

# Local Sources of Financing for Infrastructure in Africa

## A Cross-Country Analysis

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## Abstract

With the exception of South Africa, local financial markets in sub-Saharan Africa remain underdeveloped and small, with a particular dearth of financing with maturity terms commensurate with the medium- to long-term horizons of infrastructure projects. But as financial market reforms gather momentum, there is growing awareness of the need to tap local and regional sources. Drawing on a comprehensive new database constructed for the purpose of this research, the paper assesses the actual and potential role of local financial systems for 24 African countries in financing infrastructure. The paper concludes that further development and more appropriate regulation of local institutional investors would help them realize their potential as financing sources, for which they are better suited than local banks because their liabilities would better match the longer terms of infrastructure projects. There are clear signs of

positive change: private pension providers are emerging in Africa, there is a shift from defined benefit toward defined contribution plans, and African institutional investors have begun taking a more diversified portfolio approach in asset allocation. Although capital markets remain underdeveloped, new issuers in infrastructure sectors—particularly of corporate bonds—are coming to market in several countries, in some cases constituting the debut issue. More than half of the corporate bonds listed at end-2006 on these countries' markets were by companies in infrastructure sectors. More cross-border listings and investment within the region—in both corporate bonds and equity issues—including by local institutional investors, could help overcome local capital markets' impediments and may hold significant promise for financing cross-country infrastructure projects.

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This paper—a product of the African Sustainable Development Front Office, Africa Region—is part of a larger effort in the region to gauge the status of public expenditure, investment needs, financing sources, and sector performance in the main infrastructure sectors for 24 African focus countries, including energy, information and communication technologies, irrigation, transport, and water and sanitation. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [jirving@worldbank.org](mailto:jirving@worldbank.org).

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# Introduction

The future of infrastructure development in Africa depends on local finance. Traditionally, infrastructure projects in Africa have been financed by the public sector or international private investors. Fiscal space for domestic public sector sources of infrastructure financing is limited, however, while private financing sourced from abroad tends to attract high country-risk premiums and often carries the risk of currency mismatch as infrastructure project revenues are typically earned in local currency. Most of the focus countries' local financial markets remain underdeveloped, shallow, and small in scale, with a particular dearth of long-term financing with maturity terms commensurate with the long-term horizon of infrastructure projects. Nevertheless, there is growing recognition of the need to explore the potential for accessing local and regional sources of private financing in building Africa's infrastructure, particularly as national and intraregional financial market reforms gather increasing momentum across the countries.

The first objective of this paper is to take a comprehensive inventory of local sources of infrastructure financing in the 24 countries of Sub-Saharan Africa included in the first phase of the Africa Infrastructure Country Diagnostic.<sup>1</sup> This inventory will provide a baseline against which further developments may be gauged.

A second aim of this study is to identify and analyze, insofar as possible, factors contributing to the variance in the ability of national financial sectors to generate local financing for infrastructure projects. The study attempts to analyze the potential for generating infrastructure financing by specific infrastructure sectors (electricity generation, transport, water and sanitation, and telecommunications), where it has been possible to compile these specific data. A concluding section proposes general policy recommendations for strengthening local capacity to mobilize financing for infrastructure.

We assess the ability of local financial markets in the 24 countries to provide long-term finance by examining macroeconomic fundamentals (chapter 1), financial intermediation (chapter 2), and depth of domestic capital markets (chapter 3). Our indicators are drawn from a comprehensive data-gathering exercise conducted at the national and subregional levels. The selected indicators, primarily quantitative, cover local and subregional banking systems, corporate and government bond markets, equity markets, and institutional investors, as well as overall macroeconomic conditions. We identify which countries' local and regional financing sources are best able to fund infrastructure and which are the most severely constrained. Where useful, we make comparisons with Chile and Malaysia, the designated comparator countries for the AICD study.<sup>2</sup>

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<sup>1</sup> Information on the Africa Infrastructure Country Diagnostic, a multidonor initiative, is available at [www.infrastructureafrica.org](http://www.infrastructureafrica.org). AICD's 24 focus countries are Benin, Burkina Faso, Cameroon, Cape Verde, Chad, Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Sudan, Tanzania, Uganda, and Zambia.

