

Fiscal Balances and Payment Arrears

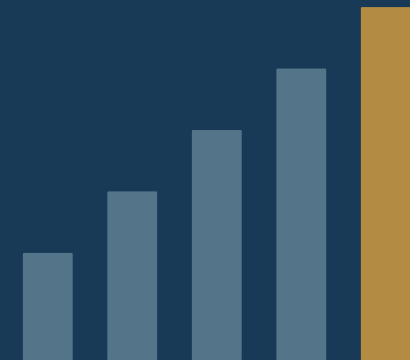
What Government Accounts Mean for Businesses

Commitments. Unpaid invoices. Cash clearance. Business liquidity.

Commissioning institution: Institute of Development and Economic Research (IDER)

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Fiscal records: 2024–2031, dated by status
Contractor scenarios: 13 weeks / 365 days

About this publication

Independent research • transparent evidence • reproducible calculations

TITLE AND SERIES

Fiscal Balances and Payment Arrears: What Government Accounts Mean for Businesses

IDER's Ghana Macroeconomic Policy and Business Intelligence
Briefings

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end-2024 claims.

RESPONSIBILITY AND INTERPRETATION

The author and IDER are responsible for this independent research. Source citation does not imply endorsement. Source records, historical audit statuses and conditional scenarios do not constitute a live national invoice register or a newly identified causal policy effect.

DATA, CODE AND ENQUIRIES

The package contains source-labelled inputs, executable code, exhibit data, model assumptions and verification records. Source-access limitations are documented. Research and corrections: info@iderafrica.com.

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Page numbers match the printed folios and PDF pages; entries link to their destinations.

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NAVIGATION Running headers return to Contents. Source IDs link to References; equation IDs return to the model index.

Read the fiscal balance, the unpaid claim and the supplier’s bank credit separately

A government accounting adjustment is not automatically a payment received by a business.

01 WHAT WAS RECOGNISED?	02 WHAT WAS SETTLED?	03 WHAT DID IT CHANGE?	
Match fiscal basis and perimeter. Distinguish an open commitment, an accepted payable and a valid amount that has passed its contractual due date.	Reconcile approved claims, bank instructions and supplier bank credits. Keep partial payments, retentions, offsets and non-cash adjustments separate.	Trace the contractor's working capital, wages and loan payments. Conditional cash models show mechanisms; a causal effect needs a credible comparison.	
Fiscal bridge p. 29	Audit record p. 40	Contractor cash p. 61	Model catalogue p. 113

A fiscal improvement can coexist with severe supplier funding pressure

Research question: what was incurred, what was paid, what is overdue—and how does the delay affect business cash?

RESEARCH QUESTION

What did government incur—and what cash reached businesses?

Fiscal recognition, invoice status and supplier liquidity are separate observations.

EVIDENCE WINDOW

Fiscal 2024–2031 by status
Audit: November 2025 vintage
Cut-off: 26 September 2026

Sources: [\[S01\]](#), [\[S02\]](#), [\[S10\]](#); complete records in References.

01 SOURCE

Official fiscal flows, audit categories, energy payments and banking indicators; dates and scope retained.

02 RECONCILE

Cash–commitment bridge, review-status changes, rounding residuals and gross-versus-net distinctions.

03 TEST

Bank provisioning, 273 daily-delay cases and financed/partial receipts; 243 fiscal scenarios retained. No causal effect is fitted.

2025 PRIMARY CASH BRIDGE

30.595 → 6.941

GHS bn: commitment to cash surplus. Net payables fell 23.653 bn; rounding explains 0.001 bn.

PROVISION-ADJUSTED NPL DIAGNOSTIC

4.007% → 4.308%

Dec 2025 to Mar 2026: residual after reported provisions / gross loans. Source-scope diagnostic, not estimated credit loss.

Three tests distinguish fiscal adjustment from contractor liquidity

Keep the accounting bridge, the claim’s status and the payment-date funding need visible together.

01 FISCAL BRIDGE SOURCE-BASED ACCOUNTING GHS 23.653 bn 2025 net-payables reduction Not gross cash clearance The source cash primary surplus is GHS 6.941 bn versus GHS 30.595 bn on commitment basis. A net flow needs a gross reconciliation.	02 CLAIM STATUS HISTORICAL AUDIT VINTAGE GHS 47.756 bn Validated in November 2025 Validated ≠ paid The audit covered end-2024 claims. Reclassification, rejection and pending review are not supplier bank credits or current arrears estimates.	03 CONTRACTOR CASH SYNTHETIC 13-WEEK TEST GHS 330,000 Bridge with 14-day receipt delay Same closing cash: 580 k The on-time bridge is 10 k. Delayed government receipts increase the interim funding need even though day 91 cash is unchanged.
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Sources: [\[S01\]](#); [\[S02\]](#); [\[S10\]](#); complete records in References.

DECISION RULE Ask what was recognised, what is legally due, what reached the supplier’s bank and what it funded.

A 90-day route to an auditable fiscal-to-business payment record

Proposed after access approval; responsible teams, deliverables and acceptance criteria are explicit.

DAYS 0–30

Fiscal + claims data owners

DEFINE & LINK

Map the perimeter and claim stages. Reconcile valid amounts, due dates, disputes, retentions and bank-payment evidence.

All captured material records identified; every unknown due date and source gap disclosed.

DAYS 31–60

Treasury + suppliers + banks

RECONCILE & STRESS

Produce the fiscal bridge and dated contractor cash ladders. Separate gross arrears creation, cash clearance and non-cash changes.

No duplicate settlement; partial receipts and bridge interest tested at each event date.

DAYS 61–90

IDER + reviewer + decision owners

REPRODUCE & USE

Replay the outputs; approve a payment-quality dashboard and a preregistered evaluation that never delays legally due payments.

Outputs reproducible; unresolved claims visible; causal language restricted to identified effects.

Sources: [\[S10\]](#); complete records in References.
Targets are proposed controls for captured pilot records, not achieved national coverage or agreed institutional mandates.

Abbreviations and reading terms

Source-specific fiscal definitions and contractual payment dates remain controlling.

BTA	Bank Transfer Advice; not independently confirmed supplier bank credit.	Payable	Recognised unpaid obligation; it may not yet be overdue.
CAGD	Controller and Accountant-General's Department.	Arrear	Valid unpaid amount beyond its governing payment due date.
BoG / MoF	Bank of Ghana / Ministry of Finance, Ghana.	Commitment	Agreement or authorisation before the associated payment obligation is fulfilled.
GIFMIS	Ghana Integrated Financial Management Information System.	Clearance	Distinguish cash settlement from non-cash adjustment.
IPC	Interim Payment Certificate; status and certified amount matter.	Net change	Gross additions less reductions, with valuation and scope adjustments.
IPP	Independent Power Producer.	RMST	Restricted mean time unpaid through a stated follow-up horizon.
GDP / GHS	Gross domestic product / Ghana cedi.	ITT	Intention-to-treat effect of an assigned offer; prospective here.
DSA	Debt sustainability analysis; broader arrears perimeter stated.	FX / USD	Foreign exchange / US dollar; currency units are not interchangeable.
IMF / IDER	International Monetary Fund / Institute of Development and Economic Research.	pp / %	Percentage points / percent; changes in ratios require the correct unit.
NPL / DPD	Nonperforming loan / days past due under the loan's own terms.	k / m / bn	Thousand / million / billion. One billion equals 1,000 million.

How to interpret the evidence

Separate source outturns, projections, historical audit categories and conditional business models.

SOURCE-REPORTED / DATED

2024 actual, 2025 preliminary and 2026–2031 projected fiscal observations retain their source vintage. A projection is not a confirmed payment.

HISTORICAL REVIEW STATUS

November 2025 validated, rejected, pending and reclassified money refers to the end-2024 audit inventory—not current unpaid balances.

EXECUTED ACCOUNTING

Cash-spending, revenue and bank-provision diagnostics use named inputs. Accounting attribution does not identify a policy cause.

CONDITIONAL BUSINESS MODELS

Invoice, rate, material, payroll and cash-ledger settings are assumed. They are not average Ghanaian firms or observed defaults.

CAUSAL / PROSPECTIVE

P01–P02 are unestimated research designs. No new Ghana job effect, bank-loss coefficient or fiscal multiplier is claimed.

UNITS AND DENOMINATORS

Money, claims, suppliers, payments and jobs are different units. GHS and USD totals are not added without an explicit rate and scope.

UNCERTAINTY AND MISSINGNESS

Scenario ranges and rounding bounds are not confidence intervals. Missing due dates and unresolved claims remain unknown, not zero.

SOURCE AND MODEL RECORDS

S01–S10 link to References. E01–E36 identify definitions, executed diagnostics and scenarios. Source-access failures remain disclosed.

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Fiscal recording bases

Definitions of key technical terminology — meaning, measurement and interpretation.

Cash basis

Records the payment or receipt when cash moves. In this report, expenditure implied by a fiscal balance is an accounting reconstruction; it is not a supplier-by-supplier bank-credit total.

Commitment basis

A source-specific recognition convention. Ghana's programme measure adjusts the cash primary balance for defined net payables; it must not be described as a complete accrual balance.

Accrual basis

Recognises an economic event when value is created, transferred or extinguished, rather than simply when paid. A signed order alone need not establish an incurred expense.

Primary balance

Revenue and grants less the relevant primary expenditure; interest is excluded under the source definition. A primary surplus does not establish cash available for every overdue invoice.

Overall balance

The surplus-positive balance including the source interest expenditure and other defined operations. Do not combine its cash value with a commitment-basis spending denominator.

Reporting perimeter

The entities, transactions, instruments and accounting adjustments included in a record. GIFMIS monitoring, a budget audit and the DSA arrears stock need not cover the same obligations.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IMF GFSM 2014 [\[S04\]](#).

Note: Reading aid: source-specific definitions and the governing contract remain controlling. These definitions do not establish legal status.

Claims and enforceable dates

Definitions of key technical terminology — meaning, measurement and interpretation.

Commitment

An agreement or authorisation to provide resources if specified conditions are fulfilled. It can precede delivery, certification, a recognised payable and the payment deadline.

Payable

An incurred, recognised obligation that remains unsettled. It includes amounts still within their allowed payment term; not every payable is an expenditure arrear.

Expenditure arrear

The valid unpaid portion of an incurred obligation after its governing due date. Establish the applicable contract or legal deadline; do not infer a universal Ghana payment term here.

Interim Payment Certificate

A project-stage certification record. Retain the certified amount, deductions, disputed portion and payment conditions; certification is neither a bank payment nor proof of final completion.

Retention

An amount withheld until specified contractual release conditions are met. Track its own eligibility and due date; do not automatically include unreleased retention in overdue arrears.

Disputed or pending claim

An amount awaiting a decision on validity, value or documentation. Preserve its status and appeal history rather than treating it as definitely payable, definitely rejected or already paid.

Sources: MoF 2026 Budget [\[S02\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: Reading aid: source-specific definitions and the governing contract remain controlling. These definitions do not establish legal status.

Settlement and stock–flow reconciliation

Definitions of key technical terminology — meaning, measurement and interpretation.

Bank Transfer Advice

An instruction or advice in the payment chain. Its presence does not independently establish that the correct supplier received cleared funds on the stated value date.

Bank value date

The date at which funds become effective in the relevant settlement account. Receipt confirmation is separate from authorisation, submission and processing timestamps.

Cash clearance

A matched cash settlement of a previously overdue eligible amount. Report gross payments separately from new arrears, lawful offsets, corrections and valuation changes.

Non-cash adjustment

A documented reclassification, correction, offset or other change in the claim without equivalent cash delivered to the supplier. It requires its own reason, authority and amount.

Gross versus net change

Gross flows retain additions and reductions separately. A net fall in payables cannot determine how much was paid or how many new obligations became overdue.

Reconciliation residual

The difference left after the named components are matched. It may reflect precision, scope or missing records; never assign it to clearance, fraud or new borrowing without evidence.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: Reading aid: source-specific definitions and the governing contract remain controlling. These definitions do not establish legal status.

Contractor liquidity and financing

Definitions of key technical terminology — meaning, measurement and interpretation.

Working capital

Resources committed to the operating cycle, including receivables and inventories after relevant supplier-credit offsets. The report's receivable-day proxy is not a full statutory balance sheet.

Collection days

Time from a stated origin to receipt. Invoice age, days beyond the due date and time since contract award are different clocks; specify which is used.

Bridge-finance limit

The maximum additional cash capacity needed before receipts arrive under the model. A calculated requirement does not establish credit approval, collateral or drawdown availability.

Cash-deficit days

The area of negative end-day cash, measured in currency-days. It measures duration as well as size; a brief intraday gap can require capacity but no overnight interest.

Capitalised facility interest

Interest added to the drawn facility balance instead of being paid from other cash. Later charges then depend on the enlarged balance under the stated daily convention.

Payroll-resource equivalent

A cash exposure divided by a specified monthly payroll. It expresses funding in payroll-month units, not employees dismissed, wage arrears or an estimated employment effect.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: Reading aid: source-specific definitions and the governing contract remain controlling. These definitions do not establish legal status.

Banking and uncertainty measures

Definitions of key technical terminology — meaning, measurement and interpretation.

Nonperforming loan ratio

Nonperforming loans divided by gross loans for the same date and reporting scope. Loan growth, write-offs, recoveries and reclassification can all change the ratio.

Provision coverage

Reported loan-loss provisions divided by nonperforming loans. An expected credit loss (ECL) is a separate forward-looking impairment estimate. This report does not calculate regulatory ECL or infer cash recovery from either measure.

Residual after provisions

The diagnostic $n \times (1 - c)$, where n is the NPL share of gross loans and c the provision-coverage fraction. It is conditional on aligned scopes, not an impairment estimate.

Percentage point

The arithmetic difference between two percentages. A change from 18.9% to 18.1% is -0.8 percentage point, not -0.8 percent of the initial ratio.

Rounding envelope

A range propagated from an explicit assumption about display precision. It does not include sampling uncertainty, source errors, model risk or unreported balances.

Scenario range

The smallest and largest outputs across stated input settings. It is not a confidence interval, value-at-risk measure or frequency distribution of future outcomes.

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Reading aid: source-specific definitions and the governing contract remain controlling. These definitions do not establish legal status.

Identification, selection and payment duration

Definitions of key technical terminology — meaning, measurement and interpretation.

Endogeneity

A relationship in which the exposure is correlated with unobserved determinants of the outcome. Payment priority, claim quality and expected distress can jointly affect delay and business performance.

Selection bias

Distortion from who is included or observed. Looking only at paid claims, surviving firms or approved borrowers can omit the very outcomes needed to assess payment pressure.

Right-censoring

Follow-up ends before the event is observed. An unpaid invoice at the cut-off remains in the inception cohort; it is not assigned zero delay or removed from analysis.

Competing event

A different outcome that prevents the specified event for the same claim state, such as final rejection instead of cash settlement. Non-cash closure must not be counted as a cash receipt.

Restricted mean time unpaid

The area under the unpaid-survival curve up to a stated horizon. With common complete follow-up it averages time unpaid capped at that horizon; it is not eventual mean delay.

Intention-to-treat effect

The effect of assigning an offer, irrespective of take-up. P01 concerns an administrative facilitation offer; identifying the effect of payment alone requires further assumptions.

Sources: Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: Reading aid: source-specific definitions and the governing contract remain controlling. These definitions do not establish legal status.

Four records are needed to explain a government payment problem

The analysis is organised around fiscal recognition, enforceable obligations, settlement and business outcomes.

Table 1. Four records are needed to explain a government payment problem

Question	Required record	What is not inferred
What did government incur?	Recognised expenditure, accepted delivery, commitment and reporting perimeter.	A signed contract is not automatically a payable or cash expenditure.
What is unpaid and overdue?	Validated remaining amount, governing due date, retention and dispute status.	An unpaid claim is not automatically an arrear.
What was actually cleared?	Matched bank settlement, authorised offsets and non-cash adjustments.	Audit validation and budget allocation are not supplier cash receipts.
What happened to businesses?	Contractor cash, payroll, hours, employment and matched loan performance.	A fall in national arrears or NPL ratios is not a causal business effect.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: No linked national invoice–supplier–bank panel was obtained. The report combines official records and explicit conditional models.

Commitments, payables and arrears are not interchangeable

Generic recording concepts are distinguished from Ghana’s programme-specific fiscal adjustment.

Table 2. Commitments, payables and arrears are not interchangeable

Stage	Recognition condition	Business interpretation
Commitment	An agreement or authorised purchase commits resources to future performance.	A tender award is not a receipt and may precede delivery.
Liability / payable	The relevant obligation is incurred; delivery and invoice recognition are recorded.	An accepted receivable may still fall within its payment term.
Overdue arrear	A valid unsettled amount passes its governing payment deadline.	Measure lateness from the contractual/legal due date, not the award date.
Cash settlement	Funds reach the relevant settlement account and extinguish the matched amount.	A payment order or BTA alone does not verify supplier bank credit.
Adjustment / rejection	Recorded value or status changes under a documented review decision.	A liability correction is not new liquidity for the supplier.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); IMF GFSM 2014 [\[S04\]](#); MoF 2026 Budget [\[S02\]](#).

Note: The 2014 manual’s historical country payment terms are not treated as current Ghana legal deadlines.

The published commitment balance is a defined fiscal measure

A statistical label is not permission to aggregate every outstanding contract value.

GENERIC ACCOUNTING	PROGRAMME BRIDGE	INVOICE REGISTER
GFSM distinguishes accrual, commitments, due-for-payment and cash recording. Those bases recognise the economic event at different stages.	The Ghana TMU defines its primary commitment balance as the primary cash balance less net accumulation of specified payables. Its coverage and conversion rules matter.	Contract value, certified work, payable amount, due date and settlement belong in linked subledgers. They cannot all be substituted into the fiscal adjustment line.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IMF GFSM 2014 [\[S04\]](#).

Note: The report preserves “commitment basis” as used in each source; it does not certify complete accrual accounting.

Different public accounts cover different unpaid obligations

Coverage is kept explicit before comparing a fiscal flow, an audit total or an arrears stock.

Table 3. Different public accounts cover different unpaid obligations

Record	Source perimeter	Do not substitute
IMF Table 3b fiscal flows	Budgetary central-government accounts; source payables adjustment includes energy and non-energy.	An all-public-sector audited arrears register.
Programme primary-balance test	GIFMIS-originated central-government payables plus defined net energy payables.	A complete count of commitments outside GIFMIS.
Broader CAGD monitoring	Budgetary central-government payables reported by CAGD, including statutory-fund obligations.	The narrower programme test without a perimeter bridge.
November 2025 budget audit	Submitted end-2024 claims and outstanding BTAs at that review vintage.	Current September 2026 supplier arrears or cash paid.
DSA stock	Recognised domestic arrears, including energy suppliers and Cocobod-related obligations.	The same monetary total as the budget audit.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#).

Note: A difference between these records is not automatically an undisclosed liability or a statistical error.

A target can be met while a broader fiscal record deteriorates

The IMF’s historical account of end-2024 performance shows why the reporting boundary matters.

NARROWER TEST	BROADER SIGNAL	BUSINESS QUESTION
The report explains that the end-2024 primary-balance target was met under the monitored payables perimeter, while much of the buildup occurred outside GIFMIS.	The wider indicative target on net payables captured the deterioration. The two findings refer to different monitoring definitions, not two interchangeable fiscal outcomes.	For a supplier, the relevant record is whether the particular accepted invoice was due and paid. Programme compliance cannot substitute for that transaction test.

Sources: IMF CR 26/212 [\[S01\]](#).

Note: This is an attributed historical measurement example; it does not estimate the causal effect of any administration or reform.

Each evidence block retains its own date and unit of observation

The research cut-off is 26 September 2026, not the observation date of every statistic.

Table 4. Each evidence block retains its own date and unit of observation

Evidence	Window / unit	Analytical role
Fiscal Table 3b	2024 actual; 2025 preliminary; 2026–2031 projections; GHS million.	Cash–commitment bridge, revisions and payment-pressure scenarios.
Budget audit Table 6	End-2024 claims; published November 2025; whole GHS.	Status decomposition and source-category reconciliation.
Energy release	2025 reported payments; published January 2026; USD.	Separate guarantee repayment, gas invoices and legacy IPP debt.
Bank indicators	December 2019–March 2026 source snapshots; percent.	Descriptive credit-risk context, not arrears attribution.
Contractor and clearance models	Declared invoice, project and fiscal assumptions.	Sensitivity and timing mechanisms; no sampled contractors.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); MoF energy payment release [\[S05\]](#); IDER calculations [\[S10\]](#).

