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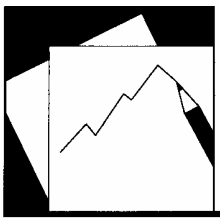

IMF Working Paper

Treasury System Design: A Value Chain Approach

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Treasury System Design: A Value Chain Approach

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Abstract

Treasury systems enable governments to prepare financial plans, implement annual budgets, handle cash resources, provide fiscal accounts, and ensure control and accountability. The design of these systems varies considerably across countries, reflecting differences in priorities, country capacities, and political traditions. The paper develops a generic value chain for a treasury system and discusses the choices that are made in designing that system. The paper provides an indicative set of good practices for treasury design in different groups of countries. The generic model and the proposed good practices are compared to the actual treasury systems in seven countries.

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I. INTRODUCTION

Treasury systems cover many critical elements of the public expenditure management system. Key treasury functions include allotment and cash releases of the annual budget, financial planning, control of the budgetary spending process, management of government cash flows, financial assets and liabilities, accounting, and internal audit of budget execution. Efficient public expenditure management requires that a government has robust institutions and mechanisms in place to handle these functions.

The Fiscal Affairs Department (FAD) has assisted a number of countries in improving budget management and introducing or strengthening treasury systems. Countries that receive such technical assistance often ask for examples of countries with efficient treasury systems, which they can emulate in their own reform process. However, the design of treasury systems can vary considerably between countries. In some countries, the treasury is a separate institution with a large office network and extensive responsibilities and powers. In others, the different treasury functions are largely delegated to many different government bodies, with limited centralized coordination and control. A system that serves one country well might be wholly inappropriate for another country in different economic circumstances or with different capacities. There is an extensive literature that describes specific treasury systems or makes recommendations for designing various features of such systems. However, there is little analysis that explains the differences between different treasury systems.

This paper explores the basis for organizing treasury functions in countries at different levels of development and financial management sophistication, and with different financial management objectives. The basic assumption in the paper is that the treasury functions can be described as a value chain, identifying and separating the different processes and outputs involved. Within the value chain framework, governments can choose whether to organize the functions within one institution, and whether to delegate some of the functions to other entities within government or outsource some of them to the private sector. These decisions will depend on many different factors, including economies of scope and scale, political and administrative traditions.[2]

The value chain approach is common in corporate strategy and finance,[3] but has been less frequently applied to public financial management. Traditional analysis of organizations tends to focus on the organization as a whole, whereas value chain analysis specifies and analyses the different components or functions separately. Many important developments in

[2] The paper builds on previous work by Bill Allan (IMF) and Ali Hashim and Allister Moon (World Bank), who discussed possible treasury system designs and their determinants in Allan and Hashim (2001), and Hashim and Moon (2004).

[3] See for instance Porter (1985, Ch. I).

corporate strategy over the last decades, such as large scale outsourcing of noncore functions and the renewed focus on strategic alliances, can be explained through value chain analysis. A value chain analysis builds on the same types of relations as economic analysis, but it is more conceptually focused and puts less emphasis on numerical parameterization of these relations.[4] It is usually more flexible, but less precise and rigorous.

Section II describes the key objectives for treasury management, outlines the value chain that forms the basis for the analysis in the paper, and discusses key determinants for government's decisions regarding the design of the treasury system. Section III draws on the value chain model to put forward a set of hypotheses for good practices for designing treasury systems in different countries. Section IV looks at the actual treasury systems in seven countries (Brazil, Bulgaria, France, Norway, Russia, South Africa, and the United States) and assesses whether the designs of these systems are consistent with the hypotheses derived from the value chain approach. The final section summarizes the main findings of the paper.

II. Treasury System Objectives and Value Chain

A. Budget Management Objectives

Budget management systems aim to achieve four main objectives.[5] These four objectives support the broader macro-objective of stable and sustainable economic growth, and serve to optimize the value of the public sector share of the economy:

- *Macrofiscal control:* fiscal aggregates are contained at sustainable levels, and can be effectively adjusted in the event of external shocks.

- *Microfiscal control:* expenditures for organizations, programs, and line items are kept within the appropriated and authorized amounts, also when the management system is under pressure.

- *Allocative efficiency:* resources are channeled to the areas where the value is highest, and can be reallocated when appropriate.

- *Cost-effectiveness:* the costs of delivering a specific government service are minimized, and delivery modes can be updated when necessary.

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[4] For examples of economic (econometric) analysis of budget management institutions, see von Hagen (1992), and von Hagen and Harden (1996).

[5] The literature contains several variations of these objectives. Sometimes, fiscal control is described as a single, consolidated objective. This will sometimes be misleading. It diffuses the fact that macro and microlevel fiscal control problems often have different sources and implications and require different remedies.

A treasury system is one component of the overall budget management system, and the objectives for this subsystem may be the same as for the overall management system, or the focus may be on some of the objectives.[6] The design of the treasury system will be influenced by all four main objectives. The weight given to the different objectives may vary considerably across countries and over time.

A developing or transition economy country, or another country which is in a vulnerable economic situation, will need to put great emphasis on macrofiscal control. The immediate priority is often to stabilize the fiscal situation and to ensure that the economy is put on a sustainable growth path. This requires that the government has full control over the key fiscal aggregates.

Microfiscal control (or financial compliance), will also be very important in a developing or transition economy. The uncertain economic situation, often combined with limited capacity for effective control over the budget agencies' financial operations, will tend to erode financial discipline. Failure to contain sector expenditures within the respective allocations will undermine the attempts to establish aggregate control. Lack of control will also undermine the legitimacy and longer term credibility of the budget management system. If there is a perception that some sectors are allowed to breach budgetary discipline, agents of other sectors will be tempted to try the same strategy. Lack of microfiscal control is often associated with bad governance, corruption and misuse of funds, which distorts decision processes and reduces the value of the budget expenditures. Many features of existing treasury systems are directly linked to this control objective.

Countries which have a stable economy, and where fiscal control is firmly established, may gradually put more emphasis on the objectives of allocative efficiency and cost-effective service delivery. This typically involves relaxation of formal, centralized controls, and decentralization of management authorities to ministries and agencies, who are expected to be best informed about how to optimize their operations. Most OECD countries have moved in this direction over the last 20–30 years, through reforms such as program, output and performance budgeting and corresponding reforms in procurement, accounting, and internal controls. The budget management reforms in these countries have generally evolved from a situation where there is firm fiscal control. Over time, this control has become embodied in political consensus, and in the management culture of the government agencies. The need for strict external controls has been reduced.

