CASH MANAGEMENT - A CRITICAL PART OF PUBLIC FINANCE MANAGEMENT AND ITS IMPLICATIONS IN LIGHT OF COVID-19 PANDEMIC

David GAMKRELIDZE
Institute of Economics and Business , Ilia State University, 0162, Georgia
davit.gamkrelidze@iliauni.edu.ge

Dimitri JAPARIDZE
Institute of Economics and Business , Ilia State University, 0162, Georgia
japaridze@iliauni.edu.ge

Abstract
The following article discusses the importance of effective cash management for private as well as public sector organizations. The study pays special attention to the management of government cash flow, which represents an integral part of strong public finance management. Going forward, the topic is particularly critical for countries with underdeveloped financial market, as far as efficient government cash management means to have treasuries as active market participants, affecting positively on money market development. Authors summarize existing experience worldwide on how to approach cash management reform and present the ways to forecast cash flow, identify idle resources and invest them in financial instruments. In addition to the theoretical summary, the paper presents practical suggestions on how to manage cash flow in the face of the current Covid-19 crisis. In particular, the study focuses on the challenges posed by the pandemic, as well as the efficient ways to address them, ensuring public money reaches the right place at the right time. Consequently, the findings of the paper might have practical value for a number of stakeholders, especially for developing countries, which are in the early stages of government cash management reform and don't have well established debt markets.

Key words: *Government cash management, cash planning, cash investment, reforms, liquidity management, treasury, treasury single account, public finance, public financial management, Covid-19*

JEL Classification: *E44, H60, H61, H63, H68, H69*

I. INTRODUCTION

"Cash is king" – this age-old expression illustrates the widespread idea that cash liquidity represents an important determinant in the overall financial strength of the business. This term is commonly used in the corporate world of investments to recognize money as the most worthwhile asset. It also refers to company's capability to have adequate amount of cash ready for meeting its short-term obligations, running operations smoothly, purchasing assets or financing other efforts and initiatives.

During many years, proper framework for planning and management of cash liquidity has been a topic of consideration for many scholars in the academic finance. Back in 1974, Lawrence J. Gitman examined the challenging process of corporate liquidity estimation and presented simplified techniques for determining minimum optimal level of liquidity for a given firm (Gitman, 1974). Aggressive liquidity management enhances operating performance and is usually associated with higher corporate values in spite of differences in structural characteristics of countries and firms (Wang Y.-J. , 2002). Having proper tools for cash liquidity management is of particular importance during the times of uncertainties so that the country does not find itself in a recession. The monetary and fiscal policies are responsible for liquidity management but during the recession and recovery these policies appear to be ineffective (Mozhi & Nedelea, 2017). Cash management on a basic level groups the management of collections and payments, liquidity monitoring and short-term treasury forecasts, while on an advance level it envisages the management of treasury deficits and financial risks (San-Jose, Iturralde, & Maseda, 2008).

In the corporate sector, it is today's common sense that cash has become king across the countries and world global markets, because management of cash is of paramount importance for the overall activities of a business and for smooth running (Khatik & Jain, 2009). In light with the Covid-19 pandemic and stock markets diving thereby, investors' raising concern for the safety of their cash has been actualized. The rationale is understandable, as far as pandemic resulted in a substantially fluctuating prices of traditional instruments (bonds, stocks) and commodities (gold, oil), raising treasury yields across the world and sharp volatility of relatively new instruments, like Bitcoin. While being in the midst of the crisis, the rush into cash has been intense. As actions speak more loud than words, some of the actions observed recently include the following: Big corporations like General Motors (www.reuters.com, 2020), Fiat Chrysler (www.reuters.com, 2020), Boeing (www.reuters.com, 2020), the world's top oil and gas companies (www.reuters.com, 2020) are drawing down credit lines to buffer their cash reserves during the uncertainty around the coronavirus health crisis. Eight giant U.S. banks including JPMorgan Chase & Co. and Bank of America Corp., that are funding those credit draws, agreed to pause buying back their own shares through the second quarter, to conserve cash and focus on supporting clients and the nation during the coronavirus pandemic (www.bloomberg.com, 2020).