Note: Primary IMF table text was inspected; requested table screenshots failed. The source-access register identifies the affected transcriptions.

An unpaid balance can move without a cash payment

A matched invoice identifier is the safeguard against counting the same event twice.

PARTIAL SETTLEMENT	OFFSETS AND WITHHOLDING	NON-CASH ADJUSTMENT
Separate the amount accepted, paid and still due. Keep retentions not yet releasable outside overdue arrears until their own conditions and deadline are met.	Record supplier bank credit, statutory deductions and legally effective offsets separately. Their treatment depends on the governing contract and tax rules.	Reclassification, correction, cancellation and conversion to a security can change payables. None automatically gives the contractor spendable cash equal to face value.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); IMF GFSM 2014 [\[S04\]](#); IDER calculations [\[S10\]](#).

Note: No current tax rate, legal set-off opinion or enforceability judgement is inferred from the accounting illustration.

The shortest useful record follows the claim from delivery to bank value

These fields are supplied as blank operational templates in the evidence package.

Table 5. The shortest useful record follows the claim from delivery to bank value

Field group	Minimum fields	Control
Identity and perimeter	Entity, supplier, contract, invoice, currency, source and reporting date.	One claim ID; parent/child IDs for partial payments.
Recognition	Delivery, certification, invoice submission, verification and accepted amount.	Record every stage; never overwrite an earlier status silently.
Due date and dispute	Contract deadline, retention conditions, disputed amount and appeal status.	Missing due date remains unknown, not zero days overdue.
Settlement	BTA/payment instruction, actual value date, bank credit and lawful offsets.	Match payment to the invoice; retain failures and reversals.
Business outcome	Cash-flow month, payroll, headcount/hours and lender due dates.	Link under consent; distinguish government and bank clocks.

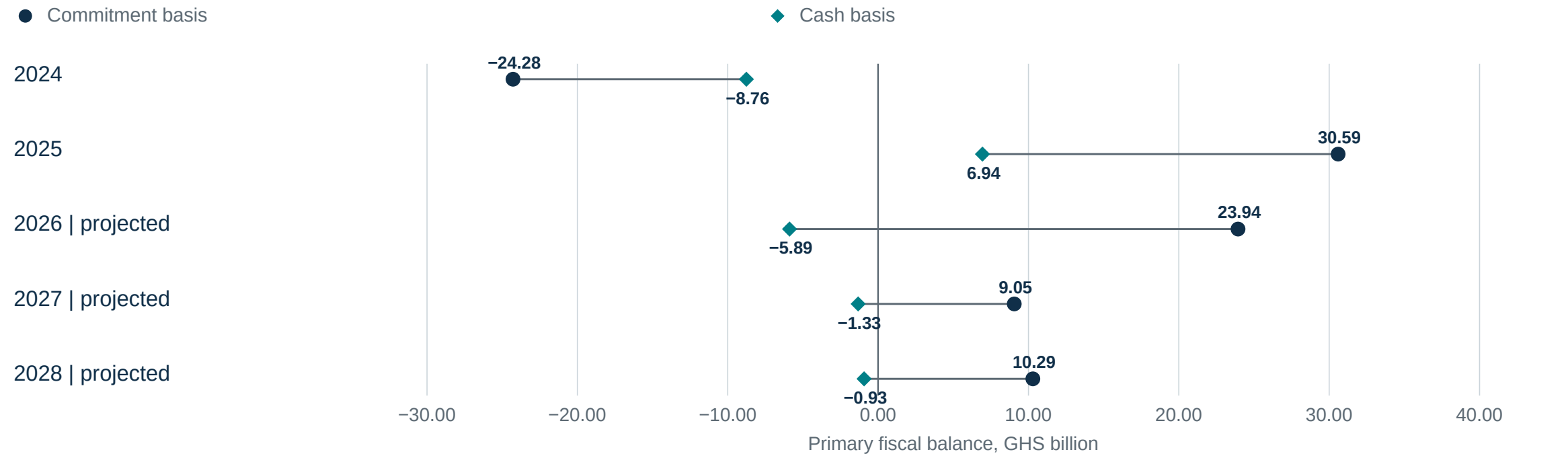
Sources: IDER calculations [\[S10\]](#).

Note: The templates contain headers only; no private or hypothetical client record is passed off as an observed invoice.

The 2025 primary surplus is much smaller on a cash basis

Source Table 3b, GHS billion; 2024 actual, 2025 preliminary, 2026–2028 projected.

Figure 1. The 2025 primary surplus is much smaller on a cash basis



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Surplus is positive. Different balances are explained by the source net-payables adjustment and small rounding residuals.

The balance difference reconciles to the net-payables line

GHS billion; current columns from one July 2026 source vintage.

Table 6. The balance difference reconciles to the net-payables line

Year / status	Primary commitment	Net payables	Primary cash	Residual GHS m
2024 Actual	-24.281	15.522	-8.759	0
2025 Preliminary	30.595	-23.653	6.941	-1
2026 Projection	23.938	-29.827	-5.889	0
2027 Projection	9.055	-10.383	-1.328	0
2028 Projection	10.294	-11.224	-0.930	0

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Cash = commitment + net payables + residual. A negative net change is not a measured gross cash-clearance amount.

Payables reduction uses cash even when the commitment balance is positive

GHS billion; the GHS 1 m source-rounding difference is retained.

Figure 2. Payables reduction uses cash even when the commitment balance is positive



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: The 2025 GHS 23.653 bn is a net-payables reduction, not an invoice-level sum of clearance payments.

The cash improvement is smaller than the commitment improvement

2024–2025 source overall balances; GHS billion.

Figure 3. The cash improvement is smaller than the commitment improvement



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: This exact bridge is accounting attribution. It does not identify why revenue, spending or payables changed.

The same period yields different measures of improvement

Source changes, 2024–2025, GHS billion.

Table 7. The same period yields different measures of improvement

Measure	2024	2025	Change
Revenue Grants	186.593	224.884	38.291
Expenditure	258.024	244.180	−13.844
Net Payables	15.522	−23.653	−39.175
Overall Commitment	−71.431	−19.297	52.134
Overall Cash	−55.909	−42.950	12.959

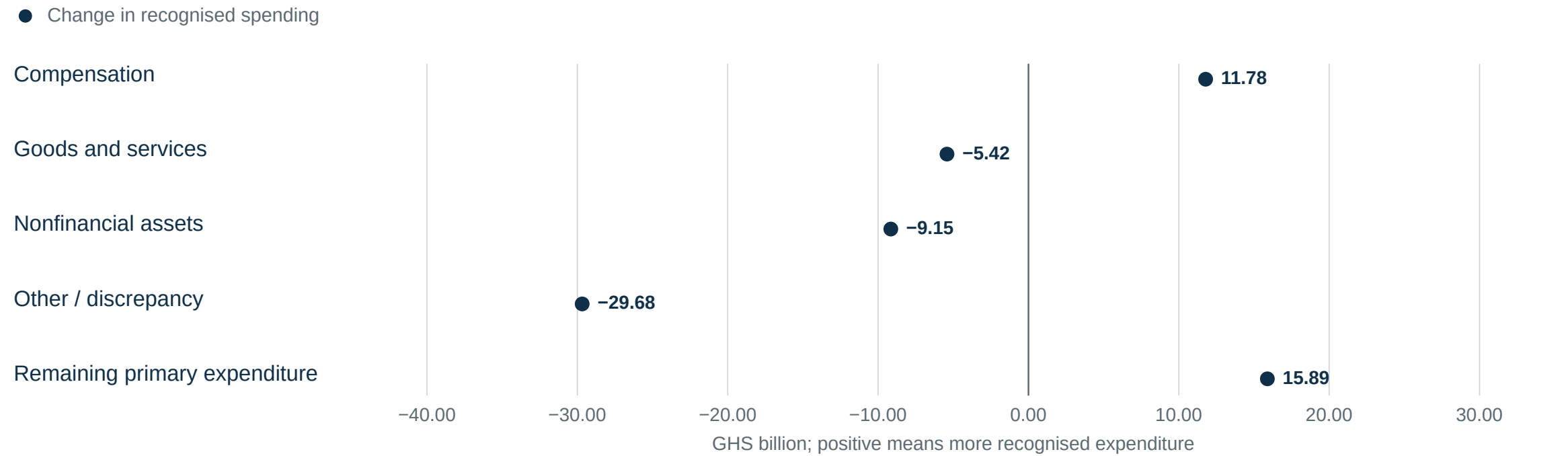
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Revenue, expenditure and overall-balance display values differ by GHS 1 m in 2025. The published balances remain controlling.

Lower recognised expenditure is not all a cut in current supplier payments

2024–2025 change in source primary expenditure; selected components and the remaining subtotal.

Figure 4. Lower recognised expenditure is not all a cut in current supplier payments



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: The “other” category includes source recognition/discrepancy entries. These changes are not an identified procurement or employment effect.

A lower capital-expenditure outturn can have several explanations

The source’s capital line is a fiscal record, not a contractor order book.

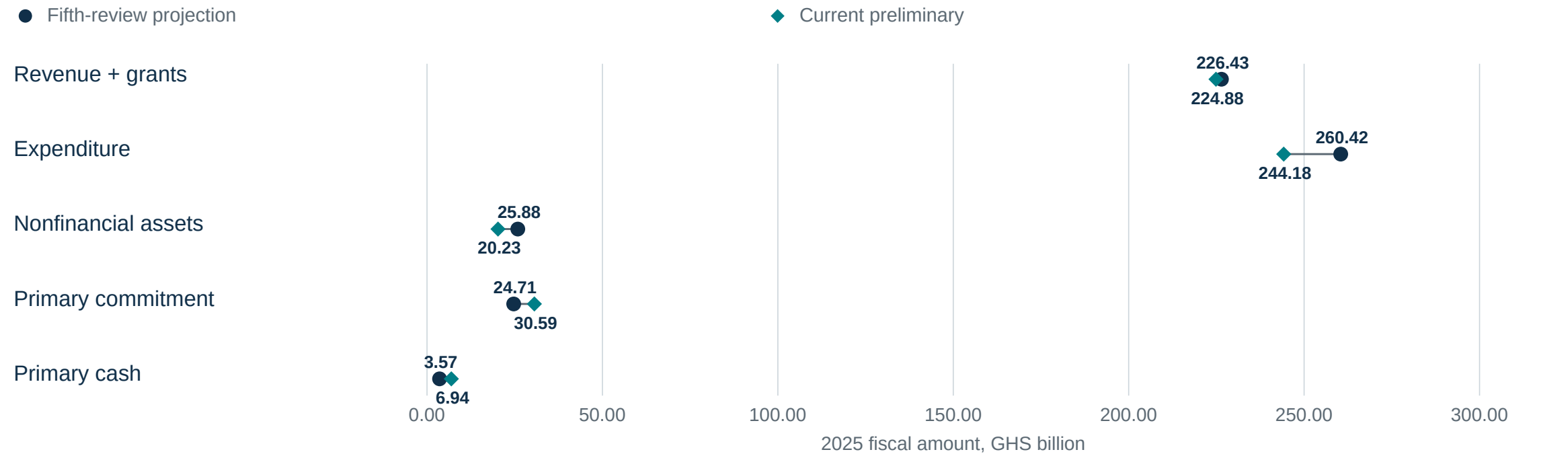
EXECUTED SOURCE RECORD	COMPETING MECHANISMS	BUSINESS INTELLIGENCE
Net acquisition of nonfinancial assets declines from GHS 29.389 bn in 2024 to GHS 20.235 bn in preliminary 2025. The source includes both domestically and foreign-financed amounts.	Delayed certification, slower delivery, financing constraints, contract cancellation and reporting corrections can produce different real outcomes with a similar recorded decline.	Request the project’s certified progress, approved variations, unpaid IPCs and next procurement milestones before inferring contractor demand or future cash receipts.

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).
Note: No nationwide construction volume, jobs effect or fiscal multiplier is derived from the expenditure-line change.

The revised 2025 record differs from the earlier fifth-review projection

GHS billion; both columns appear in the same IMF source table.

Figure 5. The revised 2025 record differs from the earlier fifth-review projection



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: A revision is not a second independent observation or a causal policy experiment. Do not splice projection vintages.

The source projects net-payables reduction through 2028

GHS billion; these are source projections, not confirmed payment instructions.

Table 8. The source projects net-payables reduction through 2028

Year	Net-payables change	Primary commitment	Primary cash	Interpretation
2026	-29.827	23.938	-5.889	Net reduction assumed
2027	-10.383	9.055	-1.328	Net reduction assumed
2028	-11.224	10.294	-0.930	Net reduction assumed
2029	0.000	11.653	11.653	Zero net change assumed
2030	0.000	13.240	13.240	Zero net change assumed
2031	0.000	15.042	15.042	Zero net change assumed

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Projected 2026–2028 net reductions sum to GHS 51.434 bn. Zero future net change does not prove zero gross new arrears.

A net decline cannot identify how many new overdue invoices were created

A stock-flow explanation needs gross additions and settlements as well as valuation and corrections.

NET STATISTIC	NEW ARREARS TEST	PUBLIC REPORTING
Newly recognised payables of 30 and settlement of 50 produce the same net reduction of 20 as additions of zero and settlement of 20, before other adjustments.	The test for prevention is the gross amount becoming overdue in a defined invoice cohort. It cannot be inferred from a negative net change in aggregate payables.	Release gross new overdue claims, cash clearance, non-cash adjustments and closing due/not-yet-due stocks separately. Publish the reconciliation residual rather than allocating it arbitrarily.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: Normalised arithmetic example. Source statements about non-accumulation remain attributed assessments, not a reconstructed national invoice test.

Small source differences remain visible instead of being forced to zero

GHS million; residual definitions are reproduced in the calculation code.

Table 9. Small source differences remain visible instead of being forced to zero

Year	Overall: reported – (R–E)	Primary: reported – (overall+interest)	Cash primary bridge	Cash overall bridge
2024	0	0	0	0
2025	–1	1	–1	0
2026	–1	0	0	0
2027	0	0	0	0
2028	0	0	0	0

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: These are display-level reconciliation differences. Passing identities does not verify the underlying transaction records.

Submitted, restated and validated amounts answer different questions

2026 Budget Table 6, published 13 November 2025; end-2024 claim review. GHS billion.

Table 10. Submitted, restated and validated amounts answer different questions

Category	Submitted	Reclassified	Restated	Validated
Claims	50.489	−2.030	48.459	31.518
BTAs	18.279	−0.003	18.276	16.238
Total	68.768	−2.033	66.735	47.756

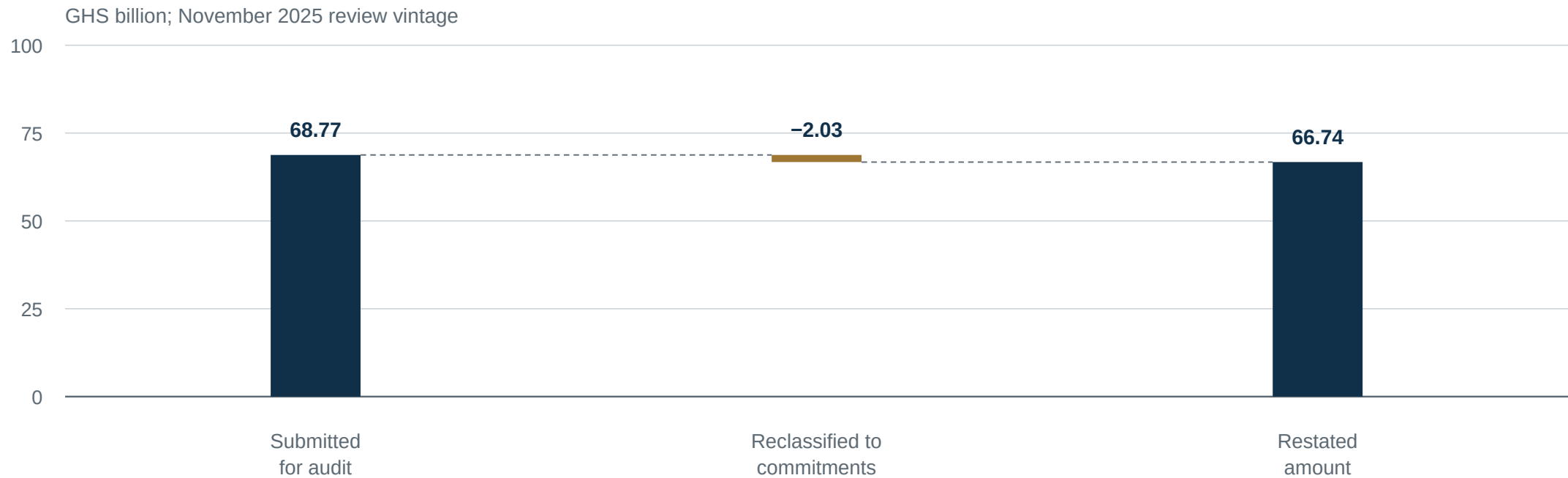
Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: “Validated for payment” is a review status. No current payment status or national overdue-invoice count is inferred.

Reclassification changes the recorded payable inventory without paying a supplier

Whole-source totals displayed here in GHS billion.

Figure 6. Reclassification changes the recorded payable inventory without paying a supplier



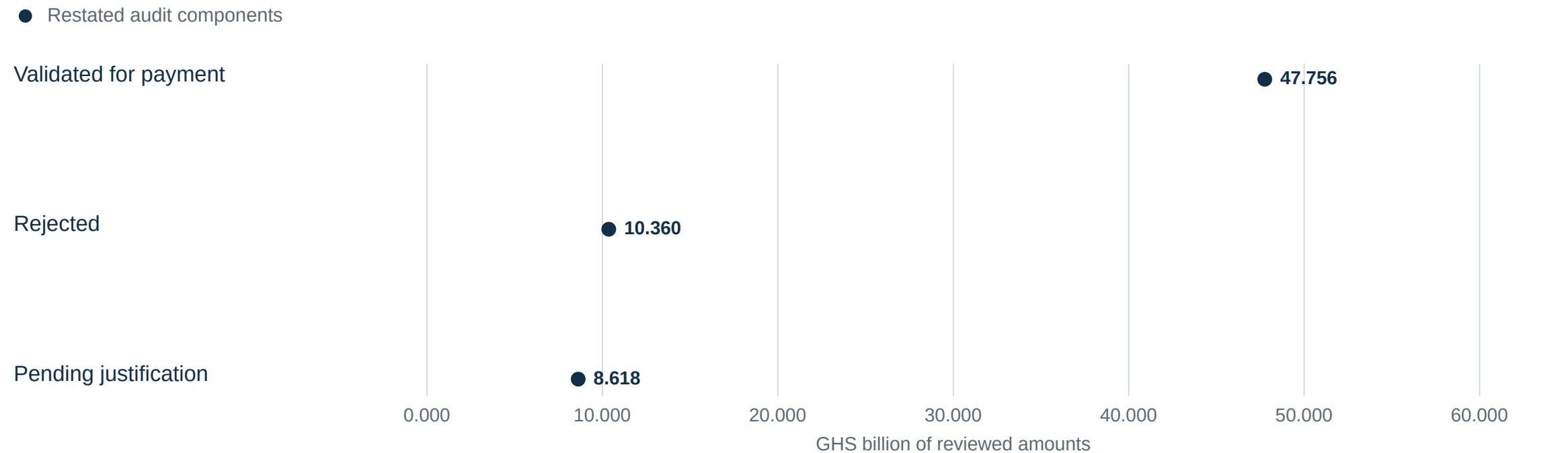
Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: The GHS 2.033 bn reclassification is not a cash disbursement or proof that no future contract obligation exists.

GHS 47.756 bn was validated; that is not a bank-settled total

November 2025 audit categories, GHS billion; source total-category residual disclosed separately.

Figure 7. GHS 47.756 bn was validated; that is not a bank-settled total



Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: The source categories leave GHS 517,107 unallocated in their total arithmetic. No balancing claim is invented.

The BTA category has a different validation mix from claims

Shares of the restated money in each source row; not shares of suppliers or individual invoices.