In the long run, the four different objectives for budget and treasury systems are consistent and mutually reinforcing. In the short term, there are often trade-offs. If lack of fiscal control is a problem, attempts to restore this control will often require centralization of decision-making authority. This may reduce the incentives and the possibilities for budget units to

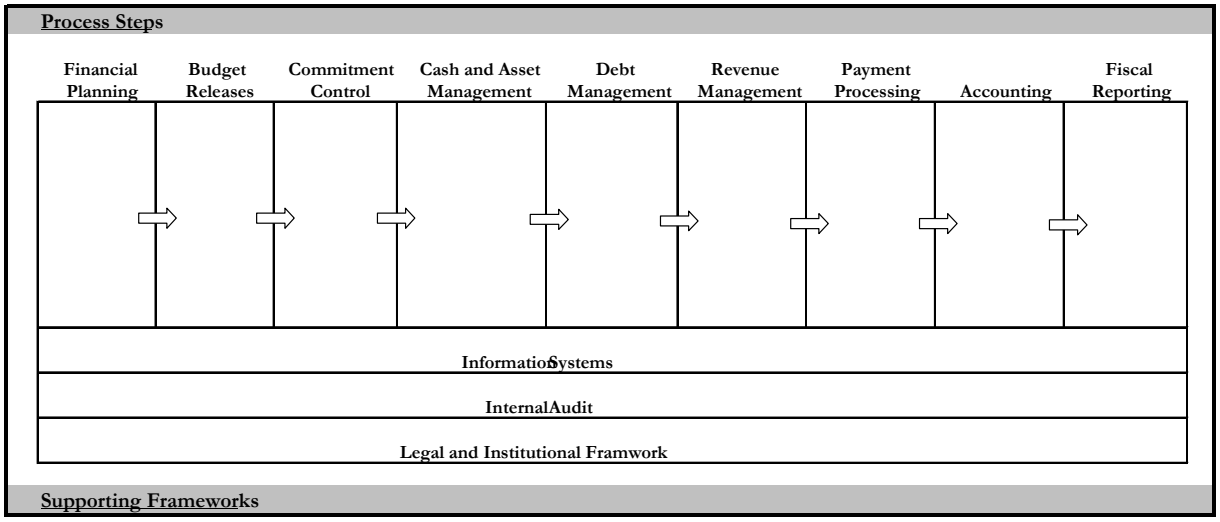
[6] The effectiveness of the treasury system will also be influenced by other budget management systems, for instance for macroeconomic planning and budget preparation. The interaction between these systems and the sequencing of reforms in the respective systems raises several additional issues that are beyond the scope of the current paper.

channel resources to the areas with highest value or to reduce the costs of service delivery. It is important to have a realistic perception of when the different objectives can be combined. Some transition and developing countries have embarked on experiments to improve efficiency and cost-effectiveness by decentralization of authority. In the absence of systems that assure proper fiscal control, both at the macro and microlevels, such experiments can have very damaging effects on fiscal management.

B. Treasury System Value Chain

Figure 1 describes an illustrative value chain for a generic treasury system. It covers a set of key functions that are defined as treasury functions in most countries.

Figure 1. Treasury System Value Chain



This value chain describes the "production" process in a treasury system. It specifies the process steps that take place and their sequencing, and the supporting or cross-cutting processes and systems.[7] The value chain can serve as a framework for analyzing which components or process steps to include in a treasury system in a specific country. It facilitates assessment of the emphasis to be put on each of the components, how to organize each function and decisions regarding delegation of authority to other government bodies or outsourcing to the private sector.

Conceptually, the main criterion for deciding on whether to include a specific component in a treasury system is the **value added** by doing so. In the private sector, value can be readily

[7] A value chain for an actual organization could be considerably more complex than this example. It would usually include a detailed depiction of the inputs that are provided and the final "products" or services, as well as the linkages and feedback loops between the different functions. Some of the possible complexities are discussed in subsequent sections.

estimated as the current value of expected increases in corporate profitability. In the public sector, more complex value concepts are required. These can include the social benefits of improving a particular aspect of financial management, or the cost reduction achieved through a specific form of organization.

For some parts of the treasury value chain, value estimates are fairly straightforward, for instance for cash and debt management. However, it is difficult to ascribe clear numerical estimates to all parts of the value chain, and often qualitative assessment forms important elements of the basis for the decision. Even when the analysis is partly based on qualitative assessments, care must be taken to substantiate that the inclusion of each specific component in the treasury system, or a particular organization of this function, leads to tangible benefits that clearly outweigh the costs of covering the function.[8] This paper does not attempt to attach any numerical values to the treasury systems that are analyzed. This could be done in subsequent papers.

Key components of a treasury system value chain include the following:

- **Financial planning** is the bridge between the preparation and execution of the annual budget. Some countries prepare detailed financial plans, while others only do aggregate planning. The responsibility for this function may be in the treasury, in the budget department, or sometimes in a separate asset/liability management function.

- **Distribution of budget allocations** can be done at a detailed or aggregate level. Some countries provide weekly or monthly budget releases, while others make the whole budget available at the beginning of the year. This function might also be in either the budget or treasury department of the ministry of finance (MOF).

- **Commitment control** serves to ensure that expenditures are controlled and if necessary contained before commitments are made, when it is still possible to influence the final expenditure levels. Some countries have detailed commitment controls for the whole budget, some have more aggregate or partial systems, and some have no explicit controls in this field.

- **Cash and (financial) asset management** are important to ensure that the government has liquidity to execute its payments and that the costs of this liquidity are as low as possible. Government funds are often consolidated in a treasury single account (TSA) system. The management of these funds can be handled within the treasury, but in many countries it is outsourced to the central bank, to a separate asset/liability management agency or to private financial entities. Some advanced countries have

[8] Some OECD countries require that all proposals for new institutions or institutional changes be supported by explicit cost-benefit analysis, identifying all key financial and other implications of the proposal, demonstrating that the benefits of the proposal clearly dominate the costs.

largely eliminated the function, by not keeping any government cash reserves but relying on short-term borrowing to meet liquidity needs.

- **Debt management** is closely linked to cash and asset management, particularly for short-term and domestic debt. Again, this function may be handled within the treasury, by the central bank or a separate debt or asset/liability management agency, or, at least to some extent, be outsourced to the private sector. In countries with advanced financial markets, debt management may require other types of skills than many other treasury functions.

- **Revenue management** is an important task for many treasuries. Whereas tax administration, assessment and control is the responsibility of the tax administration authority, the cash flows that are the result of this activity is often managed by the treasury. A key task will be to ensure that revenues are consolidated in the TSA as quickly as possible. The treasury may also be involved in managing nontax revenues and in sharing taxes between different levels of government.

- **Payment control** is executed when actual payments are made. This is often seen as the clearest core function of a treasury. Most treasury systems include some form of payment control, but the degree of scrutiny varies considerably. Despite its importance, in many cases, some payment control functions are delegated to budget organizations or outsourced to commercial banks.

