# Optimizing Cash and Treasury Management Performance in the Public Sector: Evidence from the Directorate General of Treasury, Financial and Monetary Cooperation, Cameroon

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## ABSTRACT

This study examines how cash-flow management, liquidity management, and risk, debt and surplus-cash management jointly shape operational management performance in the Directorate General of Treasury, Financial and Monetary Cooperation (DGTCFM) of Cameroon, the department responsible for the day-to-day cash and treasury operations of the Cameroonian state. Public treasury performance in developing countries remains an under-researched area relative to corporate cash management, despite cash mismanagement being repeatedly implicated in payment arrears, unplanned borrowing and weakened public trust. The study combines a cross-sectional survey of 50 finance and accounting officers of the DGTCFM (49 usable responses, a 98 percent response rate) with 29 years (1995–2023) of secondary data drawn from Cameroon's State Financial Operations Table (Tableau des Opérations Financières de l'État, TOFE). Descriptive statistics, Spearman rank-order correlation and multiple linear regression were used to test three hypotheses linking cash-flow management, liquidity management, and risk/debt/surplus-cash management to operational performance. All three relationships were statistically significant ($p < 0.01$): cash-flow management ($r = -0.598$), liquidity management ($r = -0.845$), and the composite risk, debt and surplus-cash management dimension ($r = -0.893$). The regression equation indicates that cash-flow and liquidity management exert a positive net influence on performance once modelled jointly, whereas the risk, debt and surplus-cash dimension exerts a negative net influence, consistent with the view that debt-servicing costs and unmanaged financial risk erode operational capacity even where individual liquidity practices are sound. The paper argues that treasury performance in low-capacity public administrations is better understood as a portfolio problem cash-flow forecasting, liquidity buffering and risk/debt control acting simultaneously rather than independently and offers policy-relevant recommendations on forecasting discipline, single-account consolidation, and risk governance.

**Keywords:** cash-flow management; liquidity management; treasury performance; public financial management; risk and debt management; Cameroon

## INTRODUCTION

Treasury management has moved, over the past three decades, from a narrow budget-execution task to a strategic function with its own architecture, tasked with ensuring that an entity never lacks the funds it needs while never leaving idle cash unremunerated (Storkey, 2003; Lienert, 2009). For governments, this balancing act described by Storkey (2003) as the calibration of the "three Rs" of cash management (the right amount, at the right time, in the right place) is complicated by the scale of public financial flows, which in many states represent between a quarter and a third of GDP in any given year, and by institutional constraints that are largely absent in corporate treasury settings.

Cash and treasury management is not merely an accounting exercise. It underpins the state's ability to pay salaries and suppliers on time, to service debt without recourse to costly short-term borrowing, and to avoid the idle-balance costs that arise when public cash sits unremunerated across a fragmented network of accounts (Rasheed, 1982; Lienert, 2009). Where internal controls are weak and transparency limited, poor cash management additionally raises the risk of fraud and the mismanagement of public funds (Kaketo et al., 2017). Much of the empirical literature on this problem, however, has been generated in developed-country or

corporate settings; researchers have repeatedly noted that treasury practices and their organisational consequences in African public administrations remain comparatively under-studied (World Bank Group, 2017; Quartey, Turkson, Abor & Iddrisu, 2017; Tanzi, 2019), a gap this study addresses directly.

This paper investigates how cash-flow management, liquidity management, and a combined dimension of risk, debt and surplus-cash management relate to the operational management performance of finance and treasury staff within the DGTCFM, the general directorate of Cameroon's Ministry of Finance charged with cash-flow forecasting, revenue centralisation, debt servicing and treasury single-account management. The central research question is: how can cash and treasury management performance in the DGTCFM be optimized? Three specific questions follow: (i) how does cash-flow management affect operational management performance; (ii) how does liquidity management influence operational management performance; and (iii) how do risk management, debt management and the investment of surplus cash affect operational management performance in the DGTCFM.

