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Common Capital Market Infrastructure for East Africa: Options for the Way Forward

Carole Biau

ACCESS TO
CAPITAL

INTRODUCTION

Regional integration of capital markets in the East African Community¹ (EAC) would stimulate intraregional securities trade and investment, providing domestic firms with more competitive funding sources and a greater range of investment options for individuals and institutional investors. Deeper and more liquid markets could support both foreign- and local-currency capital investments in physical and social infrastructure. Regional companies cutting across the financial services, media, retail services, industrial, manufacturing, and energy sectors, as well as regional infrastructure projects—like the EAC’s Northern Corridor—would likely benefit.² On the fiscal side, and once capital markets grow to finance a larger part of the regional economy, the cost of government borrowing would decrease,³ and macroeconomic stability and resilience would likely improve.⁴ Integration would also allow the expanded uptake of existing regional debt instruments, as well as the creation of new instruments and collective investment vehicles, such as mutual funds or exchange-traded funds. Finally, greater market scale could help attract more international investment and boost debt and equity activity across the region—creating a virtuous cycle of future capital inflows and growth.

The need for regional integration of capital markets is recognized by all EAC countries—as illustrated by the 2013 signature of the East African Monetary Union (EAMU) Protocol, which targets establishment of a regional financial architecture by 2018 and a single currency by 2024. However, for several years now, gridlock on several central components of the integration puzzle has slowed the attainment of the region’s broader vision. In particular, EAC countries have been unable to maintain consensus on how to build and share infrastructure around a regional central securities depository (CSD). By providing securities accounts, central safekeeping services, and asset services within and across financial markets, CSDs play an

¹ EAC countries include Burundi, Kenya, Rwanda, Tanzania, and Uganda.

² Milken Institute (2016). “Framing the Issues: Developing Capital Markets in Rwanda,” by Jacqueline Irving, John Schellhase, and Jim Woodsome.

³ Particularly as foreign investment in government securities currently stands at only 10-15 percent of total stock of outstanding government debt in EAC countries.

⁴ For example, according to the IMF (2015), nearly 40 percent of macroeconomic shocks to states within the U.S. are smoothed thanks to a fully integrated capital market, rather than through the federal budget.

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important role in helping to ensure the integrity of securities issues. They are essentially the neurotransmitters to a regionally integrated capital market.

⁵ Input from Tanzania and Burundi has been sought but is still awaited.

At the heart of the current impasse is an ongoing project led by the EAC Secretariat on capital markets infrastructure (CMI) with the support of the World Bank. For a number of reasons, project participants from Burundi, Rwanda, Tanzania, and Uganda continue to deliberate on the modalities for project implementation and sustainability—with the added challenge of Kenya’s nonparticipation. These discussions have recently received new momentum with a series of meetings convened by the EAC Secretariat in the second half of 2017.

This paper aims to take a step back and provide greater perspective on both the implications of the CMI project impasse and the options and models that exist for moving forward—with relative pros and cons. It draws on the views and contributions of Eric Bundugu (acting executive director, Rwanda Capital Markets Authority and 2017 IFC-Milken Institute Fellow), Keith Kalyegira (CEO, Uganda Capital Markets Authority), Rose Mambo (CEO, Kenya Central Depository and Settlement Corporation), Robert Mathu (former executive director, Rwanda Capital Markets Authority), Paul Muthaura (CEO, Kenya Capital Markets Authority), and Staci Warden (chair, Rwanda Capital Markets Authority and acting executive director, Milken Institute Center for Financial Markets).⁵ The Nairobi Securities Exchange, the World Bank, and the EAC Secretariat also provided input.

Unless cited otherwise, all direct quotes that follow are from telephone conversations with or position papers contributed by the individuals listed above.

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The combined gross domestic product (GDP) of EAC countries is US\$146 billion, with growth largely driven by services and construction (including public investment programs), as well as by industry and export-led agriculture. The EAC market counts about 146 million consumers, with a very young demographic (the median age in Uganda, for example, is 15). Despite 2016 marking one of the worst declines in sub-Saharan African GDP growth rates in over two decades, the EAC region has weathered this downswing quite well—with Rwanda, Kenya, and Tanzania all posting annual growth rates above 5.4 percent over 2015-2017.⁶ This makes East Africa the fastest-growing region in sub-Saharan Africa over the period.

The combination of a young population, a rapidly expanding middle class, and strong growth fundamentals make a well-integrated capital market for the EAC region a tremendous opportunity for local and international business alike. Domestic companies could benefit from expanding into neighboring markets, with high potential for intraregional trade and cross-border investment. The region should also hold greater appeal for the US\$7 trillion in international investments currently looking for yield across the globe.

Growth in capital markets in the EAC has not kept up with the pace of the rest of the economy, however. Whereas in Latin America and East Asia, economic growth over the past decades spurred impressive expansion in capital markets, East Africa's capital-market development has been relatively slow. Instead, banks continue to dominate the financial landscape in most of these countries—few of which have to date turned to capital markets to issue bonds. With the exception of Kenya, the EAC has among the smallest and least-developed capital markets in the world, even as a share of GDP.⁷ Equity market capitalization is low and there is little secondary market liquidity on the region's stock exchanges. On the debt side,

⁶ World Bank Group. "Africa's Pulse: Why we need to close the infrastructure gap in sub-Saharan Africa." April 2017.

⁷ Warden, Staci. "Virtuous circle for east Africa: Regional capital market integration is the only option." OMFIF Bulletin, April 2015 (Vol.6 Ed.4). Available at: <http://assets1b.milkeninstitute.org/assets/Publication/Viewpoint/PDF/OMFIF-Bulletin-Staci-Warden-Virtuous-Circle-for-east-Africa2.pdf>.

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corporate bond markets are virtually nonexistent and work is still needed to improve government borrowing programs.

The lack of deep, liquid capital markets has a dampening effect on private-sector-led growth and long-term development. Banks in the region are not fully performing a financial intermediation role in the economy, and even if they were, regional businesses still lack sources of longer-term patient capital. Likewise, long-term sources of financing are required to build up physical and social infrastructure. Given the low levels of domestic savings and low risk appetite of domestic institutional investors in EAC countries, this may require significant participation from foreign investors who tend to stay clear of markets with low turnover and liquidity.