The severity of current situation is a challenge not only for private companies, but also for governments, central banks and other regulators. They have to address the liquidity difficulties with quick and comprehensive measures. For instance, on March 23rd, the Federal Open Market Committee (FOMC) announced launching new quantitative easing program meaning to purchase at least \$500 billion of Treasury securities and at least \$200 billion of mortgage-backed securities (www.federalreserve.gov, 2020) with the purpose of supporting smooth market functioning and the flow of credit in the economy. Some states in US started to use their rainy day funds to support public health efforts. Number of international donor organizations and development agencies, including IMF, have pledged to support governments to maintain fiscal sustainability.

While strong cash flow enables corporation to be more flexible in business decision-making, no less intense and important is the management of liquidity in the government sector. Effective and efficient cash management is an essential ingredient for sound public financial management, as far as it enables the government to be able to fund its expenditure in a timely and proper manner. Over the past decades, we see many countries advancing in their public cash management process worldwide.

This process was preceded by a wide academic discussion that has been going on for decades and has ultimately contributed to the emergence of theoretical doctrines that have laid the foundations for successful public cash management policies in various countries. The topic of Public Financial Management has a broad analytical basis in science. In particular, this doctrine is formed as a result of the development of various theories and adequately reflects the content, goals, development path and areas of application of the concept.

Public Administration theory has made a significant contribution to the study of the public sector management process. The development of management theory in the field of public administration took place through the modern theoretical direction of New Public Management. Like other middle-range theories, the theory of New Public Management originated from the field of business since the 1960s and merged with the concepts of public administration. The New Public Management has successfully replaced the old principles of public management, and it was soon established as an influential theory that closely linked practice and theory. "In management theory, the New Public Management doctrines are the contemporary winning arguments concerning how to manage government agencies. The theory of management that was part of the inception of public administration made important contributions to improving the effectiveness and honesty of government" (Frederickson, Smith et al, 2012).

Jack Rabin linked the task of defining the theoretical foundations of the Public Finance Management and Budgeting sub-discipline to the main theoretical framework of Public Administration in his 1989 inaugural issue of Public Budgeting and Financial Management. (Rabin, Hildreth et al, 2007).

Another important theory that describes and explains the phenomenon of public administration is Public Institutional Theory. It clarifies the relationship between organizational structure, rules and norms, results and accountability in public institutions. Institutionalism also implies the idea for efficiency, results, and purposefulness. (Frederickson, Smith et al, 2012).

A convincing explanation for institutional behavior within public administration is given by classical work of James Q. Wilson which describes in depth the phenomenon and demonstrates the insufficiency of economic and market theories for the analysis of institutional behavior (Wilson, 1989).

Financial Policy is an important topic of public administration, whereas government cash management is of key importance to financial policy performance. Numerous theoretical and practical studies are conducted by academic institutions, International Monetary Fund, World Bank, development banks, think tanks and consulting agencies to explore in depth this issue.

Successful financial policy is largely driven by effective government cash management. Successful management of funds in emerging markets and countries is possible by ensuring liquidity and at the same time minimizing the costs and risks of settlement operations. (Williams, 2009). The concept of cash management involves achieving specific goals by ensuring high cash safety, liquidity and high return on investment. Overall, in the case of a successful model of cash management, the optimal balance of cash is achieved, the daily needs of cash is met and a high investment return is earned (Wang X. H., 2006).

Countries need to have proper liquidity management tools in place. This article explains how to approach government cash management reform and in what way to address cash preservation/generation challenges during Covid Pandemic.

II. WHY IS THE GOVERNMENT CASH MANAGEMENT SO IMPORTANT?

Government cash management has four major objectives (Lienert, 2009):

- To ensure that adequate cash is available to pay for expenditures when they are due.
- To borrow only when needed and to minimize government borrowing costs.

- To maximize returns on idle cash, i.e., to avoid the accumulation of unremunerated or low yielding government deposits in the central bank or in commercial banks
- To manage risks, by investing temporary surpluses productively, against adequate collateral.

