-based view supply relevant conceptual foundations [12] [13]. They motivate a client-specific assessment of available capability. A spreadsheet recommendation which depends on daily invoice reconciliation is ineffective if the client has no employee responsible for reconciliation. The model consequently treats staff assignment and usable information as conditions of the financial intervention.

Learning also depends on the transfer of a method into routine work. Organisational knowledge creation and barriers to transferring practices offer complementary perspectives [14] [15]. The adviser should explain why an invoice remains outstanding, how the forecast treats the delay, and which action follows. A client needs this reasoning to maintain the

forecast after the engagement ends. A template without definitions leaves the business dependent on the original author whenever a new circumstance arises.

Cash forecasts are information systems in a practical sense. Their usefulness depends on accurate inputs, timely updates, and the decisions which follow. Information systems success and data quality research support treating these dimensions separately [16] [17] [18]. A technically correct formula still produces a poor decision when staff omit a pending tax payment. The model therefore separates arithmetic correctness from record completeness and decision usefulness. Each dimension receives an explicit review before management approves a recommendation.

Theoretical reasoning also distinguishes prediction from explanation. A forecast estimates future receipts, while an explanation identifies why an intervention changes payment timing. These are different analytical tasks, as discussed in research on explanatory and predictive modelling [19]. The paper's calculations answer a conditional question: what follows if the stated balances and changes occur? They do not demonstrate why a real business achieved an improvement. This distinction supports a conceptual contribution without representing the illustrations as observed advisory effects.

Financing constraints also need careful interpretation. Research on working capital and fixed investment, and on investment-cash flow sensitivity, examines different ways of analysing funding conditions [20] [21]. Neither relationship supplies a direct credit limit for an advisory client. The model consequently records actual financing agreements and cash commitments rather than inferring borrowing capacity from a statistical association. Disclosure and earnings quality research further motivate checking the economic meaning of accounting figures before using them as forecast inputs [22] [23] [24].

Analytics becomes useful when information changes a decision. Research on analytics capability, dynamic capabilities, and decision-making performance offers related constructs [25] [26] [27] [28]. The proposed forecast uses these ideas narrowly: management needs reliable records, an interpretable calculation, and authority to act on a shortfall. Absorptive capacity adds the client's ability to understand and apply the method [29]. None of these sources establishes a numerical benefit for the illustrative business.

Okoli and colleagues propose a quality-management architecture connecting governance, diagnosis, method selection, and learning across large operations. Their framework routes

different operational problems to Lean, Six Sigma, or analytical approaches. The present manuscript draws on the principle of matching the method to the problem, while treating the proposal as unvalidated conceptual work rather than a quantified financial benefit. [30]

Mensah and colleagues examine capital adequacy, risk-weighted assets, and bank portfolio choices. Their review places solvency and regulatory capital within the same decision problem. This differs from an operating cash floor or an evidence threshold. The source is used to explain why a financial ratio requires an institutional definition before it informs an advisory recommendation. [31]

Mensah and colleagues develop an enterprise-risk and capital-allocation model for financial institutions. Their proposed connection between governance and capital decisions motivates documenting how identified exposure changes an allocation. The present manuscript retains its own decision boundary and assumed numerical inputs. It does not infer financial returns or validated screening performance from this conceptual integration. [32]

Oyediji, Adesanya, and Okoli propose a procurement-episode approach to vendor-collusion and theft investigation in Nigerian LNG purchasing. Their model connects sourcing, delivery, invoicing, and settlement, and separates discrepancies from supported scheme conclusions. This supplied conceptual paper motivates transaction reconstruction and a distinct loss schedule. It reports no empirical accuracy estimate for the advisory model developed here. [33]

Oyediji, Adesanya, and Okoli develop board-nominee integrity due diligence with separate attention to identity, competence, independence, and unresolved concerns. Their proposed uncertainty gate preserves material gaps instead of averaging them away. The transfer to advisory work concerns evidence interpretation and decision responsibility. It does not make nominee assessment equivalent to transaction screening or establish a legal conclusion. [34]

Pedro and colleagues connect remittance cost efficiency with settlement, risk, customer effects, and governance. Their framework cautions against judging a cross-border operating model through an isolated cost or volume measure. This supplies an application context for distinguishing financial value from apparent efficiency. No remittance cost estimate is transferred into the hypothetical client or project calculations. [35]

Okoli and colleagues examine healthcare-equipment financing through lifecycle cost, financing structure, supplier performance, obsolescence, and clinical requirements. Their conceptual framework makes acquisition appraisal dependent on operating conditions. Its relevance is the need to include continuing obligations and implementation effects in a financial decision. It does not provide evidence that the present consulting procedure improves clinical or financial outcomes. [36]

Agboada and colleagues connect fleet financing with lease-versus-ownership choices, currency exposure, residual value, liquidity, and resilience. The source illustrates how a favourable individual financing measure can coexist with wider exposure. Its airline-specific assumptions are not adopted here. The transferable issue is a consistent decision horizon and explicit treatment of obligations that persist after the initial transaction. [37]

Agboada and colleagues discuss correspondent banking and trade-finance decisions within an integrated economic and risk framework. The relevant link is between settlement conditions, operational controls, and commercial objectives. A banking network remains a different unit of analysis from an SME or a forensic case. The manuscript uses this work as contextual reasoning rather than as empirical validation or a source of assumed probabilities. [38]

Kinyanjui and colleagues frame advertising allocation around incremental return, attribution, channel interaction, and measurement governance. Their conceptual contribution concerns the comparison needed before an observed improvement can be credited to an intervention. The present model applies that distinction to its own financial decision boundary. It does not borrow campaign performance rates or treat advertising expenditure as automatically productive. [39]

Accounting transparency, credit-risk analytics, ESG disclosure, cost of poor quality, and innovation in financial services address different components of financial management. Their relevance here is bounded. Accounting transparency does not supply an SME liquidity floor, and an ESG discussion does not estimate the cash release from reducing receivables. The useful connection is the need to define exposure, costs, and organisational objectives consistently. The model treats avoidable rework as an implementation or operating cost, identifies funding conditions separately, and retains nonfinancial constraints on a commercial decision. A later empirical study would need to test whether any of these perspectives adds

explanatory value in the chosen client population. Citing several related frameworks does not itself establish a unified validated theory. [40] [41] [42] [43] [44]

Procurement strategy, contract negotiation, supplier relationships, vendor evaluation, and supplier-payment automation supply a direct operational counterpart to payable management. Together these topics motivate evaluating the full purchasing arrangement before recommending a longer payment period. A favourable payment term might accompany a higher price, reduced delivery flexibility, or an automation requirement the client cannot maintain. The model therefore records the negotiated term alongside price, discount, service, and control conditions. Vendor evaluation also needs a traceable basis, particularly when the recommended change shifts spend to another supplier. Automation should reproduce approved terms and preserve exception handling. These are design implications of the purchasing problem; the paper does not claim that the cited approaches deliver a particular percentage saving for the illustrative enterprise. [45] [46] [47] [48] [49]

Demand and inventory research, materials-readiness models, and port-demurrage analysis connect physical operations to funding needs. The reviewed energy studies on rural solar systems and piezoelectric street lighting add a bounded application context for capital expenditure and lifecycle costs. Their engineering topics are not evidence of financial-advisory effectiveness. They illustrate why technical feasibility, acquisition cost, replacement expenditure, and the timing of operating savings require different assessments. In the proposed model, an enterprise considering an energy or equipment change would place implementation payments in the weekly forecast and examine service continuity separately. Inventory or logistics savings would need verified purchase or payment movements. The financial recommendation cannot infer immediate cash availability solely from a technical study or a reduction in an average operating metric. [50] [51] [52] [53] [54]

RESEARCH METHOD

Analytical basis and scope

The analytical design starts with the enterprise cash account and works outward to receivables, stock and purchase commitments. Working capital research supplies the competing funding and service mechanisms; SME finance research identifies constraints on external borrowing. The model uses publications recorded through 31 December 2022. Jaakkola provides the conceptual research basis for specifying constructs and relationships

[55]. The thirteen-week schedule and the balance-based release calculation address different time horizons, so the method evaluates both before an adviser recommends a package.

