

# Public Debt Management Systems

PFM In a Changing World

December 3, 2018



**WORLD BANK GROUP**

Çiğdem Aslan  
Lead Financial Officer  
Financial Advisory and Banking  
Debt Management

# Outline

---

- § What is the role of debt management in PFM?
- § How to define a debt management system (DMS)?
- § How to select and implement a DMS?
- § What are the current DMS used by sovereigns?
- § Conclusion

# Outline

---

- § What is the role of debt management in PFM?
- § How to define a debt management system (DMS)?
- § How to select and implement a DMS?
- § What are the current DMS used by sovereigns?
- § Conclusion

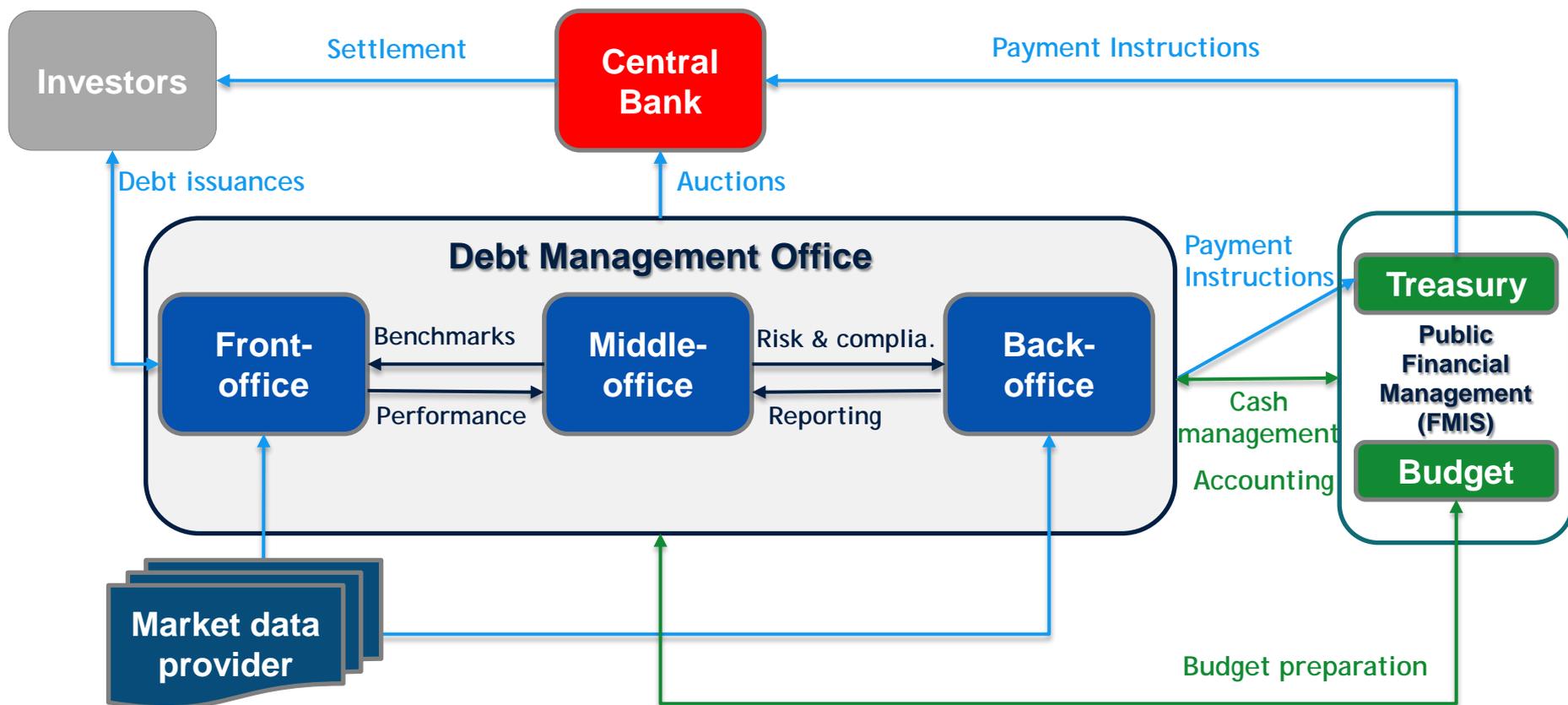
# Public Debt Management is part of Public Financial Management

- § A government's debt portfolio is often the largest liability in the country and can generate substantial risk to its balance sheet, with potential to undermine key development objectives.
- § As such, public debt management operations constitute an important part of PFM processes.
- § Public debt management contributes to the governance and efficiency of PFM operations, by providing vital input (debt stock, debt service projections) during:
  - § Budget formulation
  - § Execution and,
  - § Monitoring.