The paper contributes to the public financial management literature in three ways. First, it provides one of the few firm-level (departmental) empirical assessments of treasury performance drivers for a Francophone Central African treasury administration. Second, it combines primary survey evidence with 29 years of macro-fiscal secondary data (the TOFE, 1995–2023), allowing cash-flow, budget-balance and debt indicators to be triangulated against staff-reported operational performance rather than relying on perception data alone. Third, it shows that the three canonical pillars of treasury management do not act as independent, uniformly positive levers on performance: when modelled jointly, risk, debt and surplus-cash management works against operational performance even though cash-flow and liquidity management support it, a nuance that is often lost in survey-only studies of this kind.

The remainder of the paper is organised as follows. Section 2 reviews the conceptual, theoretical and empirical literature and develops the study's hypotheses. Section 3 describes the institutional setting. Section 4 sets out the data and methods. Section 5 presents the results, Section 6 discusses them in light of prior studies, and Section 7 concludes with policy recommendations, limitations and directions for future research.

## LITERATURE REVIEW AND HYPOTHESES

### Conceptual review

Cash management is generally defined as the process of ensuring that the right amount of money is available at the right time and place to meet an entity's payment obligations, without unduly forfeiting the return that could be earned on excess balances (Akinyomi, 2014; Storkey, 2003). Williams (2013) and CIMA (2002) treat cash management as indispensable to the survival of any organisation, a view echoed in Ludwig von Bertalanffy's often-cited comparison of cash-flow to blood in the human body. Zimmerer, Scarborough and Wilson (2008) describe the function as encompassing collection, forecasting, allocation, investment and strategic planning of financial resources, while Keynes's General Theory (1936) frames the underlying motives for holding cash transactional, precautionary and speculative that still structure how treasurers think about optimal balances today.

In the public sector, cash management additionally serves macro-fiscal objectives: controlling aggregate spending, ensuring efficient budget execution, minimising the cost of government borrowing and maximising the return on idle balances (Rasheed, 1982). Lienert (2009) identifies four objectives of modern government cash management: guaranteeing that cash is available to meet expenditure when due; borrowing when necessary at the lowest possible cost; minimising and managing financial risk; and generating returns on temporarily idle balances. Centralising government cash in a treasury single account, rather than allowing it to sit dispersed across numerous line-ministry and agency accounts, is widely regarded as the single most consequential reform available to governments seeking to reduce both borrowing costs and fraud risk (Lienert, 2009; Fainboim & Pattanayak, 2010).

Liquidity management is conceptually distinct from, but closely linked to, cash-flow management: it concerns an entity's capacity to meet short-term obligations from readily available resources, typically operationalised in

the public sector through the primary and global budget balances (the gap between revenue and non-interest, and total, expenditure respectively). Risk and debt management, meanwhile, concerns the identification and mitigation of market, credit, operational, liquidity and interest-rate risk, and the terms on which the entity borrows and refinances; the investment of surplus cash concerns the deployment of temporarily idle balances into short-term instruments such as treasury bills, money-market funds or short-term bonds so that cash is not left unremunerated (Lienert, 2009).

Operational management performance, the outcome variable in this study, is treated in line with Williams (2013) and related organisational-performance literature as a multidimensional construct capturing working conditions, the quality of work delivered, task performance, and the ability of staff to meet assigned targets within agreed timeframes.

**Theoretical framework**

Three theoretical strands inform the study. The Baumol (1952) model of cash management treats the optimal cash balance as analogous to an inventory-ordering problem, in which an entity trades off the transaction cost of converting securities into cash against the opportunity cost (interest forgone) of holding cash, yielding an optimal order quantity that minimises total cost. Its main limitation for a public treasury is the assumption of a constant, predictable rate of cash disbursement, which rarely holds for government expenditure; nonetheless, it remains a useful benchmark for thinking about the trade-off between liquidity and yield that underlies the DGTCFM's investment-of-surplus-cash decisions.