The core challenge in government cash management is the fact that revenue inflows and payment obligations generally do not match exactly and governments have to deal with this gap. These gaps are particularly evident during the crisis. This is well illustrated in the chart below, which compares the quarterly data of revenue and expenditure of Euro Area countries (EA-19) in 2009 and 2019 (Eurostat, 2020):

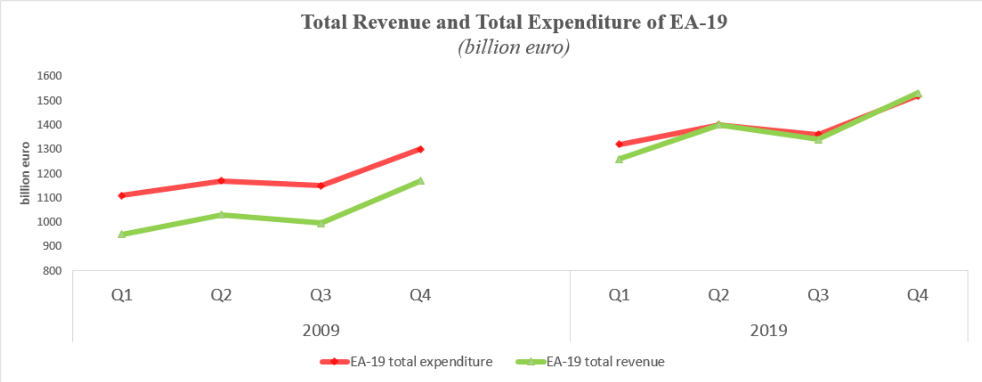

Figure 1: Quarterly gaps in revenue and expenditure in EA-19
Source: Eurostat

Even more frequently large gaps are the case when it comes to less developed countries, like it is illustrated below in case of Tanzania:

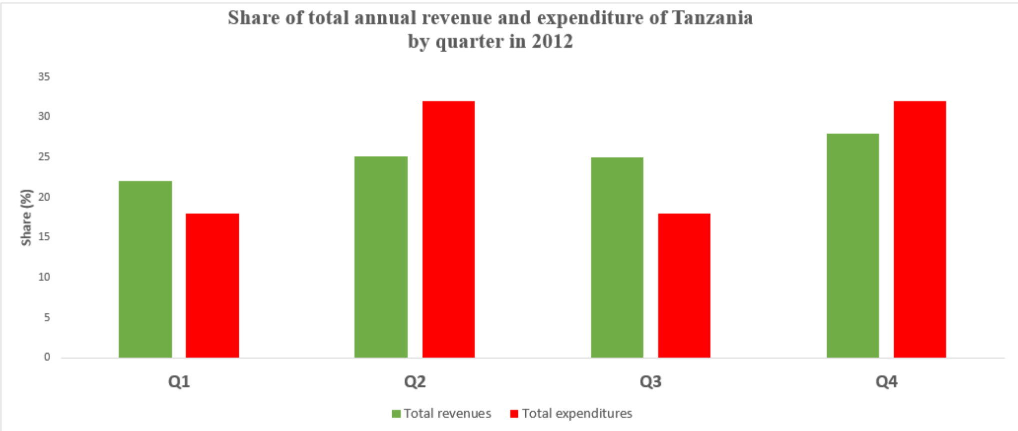

Figure 2: Quarterly gaps in revenue and expenditure in Tanzania
Source: Ministry of Finance of Tanzania

The gap between revenue and expenditure in some quarters is a challenge for the government, which needs to be always ready to fund its expenditure in a timely and proper manner. Therefore, countries need to have proper cash forecasting and management tools in place. Government cash management is closely linked to annual cycle of budget preparation, approval and execution (Andrews, Cangiano et al, 2014). In most advanced economies, adopted budget is credible, budget control system is well-established and there is usually a strong political commitment to delivering the budget as approved by parliament. These factors together with developed capital and money markets enable the governments to borrow and finance the temporary gaps between revenue and expenditure.