- **Accounting** in the treasury is often done on the basis of receipt and payment records. It is usually done in the treasury itself or in a separate accounting department. In some countries this is reconciled with agency accounting data to produce the consolidated accounts, in others the ministries and agencies are responsible for government accounting. In many countries, smaller budget units may be assisted by public or private accounting agencies.

- **Fiscal reports** are provided by the government in all countries. They can come from the budget, accounting or treasury departments within the MOF. In some countries, ministries and agencies publish their own financial accounts and annual reports independently of the treasury.

The treasury system is based on some supporting frameworks. These may be specific to the treasury system, or they may be part of broader systems, which could be described through value chains of their own:

- **Information systems** have traditionally been the responsibility of government information technology (IT) departments. However, there is a clear international trend toward outsourcing of IT services to private companies.

- **Internal audit** is usually done by internal audit units within the treasury or the MOF, and/or within the ministries and agencies. Some countries allow their agencies to purchase internal audit services from private auditors.

- **The legal and institutional framework** for budget management is always a government responsibility. New legislation and regulations is usually prepared by the budget and treasury departments of the MOF. Many treasuries cover all central government payments, but in come countries there are payments outside the treasury. Some treasuries also cover subnational governments.

The functions mentioned above can usually be further divided in subfunctions and activities. In a real life value chain analysis, this would often be brought down to the subfunction level, with similar decisions being taken regarding consolidation, delegation, or outsourcing also for subfunctions.

C. Possible Determinants of Treasury Design

In some countries, all the functions described in the treasury value chain in Figure 1 are managed within one institution. In others, the functions are handled by different organizations within and outside the government sector. There are several factors that influence these structural decisions. These factors should be reflected in estimates of value added by including the different functions or organizing them in a specific way, but the underlying causes may be quite complex.

Financial management priorities are the most important determinants of the design of the treasury function. If the focus is on ensuring fiscal control and financial compliance, this favors a strong centralized treasury with extensive powers to monitor and control the activities of government organizations.[9] On the other hand, if there are no significant control problems and the main priority is to promote efficient use of government resources or cost-effective service delivery, there are arguments for having a lean treasury function, leaving much of the responsibility for financial management to the organizations themselves.

The degree of macroeconomic and financial stability influences the design of a treasury system in several different ways. The economic situation will obviously have direct implications for financial management priorities, but more indirect influences may also be important. A government decision to establish a comprehensive treasury is a strong signal to financial markets and the government sector about the government's commitment to ensuring fiscal control and financial discipline, and will impact the expectations and behavior in these sectors, promoting stability. In order for this signal to be credible, it is important to demonstrate a high probability that the treasury will be effective. A well-resourced treasury with comprehensive responsibilities will usually provide a stronger signal than a very lean treasury with limited responsibilities. This means that it may be rational to give the treasury broader responsibilities than what would follow from a static assessment of country objectives and capacities. In other words, to promote stability in a developing or emerging economy, it is generally better to "over-invest" in the treasury function than to "underinvest."

[9] This is consistent with von Hagen (1992), which states that a centralized budget management system is "strongly conducive to fiscal discipline."

Economies of scope are a key driver for establishing large treasuries with broad responsibilities. This may well be the second-most important factor when determining the scope and structure of the treasury function. There are very important linkages between most treasury process steps. For instance, if an institution is responsible for financial planning and for allocating the annual budget, it will automatically have access to much of the information, systems and specific skills that are required to carry out commitment or payment controls. The data that are recorded during payment control also forms the basis for the budget accounts. Involvement in financial planning and payment controls provide a good basis for effective cash management. There are many synergies between management of cash inflows and outflows. Several other linkages between the different functions can also be identified.

Economies of scale also provide strong incentives for creation of strong, centralized treasuries. It is costly to develop, maintain and operate financial management procedures, and to ensure an even, high quality in these systems across the government sector. If an institution has been successful in establishing and introducing these practices in parts of the government sector, it can often be extended to the rest of government for a limited marginal cost. There may also be considerable cost savings in extending the treasury system to local governments. The economies of scale are particularly visible for information system development and deployment, where fixed costs often are high and variable costs comparatively modest.

Capacity and skills in financial management are crucial. Low capacity and limited skills among financial management staff will tend to reinforce the economies of scope and scale mentioned above. If there is a very limited pool of skilled financial managers, it will often be efficient to concentrate these in one institution. If there is a large cadre of well-trained and experienced financial managers throughout government, more decentralized solutions may be appropriate.

Availability of private sector services will often be important in designing the treasury. If the country has an advanced banking and financial sector, much of the payment and cash management or asset/liability management function can be outsourced to private institutions on a competitive basis. In the absence of such services, the government may have to handle these functions directly. Information system development and operations can also be outsourced when there is a competitive market for these services. Some government institutions also buy accounting or internal audit services from commercial providers.

Political and administrative traditions may vary widely between countries that otherwise are very similar. This also seems to be among the most important determinants in the design of actual treasury functions. For instance, Southern European countries tend to have a much more control-oriented and centralized public expenditure management system than Northern European countries at the same level of economic development. Many countries have taken steps to decentralize budget management to lower levels of government. In Africa, most former British colonies will have treasury mechanisms that are quite different from the ones

in former French colonies.[10] Although reforms in financial management will often require a break with previous traditions and practices, it is important to recognize and address the specific traditions in the country.

Information-processing costs for development of reform strategies may be quite considerable. A detailed functional assessment, as outlined in this paper, will in itself require significant skills and resources. For many countries, particularly in the developing world, these skills and resources may not be available. In such cases, it may be perfectly rational to base the design of the countries' treasury systems on more generic models and general considerations. This will also tend to favor comprehensive treasury systems. It will often be seen as easier to include a function in the treasury than to exclude it and ensure that the function is covered by someone else.

Treasury system investment and operating costs. The establishment and operation of a treasury system may entail considerable costs, for instance in setting up offices and buying information systems.[11] Without a centralized treasury system, some of the costs will be born by other agencies, and they will often be less visible. Countries need to carefully weigh the costs and benefits of setting up a treasury system. This factor will tend to favor more decentralized solutions.

Direct financial benefits. While it may be fairly easy to identify the benefits of a treasury system from a conceptual perspective, direct financial benefits may be more difficult to pinpoint. Improvements in cash management, with subsequent reductions in financing costs, may be the easiest to quantify. In some countries, these direct financial implications have been sufficient to justify the costs.

III. Good Practices for Treasury Design

A. Overview

Good practices for budget management and treasury design are described in many documents.[12] However, because of the different priorities and capacities of different economies, there will often be differences in what is perceived as good practices and what can realistically be achieved in this area in different groups of countries. Table 1 presents some hypotheses for good practices in this area, reflecting differences in priority and capacity between countries. These hypotheses build on the value chain framework discussed in the previous section, and are discussed in more detail in the next section.

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[10] This is discussed in Lienert (2003).

[11] The new Russian treasury system is expected to cost about US$600 million. Even in smaller countries, establishing a comprehensive treasury system will often cost of several tens of millions of U.S. Dollars.