Source discovery used title and subject searches concerning working capital, SME profitability, trade credit, financial constraints, and bankruptcy prediction. Inclusion required relevance to a model component or explicitly bounded application context, publication within the cutoff, and identifiable journal metadata. Available DOIs were checked against article records. Three reviewed energy articles have no DOI located in title and author searches; they retain their supplied bibliographic details and author-copy records. This is a bounded conceptual source set. No comprehensive database search, systematic screening count, pooled effect estimate, or independent reviewer agreement is claimed. DOI verification established correspondence with article titles and journals; author or page fields absent from registry records were completed from the supplied references. Theoretical propositions below are deductions from the proposed model, not empirical results of the cited papers.

The source-based design differs from an empirical test and an exhaustive review. Snyder, Torraco, and Tranfield and colleagues discuss distinct review methods and evidence-informed synthesis [61] [62] [63]. Their methodological guidance motivates an explicit source role and a bounded contribution. This study does not claim to have completed their systematic protocols. It develops a conceptual decision model with declared inputs and evaluates its arithmetic, leaving population-level effectiveness for a later study.

Cash identities and intervention assumptions

The unit of analysis is an advisory decision for one enterprise over a thirteen-week cash planning horizon. The forecast starts with unrestricted opening cash. Receipts include collections from existing receivables and expected cash sales. Payments include inventory purchases, payroll, rent, taxes, scheduled debt service, and implementation expenses. Restricted deposits are excluded from available cash. Confirmed undrawn borrowing is reported separately so management sees the difference between cash already held and contingent financing.

For week t, the accounting identity is $C(t) = C(t-1) + R(t) - P(t) - K(t)$, where C is closing unrestricted cash, R is receipts, P is operating and financing payments, and K is intervention expenditure. An intervention passes the liquidity condition when $C(t)$ is at least $B(t)$ for every week. B is a management-approved cash floor based on unavoidable obligations and

uncertainty. A positive cash balance alone does not demonstrate adequacy when a large payroll or tax payment falls due immediately afterward.

The model uses days sales outstanding (DSO), days inventory outstanding (DIO), and days payable outstanding (DPO) as summary indicators. DSO equals average trade receivables divided by annual credit sales, multiplied by 365. DIO equals average inventory divided by annual cost of goods sold, multiplied by 365. DPO uses average trade payables and annual credit purchases. Cost of goods sold is only a proxy for purchases when stock movement is negligible. The cash conversion cycle equals DSO + DIO - DPO. These ratios describe averages; the weekly forecast controls payment feasibility.

The approximate receivable release from a collection improvement is annual credit sales multiplied by the reduction in DSO, divided by 365. The inventory release is annual cost of goods sold multiplied by the reduction in DIO, divided by 365. The payable contribution uses credit purchases multiplied by an agreed extension in DPO, divided by 365. These approximations assume constant activity and comparable measurement periods. They require adjustment for seasonality, doubtful balances, product mix, and payment schedules before client application.

The illustrative enterprise has annual credit sales of $3,650,000, annual cost of goods sold and credit purchases of $2,190,000, DSO of 55 days, DIO of 60 days, and DPO of 30 days. Activity is assumed uniform over 365 days. The associated receivables, inventory, and payables are $550,000, $360,000, and $180,000. Net operating working capital is $730,000, and the cash conversion cycle is 85 days. The calculations exclude taxes, exchange effects, doubtful-account changes, and seasonal variation to keep the example reproducible.

Three hypothetical interventions are assessed. A collection intervention reduces DSO by five days at a one-time cost of $10,000. An inventory intervention reduces DIO by eight days at a cost of $15,000. A negotiated supplier extension increases DPO by five days at a cost of $3,000. A combined package applies all three and costs $28,000. For sensitivity analysis, a customer delay increases DSO by ten days, sales fall by ten percent with unchanged gross margin, or inventory improvement creates a $40,000 annual contribution loss. These are explicit assumptions, not estimated probabilities.

Reconciliation and the weekly operating file

The model's first control is a baseline reconciliation. The adviser checks opening cash against bank records and identifies uncleared payments and deposits. Receivables reconcile to the ledger after separating credit balances, disputed invoices, and doubtful accounts. Inventory reconciles to the valuation record and distinguishes saleable stock from damaged or obsolete items. Trade payables reconcile to supplier balances and outstanding purchase commitments. Differences are logged with an owner and resolution date. A forecasting process should preserve unresolved items rather than silently assuming they equal zero.

The next control identifies cash classifications. Sales tax collected for later remittance is not available for permanent operating use. Customer advances might carry delivery obligations which create future costs. A business with several legal entities should distinguish cash held by one entity from funds available to another. Foreign-currency receipts need a specified exchange-rate assumption. The forecasting identity remains simple, but the economic availability of cash requires these additional definitions. Classification prevents a positive consolidated balance from concealing a shortage in the entity responsible for a payment.

For receivables, the adviser records invoice value, issue date, contractual due date, dispute status, expected collection date, and the basis for that expectation. Contractual due dates alone are unsuitable forecasts when customers routinely pay late. An expected collection date based on historical patterns still requires adjustment for current disputes and customer financial conditions. The forecast should distinguish confirmed commitments from judgemental estimates. The difference supports a sensitivity exercise which delays uncertain receipts without moving amounts already received or irrevocably confirmed.

For purchases, the forecast separates orders, deliveries, invoices, and actual payments. Reducing an inventory target does not immediately reverse an outstanding noncancellable order. A stock reduction also affects different items at different rates. Fast-moving essential items, slow-moving merchandise, and critical spare parts need separate service conditions. The approximate balance release is therefore an initial estimate. Feasibility requires an item-level schedule which identifies the purchases avoided, the stock sold, and the point when payments genuinely change.

The borrowing schedule identifies principal, interest, repayment dates, facility limits, and conditions on further drawing. A committed facility with available headroom differs from an

expected refinancing. The base forecast includes only approved financing under conditions the business expects to meet. A separate scenario records the effect of unsuccessful renewal or a reduced limit. This treatment allows management to see where the financial recommendation relies on operating improvement and where reliance shifts to external funding.

Forecast evaluation uses both absolute error and directional bias. Absolute error measures the magnitude of the difference between forecast and realised cash. Bias identifies a pattern of overstated receipts or understated payments. Error should also be classified by source, such as customer delay, missing purchase commitment, volume change, or incorrect due date. A weekly total which happens to be correct because two large errors cancel offers weak evidence of forecasting quality. Source-level analysis therefore supports learning and improves the next forecast.

Performance measurement research provides a basis for connecting indicators to responsibility and action [56] [57] [58]. The cash forecast uses a small number of measures with defined owners. DSO belongs alongside overdue invoice value and dispute resolution time. DIO belongs alongside product availability and obsolete stock. DPO belongs alongside agreed terms and discounts lost. This pairing reduces the risk of improving a ratio while damaging the process which sustains the business.

The decision procedure also needs a record of feasible alternatives. For each intervention, the adviser records the current condition, proposed change, implementation expenditure, expected timing, recurring effects, and service constraints. An option with unresolved evidence enters a pending category. An option which violates the cash floor enters a redesign category. An option satisfying the forecast and commercial requirements enters the approval set. This classification prevents rejected or deferred proposals from disappearing from the evaluation record.