# Public debt management is also important for macroeconomists, investors & public

- § Provides input to macroeconomic policies design and review
- § IMF and WB have multiple databases that collect and disseminate public debt data
  - § Government Finance Statistics (GFS)
  - § International Financial Statistics (GFHF)
  - § Global Debt Database (GDD)
  - § Public Sector Balance Sheet Database (PSBS)
  - § Quarterly Public Sector Debt Statistics Database (QPSD)
  - § Quarterly External Debt Statistics Database (QEDS)
  - § International Debt Statistics (IDS)
- § Source of this data is the sovereign Debt Management Office (DMO)

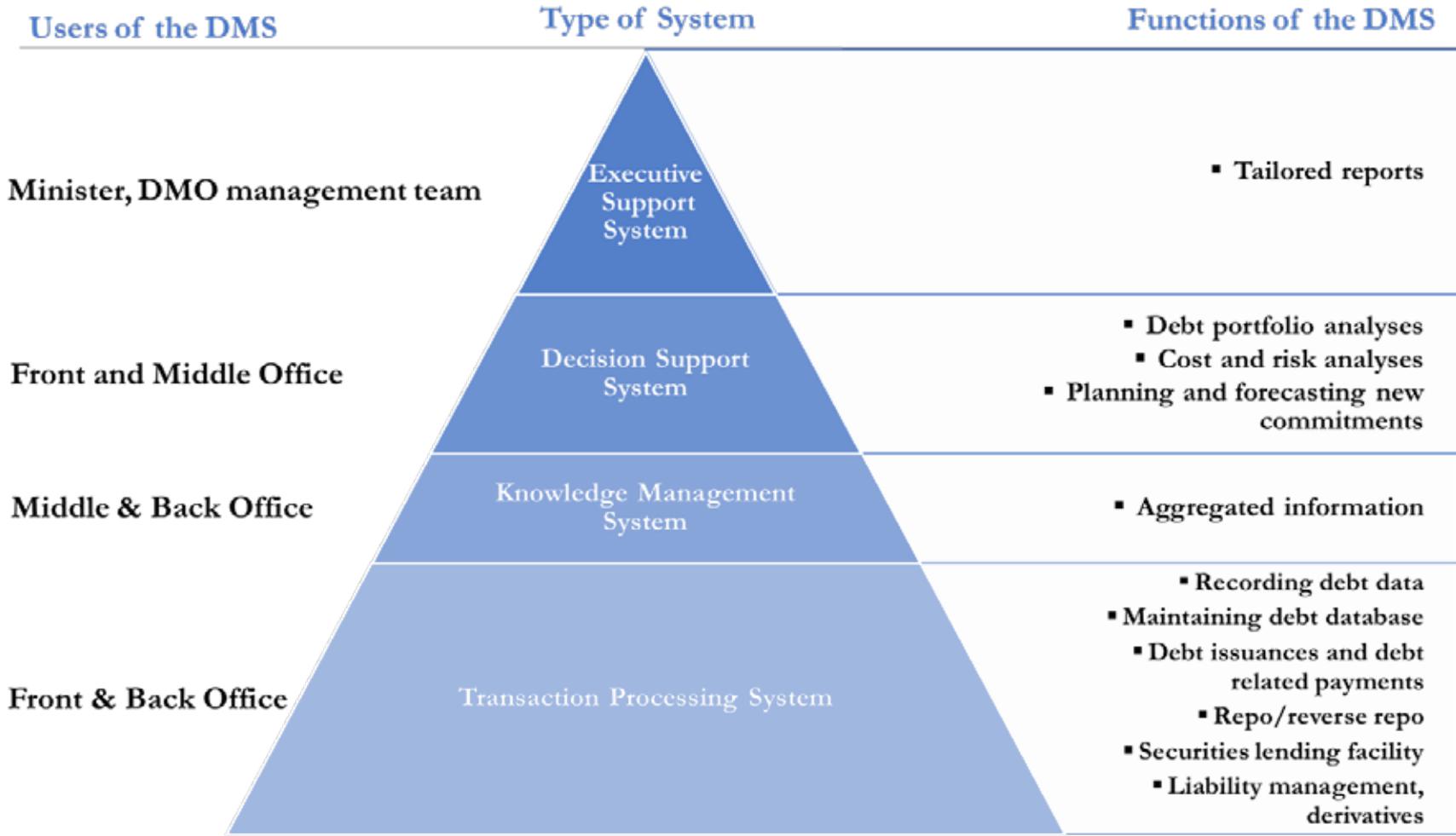
# Simplified information and transaction flow for a DMO