[12] For a general discussion of the different components of a treasury system, see Diamond and Potter (1999), or Allen and Tommasi (2001).

The table identifies three stylized types of countries:

- *Developing economies* need to put strong emphasis on fiscal and financial control. They have weak domestic capacity for modern financial management, and it is very important to utilize economies of scope and scale. They will generally not be able to fully introduce all the features of an advanced treasury system in the near term, and simpler, temporary measures may be required. Priority must be given to handling the most acute problems. Local governments will typically have even weaker capacity than the central government.

- *Transition/emerging economies* also need to put considerable emphasis on ensuring fiscal control and financial discipline. The problems in these areas may be quite dramatic, but they tend to be less endemic than for developing economies. The capacity for fiscal management may be mixed, with some areas of fairly high capacity. These countries will usually be able to develop and introduce quite comprehensive management systems. Local governments tend to have a higher degree of real autonomy than in developing economies, and some local governments may have quite high capacity for fiscal management. The group is very diverse. Some of these countries may be close to a developing economy position, whereas others are approaching a stable economy situation.

- *Advanced economies* are assumed to have solved most control problems. Ex-ante control has been replaced by strong ex-post accountability. They can prioritize efficiency and effectiveness objectives, while having ample financial management capacity and well developed markets for financial services. Decentralization and deconcentration of powers is usually widespread, both within the central government and between different levels of government.

The three categories are not meant to be exhaustive. In practice, many countries will be in intermediate positions, or in the process of migrating from one category to another. The proposals in Table 1 are only indicative, and any detailed recommendations for treasury design must of course be based on the circumstances of each individual country.

B. Rationale

As discussed above, there will be important differences in the design of effective treasury systems in different countries with different circumstances. Many of these differences will be related to the scope of the treasury system, in particular the degree of centralized control over the different functions. The differences in design can to a large extent be explained by differences in priorities and objectives.

In developing and transition/emerging economies, it is critically important to have robust systems for preparing detailed financial plans for different government sectors and organizations. These countries often face acute liquidity constraints and short-term borrowing may be very costly. Financial planning forms the basis for stable and predictable budget releases and authorization of commitments and payments, thereby avoiding arrears

Table 1. Proposed Good Practices for Different Groups of Countries

	Developing Economy	Transition/Emerging Economy	Advanced Economy
Financial planning	Detailed financial plans	Detailed financial plans	Aggregate financial plans
Budget releases	Monthly	Monthly - quarterly	Quarterly – annually
Commitment controls	Authorization of commitments where arrears problems	Authorization of all commitments	No centralized commitment controls
Cash management	Treasury single account. Asset management by the treasury.	Treasury single account. Asset management by the treasury or the central bank.	Treasury single account. Integrated asset/liability management agency.
Debt management	By the treasury	By the treasury	Integrated asset/liability management agency
Revenue collection	Through treasury bank accounts.	Through treasury zero-balance accounts.	Through banking system directly to TSA.
Payments processing	Authorized by treasury offices	Authorized by treasury offices or line ministries	Aggregate authorization limits
Accounting	By treasury offices. Cash basis.	By treasury offices and budget units. Move toward accrual basis.	By budget units. Accrual basis.
Fiscal reporting	By the MOF	By the MOF	By the MOF
Information systems	Basic systems, gradual consolidation.	Integrated financial management information system (FMIS)	Full integration of information flows, separate IT systems
Internal audit	Internal control body	Internal control and audit body	Internal audit body
Legal and institutional framework	Basic legislation, focus on core issues. Extensive treasury organization with field offices, covering general government, including EBFs.	Budget or treasury system law. Extensive treasury coverage, through field offices, financial management information system (FMIS) or line ministries. Offer services to local government. EBFs dismantled or covered by the Treasury.	Stable, transparent legislation. Treasury supervises line ministry operations. Focus on central government. No EBFs.

and inefficient expenditure patterns, as well as for efficient cash and debt management. In a stable economy, where there are no pressing liquidity constraints and where budget execution controls tend to be more limited, financial planning can have a more aggregate focus.

The frequency of budget releases should be based on a trade-off between control and liquidity needs on the one hand and the need to create a stable and predictable financial framework for the budget units on the other hand. In developing and transition/emerging economies, the first aspect tends to dominate, leading to fairly short intervals for budget releases. In a stable economy, the second aspect will usually dominate. In these countries, releases can be quarterly or the whole annual appropriation can be released at once.

Accumulation of arrears is one of the most pervasive problems in transition and developing countries. In order to avoid this, solid systems for recording and authorization of commitments are necessary. These systems may be resource-consuming and challenging to implement. Developing countries should put initial emphasis on controlling commitments in the sectors where arrears are most pressing, while transition/emerging economies should consider a complete commitment control system, supported by the FMIS. Such systems are often not necessary in advanced economies, when there is no significant risk of accumulation of arrears.

In most countries, the optimal arrangement for government banking is a single account system, where all funds are concentrated in the central bank. This system has major benefits both in terms of financial control and in terms of promoting efficiency and cost-effectiveness, regardless of the economic circumstances of the country. There are, however, different models for how to process payments and access the TSA, depending on the structure of the treasury and the sophistication of the banking system. In some advanced economies, the TSA system provides incentives for efficient timing of payments by the budget agencies by allocating imputed interest.

Because of the close linkages between cash and debt management and budget execution, these functions should be very closely coordinated. In most developing and transition economies, this should generally be done within the treasury. In countries where there is effective coordination between the treasury and the central bank, it may be appropriate to outsource some functions to the central bank. In advanced economies with well-functioning financial markets and easy access to highly skilled staff, a separate agency for integrated asset and liability management may be appropriate.

In order to ensure that budget unit payments are kept within the approved limits, systems for payment authorization are used in most countries. These also provide mechanisms for ensuring that actual payments go to the areas of highest priority and that arrears are avoided. In a developing economy, all payment requests should be processed through the treasury branch offices, where they would be subject to detailed control before being pre-authorized for payment. These countries will often not have the technical capacity to effectively centralize payment control. A transition/emerging economy can apply a similar approach, it can choose to automate and streamline the process through a FMIS, or it can gradually

delegate some of the control responsibilities to the line ministries. In a stable economy, the main mechanism for ensuring proper payments is to hold budget managers strictly accountable on an ex-post basis. This can be supported by a streamlined control system, where payment orders are automatically checked against aggregate payment limits, but without detailed control of individual payments.

The management of revenue cash flows should be supervised by the treasury. The specific arrangements will depend on the sophistication of the payment system. In a developing country revenues may be collected through treasury bank accounts. In a transition economy, these could be transit or zero-balance accounts. In an advanced economy, revenues should be consolidated in the TSA each day.