The Miller and Orr (1966) model relaxes the constant-flow assumption, allowing cash balances to fluctuate randomly between an upper and lower control limit, with the entity buying or selling securities only when a limit is breached a closer approximation to the volatile, imperfectly forecastable inflows and outflows that characterise government cash-flow. Its main limitation is that it still assumes cash flows are normally distributed and independent over time, an assumption that is frequently violated by seasonal and policy-driven government expenditure patterns; it nonetheless motivates the study's treatment of cash-flow forecasting frequency and accuracy as key operational levers.

Locke and Latham's (1990) goal-setting theory provides the organisational-behaviour lens connecting treasury practice to staff performance: specific, measurable and time-bound targets such as weekly cash-flow forecasts and debt-refinancing schedules are argued to improve task performance more reliably than vague or absent goals, provided staff receive adequate feedback and possess the capacity to meet them. This motivates the study's operationalisation of operational management performance around the achievement of assigned targets within given time durations.

**Empirical review and hypotheses**

A substantial corporate-finance literature links cash-flow and liquidity management to firm performance. Murkor et al. (2018) found that operating cash-flow management had a significant positive effect on return on assets and operational performance among Kenyan firms. Wang (2002) showed that aggressive liquidity management strategies enhanced operating performance among corporate firms in Japan and Taiwan, while Ali and Jameel (2019) and Aziz, Sharif and Salih (2017) reported similar positive liquidity–profitability relationships among Iraqi banks. Not all evidence points the same way, however: Orshi et al. (2018) found that liquidity risk and capital risk management had an insignificant effect on employee efficiency among quoted commercial banks in Nigeria, even as the same study found credit and operational risk management to have a significant effect underscoring that the risk-management–performance relationship may depend on which risk dimension is examined. On debt and risk management, Katou and Budhwar (2010) documented a positive association between appraisal-and-compensation-based human-resource practices and operating results in Greek manufacturing, a channel through which effective risk governance is argued to translate into improved employee efficiency.

Building on this literature and on the DGTCFM's institutional mandate, the study tests three hypotheses:

H1: Cash-flow management has a significant effect on operational management performance in the DGTCFM.

H2: Liquidity management has a significant influence on operational management performance in the DGTCFM.

H3: Risk management, debt management and the investment of surplus cash, taken together, have a significant effect on operational management performance in the DGTCFM.

Taken together, prior studies motivate the expectation that all three treasury dimensions matter for performance, but they leave open and this study investigates directly whether the dimensions act uniformly in the same direction once modelled jointly rather than one at a time.

### Institutional Context

The DGTCFM is one of four general directorates of Cameroon's Ministry of Finance, established by Decree No. 2005/119 of 15 April 2005 on the organisation of the (then) Ministry of Economy and Finance, and subsequently retained, with adjustments to its structure and mandate, by the decrees of 2008. It brings together the Treasury Department proper and the Directorate of Financial and Monetary Cooperation, and is responsible for the collection and centralisation of public revenue, the development of accounting rules for public revenue and expenditure, monitoring compliance with accounting standards, and the development and implementation of the state's cash management policy.

Historically, Cameroon's treasury administration inherited a fragmented cash architecture from the pre-unification period (separate East and West Cameroon treasury services, harmonised only after 1972), and for decades relied on ad hoc cash transfers between accountants and on statutory advances from the regional central bank (BEAC), capped at 20 percent of the previous year's domestic budgetary revenue, to cover shortfalls. These practices, criticised for their inequity across the accounting network and for weakening incentives toward active cash management, have progressively given way to a more centralised, treasury-single-account-oriented model, within which the DGTCFM's Treasury Planning sub-directorate the specific unit surveyed in this study is responsible for cash-flow forecasting and engagement planning.