# Outline

- § What is the role of debt management in PFM?
- § How to define a debt management system (DMS)?
- § How to select and implement a DMS?
- § What are the current DMS used by sovereigns?
- § Conclusion

# DMS is the backbone of any sovereign DMO



Note: This figure is adapted from Turban, McLean, Wetherbe (2004)

# DMS contributes to strengthening debt management operations

---

A robust, well-functioning and user-friendly DMS helps:

---

**Reduce operational and reputation risks**

**Facilitate efforts to increase transparency and accountability**

**Empower decision maker**

**Stimulates efficiency and productivity within the DMO and with related parties**

**Support the automation and integration of debt management with PFM**

---

# A DMS should meet the current and evolving needs of a country

- § Supports almost the complete array of debt instruments used by the DMO; e.g.
  - § external and domestic (loans, bonds, indexed instruments)
- § Captures data on debt-like instruments if relevant; e.g.
  - § sovereign guarantees, on-lending of government debt
- § Handles the special features of instruments; e.g.
  - § Day count, holiday conventions, uncommon redemption profiles
- § Improves work flows within the DMO and with other parties

# Outline

---

- § What is the role of debt management in PFM?
- § How to define a debt management system (DMS)?
- § How to select and implement a DMS?
- § What are the current DMS used by sovereigns?
- § Conclusion

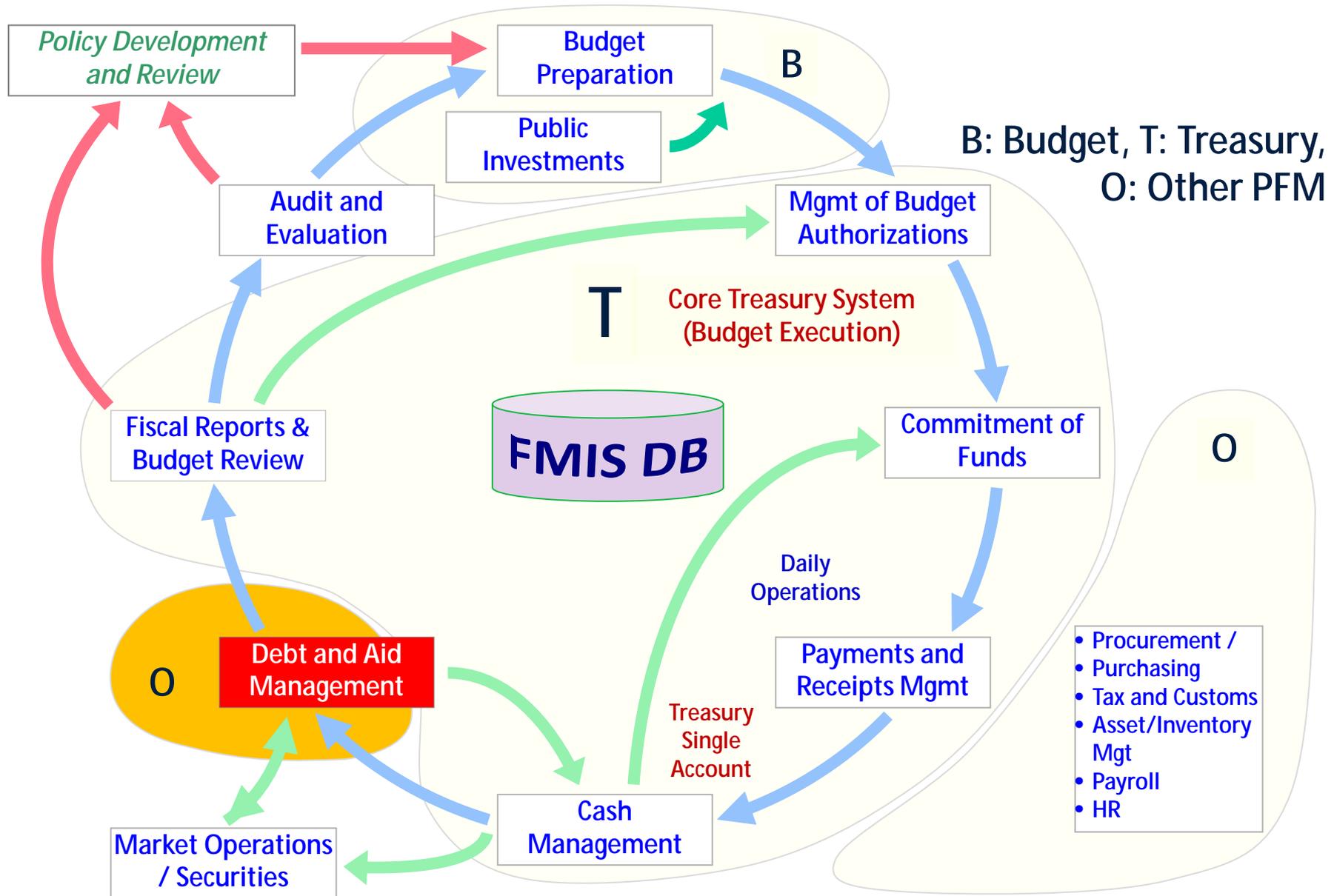
# For a DMS, some functions are mandatory, others nice to have