In a developing economy, the budget units will often be unable to produce reliable accounts. In these countries, the treasury accounts will often provide the most reliable statement of budget unit financial flows. In a transition/emerging economy, the budget units should be responsible for recording their financial transactions, and these accounts should be consolidated and reconciled against the treasury accounts. In a mature economy, basic accounting would usually be done by the budget units, and the treasury or the MOF would primarily consolidate the accounts and produce fiscal reports.

For developing countries, the main priority should be to produce reliable cash accounts, which is least demanding to handle and gives less scope for manipulating financial information. In transition/emerging economies, accounting should initially be on a cash basis, but there should be a strategy for gradually disclosing balance sheet information and for transition to accrual accounting as capacity improves. Many mature economies are moving toward accrual-based accounting. Provided that all the necessary checks and balances are in place, and the staff is well educated, accrual accounting gives a better basis for efficient financial management, and for multiyear and performance budgeting.

The MOF should be responsible for compiling the consolidated government accounts and for fiscal reporting. There are no clear alternatives.

Few developing countries will have the capacity to introduce a complex FMIS. The priority should be to establish simple information systems, based on standard application software, for the core financial management operations, and to consolidate and reconcile the information from different manual and IT systems. The most efficient and least costly way for a transition economy to establish a reliable information system will often be to introduce an integrated FMIS, which covers all important financial flows across the government. Existing information systems are often of uncertain quality and should be abandoned when the FMIS is introduced. Most mature economies have developed their information systems over a long period of time, and have quite well-functioning, but complex and resource-demanding systems. The main objective for these countries would be to ensure effective integration of the different information flows.

For developing countries, mechanisms to ensure basic financial control will often be important. Detailed financial inspections and ex-ante authorization of commitments and payments are key elements in this regard. In a transition/emerging economy, the internal audit body should continue to play a significant role in financial control, but should gradually put more emphasis on system improvements and on providing advice to the budget units. In a mature economy, financial control would generally be delegated to the budget units, and the internal audit body would focus on systemic audits, guidelines and advice.

In a developing economy, the legal priority should be to have a simple and transparent budget law, covering the core functions. This would represent a major departure from existing practices in many such countries. A transition or emerging economy may require and will be able to develop a more comprehensive budget or treasury system law. However, the legal framework will necessarily change more frequently and be less streamlined than in a mature economy. These changes should be expected and accommodated in the legislative process. Overly complex and detailed budget legislation may create difficulties in this regard.

To ensure an appropriate level of financial control in a developing economy, it is most effective to have a network of treasury offices. In a transition/emerging economy, it would be beneficial to either have a separate network of treasury offices, or to have the line ministries acting as sub-treasuries, carrying out certain functions under the instructions of the MOF treasury body. If the country has an advanced FMIS, the need for a network of treasury offices is less. This level of control is usually not necessary in a mature economy. In these countries, the central treasury would handle some core functions and act as a supervisor of the line ministries, who would handle many of the operational procedures.

In all groups of countries, the treasury system should cover all central government payments. Extrabudgetary mechanisms should not be used for government financial flows. In transition economies, where financial control in local governments may be a major concern, and where local government capacity often is weak, it would be beneficial if the central government treasury could offer to act as an agent for local governments. In developing countries, where these problems are even more compounded, it would often be beneficial to have the central government treasury system cover local government payments as well. However, capacity constraints might make this difficult in many developing countries.

C. Measures of Centralization

This subsection puts forward a numerical description of the three stylized treasury systems outlined in Table 1. For each of the main elements in the treasury system value chain, each system has been ranked on a scale from 1–5. For most of the elements, a score of five implies that the budget execution function in questions is tightly controlled by the treasury department in the MOF. Four implies that it is the responsibility of another MOF department, or that the responsibility is shared between the MOF and the central bank or the ministries. A three score indicates that ministries or central banks are key decision makers. Two indicates that there is some central or ministry influence over agency decisions. A score of one indicates that the budget agencies have full autonomy in budget execution. For the item *budget releases*, the five score indicates that budget releases are done monthly, four

bimonthly, three quarterly, two semiannually and one annually. For the item *institutional framework*, five indicates that the treasury covers all central and local government cash flows, three that it covers the majority of central government, and one that it only partly covers central government. Table 2 describes the degree of centralization for each parameter in the three stylized systems.

Table 2 indicates that highly centralized treasury systems may be appropriate in developing, as well as in transitional and emerging economies. The average centralization indicator is 4.4 in both cases. However, there are differences within the different dimension. The overall need for centralized control may actually be higher in a developing economy than in a transitional or emerging economy. However, these countries will often lack the capacity to establish this degree of control. For instance, few developing countries will be able to effectively control all commitments ex-ante, or to establish a government-wide financial management information system. The lack of infrastructure will also limit their options. For instance, banking facilities will often be inadequate to ensure immediate transfer of revenues to the TSA. For advanced economies, the imputed level of centralization is significantly lower, on average 2.9.

Table 2. Centralization Indicators for Three Types of Treasury Systems

	Developing Economies	Transitional/ Emerging Economies	Advanced Economies
Financial planning	5	4	3
Budget releases	5	4	2
Commitment control	3	5	1
Cash management	5	4	3
Debt management	5	5	3
Revenue management	3	4	5
Payment processing	5	4	3
Accounting	5	4	3
Fiscal reporting	5	5	5
Information systems	3	5	1
Internal audit	5	4	3
Inst. framework	4	5	3
Average	**4.4**	**4.4**	**2.9**

IV. TREASURY SYSTEMS IN SEVEN COUNTRIES

This section discusses the current treasury systems in Brazil, Bulgaria, France, Norway, Russia, South Africa, and the United States, as of 2003, and their consistency with the value chain model and the hypotheses for treasury design. All the systems are generally recognized to be quite effective. The selection of these specific countries allows us to focus the assessment on the differences between different well-designed and well-managed treasury systems, without having to correct for significant weaknesses in some of the systems. It is

important to note that we are not trying to assess the effectiveness of each of the systems, or to compare them to each other. This would require a much more detailed analysis of each system, based on detailed data for performance and costs, and would go well beyond the scope of this paper.

The first part of this section gives a brief overview of the seven treasury systems. The second part of the section provides an assessment as to what extent the different treasuries include the different elements of the value chain, and how each of these is organized. The third part discusses similarities and differences between the different country systems, and provides a comparison of the country treasury systems with the hypothetical systems outlined in Section III.