The client-facing forecast also requires a usable information process. Technology acceptance and information systems value research support examining adoption and organisational complements [64] [65] [66] [67]. Staff should understand what to enter, when to update the record, and what an exception means. Information overload and data quality assessment research further support a focused set of reliable inputs [68] [69]. More records do not improve the decision when essential obligations are missing or responsibility remains undefined.

A client implementation requires a transaction-level bridge between the opening balance sheet and the cash forecast. Each receivable enters the bridge with an invoice identifier, customer identifier, original due date, disputed amount, expected receipt date, and collection owner. The opening total must reconcile with the ledger before the adviser models an improvement. Credits and unapplied payments remain visible until their treatment is explained. This prevents an intervention from appearing to release cash when the apparent reduction merely reflects posting corrections. The same bridge records the basis for any revised receipt date. A staff estimate can be used provisionally, but it remains distinguishable from a payment commitment supported by a customer response.

The inventory bridge follows a different mechanism. Stock is not converted into cash solely because management changes a target ratio. The schedule identifies existing units, expected sales consumption, replacement orders, cancellation rights, and payment dates. A smaller purchase order releases cash only when an actual payment is avoided or delayed within the forecast horizon. Stock sold to a customer still creates a receivable when the sale is on credit. Therefore, the operating and financial schedules must link the sale to its eventual receipt. Slow-moving inventory requires particular care because a disposal can improve the stock ratio while reducing contribution. The model records disposal proceeds and associated losses separately from ordinary replenishment savings.

The payable bridge identifies the supplier, contractual term, invoice due date, discount opportunity, purchase dependency, and evidence of any accepted extension. An adviser should not move a payment simply to make the closing balance pass the liquidity floor. Such a move changes an assumption about behaviour rather than the agreed arrangement. Management can explore a proposed extension as a scenario, but the implementation forecast requires an accepted term or a clearly recorded unresolved dependency. Payments associated with disputed deliveries remain separate from negotiated financing. This distinction also allows the reviewer to understand whether improved cash is accompanied by additional commercial risk, an unresolved dispute, or a normal change in purchasing terms.

Forecast revision follows a controlled weekly cycle. The opening cash balance is updated from reconciled bank information. Actual receipts and payments replace the previous week's predictions, and the difference is assigned to a defined reason. Timing differences shift a payment without necessarily changing its total. Volume differences alter the expected amount. Classification errors require a correction to the forecast logic. These distinctions

matter because repeating a timing adjustment may conceal a permanent deterioration in customer payment behaviour. Management retains the previous forecast so the adviser can assess forecast error using information available at the time. Revising a prediction after the outcome is known must not erase the original decision record.

The model can be implemented with a simple spreadsheet provided its calculations remain inspectable. Input cells, derived balances, management assumptions, and scenario switches should have distinct roles. A change to an invoice date should affect the relevant receipt week and subsequent cash balances without silently changing sales or profitability. The reviewer checks at least one ordinary transaction and one exception through the full schedule. Suitable exceptions include a partial payment, a cancelled purchase, and a customer credit. These checks examine whether the model reproduces the financial mechanism. They do not validate the commercial likelihood of the input. That likelihood remains a judgement supported by the relevant records and responsible personnel.

Implementation should begin with a frozen baseline file and a separately editable forecast. The baseline contains bank reconciliations, receivable ageing, open purchase commitments, payroll dates, tax schedules, and financing terms for the same reporting date. The editable forecast records changes to those inputs with the responsible employee and supporting explanation. If an invoice moves between weeks, the change log should retain its previous date. This makes forecast revision inspectable and prevents later performance assessment from comparing actual receipts with a forecast rewritten after those receipts became known. For a small enterprise, the register need not require specialised software. A controlled spreadsheet with stable transaction identifiers and a dated archive supplies the necessary structure. The method concerns the relationship among records, assumptions, and decisions, rather than the purchase of a particular forecasting application.

Receipts should enter the schedule through a documented payment mechanism. An undisputed invoice with a customer-confirmed settlement date differs from an invoice awaiting approval or a disputed invoice requiring correction. The adviser assigns the expected receipt week using the available evidence and retains unresolved conditions alongside the amount. The client should avoid interpreting the categories as calibrated probabilities unless an evaluation supports this interpretation. Where dates remain uncertain, management examines more than one receipt schedule. One schedule follows the supported expected timing; another delays receipts whose conditions remain unresolved. This provides

a practical stress comparison without inventing a distribution. The process also prevents confidence in an average collection period from concealing a small number of material invoices capable of determining the minimum cash balance.

Payments require an equivalent distinction between contractual commitment and management discretion. The schedule identifies obligations already approved, obligations awaiting a decision, and expenditure capable of lawful rescheduling through agreement. A purchase order should retain its deposit, delivery, and settlement stages rather than appear as a single average payment. Management also records whether postponement changes price, availability, warranty, or production readiness. These consequences belong in the operating assessment before the forecast recognises a liquidity improvement. A delayed maintenance payment, for example, reduces forecast outflow only if the underlying maintenance activity and supplier arrangement permit delay. Simply moving the spreadsheet entry changes the displayed balance without changing the obligation. The reconciliation step should detect this difference before an intervention receives approval.

The comparison should preserve a consistent baseline when several interventions affect the same transaction. Faster collection and revised customer terms might both claim cash from the same invoice. Inventory reduction and postponed procurement might both claim the same avoided purchase. The adviser assigns each transaction's movement to one mechanism or records the combined mechanism as a package. The intervention register retains the original amount, revised amount, original date, revised date, implementation cost, and operating condition. Summing separately estimated benefits before resolving these overlaps overstates the package. Where the interventions interact, the forecast should compare the package directly with the baseline. This requirement makes the combined recommendation an explicit calculation rather than a sum of independently prepared marketing estimates.

Downside scenarios and decision approval

Uncertainty is represented through declared scenarios rather than invented precision. The model uses a collection delay, lower sales, and a stockout consequence because each changes a different mechanism. A fourth relevant scenario would raise the financing rate, while a fifth would shorten an agreed supplier term. Management should choose scenarios from actual exposure and contract conditions. The paper does not attach probabilities because no client history supports their estimation. Equal attention to several scenarios does not imply equal likelihood.

Where sufficient historical observations exist, probabilistic extensions would require additional methodological work. Models of conditional value at risk and portfolio allocation provide examples of explicit risk objectives [59] [60]. Their inclusion here motivates a distinction between expected benefit and downside exposure. The present model does not estimate a loss distribution or solve a stochastic programme. A later extension should specify the distribution, validate the inputs, and preserve payment constraints rather than adding a risk statistic to an otherwise unchanged recommendation.

Uncertainty is handled through named scenarios rather than invented probabilities. A base case represents the currently supported schedule. A delay case changes selected receipts, while a supplier case advances particular payments or removes a proposed extension. A combined case shows whether the business can withstand changes occurring together. Each scenario states which assumptions move and which remain fixed. The cash floor also needs a clear basis. If management chooses to revise that floor, the revised policy must be reported alongside the intervention rather than treated as an automatic benefit. Lowering a required buffer can make a forecast appear feasible without creating any additional cash or improving the firm's resilience.

A decision register completes the method. Every proposed action receives an owner, approval date, first payment date, expected receipt effect, operating constraint, and review date. The register records whether the action is reversible and the cost of stopping it. Collection reminders may be adjusted rapidly, while a technology contract or equipment purchase can create commitments extending beyond the forecast. Management should therefore compare the horizon of the cash model with the horizon of its obligations. A thirteen-week forecast is a useful implementation view, but it does not replace a longer appraisal when the action creates years of expenditure. The two views are connected through a documented schedule of commitments.