<b>Recording, validating and maintaining debt data</b>	<b>Mandatory</b>
<b>Producing payment projections</b>	<b>Mandatory</b>
<b>Generating reports for analyses and decision support</b>	<b>Mandatory</b>
<b>Conducting portfolio and risk analyses</b>	<b>Relevant</b>
<b>Planning future borrowings</b>	<b>Relevant</b>
<b>Resource mobilization</b>	<b>Relevant</b>
<b>Connection with FMIS</b>	<b>Relevant</b>
<b>Straight through processing</b>	<b>Desirable</b>

# DMS needs to meet user-requirements and include key features

- § User requirements for any information system include:
  - § user-friendliness and intuitive interface and architecture,
  - § easy retrieval of data in a useful format and the ability to export data to other platforms,
  - § the ability to conduct searches within the system using keywords, and
  - § the availability of a detailed user manual.
- § Additionally, it should be secure, accurate and reliable.

# DMS as part of the Fin. Management Info. System (FMIS)?



# Alternative DMS solutions

---

- § In-house systems
- § Off-the-shelf solutions
  - § Public DMS: CS-DRMS, DMFAS
  - § Commercial: Calypso, Telsat, Murex, Wall Street Systems

# Selection and implementation of a DMS

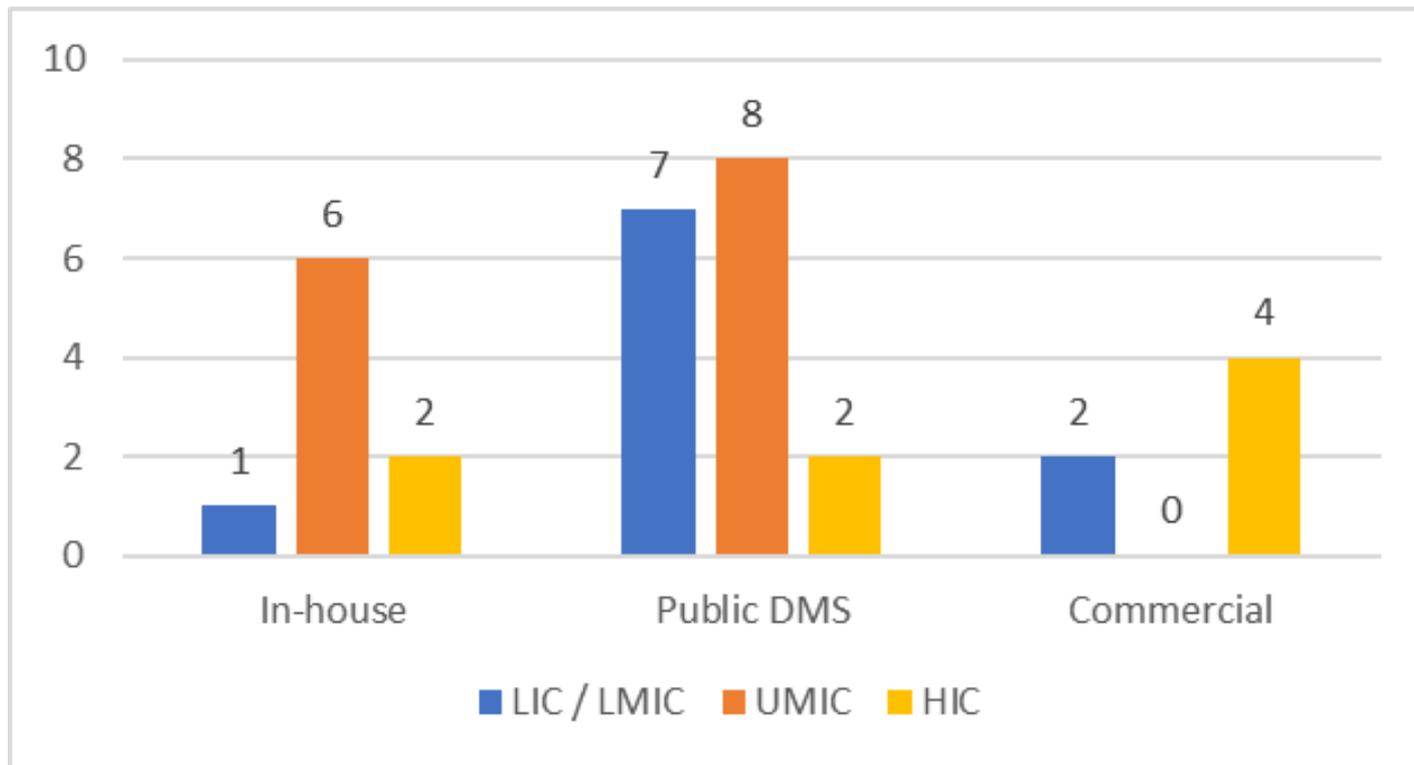
Type of system	Pros	Cons
<b>In-house system</b>	<ul style="list-style-type: none"> <li>• Tailored to DMO's country specific current and future needs</li> <li>• Full access to the source code; unlimited and free access to large number of users</li> <li>• Not dependent on software maintenance and upgrade contracts</li> <li>• Tailored to support DMO's organizational flows</li> </ul>	<ul style="list-style-type: none"> <li>• Not one of core competencies of DMOs; inexperienced team more prone to neglect key system features</li> <li>• Tendency to underestimate the extent of challenges for developing a software package in terms of complexity, time and cost</li> <li>• Require well prepared user-requirements, project plan and implementation</li> <li>• More likely to generate suboptimal solutions</li> <li>• Key IT person risk</li> </ul>