## DATA AND METHODS

### Research design

The study adopts a descriptive, cross-sectional survey design combined with secondary time-series analysis, a mixed-methods approach consistent with prior treasury and cash-management studies (Abioro, 2013; Ademola, Adegoke & Adenugba, 2013; Mungai, 2014). The quantitative strand relies on a structured questionnaire administered to operational staff; a qualitative strand, based on semi-structured interviews with senior executives, provides contextual interpretation of the quantitative results.

### Population, sample and data collection

The target population comprised 50 accounting, finance and operations staff of the DGTCFM's Public Treasury Management department, with particular emphasis on the Treasury Planning sub-directorate. Questionnaires were hand-delivered to all 50 members of the target population and collected after five days, with follow-up visits after three days to reach staff absent at first delivery; 49 questionnaires were returned complete, a 98 percent response rate, comfortably above the 70 percent threshold Mugenda and Mugenda (2003) regard as very good for drawing conclusions. Instrument validity was assessed through a pilot administration and a test–retest procedure. Respondents were 80 percent male and 20 percent female, predominantly aged 30–39 (90 percent), with 72 percent reporting 7–10 years of experience in finance management, 16 percent more than 10 years, and 12 percent between 4 and 6 years an experienced, though gender-imbalanced, respondent pool.

Secondary data were drawn from Cameroon's State Financial Operations Table (TOFE) for 1995–2023, published by the Public Treasury Management department, from which money-supply, primary balance, global budget balance, and external and internal debt series were extracted as objective proxies for cash-flow, liquidity, and risk/debt management activity, to be correlated against the staff-reported operational performance measure.

### Variables and model specification

The dependent variable, operational management performance (OMP), is measured through employee-reported working conditions, quality of work delivered, task performance and the achievement of assigned targets within agreed time durations. The independent variables are cash-flow management (CF), proxied in the secondary data by money supply; liquidity management (LM), proxied by the global budget balance; and a composite risk, debt and surplus-cash management dimension (RMDMISC), proxied by external and internal debt. The relationship is specified as:

$$OMP = f(CF, LM, RMDMISC)$$

$$OMP = \beta_0 + \beta_1 CF + \beta_2 LM + \beta_3 RMDMISC + \varepsilon$$

where $\beta_0$, $\beta_1$, $\beta_2$ and $\beta_3$ are parameter estimates and $\varepsilon$ is the error term. Data were analysed with SPSS version 30. Because a Shapiro Wilk test indicated the Likert-scaled data were not normally distributed ($p = 0.01$), Spearman's rank-order correlation coefficient was used to test each bivariate hypothesis, and ordinary multiple regression was used to estimate the joint model, with results interpreted against a critical r of 0.354 at the 0.01 significance level with 48 degrees of freedom.

## RESULTS

### Descriptive findings by treasury dimension

On cash-flow management, all respondents (100 percent) confirmed that the DGTCFM maintains a defined cash-flow forecast using the direct method based on actual cash transactions; 84 percent update the forecast weekly and 16 percent monthly, and all respondents rated the resulting forecasts as at least somewhat accurate. On liquidity management, all respondents said liquidity requirements are defined according to operational needs rather than through formal ratios such as the current or quick ratio; 64 percent cited maintaining a cash reserve as the main liquidity strategy and 36 percent cited cash pooling, while satisfaction with liquidity management practices was muted 78 percent neutral and 22 percent dissatisfied. On risk, debt and surplus-cash management, operational risk was identified as the dominant risk type (34 percent), followed by market risk (22 percent), credit and interest-rate risk (16 percent each) and liquidity risk (12 percent); all respondents reported using a risk-management tool (yield curve, treasury plan or escrow account) and judged their risk strategies effective. Surplus cash is invested mainly in short-term bonds (52 percent) and money-market funds (44 percent), with 76 percent rating investment performance as good over the preceding year. Debt is managed predominantly through regular refinancing (64 percent), diversification of sources (26 percent) and, less commonly, maintenance of a conservative debt-to-equity ratio (10 percent).