Table 11. The BTA category has a different validation mix from claims

Category	Validated share	Rejected share	Pending share	Residual GHS
Claims	65.04%	19.32%	15.64%	517,108
BTAs	88.85%	5.47%	5.69%	-1
Total	71.56%	15.52%	12.91%	517,107

Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: A BTA is a Bank Transfer Advice. Prior approval does not establish a legitimate claim or completed bank settlement.

The validated share changes when the denominator changes

The numerator stays GHS 47.755982 bn; submitted and restated totals are not interchangeable.

Table 12. The validated share changes when the denominator changes

Calculation	Result	Meaning
Validated / submitted	69.445%	Share of the original money sent for review.
Validated / restated	71.561%	Share after the signed reclassification.
Rejected / restated	15.525%	Historical monetary share rejected at this publication vintage.
Pending / restated	12.914%	Money awaiting further justification; not an assumed valid claim.

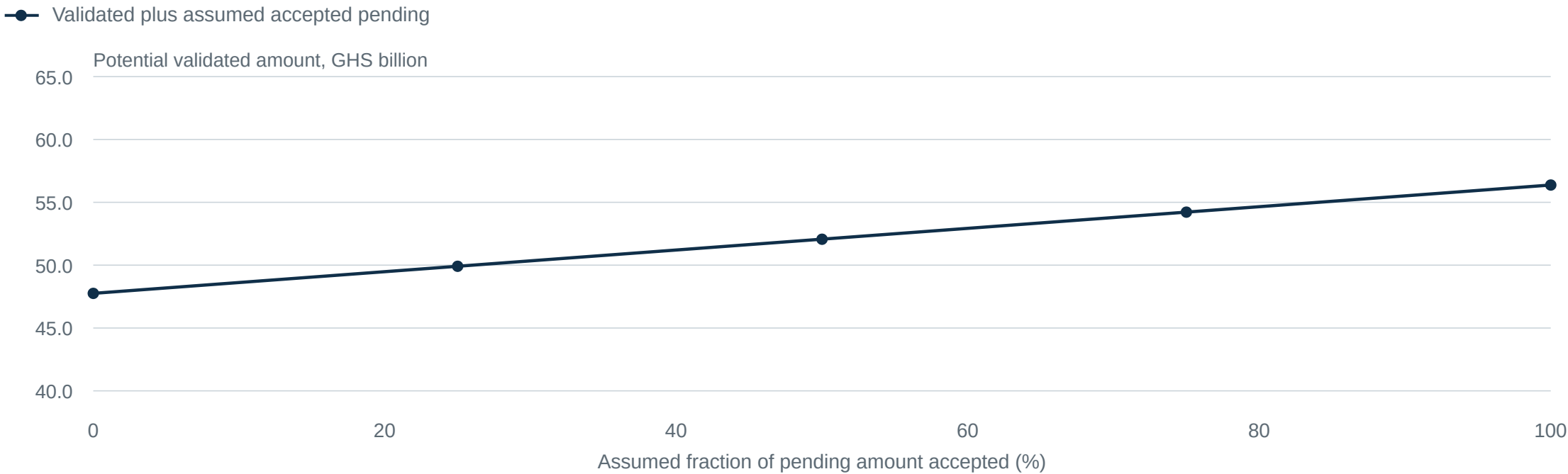
Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: None of these ratios estimates the probability of fraud, default, non-payment or rejection for a randomly chosen business.

Further validation would change recognised claims—not cash already paid

Conditional fraction of the historical pending amount accepted later; rejected and reclassified items held separate.

Figure 8. Further validation would change recognised claims—not cash already paid



Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: The GHS 47.756–56.374 bn interval is an adjudication scenario, not a legal outcome forecast or a current arrears stock.

Audit correction and arrears clearance are different fiscal events

The November 2025 budget reports rejected claims being excluded from the 2024 fiscal framework.

ACCOUNTING CORRECTION	CASH CLEARANCE	RIGHTS AND STATUS
A documented rejection can alter historical expenditure or liabilities. Its recorded fiscal benefit is not a cash transfer to the claimant or repayment to the claimant’s lender.	A verified settlement provides liquidity to a valid creditor and reduces a matched payable. The cash balance may worsen in the payment year even while arrears fall.	Disputed amounts, reconsideration and legal enforceability need their own records. The report does not decide individual claims or infer motives from aggregate audit categories.

Sources: MoF 2026 Budget [\[S02\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).
Note: Historical audit categories are not carried forward as final September 2026 claimant-level legal determinations.

The displayed category totals leave a small unreconciled amount

Whole Ghana cedis; arithmetic is checked directly against the source page image.

Table 13. The displayed category totals leave a small unreconciled amount

Row	Restated amount	Validated + rejected + pending	Unreconciled amount
Claims	48,458,855,701	48,458,338,593	517,108
BTAs	18,276,235,554	18,276,235,555	-1
Total	66,735,091,255	66,734,574,148	517,107

Sources: MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: GHS 517,107 is about 0.000775% of the restated total. It is not assigned to a preferred category or described as missing cash.

A dated inventory must not be presented as the latest unpaid balance

This report freezes the November 2025 published audit categories and keeps later source descriptions separate.

HISTORICAL AUDIT VINTAGE	LATER IMF DESCRIPTION	MISSING ROLL-FORWARD
The 2026 Budget states the reviewed end-2024 inventory and its status in November 2025. Later validation, rejection, appeal, payment or reclassification can change it.	The July 2026 report describes further audit progress and an end-2025 DSA stock. Those records differ in date, purpose and coverage; they are not spliced into Table 6.	A current total requires opening accepted claims, later decisions, new valid invoices, actual settlement and valuation. The complete claimant-level roll-forward was not obtained.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); MoF audit notice (2025) [\[S06\]](#).

Note: No unexplained difference between publication vintages is labelled cash clearance, fraud or newly discovered arrears.

The DSA’s arrears estimate is not the budget audit’s inventory

End-2025 DSA scope; converted using the same source’s nominal GDP, not another publication vintage.

Table 14. The DSA's arrears estimate is not the budget audit's inventory

Measure	Source / calculated amount	Interpretation
Domestic arrears / GDP	3.7%	Rounded source estimate; broader recognised debt perimeter.
Unpaid IPP bills / GDP	1.2%	Source subset; the remainder includes other domestic suppliers and Cocobod.
GHS equivalent at displayed ratio	53.062 bn	Mechanical conversion; not an exact audited invoice total.
Conditional rounding envelope	52.345–53.779 bn	Uses ±0.05 percentage point and source GDP precision only.

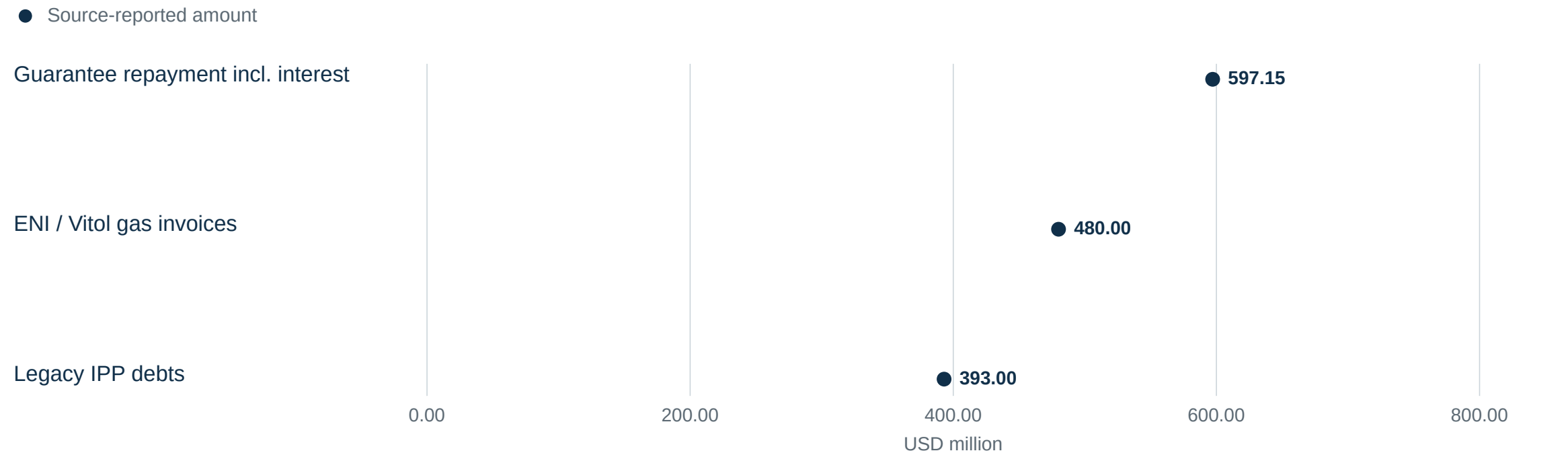
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: The DSA stock and projected Table 3b payables reductions have different perimeters. Subtracting them would not identify unexplained remaining arrears.

The reported USD 1.470 bn energy total contains different payment types

Source announcement on 12 January 2026 describes 2025 payments; USD million.

Figure 9. The reported USD 1.470 bn energy total contains different payment types



Sources: MoF energy payment release [\[S05\]](#); IDER calculations [\[S10\]](#).

Note: Components sum to USD 1,470.15 m versus the rounded USD 1,470 m headline. Do not call the entire total legacy IPP arrears clearance.

A cedi stock decline can overstate a same-currency payment-flow reduction

The TMU converts the quarterly change in net energy payables at the quarter-average exchange rate.

ILLUSTRATIVE USD STOCK	CLOSING-RATE STOCKS	RECONCILIATION
Suppose a net payable falls from USD 100 to USD 80. At an average rate of GHS 12/USD, the programme-style net change is –GHS 240.	If the closing rate also falls from GHS 15 to GHS 10/USD, translated stocks fall from GHS 1,500 to GHS 800: a –GHS 700 difference.	The –GHS 460 difference reflects valuation and conversion conventions in this example. It is not an additional supplier payment. Energy receivables must also be netted consistently.

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: The amounts are hypothetical units. The programme definition covers gross payables net of specified receivables, not gross IPP invoices alone.

Payment delay creates a financing problem before a loss is recognised

A supplier can report revenue and a receivable while lacking cash for the next payroll or purchase.

Table 15. Payment delay creates a financing problem before a loss is recognised

Channel	Cash mechanism	Evidence needed
Receivable lock-up	Certified sales remain unpaid while wages, materials and tax cash dates continue.	Accepted net invoice, due date, receipt schedule and operating payments.
Borrowing cost	Additional days extend the funded balance or require refinancing.	Actual drawdowns, rates, fees, collateral and amortisation.
Production continuity	Insufficient cash can postpone inputs, subcontractors or the next project.	Work plan, inventory, credit lines and delivery milestones.
Employment	Firms may adjust hours, hiring, wages or headcount; the response is not predetermined.	Payroll, attendance, employment and comparison-firm outcomes.
Bank performance	Contractor liquidity affects loan payment capacity under its own terms.	Matched bank instalments, arrears days and restructuring status.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: These are transmission mechanisms. The numerical contractor examples below are assumed, not estimated typical Ghana businesses.

The invoice-cost example is fully specified before it is stressed

Fixed-price, completed invoice; no unobserved costs or borrowed amounts inserted.

Table 16. The invoice-cost example is fully specified before it is stressed

Parameter	Assumption	Meaning
Invoice face	GHS 1,000,000	Accepted amount in the illustration; not a named government contract.
Cash production cost	GHS 880,000	Leaves GHS 120,000 before the additional financing charge.
Funded exposure	GHS 700,000	Held fixed; it is not assumed equal to the invoice or production cost.
Annual simple interest	18%,24%,30%,36%	Sensitivity values, not current lending quotations.
Additional delay	0,30,60,90,180,365 days	Days beyond the assumed contract deadline, not time since award.

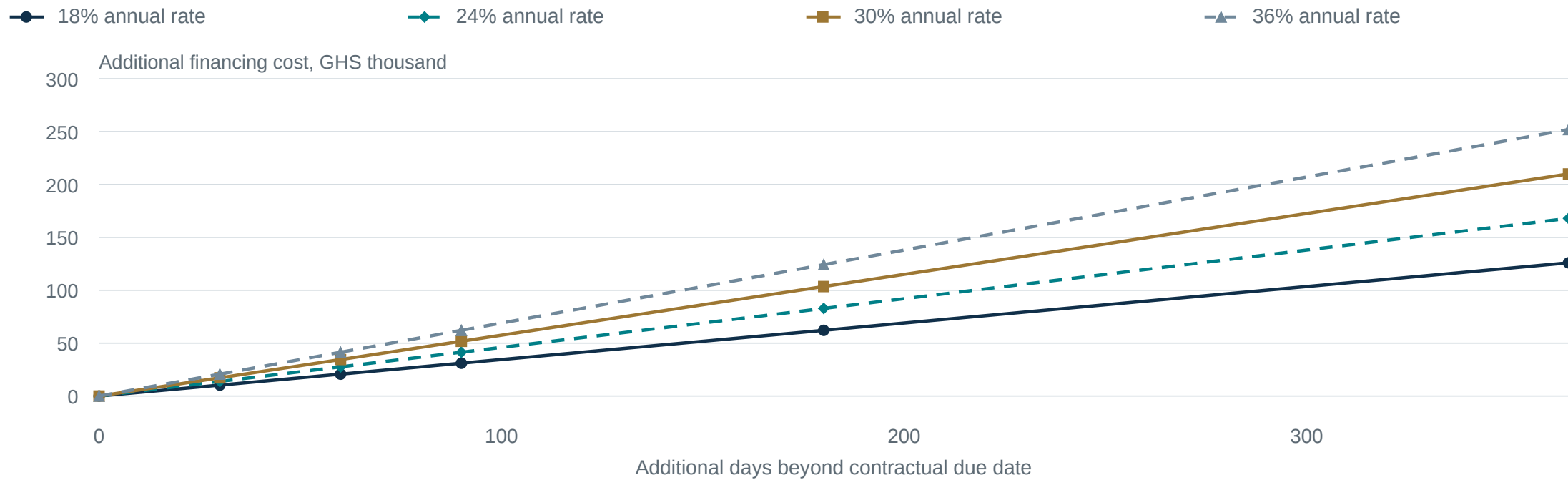
Sources: IDER calculations [\[S10\]](#).

Note: Taxes, retention, finance fees, compounding, penalties and endogenous credit rationing are outside this example.

Longer delays can consume the original invoice margin

GHS thousand; borrowed amount remains GHS 700,000 at each assumed annual simple rate.

Figure 10. Longer delays can consume the original invoice margin



Sources: IDER calculations [\[S10\]](#).

Note: The cost is not a tax, legal penalty or observed Ghana average; rates and exposure are held fixed.

A 180-day delay absorbs about 69% of the assumed margin at 24%

GHS, rounded after calculation; pre-finance margin GHS 120,000.

Table 17. A 180-day delay absorbs about 69% of the assumed margin at 24%

Additional days	Financing cost	Remaining margin	Cost / original margin
0	0	120,000	0.0%
30	13,808	106,192	11.5%
60	27,616	92,384	23.0%
90	41,425	78,575	34.5%
180	82,849	37,151	69.0%
365	168,000	-48,000	140.0%

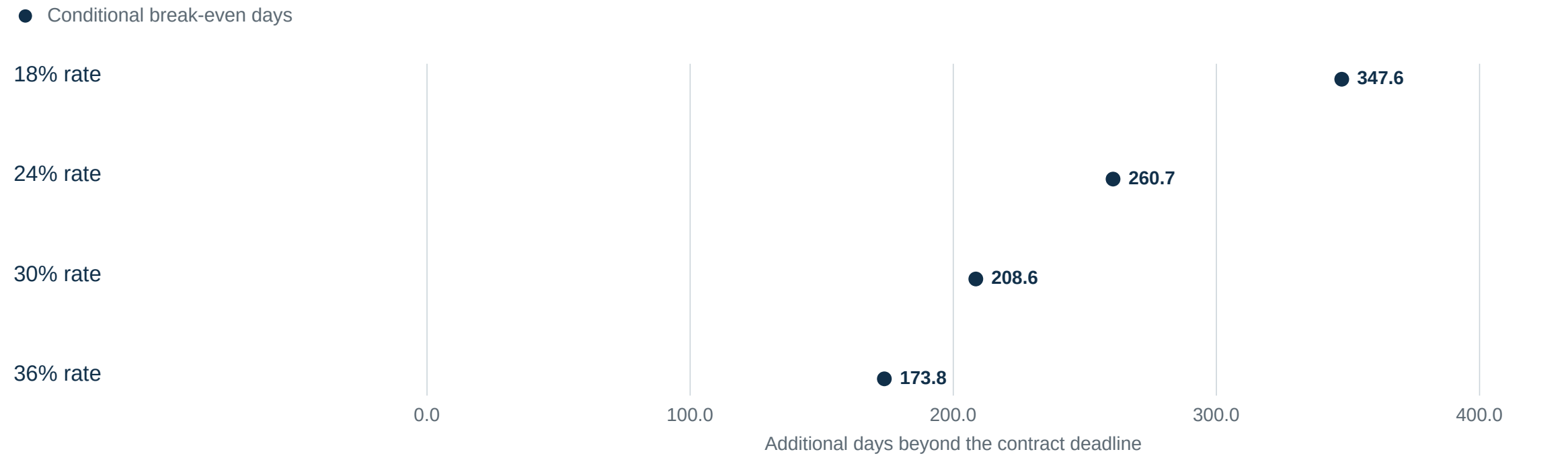
Sources: IDER calculations [\[S10\]](#).

Note: A negative remaining margin is a result of the imposed cost model, not a measured firm default or insolvency.

The margin-exhaustion threshold depends on the actual funding rate

Days of additional delay required to absorb the GHS 120,000 pre-finance contribution.

Figure 11. The margin-exhaustion threshold depends on the actual funding rate



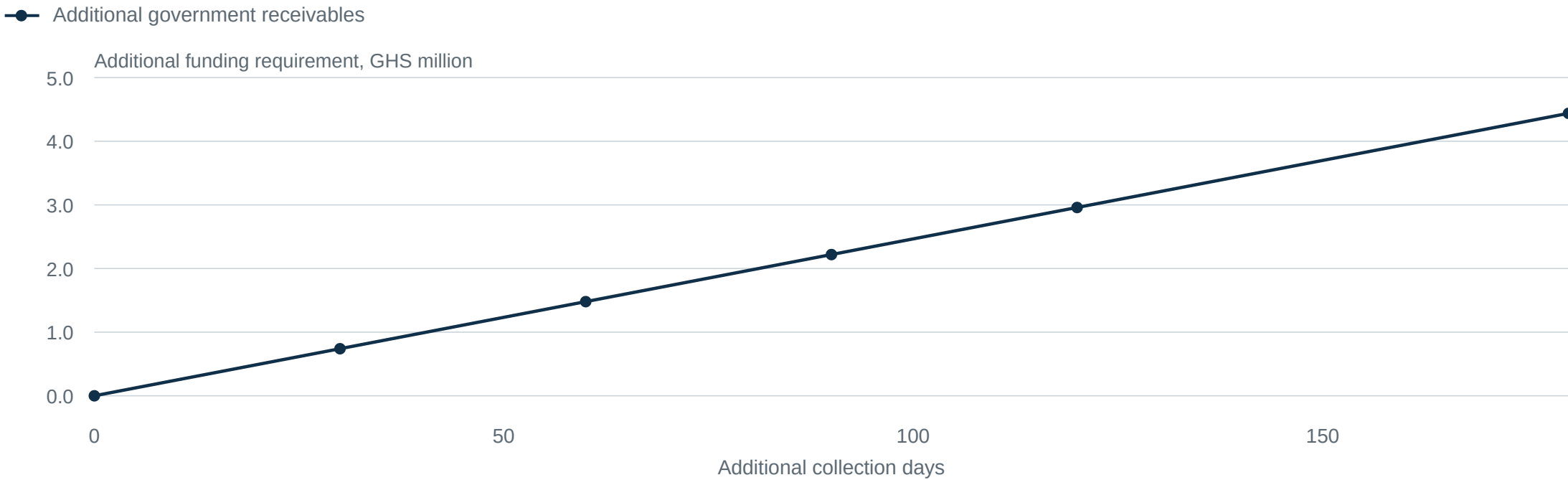
Sources: IDER calculations [\[S10\]](#).

Note: At 24% the threshold is 260.7 days. This is not a tolerable government payment term or an estimated default date.