Active cash management, which includes the use of T-bills, repos/reverse repos, collateralized term deposits and other short-term financial instruments on the both side of the balance sheet, help not only to manage balances and timing mismatches, but also to develop domestic financial market further. Namely, by ensuring the availability of cash and avoiding unnecessary idle cash balances, net borrowing costs are minimized on the one hand and at the same time, the use of the repo or similar secured market instruments by government cash managers contributes to activity in the money market and stimulates the government bond market thereby (Pessoa & Williams, 2012). These active cash management approaches have led to integration of cash and debt management functions. In the UK, Sweden, Hungary, New Zealand, Australia and many other countries, debt management and cash management offices have effectively been merged. By smoothing government cash flows, active cash management has also facilitated monetary policy operations, since the government is one of the main contributors to liquidity in the banking sector (Pessoa & Williams, 2012). Ultimately, Effective cash management contributes to the smooth implementation of the operational targets of fiscal policy, the public debt management strategy, and monetary policy (Lienert, 2009).

On the other hand, governments in less developed countries typically are not able to count on advanced banking sector and developed money market to raise the funds when it is necessary. Even though the process of improvement has been observed in many developing countries, the World Bank's reports like "Debt Management Performance Assessment (DemPA)" (www.worldbank.org, 2020) and "Public Expenditure and Financial Accountability (PEFA)" (www.pefa.org, 2020) reveal that in many developing countries cash management is still way far from advance countries practices. In some case cash flow forecasts are produced on a monthly basis for the full year, no weekly or daily forecasts have been developed and even more importantly, no active cash management is practiced. Thus, considerable cash surpluses accumulated on non-interest earning accounts and not invested in interest-earning financial instruments are causing high opportunity cost. The political, economic and institutional deficiencies contribute to disability in government liquidity management and consequently the costs of having money readily available tend to be much higher.

One of the ingredient of Successful PFM is Treasury Single Account. According to study conducted by the World Bank and Ministry of Finance of Indonesia, available data show that the implementation of TSA and related decisions has generated a relatively significant amount of income for the government:

Table 1 - Benefit received from the implementation of TSA in Indonesia

Direct Benefit to the Treasury (in Indonesian Rupiah - IDR)		
	Y2012	Y2013
Total Direct Benefit received from the implementation of TSA	4,217,936,444,901	2,534,282,466,032

Source: The World Bank, Ministry of Finance of Indonesia

In addition to the direct benefit, fiscal benefit of implementing TSA totals IDR 3,022.4 billion. On top of these, some "non-quantifiable and indirect" benefits have emanated from implementation of the TSA, which includes better coordination between cash and debt management and reduction in corruption (World Bank & MoF Indonesia, 2014).

III. Government Cash Management Reform approach

Government liquidity management function is typically under State Treasury (Ministry of Finance) and thus, among the required tasks needed to carry out Treasury's mission is to develop reliable and appropriate mechanisms and instruments for Public Cash Management. Cash management is usually regulated by the Budget Code, which enables the Treasury to have a unified non-interest earning account (also called Treasury Single Account) at the Central Bank and also to deposit free and available funds in commercial banks with the purpose of receiving additional budgetary revenues.

Countries usually start making efforts to improve government cash management by introduced cash planning procedures. Cash planning is conducted based on approved budget, which is split into four quarters. The planning process is highly supported and strengthened by other reforms, like e.g. implementation of Real Time Gross Settlement System and establishment of Treasury Single Account (Pattanayak & Fainboi, 2011). The former (well-established RTGS) ensures government transactions to be conducted through modernized banking arrangement, where the payment systems of National and commercial banks had been integrated. The latter (TSA) facilitates to establishes centralized oversight and control over government's cash belongings (World Bank & MoF Indonesia, 2014).

Time after time, countries enhance the coverage of TSA (e.g. Georgia in 2015) and the number of organizations served by their State Treasuries increases thereby. Even though, those new institutions are commonly able to move money from TSA to commercial bank deposits for generating interest revenue and maintain merely operational balance on TSA, this expansion still results in even more aggregation of idle temporary cash balances on TSA. Thus, it triggers Treasuries (MoF) to develop further and move to active cash management gradually. Ultimately, increasing the efficiency of the Treasury cash management system receives high priority in PFM reform agenda.