<b>Off-the-shelf solutions (General)</b>	<ul style="list-style-type: none"> <li>• Professionally developed and reliable; adhere to core financial industry standards</li> <li>• Capacity to handle large sets of data and transactions</li> <li>• Lower technology risks and positive externality if used by several countries</li> </ul>	<ul style="list-style-type: none"> <li>• More difficult to adapt to the DMO's current needs</li> <li>• Cost of linking to external systems</li> </ul>
<b>- Public DMS (Specific)</b>	<ul style="list-style-type: none"> <li>• Specifically built for sovereign debt management portfolio</li> <li>• Perceived as public good and shared ownership of software by involved countries</li> </ul>	<ul style="list-style-type: none"> <li>• Originally built to manage external debt for back office, requiring work-arounds to handle other instruments (e.g., inflation linked) and operations (e.g., liability management)</li> <li>• Creates dependence on the existing system that was originally free or low cost</li> </ul>
<b>- Commercial system (Specific)</b>	<ul style="list-style-type: none"> <li>• Complete product, with front, middle and back office functions usually captured in the same package, supporting STP</li> <li>• Well prepared to connect to external systems</li> </ul>	<ul style="list-style-type: none"> <li>• Not designed for sovereigns</li> <li>• Less flexible than the public DMS in addressing sovereign's needs related to country-specific instruments and transactions</li> <li>• Usually expensive installation, maintenance, upgrades and training</li> </ul>