Additional collection days can tie up more than the next month’s payroll

Assumed annual credit sales GHS 12 m, 75% government share; uniform sales-flow approximation.

Figure 12. Additional collection days can tie up more than the next month’s payroll



Sources: IDER calculations [\[S10\]](#).

Note: The proxy excludes seasonality, retentions, taxes, supplier-credit offsets and actual collection risk. It is not an invoice-level forecast.

Unpaid imported inputs add a second loss channel

GHS 300,000 of foreign-priced inputs remain unpaid; the GHS 700,000 loan exposure stays fixed at 24%.

Figure 13. Unpaid imported inputs add a second loss channel

	FX -20%	FX +0%	FX +20%	FX +40%
0 late days	180.0	120.0	60.0	0.0
90 late days	138.6	78.6	18.6	-41.4
180 late days	97.2	37.2	-22.8	-82.8
365 late days	12.0	-48.0	-108.0	-168.0

Remaining contribution, GHS thousand

Sources: IDER calculations [\[S10\]](#).

Note: Higher GHS/FX means depreciation. No FX effect is imposed on inputs already settled; extra borrowing interest on the FX increment is excluded.

A financing-cost recovery clause is not the same as a paid claim

Contractor responses can change costs and risk, but none is assumed to occur automatically.

BID AND CONTRACT DESIGN	ASSIGNMENT OR FACTORING	CASH-SAVING CONTROLS
Price the working-capital requirement using an explicit payment schedule. A risk allowance in the bid can increase procurement cost without preventing a later liquidity shortfall.	Check whether the receivable is assignable, acknowledged and dispute-free. Compare actual advance, fees, recourse and timing—not only the invoice face.	Stage material purchases, verify credit availability and keep payroll obligations visible. Delaying subcontractors transfers the liquidity burden rather than eliminating it.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: No specific banking product, current fee, contract amendment or legal right to assign a Ghana government receivable is recommended.

An immediate discount has to be compared with the cost of waiting

One GHS 1 m full invoice; certain delayed settlement and a24% simple discount rate assumed.

Table 18. An immediate discount has to be compared with the cost of waiting

Waiting period	Break-even discount	GHS discount	Interpretation
30 days	1.93%	19,344	Discount above this amount is more costly under these restricted assumptions.
90 days	5.59%	55,872	Discount above this amount is more costly under these restricted assumptions.
180 days	10.58%	105,830	Discount above this amount is more costly under these restricted assumptions.

Sources: IDER calculations [\[S10\]](#).

Note: This is not a factoring quote. Partial advances, credit risk, recourse, legal costs, taxes and a different bank drawdown profile change the comparison.

The project cash ledger separates receipts from committed payments

All amounts in GHS thousand; one entirely synthetic contractor programme.

Table 19. The project cash ledger separates receipts from committed payments

Cash item	Assumed schedule	Total / treatment
Opening liquid cash	Day 0	750
Government receipts	900 on day 14;1,200 on day 42;900 on day 70	3,000; only these dates shift in the delay cases.
Private receipts	200 on days 28,56,84	600
Materials	500 on days 7,35,63	1,500;60% foreign-priced in the FX case.
Wages and overhead	100 +30 each week, days 7–91	1,690
Debt service	Interest 60 on days 30,60,90; principal 400 on day 84	580; interest and principal are separate.

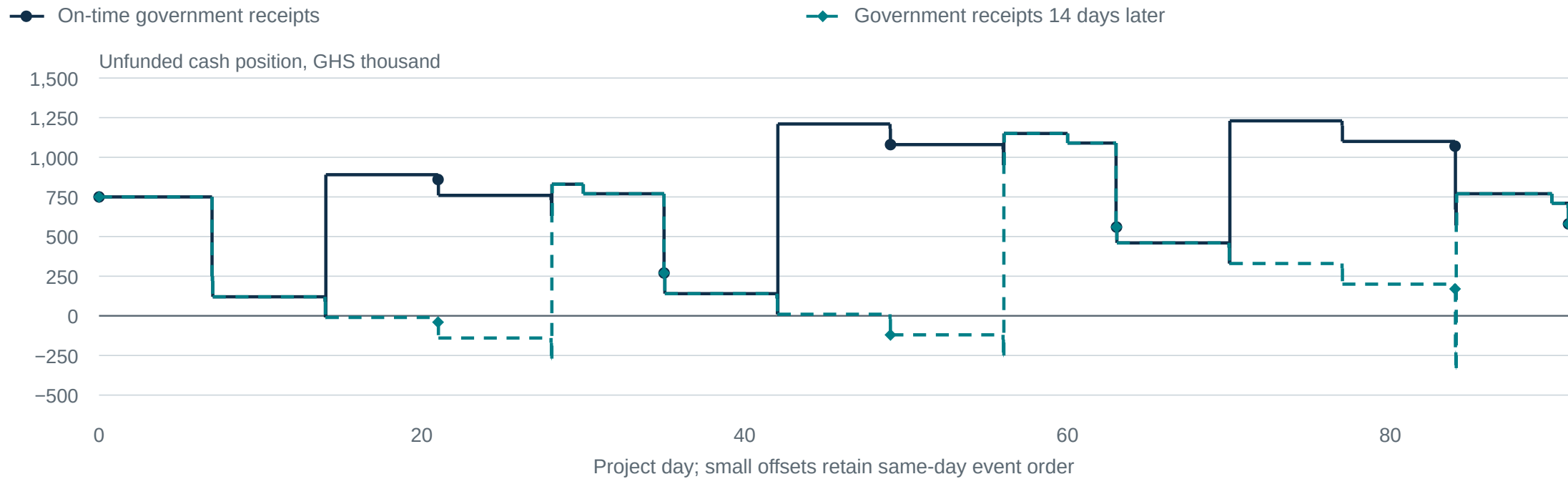
Sources: IDER calculations [\[S10\]](#).

Note: No hidden line of credit, taxes or new project after day 91. Full event IDs and amounts are in the supplied ledger.

The same final cash can conceal a much larger funding gap

Baseline versus a 14-day shift in government receipts; private receipts and all payments unchanged.

Figure 14. The same final cash can conceal a much larger funding gap



Sources: IDER calculations [\[S10\]](#).

Note: Both cases close at GHS 580 k. Minimum cash is -GHS 10 k on time and -GHS 330 k with the delay; no borrowing has been inserted.

The largest shortfall occurs before all delayed receipts arrive

GHS thousand; costs continue through day 91 under the stated fixed project plan.

Table 20. The largest shortfall occurs before all delayed receipts arrive

Delay / FX	Minimum cash	Day 91 cash	Bridge required	Later receipts
0 days / +0%	-10	580	10	0
0 days / +20%	-110	400	110	0
14 days / +0%	-330	580	330	0
14 days / +20%	-510	400	510	0
28 days / +0%	-890	-320	890	900
28 days / +20%	-1,050	-500	1,050	900
56 days / +0%	-1,770	-1,520	1,770	2,100
56 days / +20%	-1,950	-1,700	1,950	2,100

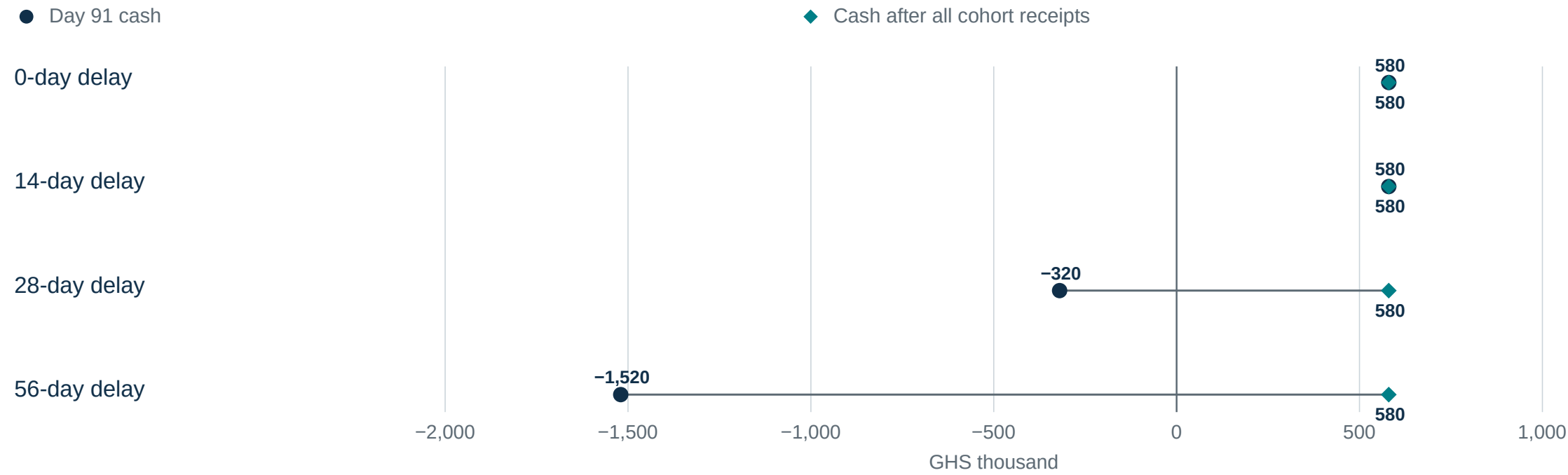
Sources: IDER calculations [\[S10\]](#).

Note: Bridge is an unmet financing requirement, not an approved overdraft or a predicted contractor default.

Negative day 91 cash is not the same as the eventual project result

No-FX cases; later government receipts remain in the ledger rather than being cancelled.

Figure 15. Negative day 91 cash is not the same as the eventual project result



Sources: IDER calculations [\[S10\]](#).

Note: Eventual receipt is assumed, not guaranteed. No ongoing costs after the specified 91-day project are added to this cohort calculation.

Material-currency pressure increases the bridge required under each delay

The same government receivable amounts are retained; the unpaid imported material component responds to FX.

Figure 16. Material-currency pressure increases the bridge required under each delay

	FX +0%	FX +20%
0 late days	10	110
14 late days	330	510
28 late days	890	1,050
56 late days	1,770	1,950

Additional facility needed before fees, GHS thousand

Sources: IDER calculations [\[S10\]](#).

Note: The largest illustrated requirement is GHS 1.950 m. No probability is attached to that deterministic case.

A bridge limit and its financing cost measure different risks

End-day negative cash area at an assumed 24% simple rate; intraday shortfalls have zero overnight duration here.

Table 21. A bridge limit and its financing cost measure different risks

Receipt delay	Required limit GHS k	Deficit-days GHS k-days	Interest proxy GHS k
0 days	10	0	0.00
14 days	330	1,890	1.24
28 days	890	14,680	9.65
56 days	1,770	61,300	40.31

Sources: IDER calculations [\[S10\]](#).

Note: Interest is not added recursively into the cash path. Facility fees, minimum utilisation, compounding and repayment conditions are excluded.

A signed facility is useful only if cash is available before the payment

The cash model identifies dates and requirements; it does not establish bank approval or drawdown access.

LIMIT	VALUE DATE	REPAYMENT
Compare the largest event-date deficit with committed usable credit after existing drawings and collateral limits. A GHS 330 k model gap is not solved by an unapproved application.	Match supplier receipts and facility disbursement to wages, materials and debt service. Same-day or end-week totals can conceal earlier intraday shortages.	Delayed government receipts should repay the bridge only after checking taxes, retentions, other commitments and the lender’s waterfall. Face-value income is not unrestricted cash.

Sources: IDER calculations [\[S10\]](#).

Note: The publication does not supply a personalised financing recommendation, bank product quotation or covenant opinion.

Payroll pressure is measurable; job losses require additional evidence

The same payment delay can affect hours, hiring, wages or headcount differently across firms.

FIRST-ROUND CASH	FIRM RESPONSE	LOCAL SPILLOVERS
Unpaid certified revenue ties up money that could fund payroll, materials or debt service. The receivable and cash shortage can be measured without asserting a labour response.	Labour hoarding, owner support, wage arrears, reduced hours and cancelled hiring can precede dismissals. Employment effects depend on contracts, finance and demand.	Faster-paid firms may recruit from competing employers or transfer cash to subcontractors. Direct contractor gains cannot simply be summed into net national jobs.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: No Ghana employment elasticity, causal wage effect or number of jobs lost is estimated from aggregate fiscal records.

Tied-up receivables can be expressed in payroll units—not jobs lost

Assumed monthly payroll GHS 200,000 and government credit sales GHS 9 m annually.

Table 22. Tied-up receivables can be expressed in payroll units—not jobs lost

Extra collection days	Additional receivables GHS m	Payroll-month equivalent
0	0.000	0.00
30	0.740	3.70
60	1.479	7.40
90	2.219	11.10
120	2.959	14.79
180	4.438	22.19

Sources: IDER calculations [\[S10\]](#).

Note: Payroll equivalents describe a resource amount. They do not predict dismissals, employment reductions or unpaid wage duration.

Faster payment can support hiring, but aggregate effects need spillover tests

The published US Quickpay study is an identification reference—not a Ghana calibration.

PUBLISHED FINDING	AGGREGATE QUALIFICATION	GHANA RESEARCH USE
Barrot and Nanda report a strong direct effect of accelerated federal-contractor payments on employment growth among treated small firms.	They also document crowding out of non-treated employment within local labour markets; net effects are close to zero in tight markets.	Measure contractor and local comparison-firm outcomes, not only successful recipients. Do not multiply Ghana's arrears amount by a US employment coefficient.

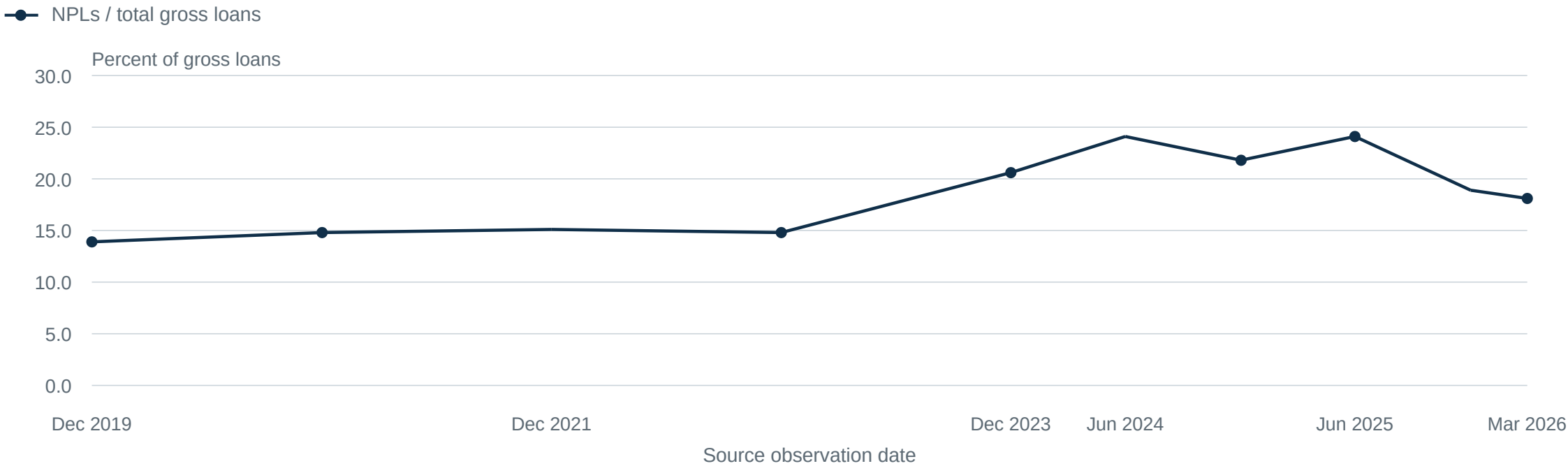
Sources: Barrot & Nanda (2020) [\[S07\]](#).

Note: The published abstract was inspected. Underlying US microdata were not obtained; no coefficient is re-estimated or transferred.

The observed NPL ratio moved substantially over the source window

Financial Soundness Indicators, source snapshots through March 2026; values are not linked to contractor invoices.

Figure 17. The observed NPL ratio moved substantially over the source window



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Source ratios are descriptive. Clearance, write-offs, loan growth, exchange rates and borrower performance are not separately identified here.

The government invoice clock is not the bank-loan clock

Credit analysis requires the loan’s own due date, payment record and classification policy.

Table 23. The government invoice clock is not the bank-loan clock

Record	Relevant event	What cannot be inferred
Government receivable	A certified amount passes the government contract due date.	The bank loan is automatically nonperforming on that date.
Loan instalment	A lender’s principal or interest payment is missed under the loan terms.	Every government-linked borrower has identical delinquency.
Receipt and loan repayment	Government pays; the contractor subsequently services the bank loan.	The entire receipt reduces NPLs one-for-one.
Restructuring / collateral	Loan terms, collateral values or recoveries change.	Invoice validation removes credit risk or produces cash collateral.
Portfolio ratio	NPL stock divided by gross loans at the same date.	A ratio decline proves fewer new defaults or successful arrears policy.

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: No institution-specific regulatory classification, IFRS 9 staging decision or impairment allowance is calculated.

The NPL ratio can fall despite new nonperforming loans

A transparent hypothetical bank-book transition; monetary units normalised.

Table 24. The NPL ratio can fall despite new nonperforming loans

Item	Opening / change	Closing or meaning
Gross loans	1,000 +200 new credit –30 recovery –20 write-off	1,150
Nonperforming loans	180 +40 new NPL –30 recovery –20 write-off	170
NPL ratio	18.00% → 14.78%	Falling ratio coexists with 40 of new NPLs.
Numerator contribution	–0.935 pp	Change in NPL stock, symmetric ratio allocation.
Denominator contribution	–2.283 pp	Expansion of the gross-loan denominator.

Sources: IDER calculations [\[S10\]](#).

Note: Recovery is assumed NPL principal; new defaults reclassify existing loans without changing total gross loans.

Delayed government payment can move risk through the supply chain

The direct public creditor is not necessarily the final business bearing the financing cost.

SUBCONTRACTORS	BANKS AND GUARANTORS	INVESTORS AND EMPLOYEES
A prime contractor may postpone payments to smaller suppliers. Measure subcontractor terms and actual receipts rather than assuming the prime retains all cash.	Working-capital loans, invoice assignment and performance guarantees generate different exposures. Avoid counting one underlying invoice as independent risk at every layer.	Distribution restrictions, deferred wages and reduced new orders can arise before an accounting loss. Trace the relevant cash claim and time horizon for each user.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).
Note: No multiplier, contagion coefficient or aggregate supplier-chain loss is inferred without linked transaction records.

Identical closing arrears can conceal very different cash clearance

Normalised accounting examples; no Ghana stock is being estimated.

Table 25. Identical closing arrears can conceal very different cash clearance

Case	Opening	New overdue	Cash paid	Non-cash reduction	Closing
Cash settlement	100	30	45	0	85
Reclassification / correction	100	30	20	25	85

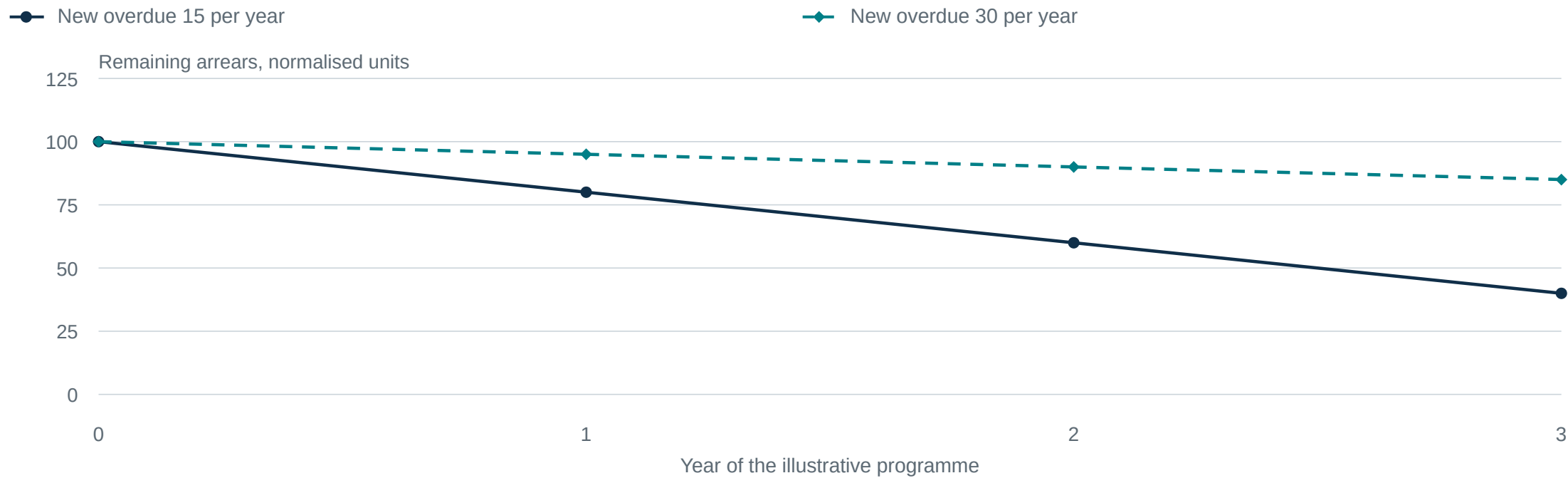
Sources: IDER calculations [\[S10\]](#).