A. Description of Country Systems

Brazil has one of the most advanced treasury systems among the emerging economies. It is managed by the treasury department of the MOF. The treasury prepares detailed financial plans. Budget releases are done every second month. Commitments and payments are controlled against the bimonthly limits. The treasury is responsible for cash and domestic debt management, integrating both domestic and external debt management (currently under central bank responsibility) after January 2005. Tax payments are made through direct deposits into treasury bank accounts and consolidated in the TSA. All budget units submit their payment requests electronically to the TSA, which is held in a state-owned commercial bank. The agencies record their accounting entries directly in the system maintained by the treasury, and the treasury is responsible for consolidating the accounts and for fiscal reporting. The treasury uses an advanced FMIS, and has no regional branch network. All line ministries are connected to the FMIS, and do all their financial operations, including accounting, through this system. Internal audit is done by a separate MOF department. The treasury department is responsible for budget execution throughout the central government. Sub-national governments have a high level of autonomy. The federal government has offered to states and municipalities an information system similar to the treasury's FMIS, called SIAFEM, in order to improve their budget management. Of 27 states, 12 have adopted SIAFEM.

In Bulgaria, there was little reform in government financial management until 1997, when the economy was thrown into a deep crisis. The crisis led to a significant tightening of fiscal policies and dramatic acceleration of budget reform measures. One priority measure was the introduction of a new treasury system. The system is now handled by the MOF treasury directorate, which was established in 2003. There is no regional treasury network, and many treasury functions are delegated to the line ministries. The MOF prepares detailed financial plans, with substantive inputs from the line ministries. They set monthly commitment and payment limits for the line ministries, which then set similar limits for their subordinate agencies. There is no stringent ex-ante commitment control. The treasury directorate is

responsible for cash management. Debt management is handled by a separate directorate,[13] but several operational aspects are outsourced to the central bank under an agency agreement. A single account system has been established in the central bank. Taxpayers make payments into transit accounts in each region, and the funds are automatically transferred to the TSA each day. Budget units send their payment requests to their parent ministries who authorize the requests for payments from the TSA. All payments are controlled automatically against the payment limits set by the treasury directorate and the ministries. The treasury prepares cash accounts whereas the ministries prepare operational accounts. The treasury consolidates the different accounts and issues financial reports. Internal audit is primarily a line ministry responsibility. Currently, information systems are separate, but an integrated government financial management information system is being gradually rolled out. The treasury covers central government. Local governments have significant own revenues and autonomy of budget composition, but the central government gives detailed instructions for their budget management.

France has a very extensive treasury system, with offices in all regions (*departments*) and municipalities. Most treasury functions are handled by the accounting department of the MOF, but the treasury department is responsible for liquidity management. The accounting department, in collaboration with the budget and treasury departments, prepares detailed financial plans. The budget is released in biannual tranches. The treasury department is directly responsible for cash management, whereas debt management is delegated to a subordinate debt management agency. Tax payments are made into subaccounts of the TSA and consolidated overnight. The accounting department offices receive payment requests from ministries and agencies, and carry out detailed commitment and payment control through financial controllers located in the ministries and agencies. Payments are made from the TSA in the central bank. The accounting department is also responsible for basic accounting for the budget units, as well as consolidated fiscal reports. There are several internal control bodies, both inside and outside the treasury. The treasury covers all expenditure for both central and local governments, with some minor exceptions.

Norway is an example of an OECD country with a very lean ("virtual") treasury system. The system has evolved and been streamlined over several years. Because of the stable economic situation, there has been no need for rapid or drastic reform. There is no separate treasury organization. The treasury functions are administrated by the budget department in the MOF, but all main operational tasks are delegated to line ministries and budget units. There is no financial planning mechanism, and no mechanism for in-year budget releases. The budget department does not carry out any commitment or payment controls. Operational tasks in cash and debt management, including for the State Petroleum Fund, are in general outsourced to the central bank under agency agreements, but the main management responsibilities remain in the MOF. All budget revenues and payments are processed by agency banks and transferred to or charged against the TSA the same day. Accounting is done by each

[13] Bulgaria has also appointed a state treasurer to oversee the treasury, state debt, and EU funds directorates of the MOF.

individual budget unit, which also issue annual accounts and reports. Consolidated fiscal reporting is done by the MOF, on the basis of aggregate reports from budget units. Ministries and agencies are held accountable for maintaining internal control, but there is no formalized internal audit. The only external control is through the parliamentary audit body. The MOF certifies accounting and information systems that meet the functional requirements for fiscal reporting to the center, and the agencies choose freely among the certified systems. The MOF issues broad guidelines for local government budget management, but is not involved in their financial management.

The Russian Federal Treasury (FT) was established in 1993. It is a large organization, with about 90 regional and 2,300 local offices. The FT prepares annual financial plans, with significant inputs from line ministries. Budget releases are monthly. The FT carries out commitment control for certain selected expenditure items. Russia does not yet have a fully consolidated TSA. Most cash management is done by the FT head office, but there are also significant cash reserves at many regional offices for next day's payments. Several MOF departments, as well as the central bank are involved in debt management. Taxpayers make their payments to accounts in agency banks. These are regularly transferred to the accounts of the regional treasury offices and the TSA. The FT offices control all payment requests against specific limits Both the FT offices and the ministries and agencies carry out accounting. This is consolidated by the FT which also provides consolidated fiscal reports. The FT operates three main information systems, which are partly integrated. Budget units operate separate IT systems. There are internal audit bodies both in the MOF and in the line ministries. The former state control body is also being reconstituted as an internal audit body. FT covers all significant central government financial operations, and has also been made responsible for handling the treasury functions for many regions and local governments. Although many important reforms have been implemented, it will still take time to finalize the modernization of the treasury system. Key remaining steps include the consolidation of the regional treasury accounts into a consolidated TSA, finalization of a modern accounting framework and introduction of a fully integrated treasury information system.

In South Africa, the national treasury prepares detailed financial plans, in close consultation with ministries and other spending agencies. There are monthly budget releases. Commitments are controlled against the monthly limits. The national treasury is also responsible for asset and liability management. Revenues are paid in agency banks and transferred to the TSA. After the commitments are authorized, the budget units submit their payment orders directly to the TSA without further controls. Accounting is done by the budget units and consolidated by the national treasury. The treasury and the ministries use the same IT system. Internal audit is done by the line ministries. The national treasury covers all central government payments. Nine provincial treasuries handle on a similar basis provincial government payments.

In the United States, the federal treasury prepares detailed financial plans. Most budget releases (apportionments) are done quarterly, but there are special rules for investments and other projects. Agencies are held accountable for not exceeding commitment limits, but there is no ex-ante control of individual commitments by any body outside the agencies. The

treasury is responsible for cash and debt management, but some of the operations are outsourced to federal reserve banks. Tax payments are deposited in commercial bank accounts, and transferred to the TSA at regular intervals. Payment requests, except for the Department of Defense and a few other sectors, are authorized by the treasury and paid from the TSA in the federal reserve system. Accounting is done by the respective departments (ministries), which also issue annual financial reports. The treasury only handles cash reporting. Budget units choose their own IT systems. Internal audit is a line ministry responsibility. The federal treasury covers all federal payments, with the exception of a few extrabudgetary entities such as the post office. The states have complete autonomy in their budget management.