Generally, the essence of cash management reform is to identify idle cash balances and minimize them by keeping only the necessary minimum balances on the TSA to cover daily routine expenditures, and investing the excess cash in high liquid and interest-earning financial instruments (Pattanayak & Fainboi, 2011); (N.Jyothi, 2017). The reforming process is expected to be challenging, because it involved a substantial degree of analytical judgement and coordinative skills. Three areas can been foreseen as primary challenges to deal with:

- Proper regulatory framework
- Credible cash-flow forecasting and planning models
- Relevant Instruments and systems for cash placements

To accommodate a need, Treasury should start active development of detailed and timely short-term estimates of cash inflows and outflows. Usually forecasting is a technical exercise that requires special cooperation with other stakeholders. In many cases, budget execution is conducted through the Treasury system, which covers all line ministries. Therefore, comprehensive historical dataset is accessible. In addition, Treasury should get budgetary data from Budget Department to ensure consistency with annual budget projections, revenue forecasts - from the Fiscal Forecasting Department, debt service - from Debt Management Department. Besides, Treasury should regularly consult spending details with spending entities, especially with major players. These actions help to identify the amount and timing of some large flows in advance and with high accuracy.

The projections of other revenues and expenditures can be assumed to follow a regular pattern, developed by analysis of past performance and by adding future estimates. Creating a typical pattern generally consists of the following steps:

Government Cash Flow Projection Process

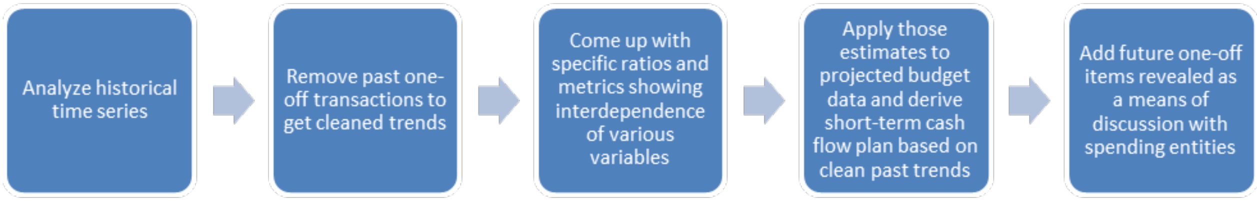

Figure 3: Steps for Government Cash Flow Projection
Source: Authors

The projection models need to be refined and enriched over the years, until forecasted data prove to be accurate and reliable. Ideally, Treasuries should produce monthly forecasts for the full year and daily forecast for at least the upcoming month.

At the same time, cash management teams typically work to establish appropriate regulatory framework and to develop money management tools. In that sense, the Treasuries in consultations with international donor organizations, central bank and commercial banks, prepare regulations to manage cash resources accumulated on TSA and approve by decree. The decree should state terms and conditions according to which that idle money placement in financial instruments can take place. Basic features might be the following:

- Money is placed in financial instruments (bank deposits) through a Bloomberg auction, which ensures the identification of winning bids in a free competitive environment;
- It is allowed to use only high liquid and reliable financial securities (with relevant haircut), as a collateral for deposits. The pledging process takes place in the CSD system.
- Transfer of funds to winner banks is carried out thorough the money management module, built into the Treasury system, which envisages modern approaches and procedures for operational risk management, such as: only protected (authorized) access, multi-layer authorization, clear allocation of functions and duties among departments and individuals involved in the cash management process.

The success of the cash management reforms can be measured by the extent to which the average balance on the TSA (which does not generate any interest income) is declining. Decreasing trend would indicate that the cash flow is being accurately forecasted, only minimum operational balance is maintained on TSA and the excess funds are being successfully identified and placed in commercial banks. Ultimately, Effective cash management not only removes the need for cash rationing, it also opens up the scope for wider policy and financial benefits (Pessoa & Williams, 2012).