Note: Documented corrections and reclassifications may change arrears without providing contractor liquidity. Gross flows must remain visible.

Preventing new overdue claims is as important as paying the old stock

Normalised opening arrears 100; cash clearance 35 per year; no non-cash adjustment.

Figure 18. Preventing new overdue claims is as important as paying the old stock



Sources: IDER calculations [\[S10\]](#).

Note: Neither path is a Ghana forecast. Payment above available claims is capped; available fiscal financing is not modelled.

Paying old claims can weaken cash results while improving business liquidity

The payment of a prior-period accepted liability is not new current-period procurement.

GOVERNMENT CASH	CONTRACTOR CASH	FINANCING TRADE-OFF
Settling an old payable requires funds now. The cash primary balance can fall relative to the commitment balance even if current recognised spending is unchanged.	The matched supplier receives money and may repay debt, pay wages or fund inputs. Those uses are not inferred from the clearance amount alone.	Borrowing, revenue, cash-buffer use and spending reprioritisation have different costs. Clearance is not costless; neither is involuntary supplier financing.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: The report does not rank a government-wide clearance sequence without verified due dates, legal priorities and available resources.

The model varies net-payables delivery—not an invented gross clearance budget

Source 2026 primary commitment balance GHS 23.938 bn; planned net-payables reduction GHS 29.827 bn.

Table 26. The model varies net-payables delivery—not an invented gross clearance budget

Driver	Settings	Restriction
Non-oil revenue base	GHS 248.154 bn; source growth 4.8%	Oil receipts and grants remain fixed.
Real-growth gap	0,−1,−2 percentage points	One-year real-output level; GDP prices unchanged.
Revenue elasticity	0.8,1.0,1.2	Assumed, not estimated tax buoyancy.
Collection shortfall	0%,5%,10%	Independent multiplicative shock after output factor.
Net-reduction delivery	50%,75%,100%	Lower delivery defers a net reduction; it is not a saving.
Additional net-payables buildup	GHS 0,5,10 bn	A separate scenario; not measured gross new arrears.

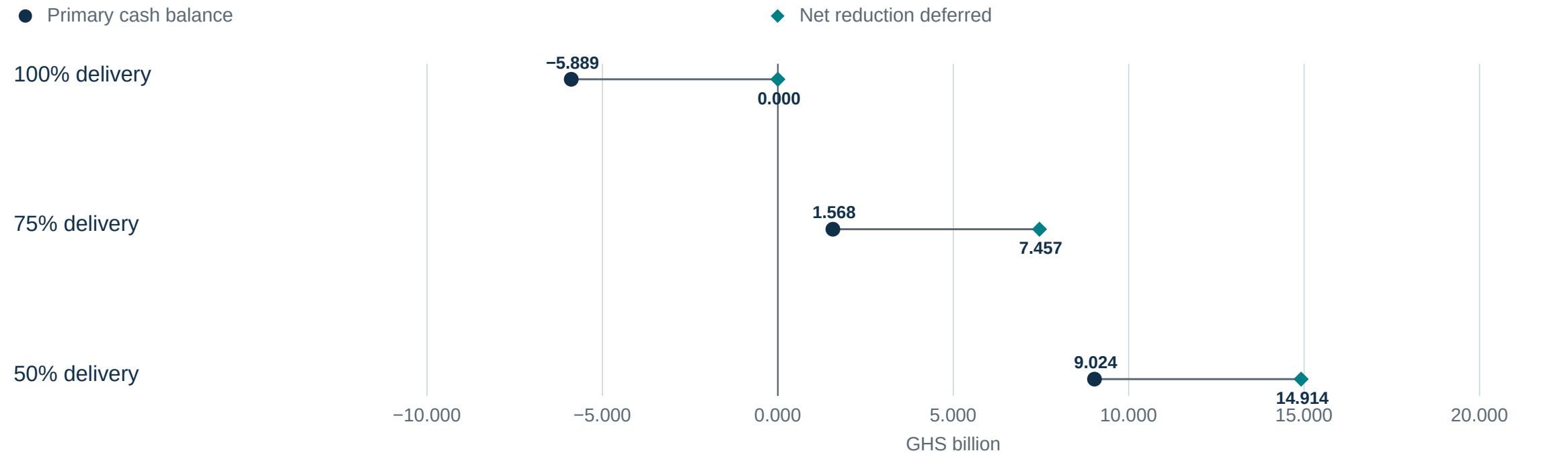
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: 243 finite combinations. Current primary spending, interest, financing responses and the deflator are not endogenised.

Slower net-payables reduction can make the cash balance look better

No revenue shock; the source 2026 commitment balance stays GHS 23.938 bn.

Figure 19. Slower net-payables reduction can make the cash balance look better



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: The half-delivery case shows a GHS 9.025 bn cash surplus while GHS 14.914 bn of the planned net reduction is deferred. This is not recommended policy.

A cash surplus obtained by deferral is not stronger underlying adjustment

Conditional 2026 cases, GHS billion; source balances are the baseline, not a current forecast.

Table 27. A cash surplus obtained by deferral is not stronger underlying adjustment

Case	Revenue loss	Primary commitment	Primary cash	Deferred reduction
Full net reduction	0.000	23.938	-5.889	0.000
75% net reduction	0.000	23.938	1.568	7.457
50% net reduction	0.000	23.938	9.024	14.914
New net payables +5	0.000	23.938	-0.889	0.000
Revenue collection -5%	12.408	11.530	-18.297	0.000
Growth -2 pp and collection -5%	16.907	7.031	-22.796	0.000
Same revenue shock; half net reduction	16.907	7.031	-7.882	14.914

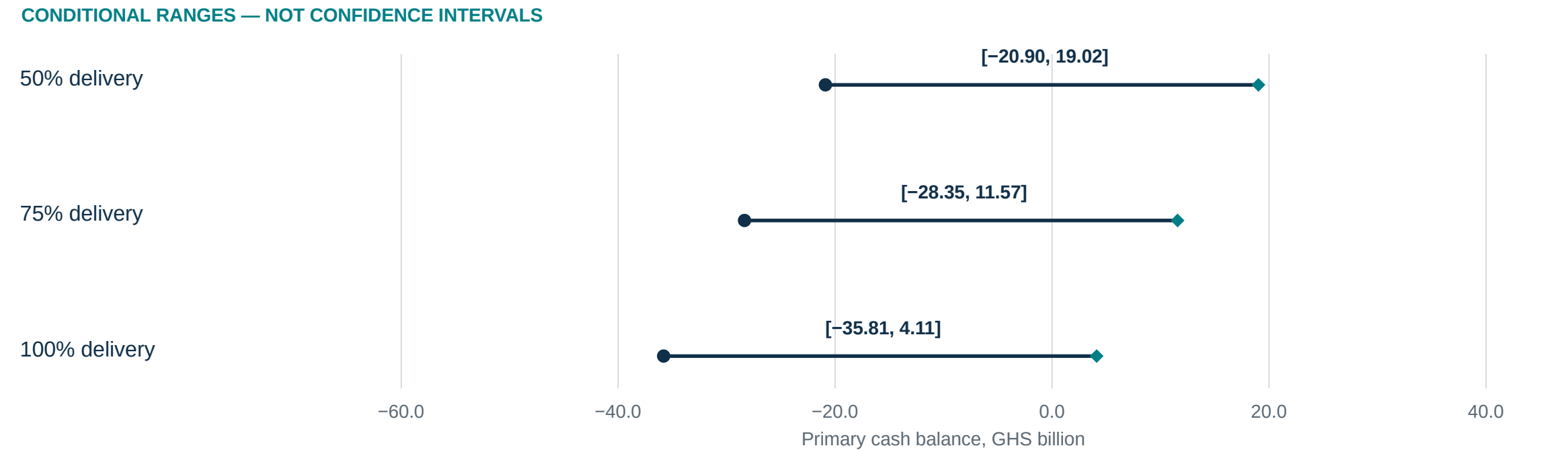
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: All due-payment obligations remain legally separate from this fiscal identity. No expected probability of a revenue or payment shock is assigned.

The same source baseline produces a range under explicit restrictions

All 243 settings, grouped by the fraction of planned net-payables reduction delivered.

Figure 20. The same source baseline produces a range under explicit restrictions



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Ranges include additional net-payables accumulation, which can improve cash presentation. They are not welfare rankings, forecast bands or confidence intervals.

Verification and cash planning should not become arbitrary payment rationing

A published clearance sequence needs authorised criteria and a transparent exceptions process.

VERIFY	PRIORITISE LAWFULLY	PREVENT RECURRENCE
Reconcile the invoice, delivery, amount, due date and settlement status. Separate genuinely disputed claims from complete, overdue and enforceable obligations.	Apply governing legal priority, age and approved essential-service criteria. Any small-supplier or hardship treatment needs a documented mandate, not undisclosed discretion.	Control new commitments against realistic cash forecasts and payment capacity. Paying an old stock while creating new overdue claims is not a durable solution.

Sources: Flynn & Pessoa (2014) [\[S03\]](#); MoF PFM league table [\[S08\]](#); IDER calculations [\[S10\]](#).
Note: This framework is not a legal priority opinion or an instruction to delay a valid payment that is already due.

The source evidence cannot identify a Ghana-wide causal payment effect

The executed work is accounting, source consistency and conditional transmission analysis.

Table 28. The source evidence cannot identify a Ghana-wide causal payment effect

Threat	Why it matters	Treatment in this report
Endogenous payment priority	Cash-rich agencies or more connected/compliant firms may be paid first.	No paid-versus-unpaid comparison is described as causal.
Disputes and project quality	Poor-quality delivery can delay payment and reduce business outcomes.	Verification and dispute status are distinct variables.
Credit selection	Banks choose borrowers using risk and expected government payment.	No observed lending spread is treated as an exogenous cost.
Survivorship and missing firms	Closed suppliers may be absent from payroll or response datasets.	Require a fixed eligible roster with exits and nonresponse retained.
Common macro shocks	Growth, FX, fiscal cash and NPLs move together.	No short aggregate regression is used to claim transmission.

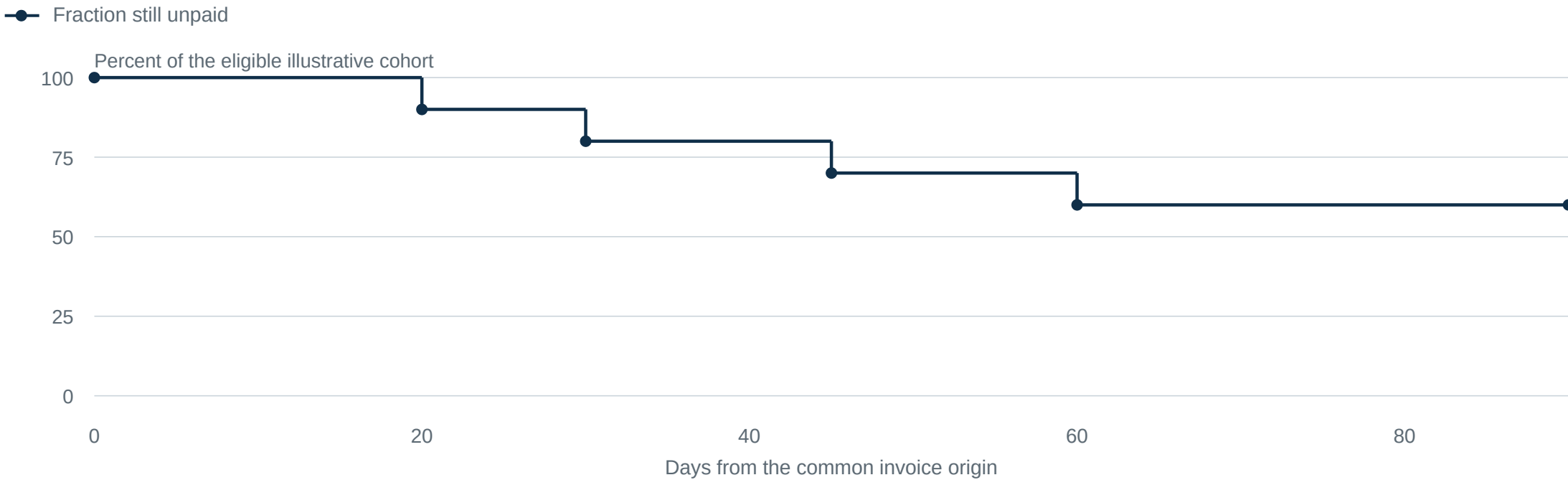
Sources: IMF CR 26/212 [\[S01\]](#); Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: Standard errors, propensity weights or fixed effects cannot repair an undefined population or an invalid assignment mechanism.

A paid-only average understates time unpaid for this declared cohort

Ten synthetic invoices; four paid at 20,30,45 and 60 days, six still unpaid at day 90.

Figure 21. A paid-only average understates time unpaid for this declared cohort



Sources: IDER calculations [\[S10\]](#).

Note: The 90-day restricted mean is 69.5 days; paid-only mean 38.75. Median time to payment is not reached. This is a statistical example, not Ghana data.

Do not discard the invoices that have not reached payment

An actual payment-performance dataset needs one inception cohort and several outcome states.

Table 29. Do not discard the invoices that have not reached payment

Outcome	Analytical treatment	Misleading alternative
Paid in full	Link all instalments and final cash date; report time and value.	Treat payment-order approval as full settlement.
Partly paid	Track remaining valid amount and dates of every part.	Mark the entire invoice paid after the first transfer.
Still pending	Right-censor at the last verified observation; retain amount.	Drop the record or assign zero delay.
Rejected / cancelled	Treat as a separate decision outcome with effective date.	Record rejection as faster cash payment.
Firm exit / missing response	Retain the original roster and seek administrative follow-up.	Infer zero job losses because only survivors responded.

Sources: IDER calculations [\[S10\]](#).

Note: A competing-risk or survival estimator still needs genuine dated records and defensible censoring assumptions.

Evaluate an administrative offer without deliberately delaying valid payments

P01 is a prospective facilitation design; no trial or causal coefficient is reported.

ETHICAL ASSIGNMENT	DEFINED ESTIMAND	RELEASE GATES
Additional administrative help could be allocated fairly among legally comparable eligible claims where capacity is constrained. All legally due payments continue under the governing rules.	Estimate the intention-to-treat effect of the assistance offer on verification time, cash receipt, payroll and loan performance. The offer’s effect is not automatically the effect of money alone.	Pre-register outcomes and the eligible roster; track non-take-up, agency spillovers and exits. Use assignment-level inference and disclose all prespecified results, not only significant outcomes.

Sources: Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: Assistance may directly improve compliance or access to credit, so using it as an instrument for payment requires additional exclusion evidence.

A payment shock must be justified before a panel coefficient is interpreted

P02 requires outcomes beyond the accounting identity and a defensible counterfactual.

EXPOSURE	COMPARISON	INFERENCE
Measure government-sales or unpaid-invoice exposure before the intervention. Do not define treatment using the amount eventually paid or a post-shock business decision.	Evaluate pre-trends, anticipation, eligibility changes and untreated spillovers. A credible cutoff or phased reform can help only when its assignment conditions actually hold.	Cluster at the assignment level; account for repeated firms and contracts. Report attrition, failures, alternative windows and sensitivity to plausible omitted confounding.

Sources: Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: No instrument, discontinuity, random assignment or linked Ghana outcome panel has been established for this publication.

Match each claim to the evidence that can support it

Stronger wording requires stronger data—not a more elaborate chart.

Table 30. Match each claim to the evidence that can support it

Claim	Supported here?	Additional requirement
Cash and commitment balances reconcile	Yes, within disclosed source precision.	Second source-image check for inaccessible IMF tables; transaction audit for operational assurance.
Audit status differs from cash receipt	Yes, by definition and source-status records.	Matched settlement register to quantify cash actually received.
Delay can absorb an invoice margin	Yes, conditionally under the declared model.	Actual invoice, financing and delay data for a firm estimate.
Arrears clearance caused Ghana job growth	Not estimated.	Credible assignment/comparison and linked employment outcomes.
Clearance reduced Ghana bank NPLs	Not estimated.	Matched borrower–lender data, denominator changes and a causal design.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: No representative national contractor loss, jobs-lost total or causal bank-loss estimate is inserted.

A fiscal hearing should request the four-way reconciliation

The cash balance, commitments, unpaid valid invoices and overdue arrears require separate evidence.

Table 31. A fiscal hearing should request the four-way reconciliation

Question	Specific evidence	Decision risk
How much was incurred and paid?	Cash—commitment bridge with source perimeter and gross adjustments.	Calling delayed payment expenditure restraint.
Which invoices are overdue?	Contractual due dates, retention, validity and partial-settlement records.	Calling every unpaid claim an arrear.
What did the audit change?	Validated, rejected, pending and reclassified amounts by dated status.	Calling audit corrections supplier liquidity.
What is the clearance plan funded by?	Budget cash, revenue, financing, legally usable buffers and value dates.	Treating an allocation or payment instruction as cash.
Did businesses benefit?	Receipt-linked payroll, output, subcontractor and loan data with comparison.	Attributing national outcomes to an aggregate payment total.

Sources: IDER calculations [\[S10\]](#).

Note: These are scrutiny questions, not findings of legal non-compliance or intent by any institution.

Use the fiscal accounts to ask a better transaction-level question

The relevant unit is the particular claim, cash-flow horizon or portfolio exposure.

Table 32. Use the fiscal accounts to ask a better transaction-level question

Audience	Immediate analytical use	Evidence still required
Government suppliers / contractors	Stress cash before wages, materials and debt service.	Accepted invoice, due date and actual bank-credit status.
Banks / trade financiers	Separate receivable validity, collection date and borrower repayment.	Loan cash schedule, collateral, assignment and risk controls.
Funds / insurers / pensions	Map sovereign and contractor cash risks against liabilities.	Security cash flows, withdrawals, claims and market liquidity.
Private equity / DFIs / diaspora	Assess project funding and government-customer concentration.	Capital milestones, rights, counterparties and cash alternatives.
MoF / BoG / partners / researchers	Link fiscal clearance, supplier liquidity and banking data.	Authorised data-sharing, common IDs and robust identification.

Sources: IDER calculations [\[S10\]](#).

Note: No security recommendation, current financing product, credit rating or portfolio allocation is provided.

A compliance score is not a payment-performance measure

MoF announced its PFM Compliance League Table in March 2026; its purpose is procedural compliance benchmarking.

PROCESS MEASURE	OUTCOME MEASURE	EVALUATION
Keep commitment controls, documentation, reconciliations and reporting compliance as auditable administrative indicators.	Separately publish accepted invoices paid by their due dates, value-weighted overdue days, partial-payment amounts and cash received by suppliers.	Test whether improvements in process indicators precede better payment outcomes after accounting for agency mix, claim complexity and cash availability.

Sources: MoF PFM league table [\[S08\]](#); IDER calculations [\[S10\]](#).

Note: No institutional ranking, current score or causal effect of the league table is inferred from its announcement.

The first 90 days should produce a reconciled and usable pilot

Proposed after lawful access and partner approval; targets refer to captured material records.