<sup>2</sup> Chile and Malaysia are upper-middle-income economies that have grown considerably and reduced poverty in recent years by pursuing sound macroeconomic policies, structural reforms, and have deepened their financial markets.

# 1 Macroeconomic fundamentals

Macroeconomic stability provides the foundations for developing a national financial system that offers sustainable and affordable long-term finance. Sound and stable macroeconomic policies—including disciplined fiscal policies to avoid crowding out of private investment and private-sector lending—are essential to the proper functioning of private financial markets. In the absence of macroeconomic stability, notably where inflation is high, there is a disincentive to save, because current earnings are worth more than future earnings in real terms, and financial markets will make available only short-term finance at variable rates. Infrastructure projects require long-term finance at predictable (preferably fixed) interest rates.

Sound macroeconomic policies have been linked with financial sector development in the empirical literature.<sup>3</sup> Aryeetey and Nissanke (1998) found that in the absence of macroeconomic stability, the impact of financial liberalization and other financial sector reforms on financial deepening will be ineffective. Examining the relationship between macroeconomic stability and capital market development, Garcia and Liu (1999) found that the former, along with adequate national income and savings, was a prerequisite for development of capital markets in developing economies.

A few key indicators can be used to assess macroeconomic stability as it relates to the availability of long-term finance. These include the volume of available savings, the gross domestic savings rate, inflation rates, and levels of external and domestic debt. A sovereign credit rating (for countries that have obtained one) can provide some indication of a country's investment climate, creditworthiness, and its capacity to service existing debt (appendix 1).

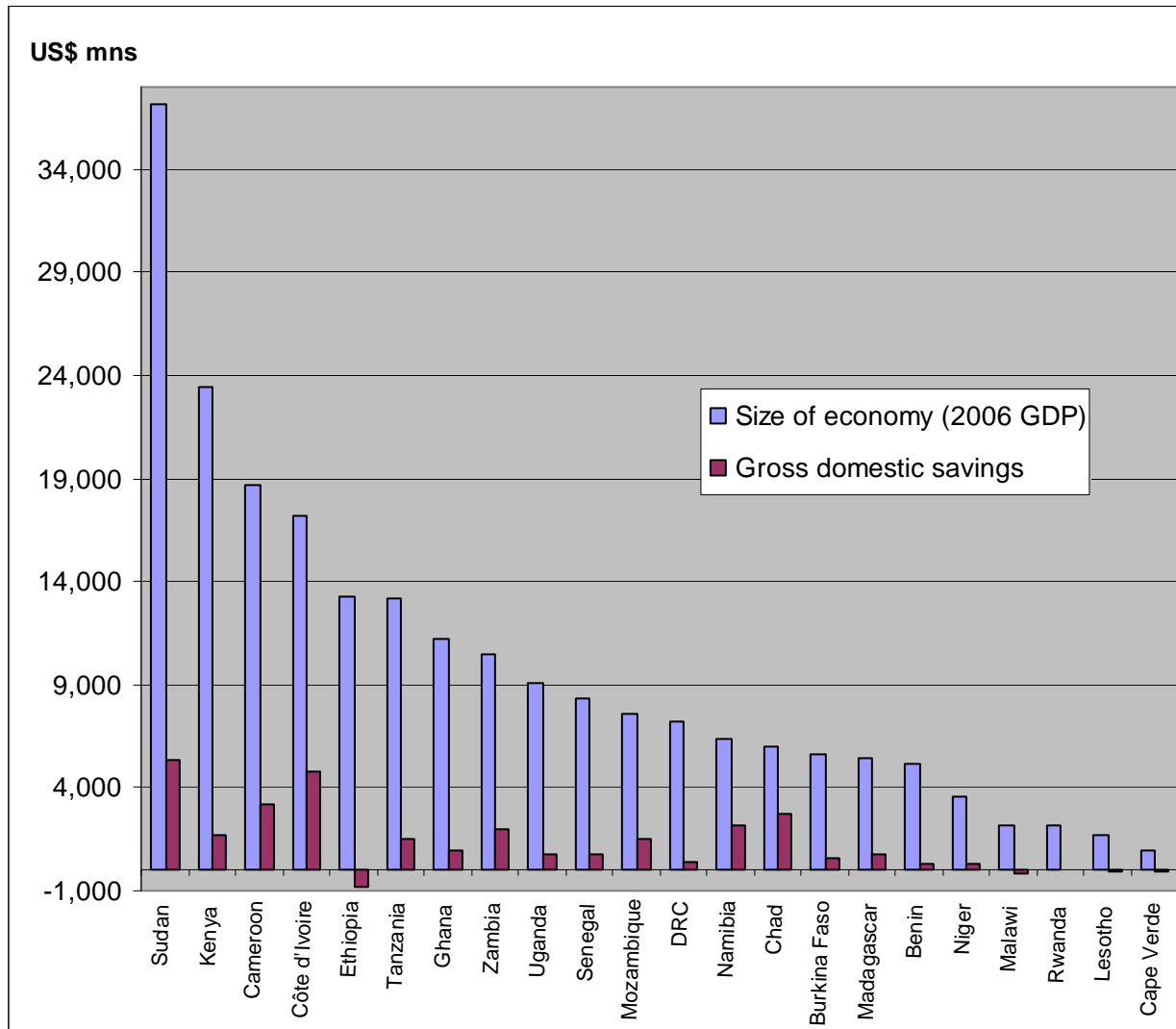
## Size of the economy and volume of savings