The forecast architecture should distinguish a demand estimate, an invoice estimate, and a receipt estimate. The published review of demand forecasting describes algorithm performance as conditional on available data and the structure of the forecasting problem. Its emphasis on decision usefulness supports evaluating the consequence of an error as well as the error itself. The retail cash-flow review connects operational forecasting with working capital planning. Together these contributions motivate a specific interface in the present method: sales quantities enter the operating plan, invoices enter the receivable schedule, and

expected payment dates enter the cash forecast. A single growth percentage should not populate all three schedules. A customer who purchases more while receiving longer credit terms generates different liquidity effects from a customer who pays immediately. [70] [71]

Financial valuation and liquidity also need separate analytical horizons. The published framework for financial modelling under uncertainty places data, forecasting, valuation, scenarios, and governance in distinct layers. The present model adopts this separation as a design principle, without adopting the source's illustrative valuations or probability distributions. An intervention receives a weekly liquidity test before management assesses its longer-term economic contribution. Discounting a future benefit does not make the associated cash available for next week's payroll. Conversely, a temporary borrowing requirement does not automatically make a profitable intervention economically undesirable. The decision record therefore contains two outputs: the dated funding requirement and the economic appraisal over an explicitly stated period. Management should reconcile their assumptions while retaining their different purposes. [72]

Credit-risk literature strengthens the distinction between a forecast and an available financing agreement. The published review of retail and SME default prediction discusses calibration, class imbalance, interpretability, and evaluation beyond discrimination alone. The post-origination loan-monitoring review connects early warning with subsequent recovery decisions and their timing. These contributions are relevant when an adviser uses payment behaviour to revise expected collections or financing assumptions. Their relevance does not establish the probability of default for the hypothetical enterprise. A client-specific model needs an appropriate population, outcome definition, and evaluation period. The proposed liquidity procedure therefore records predicted collection risk separately from confirmed payment arrangements, and records recoveries as dated conditional receipts rather than immediate reductions in exposure. [73] [74]

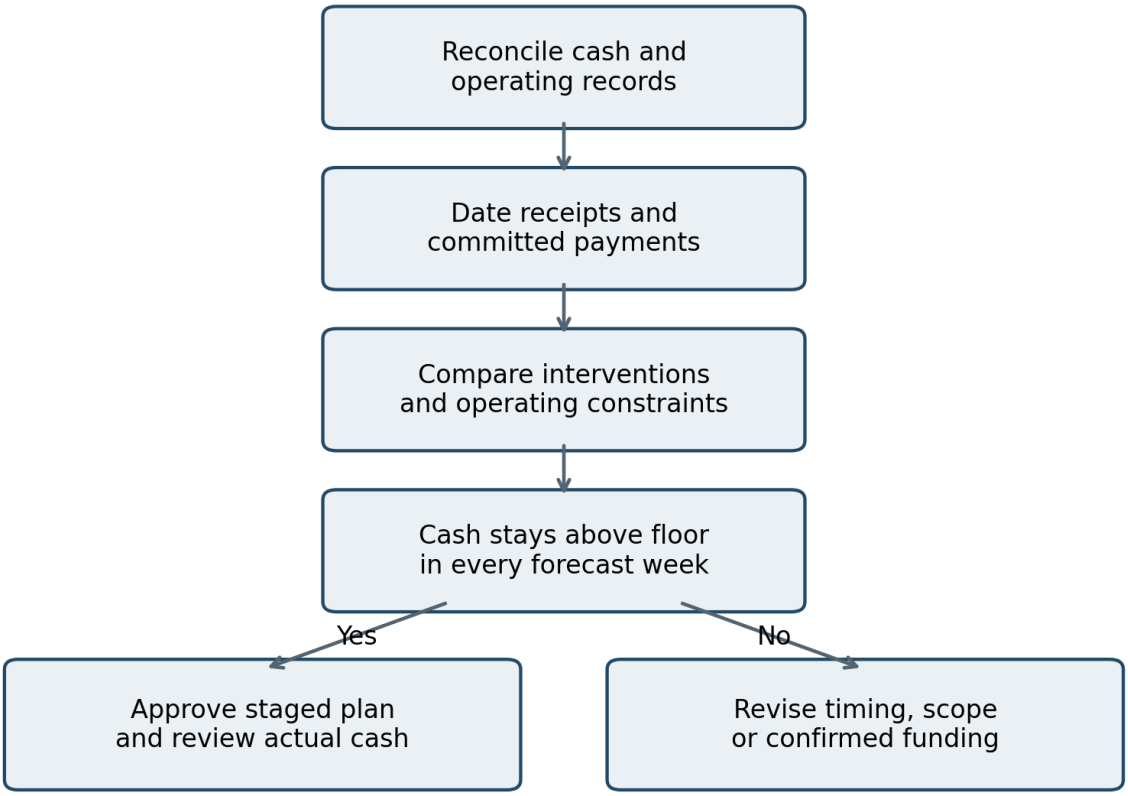


Figure 1. Proposed liquidity decision process. This schematic is a conceptual design.

RESULTS AND DISCUSSION

Capital released and financing consequences

The baseline balance relationships reveal why advisory recommendations need separate cash and earnings measures. Each collection day represents $10,000 of receivables; each inventory or purchase day represents $6,000. The collection intervention releases $50,000 before costs. The inventory intervention releases $48,000, while the supplier extension releases $30,000. Their combined gross release is $128,000. Deducting the $28,000 implementation expenditure gives a $100,000 net transition cash contribution. The cash conversion cycle falls from 85 to 67 days under the combined assumptions.

Table 1. Illustrative working capital intervention comparison. All inputs are assumed.

Intervention	Gross cash release	One-time cost	Net transition cash	Revised CCC
Collections	$50,000	$10,000	$40,000	80 days
Inventory	$48,000	$15,000	$33,000	77 days

Intervention	Gross cash release	One-time cost	Net transition cash	Revised CCC
Supplier terms	$30,000	$3,000	$27,000	80 days
Combined	$128,000	$28,000	$100,000	67 days

The $100,000 is not annual profit. The release changes the capital tied up in operating balances. Implementation expense affects earnings according to its accounting treatment, while the funding benefit depends on the use of the released cash. With an assumed annual financing rate of 12 percent and immediate use of the entire $128,000 gross release to reduce borrowing, the maximum full-year interest saving is $15,360. Using the $100,000 net release gives $12,000. The two figures answer different questions; neither is an observed outcome or a guaranteed recurring benefit.

A simple combined-package benefit check further clarifies the distinction. If the gross release reduces debt for a full year, with no effect on sales or operating cost, the first-year financing saving less the implementation expenditure is $15,360 - $28,000 = -$12,640. At 12 percent, three years of $15,360 savings have a present value of approximately $36,892. Subtracting $28,000 yields about $8,892. This calculation excludes taxes and a terminal reversal of the working capital change. A complete investment appraisal must specify the period for which lower balances persist and any later cash required to restore them.

The model therefore distinguishes a liquidity objective from a value objective. A package which releases cash quickly might help satisfy an upcoming payment despite producing a negative first-year earnings contribution. A package with a positive discounted benefit might still fail during the implementation weeks. Client advice should state which objective governs the decision. A business facing an immediate cash shortage should not interpret a multi-year appraisal as evidence of near-term solvency.