Table 33. The first 90 days should produce a reconciled and usable pilot

Window / owner	Deliverable	Measurable acceptance test
Days 0–30 MoF/CAGD data leads + claims owners	Source inventory, perimeter map, unique contract/invoice IDs and status ledger.	100% of captured material claims have currency, amount and status; every missing due date flagged.
Days 31–60 Treasury + supplier finance + bank liaison	Cash–commitment bridge and 13-week supplier cash schedules; exception log.	All material payments trace to invoice and bank-value evidence; no known duplicate clearance.
Days 61–90 IDER + independent reviewer + decision owners	Reproducible dashboard, pilot findings and preregistered evaluation plan.	All outputs replay; unresolved amounts disclosed; all proposed actions have an authorised owner.

Sources: IDER calculations [\[S10\]](#).

Note: Proposed research controls, not agreed mandates, achieved nationwide coverage or a promise of payment.

Track stocks, flows, lateness and supplier cash separately

The numerator and denominator of every indicator must be disclosed.

Table 34. Track stocks, flows, lateness and supplier cash separately

Indicator	Definition	Frequency / owner
Cash–commitment gap	Matched balance difference with net-payables and rounding crosswalk.	Monthly / fiscal reporting
Gross new overdue invoices	Value first passing its governing due date within the period.	Weekly / accounts payable
Cash clearance	Matched supplier settlement on previously overdue accepted amounts.	Weekly / Treasury and CAGD
Outstanding late stock	Remaining valid amount beyond its own due date at the cut-off.	Month-end / claims owners
Supplier cash stress	Lowest cash before each material payment, with actual usable facilities.	Weekly / supplier finance
Business and loan outcomes	Payroll, hours, firm exit and lender payment days on linked records.	Monthly / authorised research partners

Sources: IDER calculations [\[S10\]](#).

Note: A release must state missing due dates, disputed claims, unmatched settlements and reporting coverage alongside the indicators.

Publish a payment-quality annex alongside the fiscal balance

The analysis supports a concrete disclosure improvement, not a new unauthorised reporting mandate.

FISCAL COLUMN	CLAIM COLUMN	BUSINESS COLUMN
Show commitment and cash balances, gross payable additions, cash clearance, valuation, corrections and the remaining reconciliation difference.	Show accepted due/not-due stocks, disputed and pending amounts, age distributions and the portion confirmed in supplier bank accounts.	For consenting pilot firms, show working-capital exposure, payroll continuity and loan performance. Report causal findings only when the design supports them.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: Sensitive identities, banking details and commercial contract terms should not be published without the appropriate authority and disclosure controls.

The extension adds source detail without inventing contractor observations

Each evidence block has a stated observational unit and a separate inferential boundary.

Table 35. The extension adds source detail without inventing contractor observations

Evidence block	Additional work	Boundary
Fiscal source records	Eight current-vintage revenue-component observations; cash-expenditure and Table 3b/3c basis comparisons.	Years and accounting lines are not randomly assigned policies.
Banking source records	Ten dated NPL, provision-coverage and net-NPL-to-capital observations.	Not a matched contractor-loan sample; no payment-effect estimate.
Budget audit image	Rechecked the original Table 6 values and the GHS 517,107 total residual.	Validation status is not settlement status.
Contractor sensitivity	273 daily-delay cases; 16 recursive-interest cases; six partial-receipt cases.	All are explicitly hypothetical variants of the declared ledger.
Claim-outcome controls	Fixed cohorts for competing closure and missing due-date bounds.	Method demonstrations, not newly observed Ghana invoices.

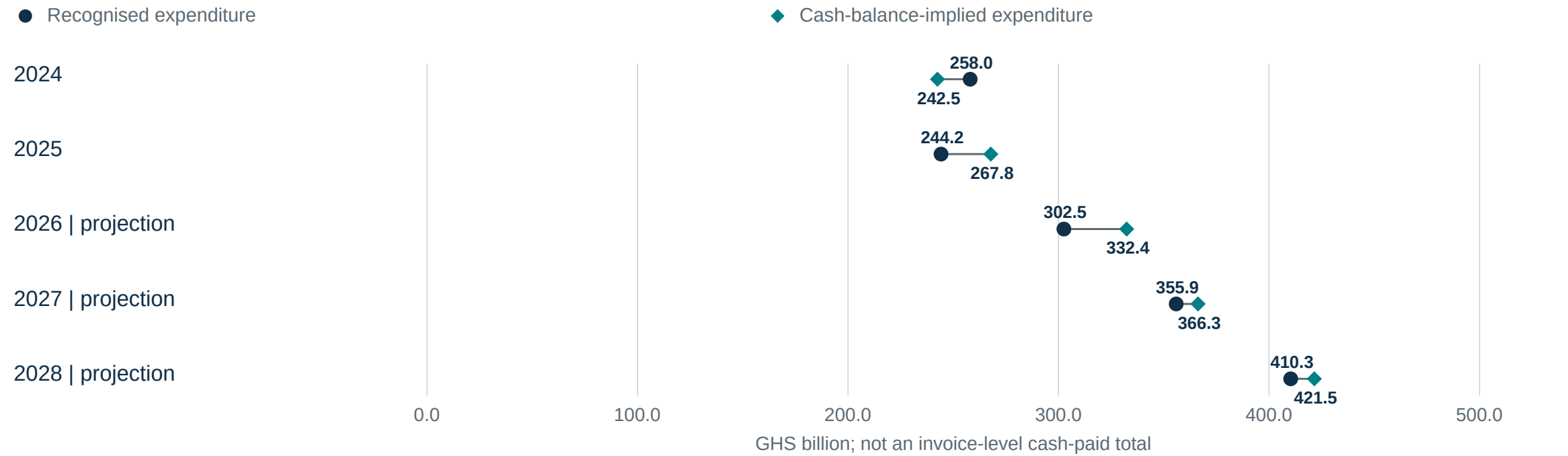
Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: IMF values were rechecked against parsed source headings and identities; the requested PDF table images remained unavailable.

Cash-balance-implied expenditure rose while recognised expenditure fell

Current-vintage source arithmetic; 2024 actual, 2025 preliminary, later years projections.

Figure 22. Cash-balance-implied expenditure rose while recognised expenditure fell



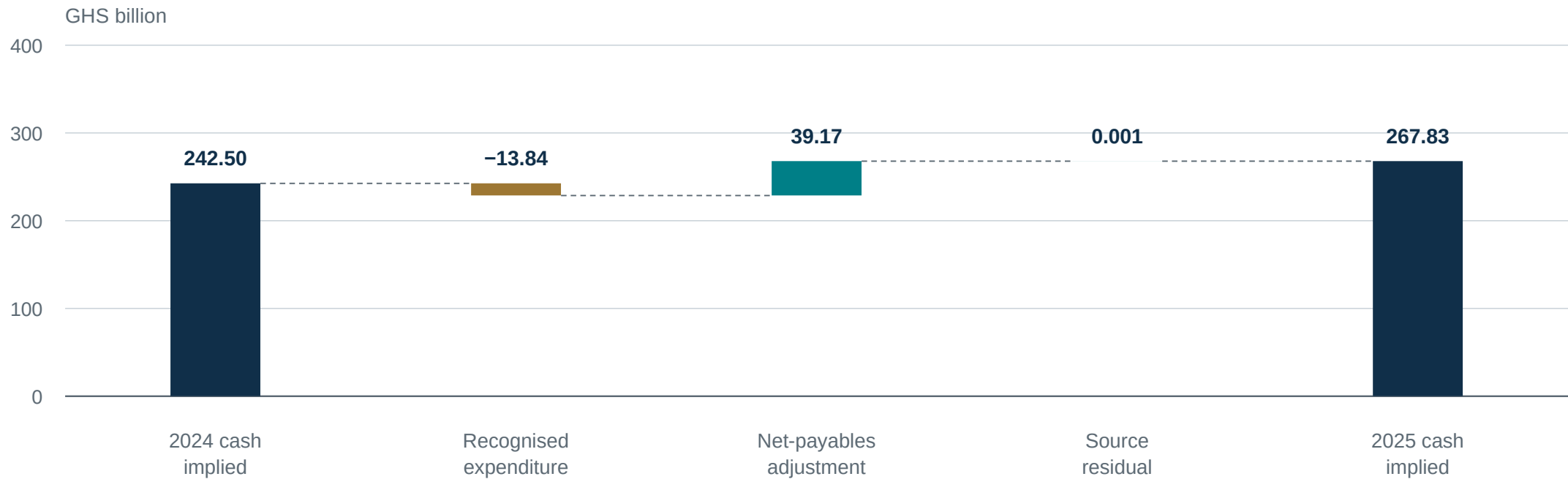
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Implied expenditure = revenue and grants minus the overall cash balance. Principal financing transactions are not added.

The change in payables reverses the direction of the spending comparison

2024–2025 accounting bridge; source residual of GHS 1 million remains separate.

Figure 23. The change in payables reverses the direction of the spending comparison



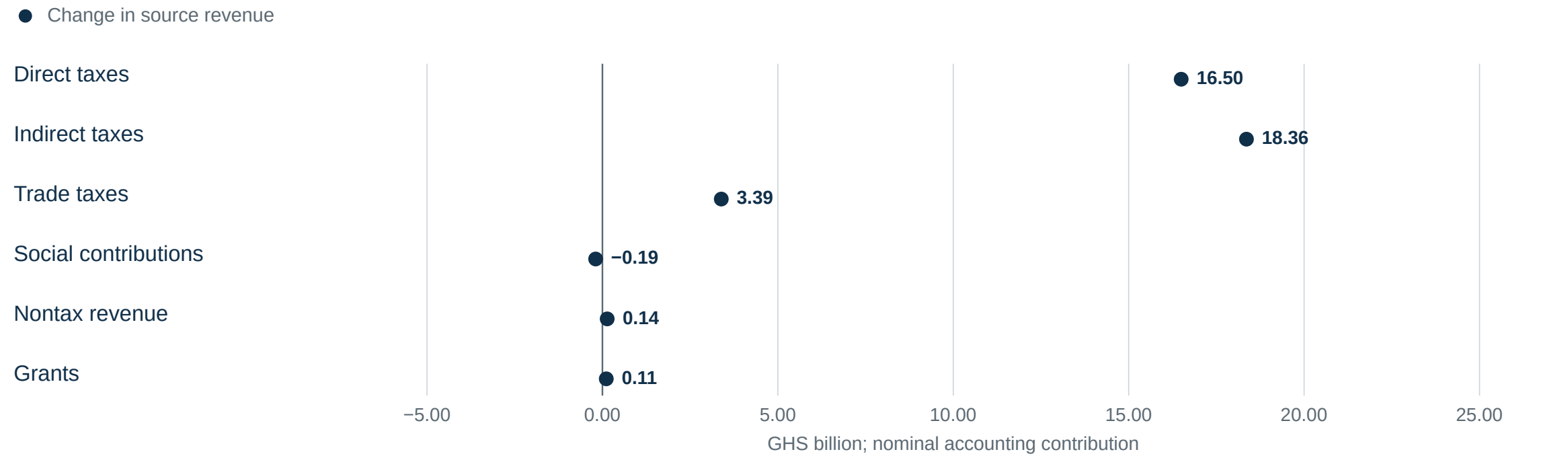
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Recognised spending fell GHS 13.844 bn; implied cash spending rose GHS 25.332 bn. Neither amount measures supplier receipts alone.

Direct and indirect taxes account for most of the revenue increase

2024 actual to 2025 preliminary; non-overlapping source components, with no inflation adjustment.

Figure 24. Direct and indirect taxes account for most of the revenue increase



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Direct and indirect taxes contribute GHS 34.852 bn of the GHS 38.291 bn increase. This is not a tax-policy causal effect.

The revenue bridge retains its non-overlapping components

Original source display precision is GHS million; calculate before converting and rounding.

Table 36. The revenue bridge retains its non-overlapping components

Component	2024 GHS bn	2025 GHS bn	Change GHS bn	Share of increase
Direct taxes	78.742	95.238	16.496	43.08%
Indirect taxes	57.424	75.780	18.356	47.94%
Trade taxes	19.917	23.305	3.388	8.85%
Social contributions	1.060	0.866	-0.194	-0.51%
Nontax revenue	27.734	27.870	0.136	0.36%
Grants	1.716	1.825	0.109	0.28%

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Shares refer to the observed nominal revenue change, not collection efficiency, fiscal multipliers or source-population weights.

A financing-table primary balance is not a substitute for Table 3b

Both records are surplus-positive here; the source Table 3c deficit sign is reversed explicitly.

Table 37. A financing-table primary balance is not a substitute for Table 3b

Year / status	Table 3b cash surplus	Table 3c implied surplus	Difference
2024 Actual	−8.759	−5.800	2.959
2025 Preliminary	6.941	9.700	2.759
2026 Projection	−5.889	−2.100	3.789
2027 Projection	−1.328	4.100	5.428
2028 Projection	−0.930	3.800	4.730

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: GHS bn. Table 3c excludes specified AfDB grants and includes Cocobod net income; the full bridge is not allocated to either component.

The NPL ratio and its provision cover must be read together

Ten labelled end-period source observations; provisions and nonperforming loans retain the source perimeter.

Table 38. The NPL ratio and its provision cover must be read together

Date	NPL / gross loans	Provisions / NPL	NPL less provisions / gross loans
2019-12-31	13.9%	82.7%	2.405%
2020-12-31	14.8%	84.3%	2.324%
2021-12-31	15.1%	83.2%	2.537%
2022-12-31	14.8%	87.9%	1.791%
2023-12-31	20.6%	73.2%	5.521%
2024-06-30	24.1%	75.7%	5.856%
2024-12-31	21.8%	78.7%	4.643%
2025-06-30	24.1%	75.7%	5.856%
2025-12-31	18.9%	78.8%	4.007%
2026-03-31	18.1%	76.2%	4.308%

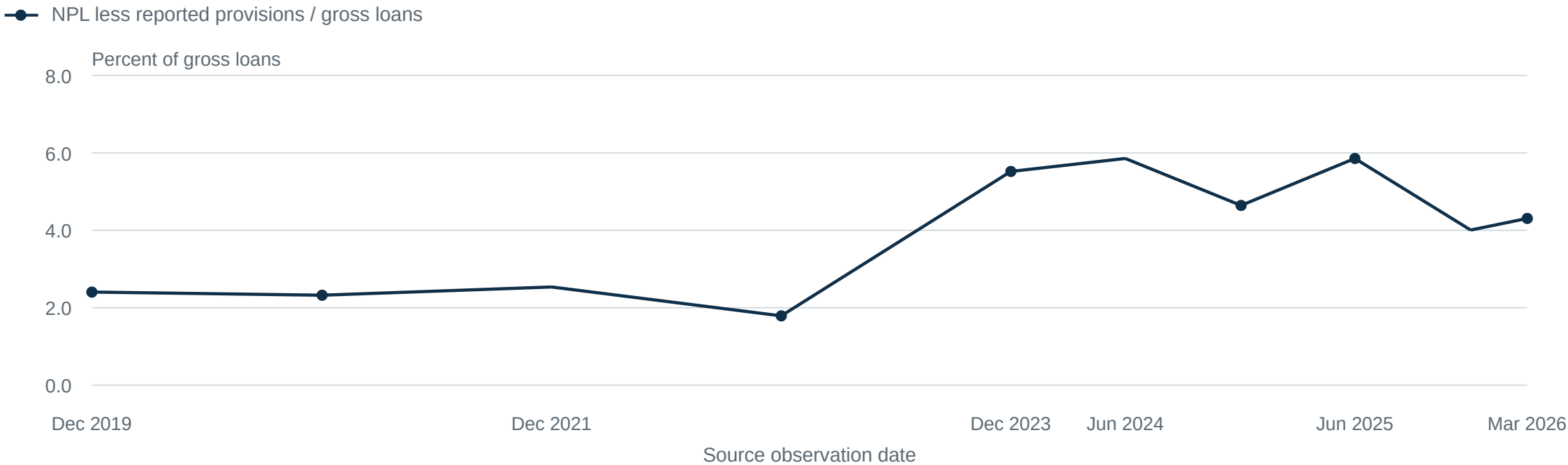
Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: Last column = $\text{NPL ratio} \times (1 - \text{coverage fraction})$, conditional on compatible scope. It is not realised loss, ECL or required regulatory capital.

A lower gross NPL ratio can coexist with a larger residual after provisions

Derived diagnostic, not a borrower-level impairment estimate; observations are not equally spaced in time.

Figure 25. A lower gross NPL ratio can coexist with a larger residual after provisions



Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: December 2025: 4.0068%; March 2026: 4.3078%. Bank-level coverage, recoveries and contractor exposure have not been identified.

The coverage movement outweighs the lower gross NPL ratio

December 2025 to March 2026; symmetric product decomposition of the derived ratio.

Table 39. The coverage movement outweighs the lower gross NPL ratio

Diagnostic	Value	Meaning
Gross NPL ratio	18.9% → 18.1%	A fall of 0.8 percentage point; gross loan amounts are not available here.
Provision coverage	78.8% → 76.2%	A fall of 2.6 percentage points.
NPL-ratio contribution	−0.180 pp	Average uncovered fraction times the gross NPL-ratio change.
Coverage contribution	0.481 pp	Average gross NPL ratio times the change in the uncovered fraction.
Total diagnostic change	0.301 pp	Exact sum under aligned source definitions.
Display-rounding change range	0.260 to 0.342 pp	Assumes independent nearest-0.1-pp rounding of the two ratios.

Sources: IMF CR 26/212 [\[S01\]](#); IDER calculations [\[S10\]](#).

Note: The rounding range excludes source error and measurement mismatch. Neither the sign nor magnitude identifies an arrears-clearance effect.

Validation improves traceability without erasing unresolved source limits

The decision to retain an exception is different from treating its value as zero.

Table 40. Validation improves traceability without erasing unresolved source limits

Record	Check performed	Release consequence
Budget Table 6	Re-read the source image; claims residual 517,108; BTA residual -1; total 517,107 GHS.	Retain the published categories and unallocated amount; no cash payment inferred.
IMF fiscal Table 3b	Parsed headings, current-vintage columns and original arithmetic rechecked.	No source-image assurance is claimed; the image request failed.
IMF banking Table 7	Ten matched columns for NPL and coverage; the original NPL series is unchanged.	The Tier I capital row has only nine parsed values and is excluded from new analysis.
Causal evidence	Existing published Quickpay evidence retains its population and spillover qualification.	No new Ghana coefficient or reproduced foreign microdata regression is claimed.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: The expanded rows add measurement detail, not independent replications or a representative contractor sample.

The financing extension distinguishes an existing loan from a new bridge

The original contractor operating programme is unchanged; the extra facility funds only the remaining cash deficit.

Table 41. The financing extension distinguishes an existing loan from a new bridge

Setting	Implementation	Boundary
Daily delay grid	Government receipts shift by 0–90 whole days; material FX changes 0%, 20%, 40%.	273 deterministic combinations, not sampled firms.
Additional facility	24% annual rate; 365-day basis; daily charge on drawn end-day balance.	Hypothetical unlimited capacity; no market quote, fee or approval.
Interest recursion	Capitalise each charge once; retain interest after day 91 until the last cohort receipt.	Existing scheduled debt interest remains a separate obligation.
Partial receipts	Pay 0%, 25% or 50% at the original due date; delay only the remainder by 28 days.	Total receipts and completed-project costs are unchanged.
Capacity test	Compare required capacity with assumed limits of 250, 500 and 1,000 GHS k.	Fixed-plan exceedance is not a job-loss or default prediction.