This slow capital-market growth comes in spite of multiple reforms to enhance the business environment and ramp up the financial ecosystem within each country. Ambitious policy initiatives have not secured the expected investor interest because each market is simply too small individually. With the possible exception of Kenya, the countries of East Africa arguably would not develop liquid capital markets even if they individually put in place all of the right macroeconomic policies and institutions.⁸ Similar scale challenges are found across all geographies. According to the International Monetary Fund, even in Europe “only a handful of economies are big enough to support capital markets that reach critical mass in a full range of asset classes.”⁹ The answer to the constraint of scale, of course, is regional integration.

A fully integrated capital market has several important components. On the regulatory side, it requires coherent supervisory frameworks and well-established channels of communication across countries. On the infrastructure side, cross-listing of shares and trading and routing of orders should become seamless across the shared pool of liquidity. Transfer of ownership from sellers to buyers should also be efficient and safe. This entails bringing multiple frictions—in the form of tax systems, administrative burdens, disparate clearing and

⁸ Ibid.

⁹ Viñals, José. “Global Perspectives on Capital Market Integration.” Speech by Director, Monetary and Capital Markets Department, IMF, July 2015. Available at: <https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp070215>.

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settlement systems, and informational asymmetries—to a minimum.

Of the many requirements for an integrated capital market, this paper will focus on the infrastructure piece. Although in many ways acquiring capital-markets infrastructure should be more straightforward than political and regulatory reform, it continues to stymie progress in the East African context. Future sections of this paper narrow down on a specific element of this infrastructure that provides an essential backbone to interconnected capital markets: the central securities depository (CSD).

By making the transfer of securities more secure, a regional CSD solution would significantly lower the transactional costs of settling securities—which can be far higher across borders vs. domestically.¹⁰ More generally, integrated CSDs would play a crucial role in facilitating the flow of funds across the EAC. As the following sections illustrate, however, EAC countries have so far faced considerable difficulties in coming to an agreement over a common CSD. Combined with limited information on the range of options available and the associated costs and benefits, this has posed a significant bottleneck to any meaningful further regional integration.

¹⁰ According to the IMF (2015), even in Europe some cross-border transactions have been 10 times more expensive than domestic transactions.

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EARLY DAYS: ENTHUSIASM AND A SHARED VISION

For decades, EAC member countries have understood the crucial importance of regionally integrating their capital markets to attract and retain large-scale investment across the region and to reduce reliance on domestic banking systems. Initial enthusiastic conversations in this respect began across Kenya, Uganda, Tanzania, and Rwanda in the 1990s.

The genesis of a regional market in East Africa was an ambition of the EAC Charter, which envisaged a single EAC capital market that would accommodate free capital flows among the partner states. What the EAC Charter did not outline was exactly how the markets would be integrated—this was left to the managers and market operators to design, and this technical piece has unfortunately proven one of the most problematic.

When the East African Securities Regulatory Authorities (EASRA), the regional umbrella body for capital-market regulators, was conceived in the early 1990s, only Kenya had a stock market. Together with Kenya (which has the largest market), the other partner states aimed to develop a regional market by assisting each other in setting up their own markets—with the hope of eventually joining to form a single EAC market. East African countries signed a memorandum of understanding focused on sharing information and on technical cooperation. Ideas like mass cross-listing into one or all exchanges, multiple listings on bilateral and multilateral parties, joining up the exchanges, and naming an EAC Exchange were enthusiastically floated. As put by the former head of Rwanda’s Capital Markets Authority (CMA) Robert Mathu, “these were exciting times.”

“These were exciting times.”

- Robert Mathu, Former Executive Director, Rwanda CMA

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TECHNICAL AND POLITICAL COMPLICATIONS

Moving ahead with this early momentum required identifying a physical infrastructure that could share information, trades, and orders across markets and borders. When Kenya proposed the CSD, all member countries agreed to the idea in principle. They were allocated shares and board positions in Kenya's CSD, and that CSD was meant to serve the whole region.

At the same time, the first regional transaction process started with cross-listings of securities across EAC markets, mainly by Kenyan companies with a regional outlook and business presence. But investors did not respond well and faced difficulties in actively trading the cross-listed counters due to constraints on interdepository transfers and settlement. Collaboration progressively slowed as concerns also began to emerge among smaller markets that liquidity in an integrated market would be consumed entirely by the Nairobi Securities Exchange. When it came to implementation, the costs and technicalities of the shared financial infrastructure, as well as political contention over which country would house this infrastructure, further complicated matters. Eventually, each country lost sight of the regional "long game" and instead began to focus more on setting up separate disparate internal infrastructures, independent of the regional agenda. Now, linking these disparate systems is significantly more complicated than it was when they initially contemplated the project.

¹¹ The six components of the EAC-FSRDP are: Financial Inclusion and Strengthening Market Participants, Harmonization of Financial Laws and Regulations, Mutual Recognition of Supervisory Agencies, Integration of Financial Market Infrastructure, Development of Regional Bond Market, and Capacity Building.

THE WORLD BANK CAPITAL MARKETS INFRASTRUCTURE (CMI) PROJECT

In 2011, the EAC Secretariat and the World Bank Group embarked on a joint multi-year project to integrate the region's financial markets: the EAC Financial Sector Development and Regionalization Project (EAC-FSRDP), made up of six components,¹¹ a central one of which was for capital markets infrastructure (CMI). US\$26.5 million has been allocated to the overall program up until 2019 (including an

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initial grant of \$16 million and \$10.5 million of additional funding awarded in 2016). Of this amount, \$3.75 million (or about 14 percent) is intended for the CMI component. In 2016, the World Bank reported satisfactory performance in this regard, noting that:

“The CMI IT system, which links the Partner States’ trading platforms and CSDs together, has been purchased, delivered, and is in the process of being installed at the main and back-up sites. The implementation process was stalled from late 2014 to early 2015 due to Kenya’s nonparticipation but has subsequently begun in four of the Partner States. Technical aspects of the installation and customization, as well as relevant trainings will be completed before the end of September 2016. With the completion of this activity, one of the intermediate indicators of the program [the number of country CSDs linked] will be achieved.”¹²

Unfortunately, however, this benign and optimistic summary may not fully reflect the realities flagged by the region’s financial regulators. It also fails to explore the causes of Kenya’s withdrawal from the project, as well as the impact this withdrawal has had on the CMI project’s overall progress and vision. In reality, the process of purchasing and delivering the infrastructure IT system was controversial and sparked disagreements across the region’s stakeholders. Integration has slowed down even further as a result.