### Correlation results

Table 1 summarises the Spearman correlation coefficients between each treasury dimension's secondary-data proxy and operational management performance (EP), all significant at the 0.01 level (critical r = 0.354, df = 48).

| Treasury dimension (proxy) | Spearman r with performance | Significance (2-tailed) | N |
|---|---|---|---|
| Cash-flow management (money supply) | -0.598 | $p < 0.001$ | 29 |
| Liquidity management (global budget balance) | 0.299 (n.s. vs. critical r) | $p = 0.115$ | 29 |

| | | | |
|---|---|---|---|
| Risk, debt & surplus-cash management (external debt) | -0.586 | $p < 0.001$ | 29 |
| Risk, debt & surplus-cash management (internal debt) | -0.598 | $p < 0.001$ | 29 |
| Composite risk, debt & surplus-cash management index | -0.893 | $p < 0.001$ | 50 |

*Table 1. Spearman correlation coefficients between treasury-dimension proxies and operational management performance.*

For cash-flow management, the composite hypothesis test (H1), based on the full survey sample ($r = -0.606$ in the pooled test reported alongside Table 1's TOFE-based sub-sample estimate of -0.598), exceeded the critical r-value in magnitude, leading to rejection of the null hypothesis of no association. Liquidity management, tested against the survey-based composite measure rather than the global-budget-balance sub-sample alone, likewise produced a significant coefficient ($r = -0.845$, $p < 0.001$), even though the narrower TOFE sub-sample correlation reported in Table 1 ($r = 0.299$) did not clear the critical threshold on its own a divergence discussed in Section 6. The composite risk, debt and surplus-cash management index correlated with performance at $r = -0.893$ ($p < 0.001$), the strongest of the three associations.

**Regression results**

The estimated multiple regression equation, with coefficients aggregated across the model's routes, is:

*OMP = -5007.361 + 96.270·CF + 1622.878·LM - 1465.035·RMDMISC*

The positive standardised coefficients on cash-flow management and liquidity management indicate that, once the three dimensions are modelled jointly, more disciplined cash-flow forecasting and stronger liquidity practices (cash reserves, short-term investment, cash pooling) are associated with better operational performance consistent with H1 and H2. The negative coefficient on the composite risk, debt and surplus-cash management dimension indicates that, net of the other two dimensions, higher debt-servicing exposure and less effective risk management are associated with worse operational performance, supporting H3 but in the opposite direction to cash-flow and liquidity management. All three hypotheses are therefore supported in the sense of statistical significance, but the sign reversal between the first two dimensions and the third is a substantive finding in its own right (Section 6).

# DISCUSSION

The results support the view, common in the corporate cash-management literature, that active cash-flow forecasting is associated with better organisational performance: the significant correlation between money supply (as a proxy for cash-flow activity) and staff-reported performance echoes Murkor et al.'s (2018) finding of a positive cash-flow–performance relationship among Kenyan firms, and is consistent with the broader argument that predictable, well-forecast cash-flow reduces the operational stress associated with meeting salary, supplier and debt-service obligations on time.

The liquidity management results are more nuanced than a single-number summary suggests. The narrower correlation between the global budget balance and performance, drawn from the TOFE sub-sample, fell short of the critical r-value, while the broader survey-based composite measure of liquidity management practice was strongly and significantly correlated with performance. This divergence suggests that staff-perceived liquidity management reserve levels, pooling arrangements, day-to-day satisfaction with liquidity practices may be a more proximate driver of operational performance than the economy-wide budget balance, which reflects fiscal choices made well upstream of the treasury desk. This is broadly consistent with Wang's (2002) finding that liquidity management strategy, rather than macro-fiscal outcomes per se, drives operating performance, though it stands in contrast to Orshi et al. (2018), who found liquidity risk management to have an insignificant effect on employee efficiency in Nigerian commercial banks — a reminder that the liquidity–performance link is sensitive to institutional setting and to how liquidity management is operationalised.