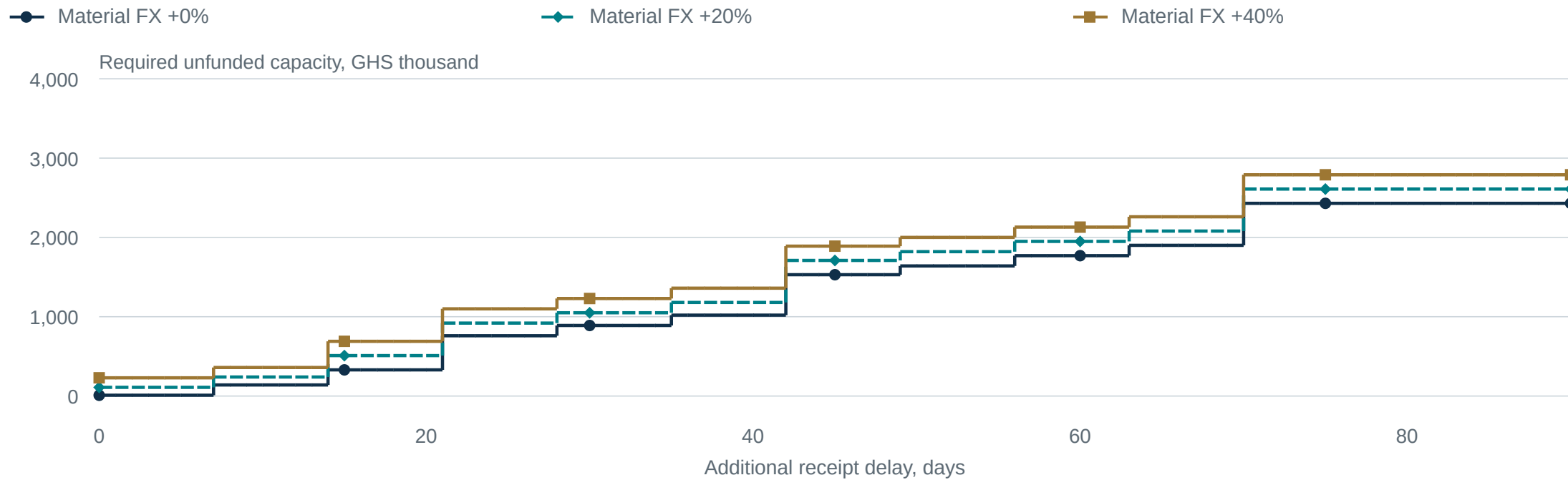
Sources: IDER calculations [\[S10\]](#).

Note: All contractor observations in this extension are synthetic. No administrative invoice, payroll or loan data have been invented.

The required bridge changes at particular payment dates, not smoothly

Every whole-day shift from 0 to 90 is tested; the original fixed project plan and eventual receipts are retained.

Figure 26. The required bridge changes at particular payment dates, not smoothly



Sources: IDER calculations [\[S10\]](#).

Note: No interest is charged in this grid; interest recursion is reported separately. Jumps reflect event order and payments before receipts.

Financing cost continues after day 91 when the bridge remains drawn

Daily capitalisation at 24%; no new project costs after the fixed cohort ends. GHS thousand.

Table 42. Financing cost continues after day 91 when the bridge remains drawn

Delay	Required capacity to day 91	Interest to day 91	Interest through final receipt	Final cash after interest
0 days	10.00	0.00	0.00	580.00
14 days	331.25	1.25	1.25	578.75
28 days	894.73	9.79	11.32	568.68
56 days	1,795.81	41.02	55.06	524.94

Sources: IDER calculations [\[S10\]](#).

Note: Charges are incremental bridge costs, additional to the original debt-service schedule. Eventual collection and unlimited credit remain assumptions.

Partial on-time settlement can reduce financing exposure before final payment

28-day delay on the unpaid remainder; 24% capitalised bridge rate; all GHS amounts in thousands.

Table 43. Partial on-time settlement can reduce financing exposure before final payment

On-time fraction	Capacity needed by day 91	Total bridge interest	Final cash
0%	894.73	11.32	568.68
25%	667.47	4.97	575.03
50%	441.43	2.08	577.92

Sources: IDER calculations [\[S10\]](#).

Note: This is a cash-timing comparison, not a proposal to ration valid payments. Legally due amounts and payment priority remain governed by the contract.

An approved limit must be compared with the peak, not the eventual surplus

Reference credit limits are imposed on the fixed-plan path; GHS thousand.

Table 44. An approved limit must be compared with the peak, not the eventual surplus

Receipt delay	Assumed limit	First model exceedance	Extra capacity required
14 days	250	Day 28	81.25
14 days	1,000	None within 91 days	0.00
28 days	250	Day 28	644.73
28 days	1,000	None within 91 days	0.00
56 days	250	Day 28	1,545.81
56 days	1,000	Day 49	795.81

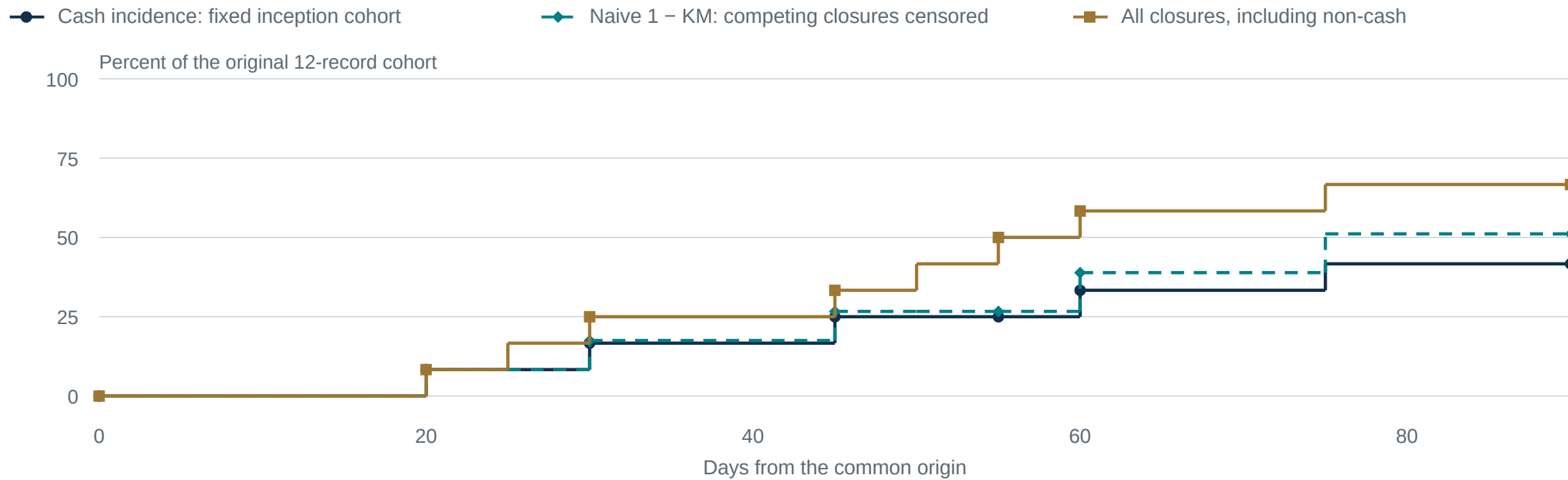
Sources: IDER calculations [\[S10\]](#).

Note: Once a real limit binds, operations or other financing may change. The fixed-plan test does not estimate those behavioural responses.

Non-cash closure is not a cash-settlement success

Twelve synthetic eligible records; five cash settlements, two final rejections, one offset and four pending at day 90.

Figure 27. Non-cash closure is not a cash-settlement success



Sources: IDER calculations [\[S10\]](#).

Note: Cash completion is 41.67%; censoring other closures gives 51.11% for a different hypothetical quantity. No Ghana payment-performance estimate is made.

Unknown due dates produce an identified range—not a zero arrears entry

Declared fixed ledger: eight eligible unpaid claims; two unresolved-validity records remain outside the accepted denominator.

Table 45. Unknown due dates produce an identified range—not a zero arrears entry

Quantity	Result	Interpretation
Accepted unpaid stock	GHS 1,300 k	Fixed denominator: includes valid due and not-yet-due amounts.
Known overdue stock	GHS 600 k	Three records have a verified overdue status.
Eligible stock with missing due dates	GHS 450 k	Three amounts can change the overdue numerator; unknown is not zero.
Amount-weighted overdue range	46.15%–80.77%	Sharp over all admissible due-status assignments for this toy ledger.
Claim-count overdue range	37.5%–75.0%	A different denominator: claims, not money.
Unvalidated/disputed records	GHS 200 k	Reported separately; not silently put into the accepted stock.

Sources: IDER calculations [\[S10\]](#).

Note: No cap is imposed on unknown national claims. These finite bounds require the entire stated eligible ledger to be known.

The stronger evidence supports narrower, testable decisions

The additional diagnostics do not turn cash identities or selected records into policy treatment effects.

Table 46. The stronger evidence supports narrower, testable decisions

Decision	Supported result	Condition before stronger claim
Fiscal communication	Separate recognised expenditure from the cash-balance-implied spending change.	Supplier settlement totals require bank-linked gross payment records.
Bank credit review	Read provision coverage alongside gross NPL ratios.	Matched loan amounts, borrower exposure and classification rules are needed.
Contractor finance	Test partial receipts, drawn balances, full-cohort interest and capacity.	Actual contract, facility and cash dates replace every assumed parameter.
Payment performance	Retain pending claims, competing closure and missing due dates.	A fixed eligible roster, defensible follow-up and representative sampling frame.
Causal evaluation	P01/P02 specify offers/exposure, not completed experiments.	Assignment, counterfactual trends, spillovers, attrition and credit selection remain unresolved.

Sources: IMF CR 26/212 [\[S01\]](#); Flynn & Pessoa (2014) [\[S03\]](#); Barrot & Nanda (2020) [\[S07\]](#); IDER calculations [\[S10\]](#).

Note: No Ghana-wide job effect, bank-loss coefficient, national arrears estimate or treatment-effect standard error is inserted.

Every calculation has a measurement boundary and an assumption set

E01–E36 cover definitions and executed diagnostics; P01–P02 remain unestimated designs.

Table 47. Every calculation has a measurement boundary and an assumption set

Principle	Required condition	Interpretation limit
A1 Matched scope	Same entity, fiscal basis, currency, source vintage and observation window.	Unmatched source totals are not additive.
A2 Status and timing	Accepted amount, governing due date, dispute, retention and bank settlement.	Unpaid is not automatically overdue; validated is not paid.
A3 Gross and net	Separate new obligations, cash, valuation and other adjustments.	Net payables reduction is not gross cash clearance.
A4 Model versus observation	Assumed invoice, project, rate and revenue settings retain explicit labels.	Scenario cells are not empirical firms or probabilities.
A5 Counterfactual	A credible assignment mechanism and eligible population for causal claims.	Accounting identities and repeated rows do not identify policy effects.

Sources: IDER calculations [\[S10\]](#).

Note: Source-image access and data gaps remain in the source register and final evidence package.

Fiscal balance identities

Variables, assumptions and executable outputs accompany each method.

E01 Cash–commitment fiscal bridge

EXECUTED SOURCE RECONCILIATION

$$B^{\text{cash}}_t = B^{\text{commit}}_t + \Delta P_t + \rho_t \tag{E01a}$$

$$\rho_t = B^{\text{cash}}_t - B^{\text{commit}}_t - \Delta P_t \tag{E01b}$$

B is a surplus-positive primary or overall balance; ΔP is the matching source net-payables change. Units are GHS million.

ASSUMPTIONS / INTERPRETATION

Use one date, perimeter and source vintage. A positive ΔP can support cash without eliminating incurred expenditure; retain rounding residual ρ.

E02 Change in the fiscal bridge

EXECUTED ACCOUNTING ATTRIBUTION

$$\Delta B^{\text{cash}} = \Delta B^{\text{commit}} + \Delta(\Delta P) + \Delta \rho \tag{E02a}$$

$$\Delta B^{\text{commit}} = \Delta R - \Delta E^{\text{primary}} + \rho^R \tag{E02b}$$

R is revenue plus grants; E primary is source primary expenditure. The second equation applies to the primary balance.

ASSUMPTIONS / INTERPRETATION

Differences across years are accounting contributions, not causal fiscal-policy effects. Recognition changes can affect the expenditure comparison.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Payables and overdue eligibility

Variables, assumptions and executable outputs accompany each method.

E03 Payables stock and transactions

ACCOUNTING DEFINITION

$$P_1 = P_0 + L - C + V + O \tag{E03a}$$

$$\Delta P - (L - C) = V + O \tag{E03b}$$

L is newly recognised liabilities, C settlements, V valuation and O other adjustments. P includes due and not-yet-due balances.

ASSUMPTIONS / INTERPRETATION

A stock decline alone does not identify gross clearance. The general stock identity is not substituted for a source programme flow adjustment.

E04 Overdue eligibility and remaining claim

MEASUREMENT DEFINITION

$$U_i = Eligible_i - Settled_i \tag{E04a}$$

$$A_{i,t} = U_i \times 1(t > DueDate_i) \tag{E04b}$$

U is the verified unsettled portion; A is overdue only if the governing due date is established and applicable.

ASSUMPTIONS / INTERPRETATION

Apply to valid, same-scope claims. Missing due dates, disputed claims and unreleased retentions require separate statuses, not automatic zero or arrears.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Audit categories and denominators

Variables, assumptions and executable outputs accompany each method.

E05 Audit category reconciliation

EXECUTED SOURCE AUDIT

$$\text{Restated} = \text{Submitted} + \text{Reclassified} \tag{E05a}$$

$$\rho = \text{Restated} - \text{Validated} - \text{Rejected} - \text{Pending} \tag{E05b}$$

Whole-cedi figures follow Table 6 of the November 2025 budget publication. Reclassified is signed negative.

ASSUMPTIONS / INTERPRETATION

The GHS 517,107 total residual is retained. A revised liability classification is not a supplier cash receipt or automatically a legal extinguishment.

E06 Audit monetary shares

EXECUTED DENOMINATOR CHECK

$$s^{\text{restated}}_j = 100 \, V_j / \text{Restated} \tag{E06a}$$

$$s^{\text{submitted}}_j = 100 \, V_j / \text{Submitted} \tag{E06b}$$

V_j is the monetary amount in one audit category. The denominators differ by the reclassification adjustment.

ASSUMPTIONS / INTERPRETATION

Amounts are not counts of firms or claims. These historical monetary shares are not default, fraud or national prevalence probabilities.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Pending status and source precision

Variables, assumptions and executable outputs accompany each method.

E07 Unresolved validation sensitivity

EXECUTED CONDITIONAL RANGE

$$V(q) = \text{Validated} + q \times \text{Pending} \tag{E07a}$$

$$0 \leq q \leq 1 \tag{E07b}$$

q is an imposed fraction of pending money subsequently validated. No new cash settlement is assumed.

ASSUMPTIONS / INTERPRETATION

Range excludes reclassified commitments, rejected claims, appeals and the source residual. It is not a forecast of legal outcomes.

E08 Rounded arrears/GDP conversion

EXECUTED SOURCE-PRECISION CHECK

$$A_L = (Y - h_Y)(r - h_r)/100 \tag{E08a}$$

$$A_U = (Y + h_Y)(r + h_r)/100 \tag{E08b}$$

Y is same-source nominal GDP; r is the reported DSA arrears percentage. Half-widths follow displayed precision.

ASSUMPTIONS / INTERPRETATION

Nearest-rounding envelope only. Broader DSA coverage includes items outside the budget audit; endpoints are not statistical confidence limits.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Currency conversion and invoice finance

Variables, assumptions and executable outputs accompany each method.

E09 Energy flow versus stock conversion

EXECUTED ILLUSTRATIVE IDENTITY

$$\text{Flow}^{\text{GHS}} = e^{\text{avg}}(\text{P}^{\text{USD}}_1 - \text{P}^{\text{USD}}_0) \tag{E09a}$$

$$\Delta \text{Stock}^{\text{GHS}} = e_1 \text{P}^{\text{USD}}_1 - e_0 \text{P}^{\text{USD}}_0 \tag{E09b}$$

The first line mirrors the stated quarterly programme conversion rule. The second uses closing-date translated stocks.

ASSUMPTIONS / INTERPRETATION

Use the correct energy netting perimeter. A difference between the two is not additional repayment; the numerical example is hypothetical.

E10 Financing a delayed invoice

EXECUTED CONDITIONAL COST

$$\text{FinanceCost} = \text{Funded} \times r \times d/365 \tag{E10a}$$

$$\text{Margin}_1 = \text{Margin}_0 - \text{FinanceCost} \tag{E10b}$$

Funded is the fixed borrowed exposure, r annual simple interest and d additional days beyond the contractual due date.

ASSUMPTIONS / INTERPRETATION

The GHS 1 m invoice, GHS 700 k funding and rates are assumptions. No compounding, fees, penalties, tax or endogenous borrowing response.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Margin and working-capital thresholds

Variables, assumptions and executable outputs accompany each method.

E11 Margin-exhaustion delay

EXECUTED REVERSE STRESS

$$d^* = 365 \text{ Margin}_0 / (\text{Funded} \times r) \tag{E11a}$$

$$\text{Headroom}(d) = \text{Margin}_0 - \text{Funded} \times r \times d / 365 \tag{E11b}$$

d* sets the remaining pre-tax contribution to zero for a positive initial margin and positive funded balance/rate.

ASSUMPTIONS / INTERPRETATION

A conditional threshold is not a default date, an acceptable payment term or an estimated duration of actual government delay.

E12 Receivable funding from collection days

EXECUTED WORKING-CAPITAL PROXY

$$\Delta \text{AR} = \text{AnnualSales} \times \text{GovtShare} \times \Delta \text{Days} / 365 \tag{E12a}$$

$$\text{GovtSales} = \text{AnnualSales} \times \text{GovtShare} \tag{E12b}$$

Annual credit sales and the government share are assumed. Additional receivables approximate a steady sales-flow transition.

ASSUMPTIONS / INTERPRETATION

No seasonality, retention, taxes, partial payment or supplier-credit offsets are recovered. Use dated invoices for operational funding.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Joint exposure and cash assignment

Variables, assumptions and executable outputs accompany each method.

E13 Joint currency and delay exposure

EXECUTED CONDITIONAL COST

$$\text{FXcost} = \text{UnpaidFXInput}_0 \times \varepsilon \tag{E13a}$$

$$\text{Margin}^{\text{joint}} = \text{Margin}_0 - \text{FinanceCost} - \text{FXcost} \tag{E13b}$$

ε is the change in GHS per FX unit; only the assumed unpaid foreign-priced input is shocked.

ASSUMPTIONS / INTERPRETATION

No revaluation of inputs already paid. Fixed borrowing in this comparison means extra interest on the FX increment is not included.

E14 Cash assignment versus waiting

EXECUTED COMPARISON THRESHOLD

$$\text{PV}_{\text{wait}} = \text{Invoice} / (1 + r d / 365) \tag{E14a}$$

$$\text{Haircut}^* = 1 - \text{PV}_{\text{wait}} / \text{Invoice} \tag{E14b}$$

The threshold compares immediate full settlement with the discounted full invoice at the assumed waiting date.

ASSUMPTIONS / INTERPRETATION

No current factoring quote, recourse, tax, notice, enforceability or credit-risk equivalence is assumed; partial advances need a different cash model.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Contractor cash and bridge size

Variables, assumptions and executable outputs accompany each method.

E15 Contractor event-date cash

EXECUTED SYNTHETIC LEDGER

$$C_k = C_0 + \sum_{j \leq k} (\text{Receipts}_j - \text{Payments}_j) \tag{E15a}$$

$$t_{\text{gov}}^{\text{new}} = t_{\text{gov}}^{\text{old}} + \text{Delay} \tag{E15b}$$

k orders receipts and payments in the 13-week contractor example. All ledger amounts are GHS thousand.

ASSUMPTIONS / INTERPRETATION

Same-day outflows precede receipts; opening stock is counted once. Government receipts are delayed, not cancelled. No observed company is represented.

E16 Minimum bridge and closing cash

EXECUTED SYNTHETIC LIQUIDITY TEST

$$\text{Bridge} = \max(0, - \min_{k \leq H} C_k) \tag{E16a}$$

$$\text{Closing} = C_H \tag{E16b}$$

H is day 91. Bridge is the largest unmet cash requirement before an additional facility; closing is end-horizon cash.

ASSUMPTIONS / INTERPRETATION

Intraday order matters. Bridge is not approved borrowing, a national liquidity estimate or a default event. Financing costs are shown separately.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Horizon and duration of the deficit

Variables, assumptions and executable outputs accompany each method.

E17 Post-horizon receipts

EXECUTED COHORT RECONCILIATION

$$\text{Pending}_H = \sum_{t>H} \text{ScheduledReceipts}_t \tag{E17a}$$

$$C_{\text{eventual}} = C_H + \sum_{t>H} \text{NetFlows}_t \tag{E17b}$$

Post-day 91 government receipts remain in the same fixed project cohort. No new operating programme is added after the horizon.

ASSUMPTIONS / INTERPRETATION

Identical eventual cash does not remove the earlier funding gap. Pending receipts are conditional on collection, not cash already available.

E18 Cash-deficit duration and interest proxy

EXECUTED SYNTHETIC COST

$$\text{ExposureDays} = \sum_{d=0}^{90} \max(0, -C^{\text{endday}}_d) \tag{E18a}$$

$$\text{InterestProxy} = \text{ExposureDays} \times r/365 \tag{E18b}$$

End-day deficit is held for one day. The assumed bridge rate is 24%; units are GHS-thousand-days and GHS thousand.