Nonetheless, all partner countries still broadly agree on the overall benefits and necessity of a regionally integrated financial market. Late 2017 saw renewed momentum for the implementation of the CMI project. At meetings convened by the EAC Secretariat in November and December 2017, Rwanda, Burundi, Uganda, and Tanzania reiterated their commitment to the common infrastructure vision. At the same time, partner states requested some important improvements in communication and process going forward. This includes calls for the EAC Secretariat to communicate directly about the project with the ministries responsible for EAC affairs in each country (rather than going through intermediaries as had

¹² World Bank Group. “International Development Association Project Paper on a proposed additional grant in the amount of SDR 7.6 million (US\$10.5 million equivalent) to the East African Community for a financial sector development and regionalization project.” Report No: PAD2022, September 2016, p.7.

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been the case to date), a detailed assessment of the financial sustainability of the contracted infrastructure solution (especially once World Bank funding runs out), and more detailed discussions regarding the governance and fee structure of the proposed regional infrastructure.

Several partner states, as well as the EAC Secretariat, have moreover expressed the hope that Kenya will rejoin the project once a functioning regional infrastructure is in place. To move forward in this direction, the EAC Secretariat and World Bank have drawn up an amendment to the CMI contract to allow the selected infrastructure vendor (Infotech) to resume work. The World Bank estimates that this contractual amendment will be signed by the end of January 2018.

This paper aims to inform future deliberations by sharing the views provided by the region's capital markets regulators, and by highlighting insights from other integration and technology initiatives around the world. The following section starts by introducing a few key debates around the choice of model for regional financial infrastructure.

POSSIBLE MODELS FOR REGIONALLY INTEGRATED CSDS

CSDS AT THE NATIONAL LEVEL IN EAC COUNTRIES

In light of the slow pace of progress on the CMI project between 2014 and 2017, each country has invested millions of dollars in national-level infrastructure in the interim, often with different vendors. Kenya, Uganda, and Tanzania have automated trading systems (ATS) to serve their individual markets, as well as two CSDs each (with the exceptions of Burundi, where the markets are too nascent for any such infrastructure, and Rwanda, which is the only country to have implemented a single CSD). As put by the head of Kenya's Central Depository and Settlement Corporation (CDSC) Rose Mambo, "Various aspects of the CMI project have thus been overtaken by events, with virtually all CSDs now having self-sponsored SWIFT connectivity and membership. This has addressed the critical question of establishing reliable messaging platforms and communication channels." The CDSC is, in fact, currently implementing a new system at a cost of US\$1.7 million, while Kenya's Central Bank is also in the process of procuring a similar system.¹³ Across the region, each of these systems has the capacity to handle more trades per second than the turnover of the combined EAC exchanges annually.¹⁴

The existence of these several CSDs per country brings up three points of debate: first, whether there should be a separation between government bond and corporate bond or equity CSDs; second, and related, determining which institution is better suited to house a CSD; and third, choosing between public and private ownership structures.

First, EAC countries with two CSDs have generally chosen to create one for treasury bonds and one for equities and corporate bonds. The former is usually placed in the central bank and the latter in the

¹³ The National Treasury of the Republic of Kenya has recently procured consultancy support to guide it on the potential options for CSD consolidation. The consultancy will also provide input on possible interim steps, including acquisition by the CDSC and Central Bank of Kenya of complementary rather than overlapping infrastructure.

¹⁴ Warden, Staci. "Virtuous circle for east Africa: Regional capital market integration is the only option." OMFIF Bulletin, April 2015 (Vol.6 Ed.4).

"[The] time is ripe for a comprehensive discussion on workable alternative models."

- Rose Mambo, Chief Executive, Kenya CDSC

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stock exchange. This is largely because the issuance of treasury bills and bonds by most EAC governments preceded the development of exchanges' CSDs. In Uganda, for example, although the CSD Act was passed in 2009, the Government of Uganda had started issuing treasury bills in 2000. The CSD Law pertaining to Uganda's stock exchange moreover deliberately excluded the government treasury bill market when it was written. Uganda has since put together a master plan that attempts to link the Bank of Uganda's CSD and the stock exchange to give brokers real-time access to 20-30 percent of the primary market for treasury bills. There would be advantages not only for investors, but also ultimately for the government.

In many cases, according to Uganda's Capital Markets Authority, central banks have played an influential role in determining the internal hosting of CSDs. Given that central banks are often the oldest financial sector regulators in the market, they have found themselves in the simultaneous roles of issuer, occasionally investor, CSD manager, regulator of market conduct, and dealer of government securities. Relinquishing these multiple roles can be difficult. Kenya's Capital Markets Authority has, for instance, been hard at work to bring the Central Bank of Kenya's CSD into compliance with the CPMI-IOSCO *Principles for Financial Market Infrastructures*¹⁵ (see Appendix 2) and to ensure the bank CSDs' external accountability. Kenya is nonetheless keen to consolidate its stock exchange CSD with the Treasury CSD, and as a first step Kenya's Treasury has on-boarded a consultant to advise on the mechanics of this process. Kenya's Capital Markets Master Plan indeed strives for a single CSD in the country.