The model also separates scale from improvement. A growing business might maintain unchanged DSO, DIO, and DPO while requiring substantial additional funding. At a twenty-percent increase in activity under the baseline ratios, net operating working capital rises from $730,000 to $876,000, requiring $146,000. A package releasing $100,000 after implementation cost would cover only part of this requirement. Growth therefore needs its own cash assessment even when current operations appear profitable and ratio performance remains stable.

The deterministic calculations support a practical distinction between a ratio target and a funded action. Reducing DSO by five days defines an average balance change. It does not identify which customers will provide the corresponding receipts or the dates on which those receipts arrive. In the illustrative firm, the target implies a gross release of $50,000, but the weekly schedule determines whether that amount arrives before intervention payments. If the receipts occur after an early payroll obligation, the package can remain attractive over a year and still be infeasible during the transition. The method therefore treats the average balance estimate as an initial screening quantity and the dated cash bridge as the implementation test.

Cash released from receivables also needs a persistence test. A temporary collection campaign may bring overdue balances forward without changing the terms applied to new sales. In that case, the initial cash improvement can be followed by a return to the original receivable level. The adviser should distinguish a one-time backlog collection from a sustained reduction in the operating cycle. Both can help the client, but their economic implications differ. The first supports a temporary cash objective, while the second can reduce continuing funding needs if sales and payment behaviour remain comparable. The benefit calculation should state which mechanism is assumed before estimating recurring financing savings or presenting a multi-year return.

Another hypothetical comparison illustrates why growth and collection improvement must be evaluated jointly. At unchanged turnover, the collection target releases $50,000. If sales increase by twenty percent while the original fifty-five-day collection pattern persists, receivables increase from $550,000 to $660,000. If DSO instead falls to fifty days at that higher activity, receivables become $600,000. The improvement avoids $60,000 of receivables relative to the growth baseline, yet the business still holds $50,000 more receivables than at its original scale. Describing this as an absolute cash release would be misleading. It is a reduction in the additional financing required for growth, measured against a clearly specified alternative.

The same reasoning applies to supplier terms. With credit purchases rising by twenty percent, daily purchases increase from $6,000 to $7,200. A five-day agreed extension then supplies $36,000 relative to the higher-activity baseline. That contribution can partly finance growth, but it remains dependent on supplier acceptance and continued purchase volume. It also increases the amount of supplier funding within the operating arrangement. Management should examine whether the change concentrates exposure in a few counterparties or creates

a later payment peak. The model does not equate lower immediate cash outflow with a lower total obligation. It records the movement in payment timing and the obligations that remain after the forecast closes.

Payment timing and operating tradeoffs

Timing changes the outcome even when the total release is positive. Assume a separate weekly illustration with opening cash of $40,000, a minimum balance of $25,000, and no net operating cash movement before the interventions. Paying the entire combined implementation cost immediately leaves $12,000 before benefits arise. The package fails the liquidity requirement by $13,000. Completing the $10,000 collection intervention first leaves $30,000. If the resulting $50,000 release arrives before subsequent spending, cash rises to $80,000. Paying the remaining $18,000 then leaves $62,000. The comparison demonstrates the effect of sequencing under the stated timing assumptions.

Actual collection timing determines whether this sequence works. A disputed receivable, an unapproved credit note, or a contractual instalment schedule invalidates an assumed immediate receipt. The adviser should map each planned collection to an invoice, customer commitment, and responsible employee. Management then compares expected and actual receipts every week. A forecast error should trigger revision of the next intervention rather than automatic completion of the original package.

The collection-delay scenario absorbs $100,000 at the baseline sales rate because an additional ten DSO days equals ten times $10,000. This amount equals the package's net transition release. The comparison shows how a modest timing deterioration might remove the apparent cash advantage. The scenario does not establish the likelihood of a delay. The decision model uses the result to require contingency funding or a larger opening buffer when collection reliability is low.

The lower-sales scenario exposes a measurement trap. With annual credit sales reduced to $3,285,000 and DSO held at 55 days, receivables become $495,000, a reduction of $55,000. With cost of goods sold and purchases reduced proportionately to $1,971,000, inventory becomes $324,000 and payables $162,000. Net operating working capital becomes $657,000, releasing $73,000 relative to baseline. The operating cycle still equals 85 days. Lower balances here reflect lower activity, rather than better collection or stock control. Reporting the $73,000 as an advisory improvement would misstate the source of the change.

The inventory service scenario creates a different tradeoff. The proposed eight-day inventory reduction releases $48,000. At 12 percent, the maximum full-year financing saving on this gross release is $5,760. If stockouts reduce annual contribution by an assumed $40,000, the intervention's recurring financing benefit fails to offset the operating loss. The one-time $15,000 implementation cost worsens the first-year comparison. A target inventory reduction therefore needs item-level service conditions, replenishment lead times, and substitutes, rather than a ratio target alone.

Supplier negotiation also requires attention to price incentives. Suppose a supplier offers a two-percent discount for payment on day ten, while the undiscounted amount falls due on day thirty. Forgoing the discount effectively finances 98 monetary units for twenty days at a cost of two units. The simple annualised cost is approximately (0.02/0.98) × (365/20), or 37.24 percent. This is not a compounded annual percentage rate. The example shows why delayed payment differs from low-cost financing. Any proposed payable extension should include lost discounts and supply risk in its comparison.

Table 2. Conditional decision requirements for advisory implementation.

Decision	Evidence required	Operating constraint	Evaluation
Collection change	Invoice and payment records	Customer retention and agreed terms	Cash received, disputes resolved
Inventory change	Item-level stock and purchase schedule	Required product availability	Purchases avoided and contribution retained
Supplier extension	Accepted payment terms and prices	Continuity of supply	Discounts lost and payments rescheduled
Combined package	Weekly reconciled forecast	Minimum cash in every week	Net cash, net benefit and forecast error

The liquidity floor creates an explicit rule for decision sequencing. In the immediate-spending example, the full package fails because the required cash is committed before the release arrives. This failure is observable before implementation. Management then has three possible responses: postpone expenditure, fund the temporary gap, or stage the intervention. These responses create different costs and risks. A phased plan is preferable only when its

first release occurs soon enough and later changes do not depend on expenditure already postponed.

Credit policy illustrates why a collection target needs a commercial test. An adviser might reduce DSO by tightening terms for all customers. The resulting cash release is useful only if lost contribution and collection cost do not outweigh the funding advantage. A more selective policy might focus on disputed invoices, inconsistent billing, or customers violating existing terms. This approach changes the collection process before changing the commercial proposition. The model requires the adviser to identify which mechanism produces the target improvement and how management will measure its effect.

Customer service also creates information for the forecast. A complaint about an incorrect invoice indicates a process problem different from a customer who lacks funds. The first case requires correcting the record; the second requires a collection and credit decision. Treating both cases as generic overdue debt produces the wrong intervention. A case-level explanation helps the business distinguish administrative delay, commercial disagreement, and credit exposure. This distinction also makes an improvement easier to attribute when payment performance changes.

Inventory recommendations should recognise the connection between physical stock and purchase commitments. Selling an existing item releases cash only when the customer pays. Cancelling a future purchase avoids an outflow only when the supplier accepts cancellation without an offsetting charge. Reducing obsolete inventory might require a write-down rather than generate a full cash release. The adviser should therefore distinguish balance-sheet adjustment, cash realisation, and avoided payment. These three outcomes have different meanings for liquidity and earnings.

The supplier extension deserves the same specificity. An agreed five-day increase in terms changes a forecasted payment date. Paying five days late without agreement creates a contractual and relationship issue. A supplier might respond by stopping deliveries or requiring advance payment. Either response reverses the expected financing benefit and might reduce sales. The model therefore treats an extension as feasible only after the supplier arrangement is documented and the client understands associated pricing and service changes.