A key challenge facing these developing financial sectors is *scale*. Except for South Africa, none of the 24 focus countries has a gross domestic product (GDP) even close to those of the comparator developing countries, Chile and Malaysia (figure 1.1 and appendix 2). (South Africa's GDP exceeds Malaysia's by more than 70 percent.) Other things being equal, larger economies theoretically should have more potential for raising infrastructure finance, because they tend to have more resources available for investment. However, excluding the two largest focus economies (South Africa and Nigeria) from consideration, figure 1.1 shows that the larger of the remaining 22 economies do not necessarily have a correspondingly large volume of domestic savings.

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<sup>3</sup> The literature shows support for causality running both ways. Many works have found that financial development leads to sustainable macroeconomic growth. See, in particular, Levine (1997) for a survey of this literature.

Figure 1.1. Size of economy and volume of savings in focus countries, excluding South Africa and Nigeria



Sources: World Bank, GEM and WDI databases.

Absolute savings only cover infrastructure investment needs, estimated at 10 percent of GDP, in 12 of the 24 countries (table 1.1).<sup>4</sup> Of course, gross domestic savings represents only a theoretical upper threshold as an indicator of the maximum available domestic investment available for meeting estimated infrastructure needs. Nevertheless, it is clear that half of the countries are severely constrained in their ability to put domestic savings to use toward infrastructure development, given that these 12 countries have a shortfall between these two indicators, in some cases significant. In the case of Ethiopia, which has the largest shortfall, the gap between gross domestic savings and infrastructure investment needs was more than \$2.1 billion in 2006. The five other economies that have a shortfall are all very small and/or postconflict countries (Cape Verde, Democratic Republic of the Congo, Lesotho, Malawi, and Rwanda).

<sup>4</sup> According to the most recent estimates of the World Bank's African Sustainable Development Department (Africa Region).

**Table 1.1. Domestic savings and infrastructure investment needs**

As of 2006

	Gross domestic savings (US\$ millions)	Estimated infrastructure investment needs (US\$ millions)	Difference between gross domestic savings and infrastructure investment needs (US\$ millions)
South Africa	41,200	25,406	15,794
Nigeria	38,400	11,940	26,460
Sudan	5,310	3,719	1,591
Kenya	1,710	2,340	-630
Cameroon	3,160	1,866	1,294
Côte d'Ivoire	4,820	1,722	3,098
Ethiopia	-813	1,327	-2,140
Tanzania	1,540	1,321	219
Ghana	1,000	1,119	-119
Zambia	1,970	1,044	926
Uganda	738	912	-174
Senegal	790	831	-41
Mozambique	1,540	761	779
Congo, Dem. Rep.	398	815	-417
Namibia	2,180	640	1,540
Chad	2,750	600	2,150
Burkina Faso	565	565	-1
Madagascar	748	545	203
Benin	298	520	-222
Niger	317	355	-38
Malawi	-189	221	-410
Rwanda	40	246	-206
Lesotho	-103	167	-271
Cape Verde	-25	92	-116
Chile	36,700	13,580	23,120
Malaysia	62,300	14,876	47,424