The debate over where to host countries' internal CSDs (and the related regulatory oversight) clearly needs to be had. The question of consolidation is not just one about cost and efficiency, but also about risk management. As flagged by the head of Kenya's CDSC, having a single CSD "means a consolidated risk management approach, and easier regulatory oversight for all matters of capital

¹⁵ The Principles for Financial Market Infrastructures (PFMI) are the international standards for payment systems, CSDs, securities settlement systems, central counterparties and trade repositories. Issued by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO), the PFMI are part of a set of 12 key standards that the international community considers essential to strengthening and preserving financial stability.

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markets.” She points to the Korea Securities Depository (KSD) and to Australia (where government bonds were transferred to Austraclear in 2002) as positive examples of achieving economies of scale and better risk management through horizontal integration. Uganda and Kenya both also point to the case of Ghana, which has now established a single CSD company (70 percent of which is owned by the central bank).

Second, a related argument concerns whether housing a CSD in the central bank or the stock exchange is more effective. This is particularly relevant for countries that are currently considering consolidating their two CSDs down to one (which would make any regional integration much simpler). Uganda’s CMA argues that letting banks act as dealers may make for more efficient dealership by obviating the risk of settlement failure (since commercial banks hold accounts with the central bank, which can easily debit to ensure settlement). Or, alternatively, this risk could be addressed by putting in place mechanisms to ensure that dealers in government securities invariably have the capacity to settle transactions. Uganda points to the example of Nigeria, where the licensing of dealers in government securities is now undertaken by the Securities and Exchange Commission—likely as a move to bring clarity into this ecosystem.

The head of Kenya’s CMA notes that risk of settlement failure could equally be addressed in private CSDs by ensuring that these become members of the national payment system, the Kenya Electronic Payment and Settlement System (KEPSS)—this would mean that all securities transactions ultimately settle in central bank money. Since money currently moves before securities, steps towards ensuring true “delivery versus payment” (or simultaneous delivery of all documents necessary to give effect to a transfer of securities with the cash leg of the transaction) would substantially reduce settlement risk concerns and weaken the argument for hosting CSDs within the central bank. Kenya’s CDSC, which has declared

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itself “amenable and ready to take on the mantle as the single CSD in Kenya,” is accordingly pushing for the necessary legal and regulatory amendments to obtain KEPSS membership. It is not currently a member due to the absence of a legal mandate to hold deposits or public funds. The institution is also actively considering setting up a central counterparty clearing house (CCP) in the medium term, to boost risk-mitigation measures further.

Uganda’s CMA concludes that an assessment of the most efficient and effective CSD must be conducted before it determines whether to maintain the central bank CSD or an exchange CSD in the country. This assessment should also draw in the debt management offices of the EAC countries to answer the question of regulatory oversight of dealers in government securities—including whether central banks hosting CSDs can continue to act as agents of the government as issuers.

While acknowledging that more research remains necessary on the topic of CSD hosting, the heads of Uganda’s and Kenya’s CMAs both flag that central banks come to this debate with a particularly strong negotiating position. Government securities are the dominant form of security in the EAC region (with little equity to date and with debt capital markets continuing to gain in strength). The region’s central banks have moreover existed long before stock exchanges, and are therefore more likely to have the internal capacity to effectively manage a CSD, and to resist external accountability and reporting to securities regulators.

Third, should EAC countries all agree to house a single CSD each, they would also have to choose between state and private ownership. Like most central banks’ CSDs, Rwanda’s CSD is publicly owned and operated by the National Bank of Rwanda. It was built as a public-utility service, but it is expected that as it matures, it could eventually become independent of government. Meanwhile, in Kenya, the CDSC is a limited liability company approved by Kenya’s CMA to provide automated clearing, delivery, and settlement

“The focus of a CSD must be on commercial incentives and competitiveness, rather than on policy and politics.”

- Paul Muthaura, Chief Executive, Kenya CMA

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facilities in respect of transactions carried out at the stock exchange. This is the case for most exchange-based CSDs in the region, which are privately owned.

The head of Kenya's CMA notes that for capital markets infrastructure to be nimble and responsive to market trends, they must be subjected to appropriate and robust oversight by relevant securities regulators in line with the CPMI-IOSCO Principles (see Appendix 2). CSDs also require the flexibility to raise capital privately or through the public markets as and when required. This would support the case for all CSDs to be private-sector owned (or, at a minimum, with majority private-sector shareholding) to ensure that CSD considerations on investment, partnerships, and innovation are "focused on commercial incentives and competitiveness rather than on policy and politics." Along these lines, the head of Kenya's CDSC advocates a "utility-type approach" whereby each CSD is "preferably user-owned." The CDSC itself is user-based, with the key users (including issuers like the Nairobi Securities Exchange and the Association of Stockbrokers) having stakes in the institution.

Across the three points of debate discussed above, it is imperative to consider the implications for regional integration. Given that a single CSD per country would considerably facilitate regional integration, countries would have to choose how to phase the process—whether to prioritize internal consolidation at the risk of further delay in regional integration or to move to the regional step right away despite the complications this may present down the line given the multiplicity of CSDs involved. As for location and ownership structure of the consolidated CSDs, the regional prerogative may reduce the appeal of housing them within central banks and under public ownership. Uganda's and Kenya's CMAs both warn that central banks, being precautionary in nature, are unlikely to strongly advocate for innovative and accelerated regional integration options.

Linking central bank CSDs across countries may therefore require

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more effort and political support in order to demystify central bank concerns and to demonstrate that the risks of cross-country linkages, if they are well managed, are relatively low.¹⁶ By contrast, as noted earlier by Kenya's CMA, private ownership of CSDs (which is the case of most CSDs housed in exchanges) may be less subject to political directives and freer to serve the common interest of all EAC countries.

CSDS AT THE REGIONAL LEVEL

Whichever approach is taken domestically, two models are generally considered for connecting CSDs at the regional level: the hub-and-spoke model and the interlinked model. Both have advantages and disadvantages, which are briefly considered below before introducing two more options.

The hub-and-spoke model is considered more efficient, but more politically complex to put in place. As described by the head of Kenya's CMA, the CSD acts as a converter—i.e., converting and formatting instructions of sending CSDs into the format of the receiving CSD, for more efficient communication across markets. The common infrastructure also provides centralized reference data, corporate actions, and proxy voting information that can then be accessed via the spoke CSDs in each of the countries involved. By lowering counterparty credit risk, using a single depository in this way tends to bring down costs of doing business. It also reduces operational overheads and facilitates cost-sharing across institutions.