Trade credit conditions also interact with external credit availability. Research on trade credit during financial crises and on cash holdings supplies additional context for this interaction [75] [76]. These sources motivate separate scenarios for supplier terms and available cash. The model does not import their estimated relationships as client parameters. Instead, management checks whether a receivable delay might coincide with stricter supplier terms, a combination which a single-variable sensitivity exercise would fail to represent.

A joint downside scenario is easy to inspect algebraically. Suppose the ten-day customer delay absorbs $100,000 and suppliers require payment five days earlier, absorbing a further $30,000. Together, the assumed movements require $130,000, exceeding the package's $100,000 net release by $30,000. This calculation excludes any simultaneous operating loss or interest increase. The scenario demonstrates why a recommendation should disclose combinations of adverse changes when customer and supplier conditions plausibly deteriorate together.

A financing-rate change produces another useful comparison. At six percent, the combined package's full-year saving on the $128,000 gross release is $7,680. At eighteen percent, the equivalent figure is $23,040. The cash release itself is unchanged. Higher funding cost increases the financing value of the release but does not improve collection reliability or inventory service. Management should avoid interpreting a larger calculated saving as evidence that the operating change became easier to implement.

Consider a further hypothetical timing comparison. Suppose the collection intervention costs $10,000 in week one, while its additional receipts are $20,000 in week two and $30,000 in week four. Ignoring all other flows for this isolated comparison, its cumulative contribution is negative $10,000 after week one, positive $10,000 after week two, and positive $40,000 after week four. The final amount matches the earlier net collection release. However, a business with less than $10,000 of headroom above its cash floor cannot fund the first week from existing cash. Splitting the cost, negotiating the payment date, or using confirmed temporary funding changes the transition. The closing total alone cannot distinguish these arrangements.

The inventory intervention has a comparable timing issue with a different operational constraint. Suppose the $48,000 purchase reduction occurs only when two planned orders are amended, saving $24,000 in week three and $24,000 in week six. An immediate $15,000 implementation cost creates a temporary requirement before the first avoided payment.

Treating the entire $48,000 as an opening cash receipt would overstate liquidity. The difference is not a small forecasting convention. It changes whether management can start the action and whether bridging finance is required. In addition, the inventory policy must preserve the units needed to satisfy profitable demand between those weeks. Avoiding a purchase is beneficial only within the stated service and contribution conditions.

A further hypothetical example shows why customer concentration belongs beside average collection indicators. Suppose the enterprise expects $120,000 from one customer in week four and $120,000 from twenty smaller customers over the same period. Both groups contribute the same scheduled receipts, but the first creates a concentrated timing dependency. Delaying the large receipt by two weeks removes $120,000 from the intervening balances. Delaying one of the smaller receipts removes only its individual amount. This comparison does not estimate default likelihood or imply that many customers are always safer. Shared industry conditions or a common payment intermediary could affect several small customers together. The model's contribution is to preserve the concentration and timing assumptions, so management sees which receipt or linked group drives a forecast shortfall and which practical action addresses the dependency.

Supplier concentration produces a related decision problem. Consider a hypothetical $30,000 payment extension intended to improve the minimum cash balance. If the supplier accepts the extension without changing price or delivery, the forecast recognises the agreed timing benefit. If the extension requires a $2,000 fee, the adviser includes the fee in the relevant week and evaluates the package rather than the extension alone. If the supplier instead requires a $20,000 deposit for the next order, much of the apparent timing advantage disappears. These examples use declared amounts solely to inspect the method. They show why an adviser needs the complete revised commercial arrangement. A payable-days target describes one aspect of the relationship, while the accepted schedule determines whether the anticipated cash improvement materialises during the period of constraint.

A cash-floor comparison also needs an explicit response when every available package fails. The model should report the residual funding gap, its first occurrence, and the period over which the gap persists. A recommendation to obtain funding should identify whether an approved facility exists, when funds become available, and which conditions govern drawing. If no confirmed source exists, the forecast should retain the gap rather than insert a balancing loan. Management then compares feasible changes in operating scope, implementation

timing, asset use, customer settlement, or negotiated payments. This is a decision outcome, even when the model does not produce an immediately acceptable package. The purpose of the calculation is to expose the obligation and the available choices. A spreadsheet showing a positive closing balance through an unsupported borrowing assumption does not resolve the liquidity problem.

Weekly implementation and forecast revision

The resulting engagement design gives the finance adviser specific responsibilities. The adviser reconciles source records, documents the baseline, identifies feasible interventions, calculates cash and earnings effects separately, and presents a phased plan. Management approves customer terms, supplier negotiations, and inventory service requirements. Finance staff maintain the forecast, while an operational owner investigates exceptions. The arrangement gives each recommendation a decision owner and prevents a model output from replacing commercial judgement.

Performance reporting should retain the initial baseline and explain changes in volume, price, and timing. Useful measures include weekly cash-floor breaches, overdue receivables, inventory availability, lost supplier discounts, forecast error, and verified interest savings. Reduction in an average balance is insufficient evidence of success. Benefits should be recognised only when the underlying collection, purchase, or borrowing movement is documented. This practice also limits double counting between a working capital release and the financing saving generated from its use.

An advisory report should state both the base recommendation and the conditions which would change the decision. For example, management might approve the collection phase when reconciled invoices support a five-day improvement and the cash floor remains intact. The inventory phase might require a service test before approval. The supplier phase might require written acceptance of revised terms. This conditional structure gives management a usable action sequence and gives later reviewers an explanation of why the engagement proceeded or stopped.

The adviser should also recognise cognitive limits. Judgement under uncertainty and prospect theory describe patterns relevant to how decision makers evaluate risk and potential loss [77] [78]. Within this model, the operational response is to disclose assumptions, show adverse scenarios, and preserve the original forecast. The paper does not diagnose managerial

behaviour. Its recommendation is procedural: compare the same options under consistent assumptions and avoid revising the baseline after the outcome is known.

Learning after implementation requires retaining mistakes. A cash forecast might miss a collection because a customer failed to honour a promise. Another miss might result from an unrecorded purchase approved internally. These errors require different responses. Research on organisational learning and the balance between exploration and exploitation informs this distinction [79] [80]. The model supports a short weekly review in which staff classify forecast differences and amend the relevant process, rather than treating every variance as evidence of poor collection effort.

The advisory value of the model is greatest when management has competing actions with different timing. A package producing the highest annual benefit may consume scarce implementation cash before a smaller package begins to release funds. Sequencing can therefore change feasibility without changing the individual action estimates. Starting with collections can fund a later inventory change if the additional receipts are evidenced and arrive as scheduled. However, the sequence should not be justified by circular assumptions in which every intervention depends on another unimplemented intervention. A credible plan identifies its first independent funding source and tests each subsequent commitment against the cash then available. This makes the proposed sequence reviewable before management approves expenditure.

The model also clarifies how to report an intervention that fails. A collection campaign can miss its cash target because customers dispute invoices, because reminders were not issued, or because the assumed target was unrealistic. These explanations imply different responses. A dispute problem requires invoice and service resolution. An execution problem requires an owner and follow-up. An unrealistic target requires a revised financial case. Grouping all three as poor collection performance conceals the decision that needs correction. The register should retain the reason for the shortfall and the financial effect. A revised plan then changes the relevant mechanism instead of applying an arbitrary reduction to every forecast receipt.

Performance assessment should therefore include both forecast quality and operating outcomes. Cash received, purchases avoided, agreed payment movements, intervention cost, service continuity, and contribution retained provide separate observations. Forecast error can be reported in amounts and timing, with significant differences explained at transaction level.