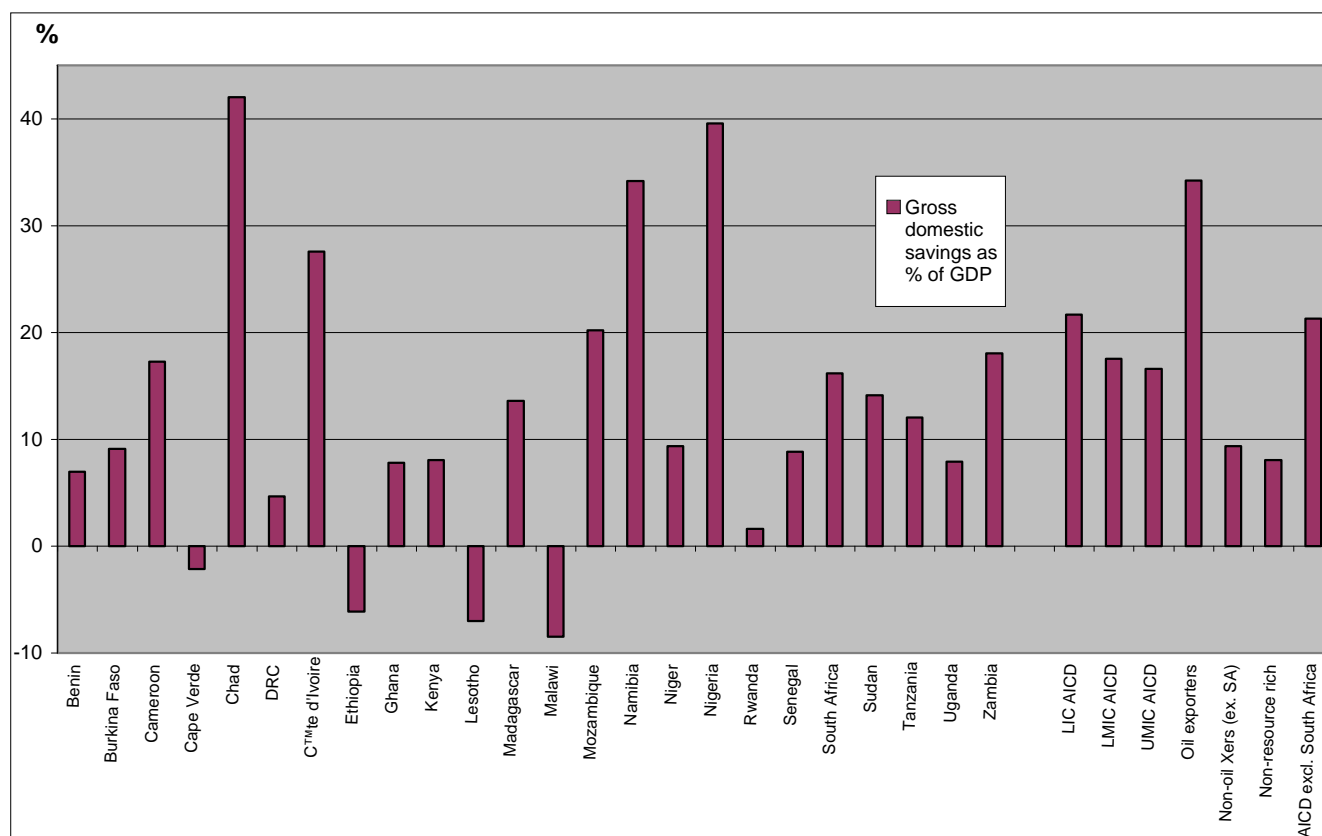
Sources: World Bank staff estimates based on GEM and WDI databases.