As put by the head of Uganda's CMA, "It is clear that in order to seamlessly trade shares across the region, you need a single depository." The head of Rwanda's CMA concurs that "a single depository is the most ideal for regional integration of the EAC capital markets." The head of Kenya's CDSC flags that, given that "fragmented infrastructure is a source of cost inefficiencies and significant risk....time is ripe for a comprehensive discussion on workable alternative models."

¹⁶ This said, the CPMI-IOSCO Principles (Box 5) issue some warnings on links between CSDs. They warn that if such links are improperly designed, the settlement of transactions across the links could subject participants to new or increased risks; in addition to legal and operational risks, linked CSDs and their participants could also face credit and liquidity risks. For example, "an operational failure or default in one CSD may cause settlement failures or defaults in a linked CSD and expose participants in the linked CSD, including participants that did not settle transactions across the link, to unexpected liquidity pressures or outright losses."

"It is clear that in order to seamlessly trade shares across the region, you need a single depository."

- Keith Kalyegira, Chief Executive, Uganda CMA

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On the downside, however, the hub-and-spoke model takes considerable political groundwork. It requires the establishment of a joint venture of all regional CSDs. The head of Kenya's CMA points to Europe's Link-Up-Markets initiative, which required eight markets¹⁷ to come together to establish a joint venture with a full board of governors. Such a solution necessitates considerable political consensus, as well as a lengthy process of establishing a new governance structure. Policy and legal changes are also necessary in order to grant the hub CSD access to data held in spoke depositories. Political resistance may also arise in the course of decommissioning redundant or duplicative domestic CSDs (so as to have a single spoke per country), given the high sunk costs of the existing systems in the EAC region. Finally, the geographic location for a hub is politically contentious in the EAC region.

¹⁷ Clearstream Banking AG (Frankfurt (Germany), Cyprus Stock Exchange (Cyprus), Hellenic Exchanges S.A. (Greece), IBERCLEAR (Spain), Oesterreichische Kontrollbank AG (Austria), SIX SIS AG (Switzerland), VP SECURITIES (Denmark), and VPS (Norway).

Due to this complexity, although the FSDRP initially provided for a study on a private-public partnership framework for an EAC exchange and an EAC CSD, the study was not undertaken and this option was abandoned. As noted by the head of Kenya's CMA, partner states instead "expressed preference for identifying models to link existing exchange platforms and CSDs." The interlinked model is indeed politically simpler. It is a web of connected, preexisting CSDs, for which decommissioning redundant depositories at the national level, though helpful, is less essential. The head of Kenya's CDSC concurs that this approach seems to be the more realistic route—despite being fully supportive of the hub-and-spoke model and, in fact, proposing that partner states retain their own depositories while CDSC "acts as the hub" in Kenya. The interlinked model is deemed more feasible "due to the reality of where we are in terms of politics, and of having government securities held at the central bank—a situation that may take time to change."

Under the interlinked approach, national CSDs are connected through smart order routers that provide a standard interface (ideally using the SWIFT messaging platform, which follows the

guidelines issued by the International Organization for Standardization). This ensures secure exchange of instructions among the CSDs in the region, while eliminating paperwork via online processing. Once in place, this platform becomes accessible to trading participants, depositories, exchanges, and other authorized users. One successful example is the partnership between the Stock Exchange of Mauritius and the Johannesburg Stock Exchange (detailed in Box 1¹⁸). However, a multistep system that works well bilaterally may become more strained if a greater number of markets were to get involved. Additionally, because duplicative CSDs are more easily kept in place with the interlinked model, operational overheads would remain higher than under the hub-and-spoke approach.

¹⁸ Excerpt from the 2016 Milken Institute report “Framing the Issues: Developing Capital Markets in Rwanda.”

Box 1. Trading Securities Between the Mauritius and Johannesburg Stock Exchange CSDs

Instead of investing heavily in new market infrastructure, the Stock Exchange of Mauritius (SEM) has established an efficient, cost-effective procedure for trading securities between its own CSD and that of the Johannesburg Stock Exchange (JSE). The shares move seamlessly between the two CSDs, because they communicate through book entry systems. The challenge in this approach, naturally, was protecting against creating duplicate securities. To this end, among other control procedures, the Mauritian process limits access to the register kept by both CSDs to only authorized registrars and transfer agents of the securities issuers.

As summarized by the SEM CSD, any Mauritian investor who wants to transfer securities from the Mauritian CSD to the South African CSD can use the following process:*

1. The investor sends a request for the transfer to the registrar and transfer agent in Mauritius;
2. The registrar and transfer agent in Mauritius sends written instructions to the Mauritian CSD to debit the account of the investor;
3. The Mauritian CSD debits the account of the investor after appropriate verification and sends a written confirmation to the registrar and transfer agent in Mauritius;
4. The registrar and transfer agent in Mauritius sends written instructions to the registrar and transfer agent in South Africa regarding the transfer;
5. The registrar and transfer agent in South Africa sends instruction to the South African CSD to credit the account of the investor;
6. The South African CSD credits the account of the investor and sends a confirmation to the South African registrar and transfer agent, who informs his Mauritian counterpart. This completes the transaction.

* Special thanks to Vipin Y.S. Mahabirsingh, managing director of Central Depository & Settlement Co. LTD, as cited in the 2016 Milken Institute report “Framing the Issues: Developing Capital Markets in Rwanda.”

A third model is more rarely discussed: that of a private-sector driven, exchange-led model. According to Uganda’s CMA, an alternative to linking up CSDs hosted in central banks would be to “go the regional equity route rather than hooking up the

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government securities.” This may be easier to agree on at the regional level and would be aided by the fact that most exchanges in the region are now demutualized. But, as the discussion in the preceding section suggests, this approach may also be less useful given the small current size of equity markets in the region.

¹⁹ SWIFT MI Forum Newsletter (2016). “What blockchain might and might not do for CSDs.”