A shorter cash conversion cycle is useful context, but it should not replace those observations. The change in the cycle can reflect activity mix, write-offs, or a shift in average balances that has little relationship to available cash. Reconciliation is especially useful when management reports an improvement while bank balances deteriorate. The apparent conflict may be explained by growth, tax payments, debt repayment, or implementation expenditure.

The proposed approach also permits a disciplined stopping decision. Before implementation, management can specify conditions requiring review, such as a cash forecast below the floor, unacceptable stock availability, rising customer disputes, or an unapproved supplier dependency. These conditions do not imply that every adverse movement requires abandonment. They identify a point at which the original approval no longer covers the current assumptions. The adviser can then compare continuation, redesign, and suspension using the updated schedule. Reversible actions may be paused with limited cost, while contractual commitments require a separate analysis. A stopping condition is useful only when the responsible person has both access to the relevant information and authority to act.

Forecast error should receive a transaction explanation before the client changes the intervention. Suppose scheduled receipts exceed actual receipts by $40,000 during a week. The difference might arise from customers paying later, a credit note, a missing bank entry, or an incorrect forecast date. These mechanisms imply different responses. Collection follow-up addresses a timing issue, invoice correction addresses a dispute, and reconciliation addresses a record problem. The variance register therefore separates amount errors from timing errors and retains the next expected receipt date. A receipt appearing one week late creates two weekly differences but only one underlying event. Counting both as unrelated forecast failures exaggerates the number of problems. The adviser should consolidate the event while preserving its impact on each week's cash balance.

The same reasoning changes how management evaluates forecast improvements. A lower aggregate error does not necessarily mean fewer liquidity breaches if the remaining error concentrates in the most constrained week. An adviser should compare error alongside the minimum weekly balance, the number of weeks below the floor, and the amounts attached to unresolved receipt conditions. These measures answer different questions. The minimum balance identifies the most severe funding position. Breach weeks indicate duration. Unresolved conditions identify assumptions requiring follow-up. Their interpretation depends on the cash floor selected by management and on the obligations included in the forecast. The

paper does not propose a universal cash reserve or statistical performance threshold. Each enterprise should state the operating requirement represented by its floor before using these measures to compare interventions.

Staged implementation creates a further opportunity to reduce exposure to an uncertain benefit. Suppose an illustrative collection change costs $10,000 and targets the release of $50,000. Management might first apply the revised process to a defined subset of invoices, monitor receipts and customer disputes, and then decide whether to extend the change. The initial stage has its own cost and cash schedule. Its results should not be multiplied across all invoices without checking differences in customers, contractual terms, and existing payment practices. A subset chosen because collection is easiest is not representative of the entire ledger. The model therefore treats staging as a way to generate relevant implementation evidence and revise the package. Staging does not independently establish a causal effect or guarantee the forecast benefit.

Retention and service outcomes also determine whether a cash release persists. Faster collection accompanied by a material increase in customer disputes might release cash initially while weakening subsequent demand. Reduced inventory accompanied by repeated stockouts might improve a balance measure while reducing contribution from fulfilled sales. The intervention review should therefore retain the operating conditions used at approval and examine whether those conditions held. Changes in sales, margins, or service need an explanation of other influences before management attributes them to the advice. A later empirical evaluation would compare similar enterprises or implementation periods with a credible design. The present model supplies the decision records needed for such work, including baseline definitions, intervention timing, operating constraints, and revisions. These records support evaluation; they do not replace a suitable comparison.

The schematic summarises the dependency between records, dates, choices, and cash-floor approval. Its feedback branch matters because a rejected package should return to a named assumption or constraint. A collection delay returns to the receipt schedule. An unaffordable deposit returns to implementation timing or confirmed funding. A service failure returns to the operating requirement. This gives the adviser a specific revision task instead of a generic instruction to improve the forecast. The process remains proportionate to the enterprise's resources when the client prioritises the transactions determining the funding gap. Its analytical value is the traceable connection between a proposed change and the

week's ability to meet obligations. Its effectiveness in practice still requires assessment using authentic client records and outcomes.

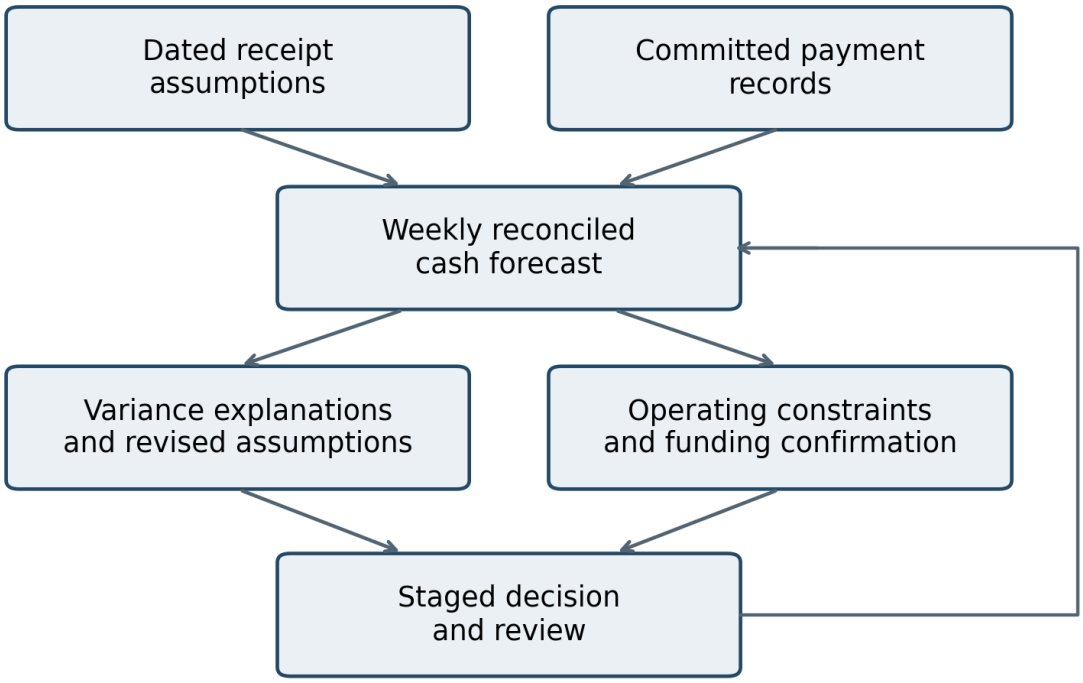


Figure 2. Forecast reconciliation and decision feedback. Receipts, commitments and revisions retain distinct records; the relationships are proposed, not empirically validated.

Operating contexts behind cash commitments

Finally, applicability varies by operating model. A service enterprise with few inventories will place greater weight on receivables and payroll. A retailer with cash sales will place greater weight on stock and supplier terms. A contractor receiving milestone payments needs a schedule organised around acceptance and certification. These differences require changes in model inputs and service constraints, not a change in the central cash identity. The contribution is therefore a general decision procedure whose operational definition must fit each client.