The strong negative correlation between the composite risk, debt and surplus-cash dimension and performance, and its negative net regression coefficient, is consistent with Orshi et al.'s (2018) finding that credit and operational risk management significantly affect employee efficiency, and with Katou and Budhwar's (2010) argument that risk-conscious management practices support operational effectiveness. The direction of the relationship in this study debt and risk exposure associated with worse rather than better performance is intuitive given that unmanaged market, credit, operational, liquidity and interest-rate risk (respondents' own ranking placed operational risk first) directly increases the cognitive and administrative burden on treasury staff, while debt-servicing costs constrain the discretionary resources available for the training, tools and staffing that would otherwise support performance. In other words, the DGTCFM's own risk and debt exposures appear to be competing with, rather than complementing, its cash-flow and liquidity achievements a portfolio-level insight that a single-dimension study would not surface.

Two further contextual points from the descriptive results merit note. First, the absence of formal liquidity ratios (current ratio, quick ratio) in the DGTCFM's liquidity-management toolkit, in favour of operational-needs-based judgement, is consistent with the broader public financial management literature's observation that developing-country treasuries frequently under-invest in the formal analytical instruments that private-sector treasurers take for granted (Lienert, 2009). Second, the pronounced gender imbalance among respondents (80 percent male) mirrors similar skew reported by Matunga (2013) in comparable public-finance settings, and while outside this study's causal scope is a workforce-composition feature worth flagging for institutional attention.

## CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

### Conclusion

This study set out to ascertain how cash and treasury management performance in the DGTCFM can be optimized, and to test whether cash-flow management, liquidity management, and risk, debt and surplus-cash management each significantly affect operational management performance. All three hypotheses were supported: cash-flow management, liquidity management, and the composite risk/debt/surplus-cash dimension were each significantly correlated with operational performance at the 0.01 level. The regression results refine this picture by showing that cash-flow and liquidity management support performance while risk, debt and surplus-cash management, net of the other two dimensions, works against it evidence that treasury performance in a public administration of this kind is best managed as an integrated portfolio rather than as three independent levers.

### Policy recommendations

Four recommendations follow from the findings. First, the DGTCFM should formally evaluate competing cash-management technologies enterprise resource planning systems, dedicated treasury management systems, cash-forecasting software and spreadsheet-based tools against their financial and operational implications before further automation investment, rather than adopting tools piecemeal. Second, treasury performance should be optimized through simultaneous attention to liquidity consolidation (further centralising cash positions and diversifying funding sources), tighter risk controls, and continued technology adoption, underpinned by transparent, stakeholder-facing communication of risk exposures. Third, budgetary discipline should be reinforced by limiting extra-budgetary expenditure and grounding the state budget in realistic revenue projections, alongside active management of engagement and treasury plans. Fourth, governance mechanisms frequent internal audit assessments and regular review of individual and team performance should be institutionalised to identify performance gaps and track progress over time; periodic citizen or stakeholder feedback surveys on treasury service quality would complement these internal mechanisms.

## LIMITATIONS AND FUTURE RESEARCH

The study is limited in scope to the Treasury Planning sub-directorate of the DGTCFM's Public Treasury Management department and does not cover other cash-handling units, such as the General Pay Office of the Treasury; the modest sample size (49 usable responses), while yielding a very high response rate, also

constrains the statistical power of sub-group analysis. Time pressure on respondents during in-situ questionnaire completion may have introduced some response contamination across colleagues. Because the findings are specific to a single public-treasury administration, they should not be generalised to other public or private entities without further testing. Future research could extend this design comparatively across other African treasury administrations, or across public and private treasury functions within the same country, to establish which cash-management configurations most effectively convert treasury activity into organisational performance.

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