IV. Government Cash Management During Covid-19 Pandemic

Public Finance Management can be referred to as a chain of rules, systems and processes, the strength of which is limited to that of its weakest link. One of the essential links for strong PFM chain is an effective and efficient cash management, which enables the government to fund its expenditure in a timely and proper manner. Therefore, the more developed the cash management practice is, the less is the risk of failure to meet the obligations. On the other hand, it is always easier said than done - there are many layers of difficulties in proper cash management, especially, in times of uncertainties (Saxena & Stone, 2020)).

As a classic "Black Swan" event, COVID-19 pandemic lead countries to painful reality all of a sudden: economic slowdown, closed businesses, decreased tax revenues, restricted access to financial markets, stressed society and increased social costs. Current crisis is like unchartered waters, the depth of which isn't being explored yet. Usually in critical situations problems compile, one creates the other. Encountering the dramatically increased cash needs during outbreak, key considerations for government cash managers include ensuring cash preservation and cash generation (Allen, Balibek et al, 2020). As cash management function is typically under Treasury/MoF, some of the potential challenges Treasuries might face and relevant measures to be taken, are summarized below:

Table 2 – Potential Challenges and Appropriate Measures in the Course of Crisis

OBJECTIVE	UTILIZE ALL AVAILABLE AND POTENTIAL SOURCES OF LIQUIDITY IN THE BEST POSSIBLE WAY TO KEEP SMOOTH FUNCTIONING	
CONSIDERATIONS	CASH PRESERVATION	CASH GENERATION
CHALLENGES	Cash Preservation is highly dependent on credible cash forecasts, which in turn is affected by volatility in revenue and expenditure. Thus, producing the reliable forecasts becomes very challenging;	Difficulties to generate money internally - In times of crisis, when businesses close down and employees are laid off, governments struggle to collect planned amounts from taxation;
	Many countries struggle to have sound cash forecasting tools and process even during ordinary stable times. Thus, it is twice more difficult for them to assess cash needs properly during the crisis;	Difficulties to generate money internationally - High uncertainty and rush into cash resources makes it difficult for governments to access enough cash on stressed financial markets;
ACTIONS	Determine and evaluate the impact of the emergency situation;	Establish statutory framework for new budget funding;
	Develop stress-testing/scenarios, containing key variables, like: disruption in tax collection, depreciation of currency, increase in debt service and social expenses;	Introduce wider range of available financial instruments to improve liquidity position;
	Consolidate and forecast cash resources/requirements daily. Keep the focus on relatively larger cash flow items;	Examine the opportunity of having credit line facilities with investment and commercial banks, as well as with central bank;
	Update execution of cash plans daily to get clear views on upcoming trend;	Use debt service funds, if any, to safeguard liquidity position;
	Reprioritize payments and adjust cash spending plans by focusing on necessary/essential frontline services;	If possible, lessen cash buffer requirements temporarily and direct freed resources to high priority areas;
	Coordinate internally - with debt, fiscal and budget departments more actively. Share and discuss cash forecasts with them informally or through formal committee, if the latter isn't time consuming;	Coordinate with budget and debt departments to recalibrate borrowing needs and analyze the potential of external financing from international donor organizations and development agencies.
	Coordinate externally - with major ministries and spending entities to ensure the coherence of spending plans and facts;	
	Coordinate internationally - Explore options for temporary debt relief with bilateral and multilateral counterparties.	

Sourse: Authors

Nowadays, some countries worldwide are identifying and investing excess government cash flows in financial instruments, such as bank deposits. Such activities may continue during the crisis, but with relevant caution. In particular, it is desirable that the placements be short-term, collateralized by liquid securities with appropriate "haircut" and be callable at any time. Having the option of breaking deposits is desirable, but it should be used only in extreme situation, so as not to harm the banking sector. With that regard, it is important to make placements in relatively small amounts and systematic manner (for example, weekly auctions for deposits with one-month maturity) so that deposits can be returned systematically, without any need of prior withdrawal.

V. CONCLUSION

Reform of Public Financial Management Systems and Processes in many countries worldwide have been always critical to secure long-term economic success and to maximize the efficient use of limited public resources. Effective and efficient management of government cash resources support mobilization of additional revenues into the central budget on the one hand and ensure provision of the commercial banking sector with liquidity in national currency on the other. On top of that, daily consolidation and forecast of government's cash flow position, active coordination with internal, external and international counterparties, together with financial arrangements and technical systems in place, help the country officials to evaluate the impact of the emergency situations and reprioritize its activities quickly to address cash preseravation/generation challenges during the crisis, like e.g. Covid pandemic.