ASSUMPTIONS / INTERPRETATION

Same-day temporary deficits have zero overnight exposure here. No compounding, facility fee or interest-on-interest; not a loan offer.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Payroll equivalence and loan-book stocks

Variables, assumptions and executable outputs accompany each method.

E19 Payroll-resource equivalence

EXECUTED UNIT CONVERSION

$$\text{PayrollMonths} = \Delta \text{AR} / \text{MonthlyPayroll} \tag{E19a}$$

$$\text{JobsLost} \neq \text{PayrollMonths} \tag{E19b}$$

Monthly payroll is an assumed GHS 200,000. The quotient expresses tied-up cash in payroll-month units.

ASSUMPTIONS / INTERPRETATION

No headcount response is fitted. Employment depends on labour contracts, margins, substitution, credit, hours and spillovers.

E20 NPL stock and denominator

EXECUTED SYNTHETIC RECONCILIATION

$$N_1 = N_0 + \text{NewNPL} - \text{Recovery} - \text{Writeoff} \tag{E20a}$$

$$L_1 = L_0 + \text{NewCredit} - \text{Recovery} - \text{Writeoff} \tag{E20b}$$

N is NPL stock; L gross loans. Recovery is assumed principal from NPLs; new defaults reclassify existing loans.

ASSUMPTIONS / INTERPRETATION

All amounts are illustrative. Do not subtract new defaults from total loans or equate invoice delinquency with a bank classification.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

NPL-ratio and censored-duration statistics

Variables, assumptions and executable outputs accompany each method.

E21 Exact NPL-ratio attribution

EXECUTED SYMMETRIC ACCOUNTING

$$\text{Ratio}_t = 100 \, N_t/L_t \tag{E21a}$$

$$\Delta \text{Ratio} = 100[\text{mean}(1/L)\Delta N + \text{mean}(N)\Delta(1/L)] \tag{E21b}$$

The terms allocate the interaction symmetrically between the NPL numerator and the gross-loan denominator.

ASSUMPTIONS / INTERPRETATION

Positive loan denominators required. Neither an NPL-ratio decline nor its components identify the effect of government payments.

E22 Censored payment-duration illustration

EXECUTED SYNTHETIC COHORT STATISTIC

$$S(t) = \Pi_{u \leq t}(1 - \text{Paid}_u/\text{RiskSet}_u) \tag{E22a}$$

$$\text{RMST}(H) = \int_0^H S(t) \, dt \tag{E22b}$$

S is the fraction still unpaid. Ten synthetic invoices share a start date; four are paid and six censored at 90 days.

ASSUMPTIONS / INTERPRETATION

Common administrative follow-up; no competing rejection or informative early loss. The restricted mean is time unpaid through H, not eventual mean delay.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Arrears flows and revenue stress

Variables, assumptions and executable outputs accompany each method.

E23 Arrears inflow and cash clearance

EXECUTED NORMALISED STOCK SCENARIO

$$A_1 = A_0 + \text{NewOverdue} - \text{CashClearance} - \text{Adjustments} \tag{E23a}$$

$$\text{CashClearance} \leq A_0 + \text{NewOverdue} \tag{E23b}$$

A is arrears, not all commitments. Normalised opening stock is 100; new overdue flow and planned clearance vary.

ASSUMPTIONS / INTERPRETATION

No Ghana stock calibration. Adjustments require evidence and do not create contractor cash; excess planned clearance is not disbursed.

E24 Revenue transmission in fiscal stress

EXECUTED CONDITIONAL REVENUE MODEL

$$q = [(1 + g + \delta g)/(1 + g)]^\eta (1 - c) \tag{E24a}$$

$$\text{Loss} = R^{\text{non-oil}}_0 (1 - q) \tag{E24b}$$

g=4.8% source 2026 baseline; δg growth gap; η assumed elasticity; c collection shortfall. Non-oil revenue excludes grants.

ASSUMPTIONS / INTERPRETATION

One-year output-level change; GDP prices, oil, grants and spending are fixed. No tax-buoyancy coefficient or causal growth effect is estimated.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Cash presentation and reverse thresholds

Variables, assumptions and executable outputs accompany each method.

E25 Payment delivery and cash balance

EXECUTED CONDITIONAL FISCAL IDENTITY

$$B^{cash,*} = B^{commit}_0 - Loss - aQ + U \tag{E25a}$$

$$Deferred = (1 - a)Q \tag{E25b}$$

Q is source planned net-payables reduction 29.827 bn; a is delivery fraction; U additional net-payables accumulation, all GHS bn.

ASSUMPTIONS / INTERPRETATION

Q is not an identified gross cash-clearance budget. Deferred obligations are not fiscal savings; the scenario does not recommend withholding due payments.

E26 Collection threshold for zero cash balance

EXECUTED REVERSE FISCAL TEST

$$c^* = (B^{commit}_0 - aQ)/R^{non-oil}_0 \tag{E26a}$$

$$c^* < 0 \Rightarrow RevenueIncreaseRequired \tag{E26b}$$

Other shocks are zero. Negative threshold means an increase, not a permissible shortfall, is needed to close this illustrative cash balance.

ASSUMPTIONS / INTERPRETATION

Not a legal borrowing ceiling, policy target or operational collection forecast. Any unmodelled financing/spending response changes the result.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Finite ranges and payment-cohort denominators

Variables, assumptions and executable outputs accompany each method.

E27 Finite fiscal scenario envelope

EXECUTED CONDITIONAL GRID

$$L = \min_{\theta \in \Theta} B^{\text{cash}}(\theta) \tag{E27a}$$

$$U = \max_{\theta \in \Theta} B^{\text{cash}}(\theta) \tag{E27b}$$

Θ is 243 combinations of growth, elasticity, collection, net-reduction delivery and additional net payables.

ASSUMPTIONS / INTERPRETATION

Finite-grid endpoints have no probability or confidence interpretation; correlated policy responses and uncaptured liabilities are excluded.

E28 Payment cohort completion

EXECUTED SYNTHETIC DENOMINATOR CHECK

$$\text{PaidShare}_H = \text{PaidByH} / \text{EligibleCohort} \tag{E28a}$$

$$\text{PaidOnlyMean} = \sum_{\text{paid}} \text{Days}_i / \text{NumberPaid} \tag{E28b}$$

The example has 10 eligible invoices and 4 paid observations. Completion is 40% by day 90.

ASSUMPTIONS / INTERPRETATION

A paid-only mean excludes unresolved claims. For actual data preserve rejected, disputed, partly paid and censored records with distinct outcomes.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Cash spending and revenue attribution

Variables, assumptions and executable outputs accompany each method.

E29 Cash-expenditure basis reconstruction

EXECUTED SOURCE ACCOUNTING

$$E^{\text{cash}} = R - B^{\text{cash}}_{\text{overall}} \tag{E29a}$$

$$\Delta E^{\text{cash}} = \Delta E^{\text{recognised}} - \Delta(\Delta P) + \Delta \rho \tag{E29b}$$

R is source revenue plus grants; B is the surplus-positive overall cash balance. All monetary quantities use the same source perimeter.

ASSUMPTIONS / INTERPRETATION

An implied spending total is not an audited supplier cash ledger. Debt principal financing and unmatched expenditure scopes are not added.

E30 Revenue-component contribution

EXECUTED SOURCE DECOMPOSITION

$$\Delta R = \sum_k \Delta R_k + \Delta \rho \tag{E30a}$$

$$\text{Share}_k = 100 \Delta R_k / \Delta R \tag{E30b}$$

Non-overlapping components are direct, indirect and trade taxes, social contributions, nontax revenue and grants. Values retain GHS million source precision.

ASSUMPTIONS / INTERPRETATION

Shares explain nominal source revenue growth, not collection efficiency or tax-policy causality. A nonzero total change is required for contribution shares.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Provisioning and source precision

Variables, assumptions and executable outputs accompany each method.

E31 Provision-adjusted NPL diagnostic

EXECUTED CONDITIONAL RATIO

$$a = n(1 - c) \tag{E31a}$$

$$\Delta a = \text{mean}(1 - c) \Delta n - \text{mean}(n) \Delta c \tag{E31b}$$

n is NPLs as percent of gross loans; c is reported provision coverage as a fraction. a is percent of gross loans after subtracting the compatible reported provisions.

ASSUMPTIONS / INTERPRETATION

Source scopes must align. The diagnostic is not ECL, realised loss, required capital or a causal consequence of payment arrears. No loan-level amounts are inferred.

E32 Bank-ratio rounding envelope

EXECUTED SOURCE-PRECISION CHECK

$$a_L = (n - h)[1 - (C + h)/100] \tag{E32a}$$

$$a_U = (n + h)[1 - (C - h)/100] \tag{E32b}$$

n and C are the displayed NPL and provision-coverage percentages; h=0.05 percentage point. Date-difference limits use later lower minus earlier upper, and conversely.

ASSUMPTIONS / INTERPRETATION

Conditional nearest-0.1-pp rounding with positive ratios and coverage below 100%. These endpoints exclude source error, scope mismatch and statistical uncertainty.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Financed cash and partial settlement

Variables, assumptions and executable outputs accompany each method.

E33 Daily bridge-interest recursion

EXECUTED SYNTHETIC FUNDING

$$J_d = \max(0, -C^-_d) \, r/365 \tag{E33a}$$

$$C^+_d = C^-_d - J_d \tag{E33b}$$

C minus is cash after dated operating events but before the overnight charge. J is incremental bridge interest. The charge enters the next day once.

ASSUMPTIONS / INTERPRETATION

Unlimited hypothetical overdraft; r=24%, no fees. Original scheduled debt service is separate. Charge through the last receipt, not an extra day beyond the reporting instant.

E34 Partial receipts and capacity

EXECUTED CONDITIONAL DATE TEST

$$\text{Receipt}_i = fV_i \text{ at } t_i; (1 - f)V_i \text{ at } t_i + \ell \tag{E34a}$$

$$\text{ExtraLimit} = \max(0, \text{Bridge} - \text{ApprovedLimit}) \tag{E34b}$$

f is the on-time fraction, V the unchanged invoice receipt and ℓ the delay on the remainder. The capacity test uses the financed path and a hypothetical facility limit.

ASSUMPTIONS / INTERPRETATION

All invoices and operating flows are synthetic. The fixed plan does not estimate production, employment or actual payment priority after a real facility limit binds.

Sources: IDER calculations [\[S10\]](#).

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Competing outcomes and missing dates

Variables, assumptions and executable outputs accompany each method.

E35 Cash incidence with competing closure

EXECUTED SYNTHETIC COHORT CHECK

$F_{\text{cash}}(t) = \text{NumberCashPaidBy}(t)/N_0$ (E35a)

$F_{\text{closed}}(t) = [\text{Cash} + \text{Rejection} + \text{Offset}]_{\text{by}(t)}/N_0$ (E35b)

Twelve initially eligible synthetic claims have complete common follow-up to day 90. Cash payment, final rejection and offset are different terminal outcomes in this demonstration.

ASSUMPTIONS / INTERPRETATION

No early loss to follow-up. Rejection and offset are not cash successes. Censoring them in a naive Kaplan–Meier calculation changes the target quantity.

E36 Unknown due-date bounds

EXECUTED FIXED-LEDGER IDENTIFICATION

$A \in [\text{KnownOverdue}, \text{KnownOverdue} + \text{UnknownDue}]$ (E36a)

$\text{Share} \in [A_L/\text{AcceptedUnpaid}, A_U/\text{AcceptedUnpaid}]$ (E36b)

Valid remaining amounts and the complete eligible toy ledger are fixed; only the due status of three claims is unknown. Counts and money use separate denominators.

ASSUMPTIONS / INTERPRETATION

Sharp for the specified ledger only, with unrestricted unknown due statuses. Unvalidated and disputed records remain outside the accepted denominator. No national cap is assumed.

Sources: IDER calculations [S10].

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Prospective causal designs

Variables, assumptions and executable outputs accompany each method.

P01 Facilitation-offer evaluation

PROSPECTIVE ONLY — NOT ESTIMATED

$$ITT = E[Y \mid Z = 1] - E[Y \mid Z = 0]$$
 (P01a)

$$Y = \text{payment time, payroll or loan performance}$$
 (P01b)

Z is random access to additional administrative facilitation among legally comparable claims; Y is a prespecified outcome.

ASSUMPTIONS / INTERPRETATION

Do not delay legally due payments. ITT identifies the facilitation offer, not payment alone; interference, attrition and assignment-level inference require design.

P02 Predetermined-exposure panel

PROSPECTIVE ONLY — NOT ESTIMATED

$$Y_{it} = \alpha_i + \lambda_t + \beta(X_{i0} \times \text{Shock}_t) + u_{it}$$
 (P02a)

$$X_{i0} = \text{exposure measured before the shock}$$
 (P02b)

Link baseline government-sales exposure, payment events and contractor/bank outcomes; a justified exogenous shock is still required.

ASSUMPTIONS / INTERPRETATION

Fixed effects and lagged exposure do not guarantee causality. Include failed claims, exits, anticipation, credit selection and sector/local spillovers.

Sources: IDER calculations [S10].

Note: Definitions and conditional calculations are not fitted causal effects. Units and source status follow the cited analytical section.

Five checks connect the equations to decision-relevant amounts

Source amounts and hypothetical examples are identified separately.

Table 48. Five checks connect the equations to decision-relevant amounts

Calculation	Substitution	Interpretation
E01 2025 primary balance	$30.595 - 23.653 - 0.001 = 6.941$ GHS bn	Source commitment-to-cash bridge; includes rounding residual.
E05 Audit closure	$66,735,091,255 - 47,755,981,923 - 10,360,411,796 - 8,618,180,429$	GHS 517,107 unallocated source-category difference.
E10 Invoice cost	$700,000 \times 24\% \times 90/365 = 41,424.66$ GHS	Assumed cost of 90 additional days, not a Ghana estimated mean.
E16 Delayed contractor cash	$\max(0, -[-330]) = 330$ GHS thousand	14-day delay; same eventual and day 91 cash 580, larger interim gap.
E25 Half net reduction	$23.938 - 0.5 \times 29.827 = 9.0245$ GHS bn	Positive cash balance accompanies deferred net reduction 14.9135.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: A numerical threshold or exact identity does not establish legal status, available bank credit or a causal policy effect.

Material limitations remain part of the published result

Do not remove these conditions when quoting a chart or extracting a headline.

Table 49. Material limitations remain part of the published result

Issue	Treatment	Release consequence
IMF table images	Table 3b and FSI text/headings inspected; screenshot requests failed.	Source-image recheck required for additional operational assurance.
Current audit stock	November 2025 monetary categories preserved; later claimant roll-forward absent.	No September 2026 national payable/arrears stock is claimed.
Audit residual	GHS 517,107 remains outside the displayed category sum.	No preferred status or balancing transaction is invented.
Fiscal scope	Programme, CAGD, energy and DSA records differ.	No cross-perimeter subtraction is labelled clearance.
Private linkage	No authorised government-invoice, payroll and loan panel provided.	No original Ghana employment or NPL treatment effect.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); IDER calculations [\[S10\]](#).

Note: Original source PDF and HTML binaries are not bundled because runtime downloads failed; URLs, locators and transcriptions are supplied.

Trace the result from source record to displayed figure

The package separates frozen observations from scenario settings and publication code.

Table 50. Trace the result from source record to displayed figure

Layer	Input / code	Output
Fiscal reconciliation	imf_fiscal_table3b.csv; analyse.py	Current-vintage balances, residuals, changes and old/current comparisons.
Audit / energy	audit_budget2026.csv; energy_payment_announcement.csv	Category shares, residuals, pending sensitivity and payment-purpose mix.
Contractor cash	assumptions.json; synthetic_contractor_ledger.csv	Invoice funding, project paths, minimum bridge and pending receipts.
Bank / duration	bank_fsi.csv; declared synthetic cohorts	Source NPL ratios; illustrative stock, denominator and censoring calculations.
Fiscal stress	Source 2026 base; 243 explicit settings	Revenue and net-payables-delivery scenarios; reverse thresholds.
Validation extension	inputs/validation; validate_extend.py; verify_extension.py	Source components, provision diagnostics, recursive financing, competing outcomes and terminology.
Publication / checking	build_report.py; refine_final_design.py; finalise_final.py; verify_final_design.py	Editable exhibits, equation register, PDF links, exact extracts and checks.

Sources: IDER calculations [\[S10\]](#).

Note: A reproducible calculation is not an independent audit of the government ledger or a second empirical study.

References and source links — 1 of 4

Titles link to primary sources; full source scopes and access limitations are in the accompanying register.

S01 IMF; Ghanaian authorities | July 2026

Ghana: 2026 Article IV Consultation and Sixth ECF Review, Country Report 26/212

PDF p. 53 Table 3b; p. 58 Table 7; p. 65 Annex fiscal perimeter; pp. 129, 132 TMU; p. 141 DSA footnote 2; p. 150 DSA perimeter notes; validation: Table 3b revenue components, Table 3c primary-deficit scope notes and Table 7 provision coverage; PDF pp. 53–54, 58

S02 Ministry of Finance, Ghana | 13 November 2025

2026 Budget Statement and Economic Policy

PDF pp. 41–42 / printed pp. 25–26, paragraphs 146–155 and Table 6

S03 Flynn, Suzanne; Mario Pessoa | 2014

Prevention and Management of Government Expenditure Arrears, Technical Notes and Manuals 14/3

PDF pp. 5–6 definitions and Box 1; pp. 8–10 channels; pp. 18–25 clearance strategy

References and source links — 2 of 4

Titles link to primary sources; full source scopes and access limitations are in the accompanying register.

S04 International Monetary Fund | 2014

Government Finance Statistics Manual 2014

Chapter 3, paragraphs 3.61–3.73; accrual, commitments, due-for-payment and cash recording

S05 Ministry of Finance, Ghana | 12 January 2026

Energy-sector debt payment and guarantee-restoration announcement

Paragraphs on guarantee repayment, gas invoices, legacy IPPs and total payments

S06 Ministry of Finance, Ghana | 31 October 2025

Publication of end-2024 commitments, claims and outstanding BTAs requiring justification

Official indexed notice; audit and historical justification process

References and source links — 3 of 4

Titles link to primary sources; full source scopes and access limitations are in the accompanying register.

S07 Barrot, Jean-Noël; Ramana Nanda | 2020

The Employment Effects of Faster Payment: Evidence from the Federal Quickpay Reform

Journal of Finance 75(6): 3139–3173; published abstract and source design

S08 Ministry of Finance, Ghana | 19 March 2026

Public Financial Management Compliance League Table

Official announcement describing compliance benchmarking

S09 Ministry of Finance, Ghana | 23 May 2025

Auditor-General to submit interim report on contractor claims for payments to begin

Official announcement of verification and payment process

References and source links — 4 of 4

Titles link to primary sources; full source scopes and access limitations are in the accompanying register.

S10 Institute of Development and Economic Research | 26 September 2026

Fiscal Balances and Payment Arrears: Evidence, Reconciliation and Contractor Liquidity Protocol

Companion inputs/, code/analyse.py, code/validate_extend.py, code/refine_final_design.py, code/finalise_final.py and code/verify_final_design.py; frozen outputs, model register, docs/technical_terminology.json and verification records.

A stronger cash balance is not sufficient evidence that suppliers have been paid

Government accounts become business intelligence when fiscal records are linked to claims, dates and actual settlement.

FISCAL RECORD	BUSINESS CASH	DECISION STANDARD
The cash–commitment bridge explains how payables affect the reported balance. Its net adjustment does not reveal every new overdue invoice or gross clearance payment.	Delay can consume invoice margins and create a bridge before receipts arrive. Contractor cash, payroll and bank-loan obligations require their own dated records.	Publish gross additions, cash settlement, non-cash changes and unresolved amounts together. Keep source evidence, hypothetical stress and causal claims distinct.

Sources: IMF CR 26/212 [\[S01\]](#); MoF 2026 Budget [\[S02\]](#); Flynn & Pessoa (2014) [\[S03\]](#); IDER calculations [\[S10\]](#).

Note: This is an independent IDER fiscal-to-business assessment, not a complete live payment ledger, investment recommendation or original causal policy estimate.

Institute of Development and Economic Research

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Evidence for informed decisions.

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