²⁰ Warden, Staci (2015). “Bitcoin – currency for paranoiacs, or an idea that will change the world?” Milken Institute Review, Q4 2015.

As a possible fourth model, EAC countries could explore the application of distributed ledger technology (DLT or “blockchain”) for regional integration of capital markets. SWIFT points to the example of TARGET2-Securities (T2S), the pan-European securities settlement service currently in the middle of a lengthy effort to transition eurozone CSDs onto a common platform, “arriving just as the technology paradigm shifts to blockchain technologies.”¹⁹ In 2015, the Milken Institute summarized the potential for the blockchain to revolutionize capital markets infrastructure and trading as follows:

“Today, trade and post-trade processes (matching, clearing, collateral management, settlement, custody, etc.) require a complex offsetting of credits and debits across multiple balance sheets, subject to multiple access rules, with giant sums to be reconciled at the end of each day. But these agreements and obligations among firms could be recorded on a shared ledger at the industry level. Research by Santander InnoVentures estimates that the banking sector could save \$15-20 billion by 2022 using a decentralized ledger technology. Blockchain technology would enable direct (and irreversible) settlement, moving settlement times from two days in many cases to milliseconds. Financial institutions are beginning to pour money into these ideas.”²⁰

More specifically to CSDs, in 2017, a group of the world’s largest CSDs (from Russia, South Africa, Switzerland, Sweden, Chile, Argentina, and the United Arab Emirates) came together to back a new consortium—the CSD Working Group on DLT. As one of its first steps, this consortium recently announced its plans for a DLT proxy voting system, which would be used in shareholder meetings. Other

stated aims include exploring how to create new services thanks to the blockchain, while lowering costs for clients of CSDs.²¹

Meanwhile, some companies are already attempting to implement the blockchain in specific securities markets—the DLT-based infrastructure provider EquiChain, for instance, aims to deploy its platform in the Middle Eastern cash equity markets, before potentially expanding to derivatives markets. The company views that the same platform could also “quite easily” be adapted to accommodate fixed income.²²

Across the EAC, the level of planning involved in a shift to blockchain for cross-border transactions would of course be immense and costly. According to Aite Group and SWIFT, “it would take a bold regulator or central bank to endorse an aggressive shift to blockchain even within one country.”²³ Concerted effort across several countries at once would certainly be a gamble—but, perhaps one that a small region such as the EAC (presenting a united front and with already established credentials when it comes to technological leapfrogging in the fintech space) could pull off. Moreover, from the standpoint of DLT-based capital markets infrastructure companies, emerging markets such as those of the EAC region present the distinct advantage of having fewer layers of “regulatory and infrastructure legacy to overcome.”²⁴ Appendix 1 investigates the possibility of applying the blockchain to EAC capital markets in more detail.

For Uganda’s CMA, an essential condition for any of the above regional infrastructure solutions is that the costs associated with the creation and administration of that infrastructure, especially if these have to be borne by exchanges, do not exceed the benefits. Meanwhile, Rwanda recommends that when choosing between these models or moving toward implementation of any one of them, “partner states and the World Bank could consider giving market players (that is, the private sector) more of a say in project implementation. The regulators should continue to provide policy direction, but let the markets determine how to proceed.” The head

²¹ De Castillo, Michael (2017). “The World’s Largest CSDs are Forming a New Blockchain Consortium.” Coindesk, June 5, 2017.

²² SWIFT MI Forum. “CSDs can be winners from distributed ledger technology.” May 2017.

²³ SWIFT MI Forum 2016 Newsletter. “What blockchain might and might not do for CSDs.”

²⁴ Ibid.

POSSIBLE MODELS

of Kenya's CDSC fully shares this user-driven view, advising that, "regulators should allow market players to actively participate in the identification, evaluation, and implementations of possible integration models; the private sector should be given room to agree on the implementation of the most cost-efficient and sound infrastructure." These important points on financial sustainability as well as private-sector consultation have been somewhat sidelined to date in CMI project discussions. They should be kept in mind when considering choice, design, and implementation of any of the four models above.

LOOKING AHEAD

The bottom line is that further inertia will continue to drain valuable public resources as countries continue to operate duplicative infrastructure rather than sharing it. At the same time, investors will continue to look elsewhere until EAC countries are able to provide a larger regional offering and more receptive capital-market conditions. The head of Kenya's CMA points to the recent case of a foreign-currency issuance program by a supranational that moved from Kenya to Mauritius due to the central bank's concerns over a foreign-currency issuance in the local market. The head of Kenya's CDSC further notes that investors within the EAC region can be put off by the current interdepository transfer process, which "requires an investor to establish a relationship with an agent in the country they wish to invest in" before the securities can move from one country's CSD to another. In turn, local agents, she notes, "readily pass custodial costs, foreign exchange costs, and brokerage fees onto the investor."

To cut costs, attract investors, and stem market uncertainty, EAC countries should rapidly pick a solution to their common infrastructure challenge. In this spirit, the meetings recently convened by the EAC Secretariat encouraged partner states to rapidly take further contractual steps under the CMI project. As countries resume this direction though, the conversation should remain informed by additional integration options being tested internationally (see summary table on pages 24 and 25), as well as by the various trends in technological advances and emerging DLT solutions that could be better leveraged.

Looking ahead, the Milken Institute welcomes reactions and feedback to this paper from a wide range of EAC stakeholders. This includes partner states such as Burundi and Tanzania, as well as public and private institutions within each EAC country. On this basis, the Institute would consider hosting a roundtable in 2018 to

"We need a coming together of minds on the possibilities of EAC integration."

- Paul Muthaura, Chief Executive, Kenya CMA

facilitate frank and constructive deliberations across all countries involved on how the EAC CMI process and/or related initiatives could be enriched by recent developments and innovations in other markets. As put by the head of Kenya's CMA, this neutral dialogue could help promote "a coming together of minds on the possibilities of EAC integration, which will undoubtedly be beneficial to all parties."

²⁵ Milken Institute (2016). "Framing the Issues: Developing Capital Markets in Rwanda," by Jacqueline Irving, John Schellhase, and Jim Woodsome.