"What doesn't kill you will make you stronger" - at least one takeaway, what the current crisis has actualized, is the need of proper mechanisms for managing government cash resources. This, in turn, involves the abilities to forecast flows, identify and place idle money into financial instruments, set up cash buffers, have appropriate institutional arrangements and technical processes in place (including TSA and RTGS). Being in the midst of crisis, hopefully, countries better acknowledge the necessity of strengthening public finance management. In order to continue progress, it is time to set the bar high, set politics aside and team-up with local and international counterparties to reform PFM more actively. Any reform comes with its own costs, but if the strategy is tailored correctly to address specific promising areas, then the endurance and resources invested in reforming process might result in a monumental undertaking.

To summarize, the more developed the cash management practice is, the less is the risk of failure to meet the obligations, therefore, increasing the efficiency of the Treasury cash management system should have high priority in PFM reform agenda. The ultimate question is – when are we back to old normal? But it is already obvious that there will never be "old normal", instead there will be "new normal" – with new socioeconomic reality. If lessons are learnt properly by countries, then current chaos might turn into opportunity to bring order to Public Finance Management in general and government cash management in particular, and to transform the shape of Covid-19 virus into the shape of gears, where one action transmits the power and accelerates the other, as depicted on the below figure:

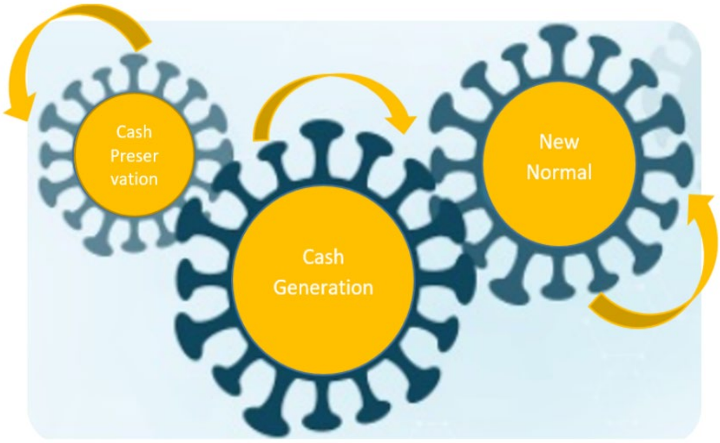

Figure 4: Process improvement through transformation
Source: Authors

VI. ACKNOWLEDGMENT

This work was supported by Shota Rustaveli National Science Foundation (SRNSF) [Grant number: PHDF 18-492; Project Title: "International Financial Markets and Capital Market Development in Georgia"]