The reviewed literature includes supply-chain risk, internal QHSE audit, commercial-facility governance, joint-venture alignment, and small-business operating procedures. These sources cover different sectors and should not be pooled as evidence of the same financial outcome. Their shared relevance is organisational responsibility for controls and exceptions. A liquidity plan requires a procedure governing invoice correction, stock decisions, and

payment approval. A high-risk industrial business also needs to preserve operational requirements when changing inventory or maintenance expenditure. The present model borrows the distinction between decision ownership and operating execution, while leaving sector-specific safety requirements to competent personnel. Transfer of a control concept requires a clear explanation of its role. The paper makes no claim that industrial audit or safety results establish SME profitability gains. [81] [82] [83] [84] [85]

Data-protection governance, privacy impact assessment, IT general controls, risk-based business intelligence, and compliance-oriented automation concern the records supporting financial decisions. Their practical relevance is the integrity and authorised use of the forecast's inputs. A receivable schedule should retain stable identifiers and access controls, while a report should disclose transformations affecting the balances. The model also requires a review of automated changes to customer classifications or payment rules. A system producing an apparently precise forecast creates weak advice when its data population is incomplete or the responsible staff lack authority to correct records. These sources motivate explicit controls around the information process. They do not establish that a particular technology is necessary for every SME; a simpler authorised workflow might satisfy the same decision requirements. [86] [87] [88] [89] [90]

IT governance, cloud identity controls, access integration, infrastructure-as-code governance, and supply-chain transformation provide context for technology-dependent advisory workflows. The present cash model remains usable without these specific technologies. When the client uses interconnected systems, the adviser needs to understand who changes relevant configurations and how changes affect the records. A new import routine might omit invoices, create duplicates, or alter due dates. Versioned rules and access responsibilities therefore belong to the forecast's control environment. The useful implication is preservation of an auditable link from source records to decision inputs. This paper does not compare cloud providers or estimate software implementation success. Its financial focus is the consequence of unreliable or unauthorised information changes for payment feasibility and reported benefit. [91] [92] [93] [94] [95]

The forensic literature covers communications analytics, public financial oversight, data mining, banking fraud detection, and donor-funded programme audits. This material motivates a boundary in financial advisory: an unexplained balance should be investigated before the adviser assumes it will turn into cash. A doubtful or unsupported receivable differs

from a routine collection delay. The cash forecast should therefore preserve uncertainty and identify evidence gaps requiring another review. A screening alert does not prove fraud, and a forensic source does not establish the amount recoverable by a client. The model treats reconciliation and follow-up as prior conditions for a reliable intervention estimate. Where the engagement identifies an unresolved irregularity, the report states the gap rather than converting an expected balance reduction into a realised financial benefit. [96] [97] [98] [99] [100]

Payroll-and-receivable auditing, customer-service analytics, KPI accountability, and analysis of unstructured records connect financial measures to their underlying processes. The supplied study on unstable power and electronic-device durability adds a contextual reason to consider interruption, replacement, and maintenance expenditure. Its findings are not used to estimate these costs in the numerical example. In an actual engagement, staff would record the relevant payments and lost operating time. Similarly, improved service or a shorter reconciliation cycle becomes a financial benefit only through an evidenced mechanism. The proposed dashboard therefore retains payment timing, verified cost movements, and service conditions as separate measures. This source integration supports the model's design without converting unrelated engineering or process studies into causal evidence about financial advisory. [101] [102] [103] [104] [105]

Energy-sector studies help explain why financial advisers must trace cash forecasts to operating assumptions. Nwangwu and colleagues connect operational integrity with technical barriers, workforce competence, compliance learning and decision governance [106]. Their review of technical learning centers links competence development to employer involvement, work-integrated learning and shared investment [107]. For liquidity advisory, these are contextual foundations for estimating the resources needed to maintain operations. Training expenditure and safety-critical maintenance belong in the commitment register rather than disappearing from a short-term cash-saving plan. This interpretation does not establish a measured liquidity effect. It identifies operating obligations which an adviser should investigate before recommending expenditure reductions.

The analytical drilling-fluid model coauthored by Nwangwu treats filtration through a compressible cake as a nonlinear physical problem [108]. Its relevance here is limited to the technical basis of production and remediation assumptions. A financial adviser should request a qualified engineering assessment before translating possible formation damage into

production loss, expenditure or cash-flow scenarios. Nwangwu and colleagues' reservoir forecasting review organizes forecasting around representation fidelity, uncertainty characterization, calibration integrity and scenario coherence [109]. These dimensions support the distinction between a technically credible operating forecast and a precise-looking financial projection. They do not validate this paper's SME liquidity framework or authorize importing reservoir equations into a cash forecast.

The capital budgeting review by Nwangwu and colleagues connects investment decisions to staged commitments, supply-chain readiness and execution governance [110]. This connection matters when equipment deposits, contractor payments and commissioning delays determine the timing of available cash. Their mature-asset resource review emphasizes longitudinal data quality, integrated interpretation, recovery-mechanism modeling and portfolio opportunity management [111]. Applied to advisory interpretation, a revised production expectation should therefore trigger a documented review of payment commitments and revenue timing. The proposed financial use is an extension of these conceptual arguments. An adviser still needs client-specific contracts, operating records and cost estimates before changing the forecast or recommending a financing decision.

Propositions and evaluation boundaries

The conceptual model yields three testable propositions. First, advice which identifies payment timing and a cash floor should produce fewer implementation-related cash-floor breaches than advice based solely on annual ratios, conditional on comparable operating conditions. Second, the benefit of inventory reduction should decline as lost contribution from stockouts rises. Third, the value of a supplier extension should decline as lost discounts and disruption costs increase. These propositions require subsequent observation; the numerical examples do not verify them.

The paper's limits follow from its design. The selected literature covers different countries, firm sizes, and financing environments. Their empirical relationships do not provide parameters for the illustrative enterprise. The example assumes uniform activity, immediate intervention effects in balance calculations, and a fixed financing rate. The separate timing example deliberately varies these assumptions to show their importance. No causal impact, business survival rate, or client satisfaction result is estimated. The model

contributes a decision procedure whose arithmetic is inspectable, rather than evidence of effectiveness in a population.

A future evaluation should preserve invoice-level and weekly records before and after advice. Eligible firms would be assigned comparable reporting definitions, with a documented intervention date and a suitable comparison group where feasible. Evaluation would separate changes caused by sales contraction from changes in collections or purchasing. Recording rejected recommendations would also reduce selection bias from examining successful packages alone. The central outcomes would be liquidity-floor breaches and verified net benefits, measured alongside customer retention and product availability.

The proposed evaluation design should measure the cost of advice as well as the apparent benefit. Staff time spent preparing records, training, and updating the forecast belongs in implementation cost. Software subscriptions and recurring review time belong in ongoing cost. Benefits arising before implementation need separate classification because they might reflect pre-existing management action. Evaluation then compares incremental gains with incremental costs over an explicitly stated horizon. This accounting prevents a positive cash movement from becoming an unsupported return claim.

Future empirical evaluation would require observations beyond the illustrative arithmetic. An appropriate study could collect pre-intervention cash forecasts, actual outcomes, action timing, and operating constraints across comparable enterprises. The analysis would distinguish implementation from recommendation, and it would record why some clients decline or cannot fund an action. Firms receiving advice may differ from firms that do not, so an observed performance difference would not automatically establish advisory effectiveness. Repeated forecasts would also allow examination of whether reconciliation and scenario review improve prediction quality. Until such evidence is available, the present contribution remains a transparent decision procedure with reproducible conditional results, rather than an estimated causal effect on SME profitability.

CONCLUSION

Payment timing is the decisive condition in this liquidity model. A working capital package releases an assumed $128,000 before costs and $100,000 after costs, yet the enterprise still breaches its cash floor if expenditure precedes the required receipts. A ten-day

collection delay absorbs the entire net release. The adviser therefore needs an invoice-level schedule alongside the annual balance indicators. The calculations establish these dependencies under the stated assumptions; they do not measure realised gains in an enterprise.

Application should begin with reconciled cash, dated obligations and an agreed minimum balance. Management should approve a collection, stock or supplier-term change only after checking its implementation cost, receipt timing and service consequences. Weekly revision then tests whether the anticipated release persists. An empirical assessment would need client records covering the baseline, intervention dates, financing use and operating outcomes.

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