# Outline

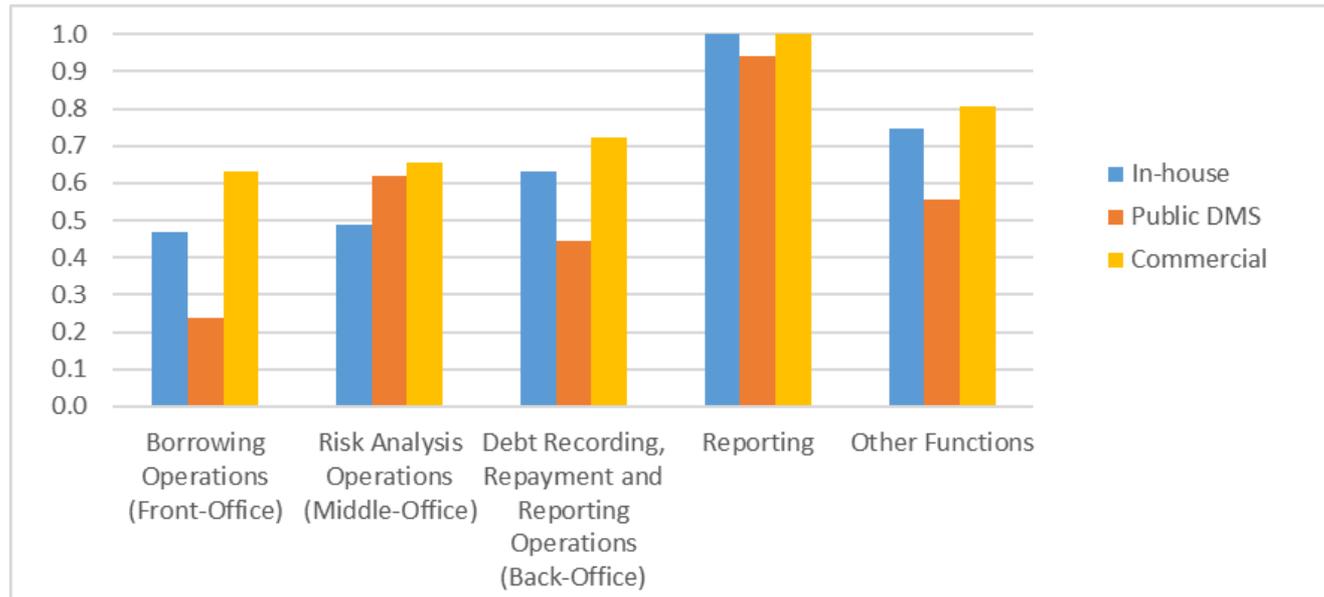
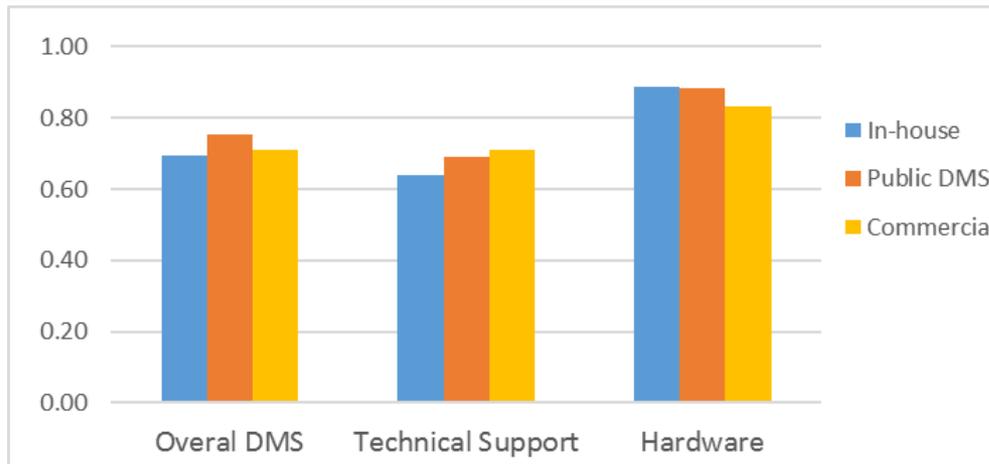
- § What is the role of debt management in PFM?
- § How to define a debt management system (DMS)?
- § How to select and implement a DMS?
- § What are the current DMS used by sovereigns?
- § Conclusion