VII. REFERENCES

1. Allen, R., Balibek, E., Hurcan, Y., & Saxena, S. (2020). *Government Cash Management Under Fiscal Stress.* Washington D.C.: International Monetary Fund, Fiscal Affairs Department.
2. Andrews, M., Cangiano, M., Cole, N., Renzio, P. d., Krause, P., & Seligmann, R. (2014). *This is PFM*. Center for International Development at Harward University - Faculty Research Working Paper Series, p. Paper No. 285.
3. World Bank, & Ministry of Finance of Indonesia, (2014). *Cash Management Reform in Indonesia: Making the State Money Work Harder*.
4. Eurostat. (2020, April 22). ec.europa.eu. *Retrieved from Eurostat - Statistics Explained* : https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Government_finance_statistics_-_quarterly_data#Quarterly_non-financial_accounts_for_general_government
5. Frederickson, H. G., Smith, K. B., Larimer, C. W., & Licari, M. J. (2012). *The Public Administration Theory Primer.* Boulder, Colorado: Westview Press.
6. Gitman, L. J. (1974). *Estimating Corporate Liquidity Requirements: A Simplified Approach*. Financial Review, 9, 1.
7. Khatik, S., & Jain, R. (2009). *Cash Management of Public Sector Undertaking*. Delhi Business Review X Vol. 10, No. 2.
8. Lienert, I. (2009). *Modernizing Cash Management.* Washington D.C., International Monetary Fund, Fiscal Affairs Department.
9. Mozhi, R. M., & Nedelea, A. M. (2017). *Dynamic Financial Institutions: An Analysis*. Ecoforum, Volume 6, Issue 2(11).
10. N.Jyothi. (2017). *Management of cash in Public sector Enterprises - A case study of ECIL, Hyderabad*. IOSR Journal of Business and Management (IOSR-JBM); e-ISSN: 2278-487X, p-ISSN: 2319-7668 , 50-55.
11. Pattanayak, S., & Fainboi, I. (2011). *Treasury Single Account: An Essential Tool for Government Cash Management.* Washington D.C., International Monetary Fund, Fiscal Affairs Department.
12. Pessoa, M., & Williams, M. (2012). *Government Cash Management: Relationship between the Treasury and the Central Bank.* Washington D.C., International Monetary Fund, Fiscal Affairs Department.
13. Q.Wilson, J. (1989). *Bureacracy - What Government Agencies Do and Why They Do It.* Basic Books.
14. Rabin, J., Hildreth, W. B., & Miller, J. J. (2007). *Handbook of Public Administration, Third Edition.* Taylor & Francis Group.
15. San-Jose, L., Iturralde, T., & Maseda, A. (2008). *Treasury Management Versus Cash Management*. Social Science Research Network.
16. Saxena, S., & Stone, M. (2020). *Preparing Public Financial Management Systems for Emergency Response Challenges.* Washington D.C., International Monetary Fund, Fiscal Affairs Department.
17. Wang, X. H. (2006). *Financial Management in the Public Sector -Tools, Aplications and Cases.* USA: M. E. Sharp, Inc.
18. Wang, Y.-J. (2002). Liquidity management, operating performance, and corporate value: evidence from Japan and Taiwan. *Journal of Multinational Financial Management, Volume 12, Issue 2*.

19. Williams, M. (2009). *Government Cash Management: International Practice.* Oxford Policy Management.
20. *www.bloomberg.com*. (2020, March 16). Retrieved from Bloomberg: https://www.bloomberg.com/news/articles/2020-03-15/eight-giant-u-s-banks-to-suspend-stock-buybacks-through-june
21. *www.federalreserve.gov*. (2020, March 23). Retrieved from Federal Reserve System - the central bank of the United States: https://www.federalreserve.gov/newsevents/pressreleases/monetary20200323b.htm
22. *www.pefa.org*. (2020, May 31). Retrieved from WORLD Bank - PEFA: https://www.pefa.org/
23. *www.reuters.com*. (2020, March 24). Retrieved from Reuters: https://www.reuters.com/article/us-health-coronavirus-gm/general-motors-to-draw-down-16-billion-in-credit-suspends-2020-outlook-idUSKBN21B1TL
24. *www.reuters.com*. (2020, April 22). Retrieved from https://www.reuters.com/article/us-fiat-chrysler-credit-idUSKCN2233C1: https://www.reuters.com/article/us-fiat-chrysler-credit-idUSKCN2233C1
25. *www.reuters.com*. (2020, March 11). Retrieved from Reuters: https://www.reuters.com/article/us-boeing-loans/boeing-to-draw-down-billions-in-loan-cash-as-pressure-builds-idUSKBN20Y28G
26. *www.reuters.com*. (2020, April 2). Retrieved from Rreuters: https://www.reuters.com/article/us-global-oil-majors-debt-idUSKBN21K2UP
27. *www.reuters.com*. (2020, May 31). Retrieved from Reuters: https://www.reuters.com/article/us-etfs-credit-expansion-insight/etf-companies-boost-bank-credit-lines-amid-liquidity-concern-idUSKBN0NY0A720150513?mod=article_inline
28. *www.worldbank.org*. (2020, May 31). Retrieved from World bank - Dempa: https://www.worldbank.org/en/programs/debt-toolkit/dempa