A roundtable discussion would also offer the opportunity to explore supplementary policy reforms that would remain necessary once an infrastructure solution is in place. Regulatory harmonization, mutual recognition to foster cross-border listings and investment, revising local ownership laws, and streamlining licensing regimes and financial auditing requirements across countries are all areas of reform repeatedly flagged by investors in past Milken Institute conversations held on the topic.²⁵ For any integrated infrastructure solution to really generate liquidity across East Africa, such policy components cannot be taken for granted; rather, countries need to proactively prepare for the realities of a regionally integrated market. The Milken Institute is ready to continue supporting regulators and policymakers in thinking outside the box in this regional conversation.

East African Capital Market Infrastructure: CSD Options

Solution	Advantages	Disadvantages
<p>Current EAC Secretariat contract plus Kenya: Assuming Kenya returns on board, resume interlinkage of existing CSDs using a smart order router and messaging system run by Infotech.</p>	<p>Political As of November 2017, four partner states (Burundi, Rwanda, Tanzania, and Uganda) have reaffirmed high-level commitment to this option.</p> <p>Technical/Timing Time savings. This is the most expedient solution if Kenya returns on board.</p> <p>Financial Countries do not lose the 20 percent down payment in infrastructure already made to Infotech.</p>	<p>Political Kenya buy-in unlikely unless several deal-breakers are resolved.</p> <p>Consolidation to one CSD per country would facilitate this model, but could be difficult to manage internally.</p> <p>Technical/Timing Long-term lock-in with potentially low-quality vendor.</p> <p>Poor functionality may deter potential investors.</p> <p>Financial Maintenance of several internal CSDs remains costly.</p> <p>May not be financially sustainable post-implementation (according to Uganda's CMA, while annual revenues from added investment and fees are estimated at US\$20,000 once the system is operational, upkeep is expected to cost about US\$240,000 per year once the paid-up period and donor funds lapse).</p>
<p>Hub-and-spoke CSD model: A single-spoke CSD per country linked to a hub CSD (a joint venture across all the countries, located in one of the partner states, of which the most obvious candidate is Kenya).</p>	<p>Political Countries should capitalize on current high level of political will.</p> <p>Joint venture nature would give all countries a clear say despite location in a single country.</p> <p>Technical/Timing By lowering counterparty credit risk, using a single depository may bring down costs of doing business.</p> <p>Financial Kenya could potentially absorb part or most of the upkeep costs in return for hosting.</p> <p>Cost savings (lower operational overhead) as automated trading systems and redundant CSDs are decommissioned domestically.</p>	<p>Political Requires central banks and exchanges to agree on where to host single CSD at domestic level.</p> <p>Lengthy process of establishing a new governance structure.</p> <p>Policy and legal changes in order to grant the hub CSD access to data held in other depositories.</p> <p>Choice of 'headquarter' country for the hub is contentious across the region.</p> <p>Technical/Timing Improvements and modernization of hub CSD needed (in Kenyan case).</p> <p>Internal consolidation of CSDs within each country may be time consuming, with unclear sequencing.</p> <p>Financial Financial structure of the joint venture, including fees and revenue-sharing across countries, may be contentious and would need to be carefully negotiated.</p>

East African Capital Market Infrastructure: CSD Options

Solution	Advantages	Disadvantages
<p>Blockchain applications to capital markets (see Appendix 1): All capital-market participants work from common datasets in near real-time and supporting operations are streamlined or made redundant.</p>	<p>Political Political tensions around the hub-and-spoke model could become obsolete as blockchain is fully decentralized.</p> <p>Technical/Timing Blockchain very well suited to tackling core business of CSDs.</p> <p>Full traceability, simplified reconciliation, real-time information propagation, trusted dissemination, and high resiliency.</p> <p>Less vulnerability to cyber-attack (no central node).</p> <p>“Regtech” could ease regulatory role and increase transparency.</p> <p>Financial Moving ahead on CMI project without due consideration for blockchain applications may create a greater need for costly overhaul later.</p> <p>While transition to the blockchain would be costly, the system’s upkeep should afterward become automatic/more sustainable.</p>	<p>Political Potential regulatory risk and uncertainty around implementation requirements.</p> <p>Technical/Timing Insufficient proof of concept to date, especially at regional level.</p> <p>Financial Full financial implications are not clear at present (though capital markets firms spent \$130 million on blockchain projects in 2016, rising to an estimated annual spending of \$400 million by 2019).²⁶</p>

²⁶ SWIFT MI Forum 2016 Newsletter. “What blockchain might and might not do for CSDs.”

APPENDICES

APPENDIX 1: BLOCKCHAIN APPLIED TO CAPITAL MARKETS

Potential

The digital age holds plenty of opportunities for technical leapfrogging in developing countries and perhaps particularly in the EAC region (as the mobile money boom started by Kenya's M-Pesa would suggest). In particular, the blockchain, or distributed ledger technology (DLT), has become an omnipresent buzzword these days. The range of applications being considered across financial services include wholesale payments/correspondent banking, trade finance and other forms of transaction banking, as well as (more rarely) applications in capital markets and associated activities such as post-trade and securities servicing.

DLTs combine several existing tools such as shared databases, cryptography, and peer-to-peer networking to offer firms (and potentially governments) the ability to share data efficiently and securely. SWIFT identifies some of the added benefits as compared to standard shared database systems, including full traceability, simplified reconciliation, real-time information propagation, trusted dissemination, and high resiliency (removing dependency on a central infrastructure for service availability). The fact that ledgers are not centralized also makes such systems less vulnerable to cyberattack. Moreover, complete visibility and sourcing of all transactions would potentially allow market participants to automatically populate regulatory reports (hence the concept of "RegTech").