# General observations from 31 country surveys

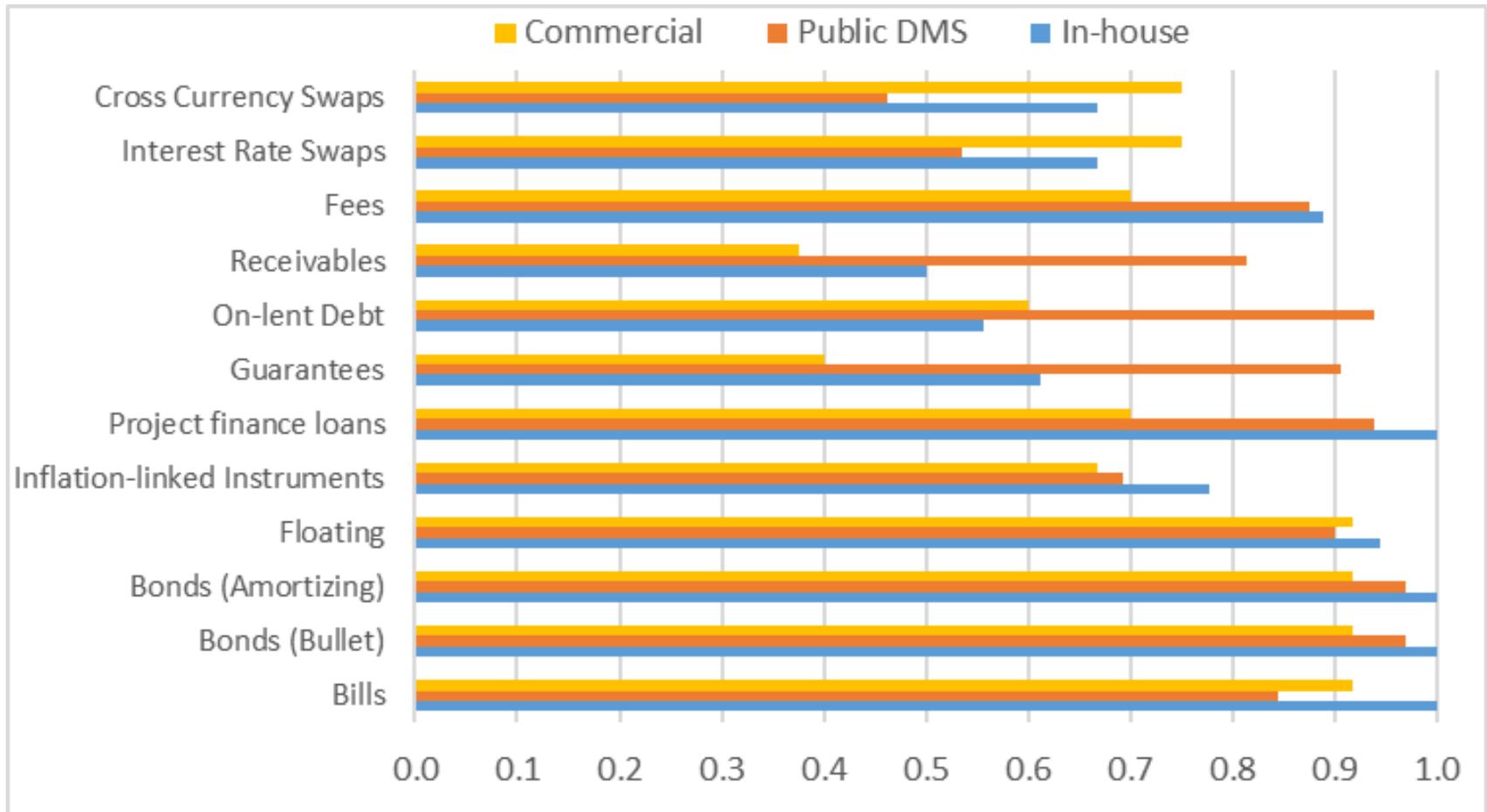
- § Almost all countries (94%) use a software
- § LIC & LMIC prefer public DMS, UMIC evenly split between in-house and public DMS, HIC adopt commercial or develop their own