B. Comparison of Treasury Functions in the Different Countries

This subsection compares the role of the treasuries in budget management in the different countries. Do they cover all the elements of the treasury system value chain? How is each function organized, in particular; are all important decisions taken at the MOF level, or is there significant delegation of authority to line ministries and agencies? Does the treasury system only cover central government, or is local government included as well? Are there any significant budgetary operations outside the treasury? Table 3 gives an overview of the results of this assessment for countries.

Table 3. Organization of Treasury Functions in Seven Countries

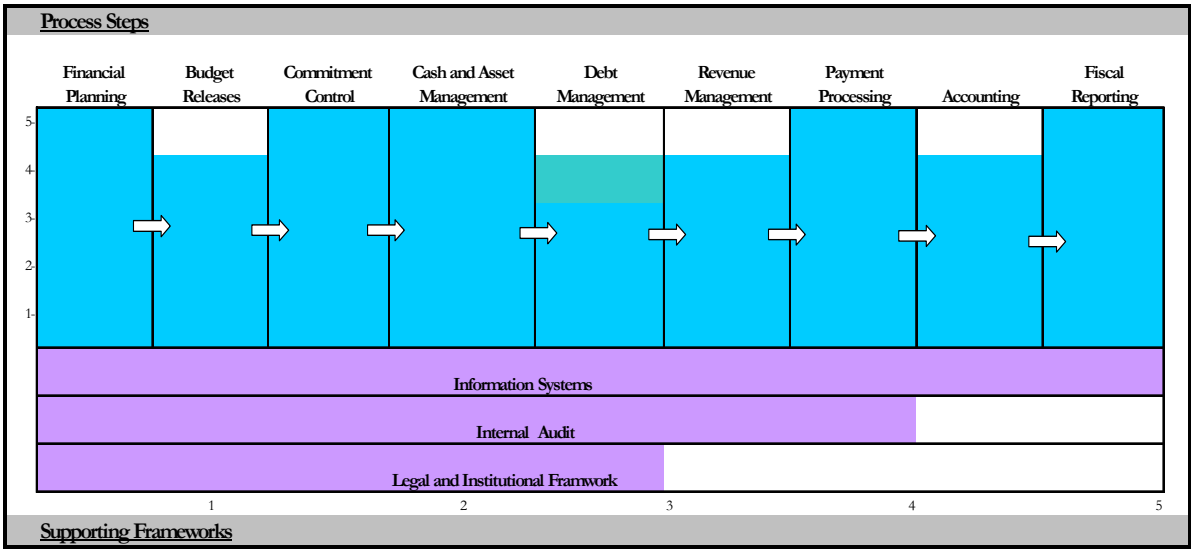
	Brazil	Bulgaria	France	Norway	Russia	South Africa	United States
Financial planning	5	4	5	1	4	3	5
Budget releases	4	5	2	1	5	5	3
Commitment control	5	2	5	1	3	4	1
Cash management	5	4	4	3	4	4	3
Debt management	4	4	3	4	4	4	4
Revenue management	4	4	4	4	3	4	4
Payment processing	5	3	5	1	5	1	5
Accounting	4	4	5	1	4	1	3
Fiscal reporting	5	5	5	4	5	4	4
Information systems	5	3	5	2	3	5	1
Internal audit	4	3	4	1	4	3	3
Inst. framework	3	3	5	3	4	3	3
Average score	**4.4**	**3.7**	**4.3**	**2.2**	**4.0**	**3.4**	**3.3**

C. Assessment

The average (unweighted) scores in Table 2 give an estimate of the degree of treasury control in the different countries. The scores indicate that the treasury systems in Brazil, Russia, and France have many similarities. The treasuries have broad powers in government financial

management, and a strong control focus. There is a high degree of centralization, in particular in Brazil and France. The Russian system will also become more centralized when ongoing reforms are completed. The Russian and French treasuries have extensive regional organizations, whereas the Brazilian treasury relies on an advanced FMIS. The high emphasis on control in Brazil and Russia are partly driven by previous incidents of financial irregularities and misallocation of funds, and the wish to avoid such incidents in the future. Economies of scope and scale, as well as lack of trained financial management specialists, particularly outside the major cities, also seem to have been important drivers. In France, the current system may be more a result of political traditions than of any major risks of mismanagement. It is interesting to note that France is planning to modernize its budget preparation system, with extensive delegation of authority to the budget units, but that similar plans have not yet been developed for the treasury system. This possible imbalance may put the overall budget management system in France under considerable strain. Figure 2 depicts the treasury system in Brazil. The large shaded areas indicate a high degree of centralized control.

Figure 2. Brazilian Treasury system



The treasury systems in the United States, South Africa, and Bulgaria can be interpreted as attempts to strike a balance between control and efficiency concerns. There are fairly strong macrolevel controls, but many operational responsibilities are effectively delegated to ministries, agencies and the central bank. None of the three countries has regional treasury offices. This situation may be a reflection of a perceived lower need for detailed, ex-ante controls than in the first three countries. In the United States, the high capacity of budget units and the ready availability of highly skilled financial management staff also provide a good basis for extensive delegation of powers. South Africa has generally put high political priority on decentralization of powers after the end of apartheid, and this has clearly also had an impact on the financial management arrangements. Unlike many other transition economies, Bulgaria has not experienced pervasive problems with financial discipline (with

the exception of the municipal sector) and the country has prioritized empowering the line ministries, in large part to facilitate meeting of EU accession demands.

Norway is an outlier compared to the other countries in the sample. The Norwegian treasury system includes no detailed financial plans; there are no commitment controls, no pre-authorization of payments and no internal audit function. Budget units can make payments directly from the TSA without any pre-authorization. There is no separate treasury organization, and most of the treasury functions are handled by the budget units. Internal control in the budget units is quite well developed, but only a handful of large agencies have internal audit bodies. The degree of centralization is very low. The Norwegian system puts high emphasis on efficiency, and less emphasis on control concerns. This approach can probably only work in countries that are fairly small and transparent and where financial discipline is very well established within the government.[14] The approach is illustrated in Figure 3, where the shaded areas are quite limited.