If CSDs chose to apply blockchain, there would remain a need for coordinated oversight of asset issuances and for ensuring orderly functioning of the market.²⁷ Therefore, CSDs would not necessarily go away; rather, these ledgers could function as custodians and as the primary destination of asset issuances, while also playing the

²⁷ Euroclear & Oliver Wyman, "Blockchain in the capital markets: the prize and the journey." February 2016.

role of operational governance, coordinating the evolution of ledger protocols, interfacing with regulators, etc. Assuming they can keep up with the evolving technology and adapt to competition, CSDs could play an important role in holding the equities that the DLT tokens represent, and possibly also in administering admissions tests for entities admitted to DLT networks.²⁸

What's Happening Today

The U.K.'s Financial Conduct Authority (FCA) points out that DLT efforts "have become increasingly concentrated over the last 24 months" and that, in 2018, they "expect to see more movement from 'proof of concept' to 'real-world' deployments."²⁹ In May 2017, Nasdaq and Citi Treasury and Trade Solutions announced a new integrated payment solution that enables straight-through payment processing and automates reconciliation across borders by using DLT to record and transmit payment instructions. The new collaboration connects the CitiConnect for Blockchain connectivity platform and Nasdaq's Linq Platform, tightly integrating blockchain technology within these institutions' global financial networks.³⁰ Looking ahead, the U.K. FCA is working with regulators and standard-setting bodies—including the European Securities and Markets Authority (ESMA), IOSCO, and the Financial Stability Board—to assess the regulatory implications of such cross-border DLT applications.

Yet notwithstanding the potential advantages detailed above, the blockchain approach is currently untested at the regional scale and may present significant implementation as well as risk-management challenges. Interviewed by SWIFT, Aite Group notes that while successful pilot programs have proven that individual transactions can be settled across DLT networks, they "do not provide a practical blueprint for the industry to move wholesale"³¹ and moreover, may not comply with the 24 CPMI-IOSCO Principles for the safe management of financial market infrastructures (see Appendix 2). The costs and timeframe for effective deployment of DLTs to projects as ambitious as regional capital-markets infrastructure remains very uncertain.

²⁸ SWIFT MI Forum. "CSDs can be winners from distributed ledger technology." May 2017.

²⁹ U.K. FCA, "Discussion Paper on distributed ledger technology." DP 17/3, April 2017.

³⁰ Nasdaq.com News (2017). "Nasdaq and Citi Announce Pioneering Blockchain and Global Banking Integration." May 22, 2017.

³¹ SWIFT MI Forum 2016 Newsletter. "What blockchain might and might not do for CSDs."

Looking ahead, Euroclear and Oliver Wyman forecast three trends of blockchain adoption in capital markets globally: challenger disruptions developed outside of the core capital markets ecosystem, upcoming in the next one to two years; collaborative efforts to shift existing value chains to blockchains, some of which might take over 10 years as core parts of current systems are overhauled; and mandated policy where supervisors could direct the industry to introduce new market infrastructure, in view of reducing costs as well as operational and systemic risks.

³² SWIFT MI Forum. "CSDs can be winners from distributed ledger technology." May 2017.

EAC members are currently at the juncture between the second and third trends. In other words, moving ahead on the existing EAC CMI project without due consideration for blockchain applications may create a greater need for overhaul further down the line. As put by the CEO of EquiChain, "if you try to bolt blockchain onto parts of the existing processes and procedures... you will create a faster horse, not a new car. The gains promised by this technology are so great that they warrant a complete re-think of how we do things."³²

APPENDIX 2: CPMI-IOSCO PRINCIPLES FOR THE SAFE MANAGEMENT OF FINANCIAL MARKET INFRASTRUCTURES

In April 2012, the Committee on Payment and Settlement Systems (CPSS, now CPMI) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) published the Principles for Financial Market Infrastructures (PFMI). These 24 principles cover the following categories pertaining to financial market infrastructures:³³

- **General organization** (including governance, legal basis, and risk management framework)
- **Credit and liquidity risk management** (including effectively measuring, monitoring, and managing credit exposures as well as liquidity risk; accepting collateral with low credit, liquidity, and market risks; and covering risk exposures through an effective margin system)
- **Settlement** (including settlement finality, money settlements—in central bank money where practical and available, and clearly stating obligations with respect to the delivery of physical instruments or commodities)
- **Central securities depositories and exchange-of-value settlement systems** (in particular as they relate to the former, CSDs are to have appropriate rules and procedures to help ensure the integrity of securities issues, and to minimize risks associated with safekeeping and transfer of securities, these securities should be maintained an immobilized or dematerialized form for their transfer by book entry)
- **Default management** (including participant-default rules and procedures, segregation and portability, monitoring and managing its general business risk, custody and investment risks, and mitigating operational risks)
- **Access** (including objective, risk-based, and publicly disclosed criteria for participation; managing risks arising from tiered participation arrangements; and managing risks arising from linking across other financial market infrastructures)

³³ Bank for International Settlements and International Organization of Securities Commissions 2012. IOSCO Committee on Payment and Settlement Systems. "Principles for financial market infrastructures," April 2012.

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- **Efficiency** (including effectiveness in serving market participants, and using, or at least accommodating, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording)
- **Transparency** (including disclosure of rules, key procedures, and market data, as well as disclosure of market data by trade repositories)

The principles end by noting responsibilities of central banks, market regulators, and other relevant authorities for financial market infrastructures—including in collaborating across countries to promote the safety and efficiency of those infrastructures.

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ABOUT US

ABOUT THE AUTHOR

Carole Biau is a director at the Milken Institute Center for Financial Markets, where she launched and now leads the IFC-Milken Institute Capital Markets Training Program. Hosted at the George Washington University, this program offers an accredited certificate in capital markets development to mid-career policymakers from developing countries. So far, 39 Fellows from 23 countries have attended the program. Biau also leads policy advisory work and research on the regional integration of financial markets, in partnership with financial regulatory bodies. Before joining the Milken Institute, Biau worked as an investment policy analyst and program manager at the Organisation for Economic Co-operation and Development (OECD), with a focus on infrastructure regulation and investment policy in Africa and Asia.

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The Milken Institute is a nonprofit, nonpartisan think tank determined to increase global prosperity by advancing collaborative solutions that widen access to capital, create jobs, and improve health. We do this through independent, data-driven research, action-oriented meetings, and meaningful policy initiatives.

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