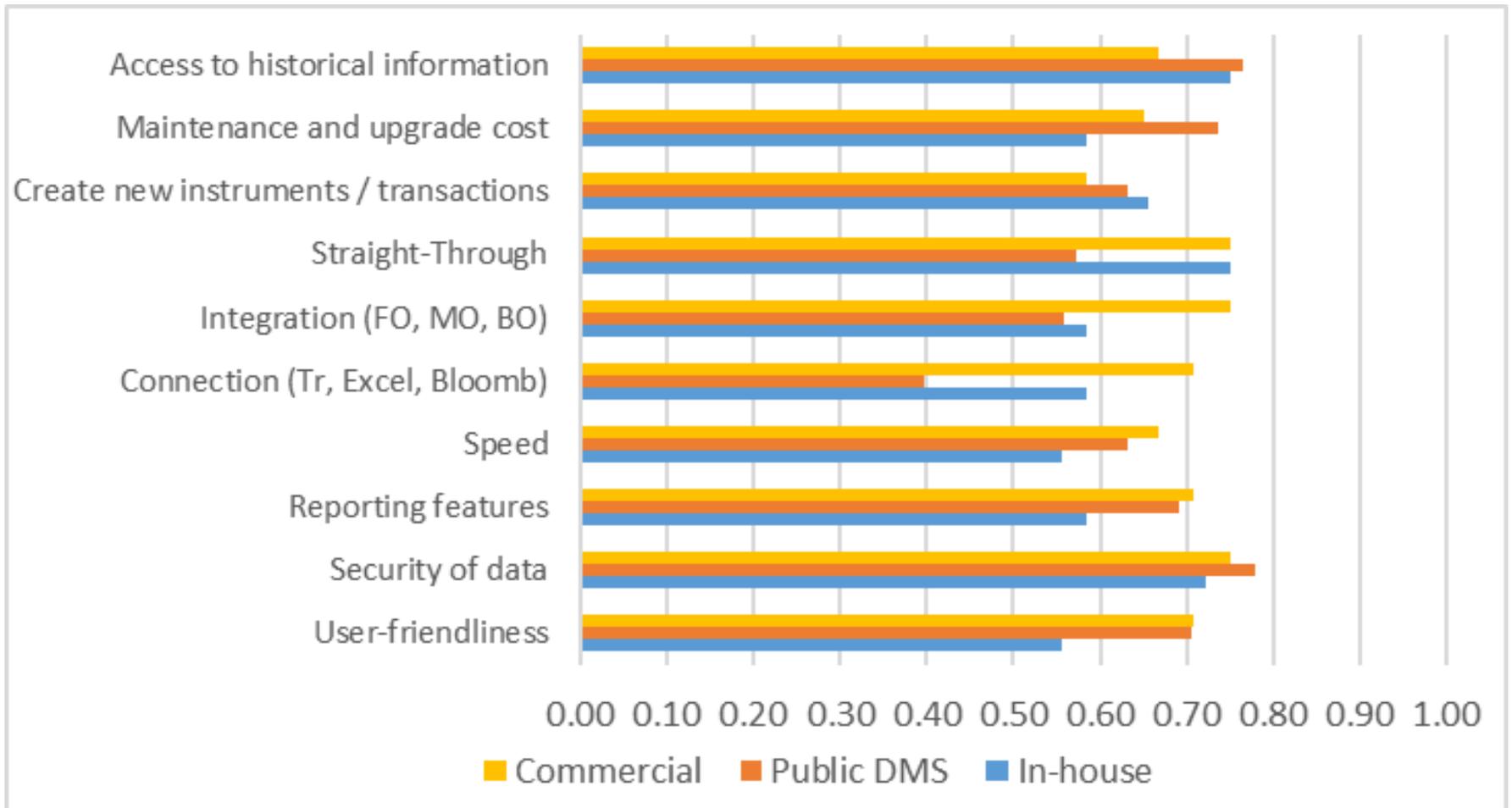
# Current DMS capture mandatory and most of the relevant functions / Satisfaction level



# All systems cover the common debts instruments (bonds, bills, loans) & fees



# Interaction of the DMS with FMIS is desirable, but weakest feature



# Outline

---

- § What is the role of debt management in PFM?
- § How to define a debt management system (DMS)?
- § How to select and implement a DMS?
- § What are the findings from a survey?
- § **Conclusion**

# Conclusions

- § Public debt management contributes to the governance and efficiency of PFM operations, by providing vital debt related input.
- § A robust and secure DMS ensures such input is accurate, timely and reliable.
- § Selection of the DMS requires through analysis of the current and future needs.
- § DMS solutions used by surveyed countries meet the current needs, but fail at integrating into the PFM processes.

# WB Working Paper

“Study on Public Debt Management Systems and Results of a Survey on Solutions Used by Debt Management Offices”,  
World Bank Policy Research Working Paper, August 2018

<http://documents.worldbank.org/curated/en/629151533732435143/pdf/WPS8544.pdf>

# Questions?

Caslan@worldbank.org

# Acronyms

- § DMS: Debt management system
- § DMO: Debt management office
- § FMIS: Financial management information system
- § HIC: High income countries
- § LIC: Low income countries
- § LMIC: Lower middle income countries
- § PFM: Public financial management
- § UMIC: Upper middle income countries

# DMS landscape among 31 surveyed countries

<b>Brazil</b>	<b>Fiji</b>	<b>Indonesia</b>
<b>Bulgaria</b>	<b>Ghana</b>	<b>Paraguay</b>
<b>Macedonia</b>	<b>India</b>	<b>Philippines</b>
<b>Peru</b>	<b>Jamaica</b>	<b>Trinidad</b>
<b>South Africa</b>	<b>Maldives</b>	<b>Vietnam</b>
<b>Sweden</b>	<b>Thailand</b>	<b>Denmark</b>
<b>Turkey</b>	<b>Albania</b>	<b>France</b>
<b>Ukraine</b>	<b>Costa Rica</b>	<b>Georgia</b>
<b>United Kingdom</b>	<b>Georgia</b>	<b>Iceland</b>
<b>Cyprus</b>	<b>Madagascar</b>	<b>Morocco</b>
<b>Dominica</b>		<b>New Zealand</b>