Figure 3. Norwegian Treasury System

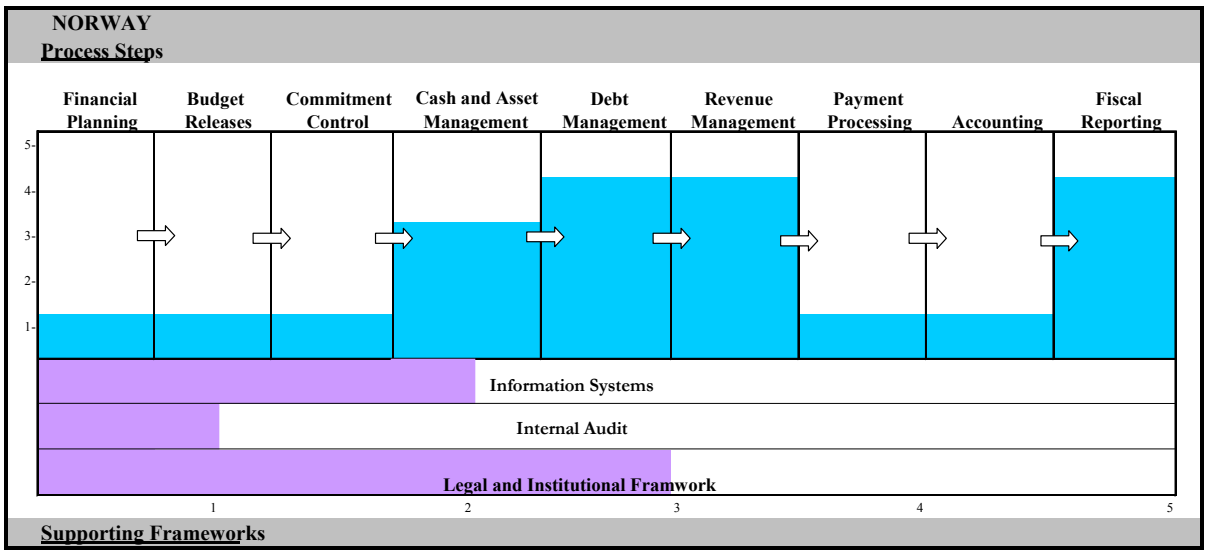


Table 4 compares the scores for the seven country systems with the scores for the hypothetical treasury systems, which are based on the value chain analysis in Section III. For Brazil, Bulgaria, Russia, and South Africa, the results are compared to the stylized transitional/emerging economy example, whereas France, Norway, and the United States are compared to the advanced economy example.

[14] Other countries that have taken a lead role in decentralized budget management, such as New Zealand, Australia, and the United Kingdom, also provide substantial autonomy to their ministries and agencies. However, these countries generally maintain a higher focus on control concerns than what is the case in Norway.

In Table 4, a positive number implies that the actual treasury system in a country is more centralized than the reference system, whereas a negative number indicates that it is less centralized. The average deviation for the whole sample is quite modest, at 0.15. This indicates that there is a reasonable fit at the aggregate level.

For one country, Brazil, there is no deviation between the average level of centralization in the actual system and the reference system. For other countries there are significant deviations. In particular, the French system is significantly more centralized than the reference system, whereas South Africa, Bulgaria, and Norway are significantly more decentralized than the reference. Possible reasons for these deviations were discussed in the preceding subsection.

Table 4. Comparison of Actual and Hypothetical Treasury Systems

	Brazil	Bulgaria	Russia	South Africa	France	Norway	United States	**Average Deviation**
Financial planning	1	0	0	-1	2	-2	2	**0.29**
Budget releases	0	1	1	1	0	-1	1	**0.43**
Commitment control	0	-3	-2	-1	4	0	0	**-0.29**
Cash management	1	0	0	0	1	0	1	**0.43**
Debt management	-1	-1	-1	-1	0	1	1	**-0.29**
Revenue management	0	0	-1	0	-1	-1	-1	**-0.57**
Payment processing	1	-1	1	-3	2	-2	2	**0.00**
Accounting	0	0	0	-3	2	-2	0	**-0.43**
Fiscal reporting	0	0	0	-1	0	-1	-1	**-0.43**
Information systems	0	-2	-2	0	4	1	0	**0.14**
Internal audit	0	-1	0	-1	1	-2	0	**-0.43**
Inst. framework	-2	-2	-1	-2	2	0	0	**-0.71**
Average deviation	**-0.0**	**-0.75**	**-0.42**	**-1.00**	**1.42**	**-0.75**	**0.42**	**-0.15**

For the individual indicators, the largest deviations are for institutional framework and for revenue management. The data indicate that for both of these, there is less centralized control than implied by the reference models. This may be due to the calibration of the indicators. However, it is also consistent with the experience of FAD technical assistance to many different countries, where we often recommend strengthening of national control over subnational government's fiscal reporting and of cash management. There may be scope for improvements in these areas in the countries in the sample.

V. CONCLUSIONS

This paper has discussed how to design treasury systems in different countries. The discussion is based on a value chain model of a treasury system, as well as on the descriptions of treasuries in seven countries. The analysis suggests the following conclusions:

- Treasury systems play a key role in ensuring responsible and efficient government financial management in many countries.

- The exact design of the treasury system, including which functions are included, how they are organized, which emphasis they are given, etc., varies considerably between different countries in different economic circumstances and with different capacities.

- There are many similarities between treasury systems in countries in comparable situations.

- The value chain approach can provide a useful basis for designing and analyzing treasury systems. There is significant correspondence between the hypothetical treasury systems derived through this approach and real-life treasury systems.

- In developing economies, given limited capacity, it will often be efficient to consolidate the treasury functions is a treasury department within the MOF, with broad responsibilities and powers, focusing on the core priorities for financial management. The treasury should have a branch office network, covering both central and local government. Treasury mechanisms should be simple and transparent.

- In transition/emerging economies, the treasury will also tend to have broad responsibilities and functions. It should be able to address a comprehensive set of financial management objectives, and apply more advanced mechanisms than in developing countries, including development of a FMIS and broadening of the base for fiscal accounting. To realize potentially significant economies of scale and scope, it should offer its services to local government.

- Advanced economies will often be well served by "virtual" treasury organizations, where many of the operations are delegated to line ministries and other agencies, utilizing advanced information system networks. In these countries, local government will usually have their own financial management systems.

- The model identifies some features that are included in almost any well-functioning treasury system, and can be seen as core treasury functions. All treasuries tend to play a strong role in cash management, and in management of revenue cash flows. Treasury single account systems seem to be an efficient way to organize government cash management in most countries. This is also the area where value added is easiest to quantify, in terms of direct financial benefits.

- However, the value chain model only provides a partial explanation of actual differences. There are many important differences between quite similar countries, and many similarities between the treasury systems in quite different countries.

- Some real life treasuries have a stronger focus on centralized control than one could expect from a neutral analysis of country circumstances. In some countries (such as France), this is related to political traditions. Other countries (including the United States) may put emphasis on the treasury as a signaling mechanism.

- In other countries, treasury systems tend to be less comprehensive and centralized than the model implies. This may be a result of political and administration traditions (as in Norway) or of political priorities and objectives (Bulgaria and South Africa).

- In a possible future extension of this paper, it would be interesting to define a more stringent analytical/mathematical treasury model, to estimate more precise costs and benefits linked to different treasury models in different countries, and to use statistical methods to assess the significance of correlations between treasury system features and explanatory factors. An expanded assessment could also look more explicitly at the efficiency of the different treasury systems.

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