The savings rate is an important macroeconomic indicator of an economy's ability to generate funds for infrastructure. Extremely low income levels continue to keep access to basic savings instruments beyond the reach of most people in Sub-Saharan Africa, however. Savings rates in the region are by far the lowest worldwide—below 5 percent in several of the focus countries (Cape Verde, Ethiopia, Lesotho, Malawi, and Rwanda)—unsurprisingly, five of the six same economies that have a large shortfall in gross domestic savings vis-à-vis infrastructure investment needs. Several economies constitute notable



exceptions to these very low savings rates; in nearly all cases they are oil economies (Nigeria, Chad, Cameroon, and Côte d'Ivoire) or resource-rich non-oil producers (Namibia and Zambia). See figure 1.2.

Figure 1.2 African focus countries' gross domestic savings rates



Sources: World Bank, GEM and WDI databases.

Note: The World Bank WDI database calculates gross domestic savings as the difference between GDP and total consumption.

LIC AICD = Low-income AICD countries (Benin, Burkina Faso, Chad, Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sudan, Tanzania, Uganda, Zambia).

LMIC AICD = Lower-middle-income AICD countries (Cameroon, Cape Verde, Lesotho, and Namibia).

UMIC AICD = Upper middle-income countries (South Africa).

Oil exporters = Cameroon, Chad, Côte d'Ivoire, Nigeria.

Non-resource-rich = All AICD countries except Cameroon, Chad, Côte d'Ivoire, Namibia, Nigeria, and Zambia.

Using savings rates as an upper-limit proxy for funds available for investment in infrastructure, the countries can be grouped into four categories: those with high potential to generate domestic funds for infrastructure projects (Nigeria, Chad, Namibia); those with solid potential (Côte d'Ivoire, Mozambique, Zambia, Cameroon, South Africa, Sudan, Madagascar, Tanzania); those with limited potential (Niger, Burkina Faso, Senegal, Kenya, Uganda, Ghana, Benin); and those with severely limited or no potential (the remaining six countries). Chad and Nigeria, which top the list, are net oil exporters with savings rates in excess of 35 percent. Limited capacity to absorb high oil-export revenues in the domestic economy and a desire to reduce debt explains why major oil exporters may be saving more of their oil export revenues. The second category is made up of other resource-rich commodities exporters, as well as South Africa.

The last grouping, with savings rates between 5 and –16 percent, is mostly made up of small and/or postconflict countries.

The contrast with the two comparator countries, Chile and Malaysia, is striking. Both have substantially higher savings rates than all the focus countries except oil-rich Nigeria and Chad and non-oil-resource intensive Namibia. Chile's fiscal performance and savings rate have benefited recently from high export revenues in extractive industries (in this case, copper), as well as sound macroeconomic policies and strong domestic institutions.

## Domestic and external debt

In recent years, robust GDP growth, more prudent macroeconomic policies, debt relief negotiated with multilateral and bilateral creditors, and, for major oil exporters, higher oil revenues have enabled many countries to reduce their debt-to-GDP ratios. Twenty-one of the 23 focus countries for which external debt to GDP ratio data are available reduced the ratio over the 2004–05 period—by more than 20 percentage points in the Democratic Republic of the Congo, Ethiopia, Malawi, Nigeria, Sudan, Uganda, and Zambia (appendix 2).

For some countries, such as Nigeria and Zambia, external debt-to-GDP ratios have fallen particularly significantly. Debt relief and high copper export earnings brought Zambia's down 58 percentage points (to 78 percent) over the 2004–05 period. Nigeria's external debt-to-GDP ratio fell from 50 percent in 2004 to 22 percent in 2005, as oil windfalls enabled it to pay off nearly all its external debt to multilateral creditors. Several countries have also seen substantial declines in their debt burdens thanks to multilateral debt relief granted under the Heavily Indebted Poor Countries and Multilateral Debt Relief initiatives. In the past several years, 14 focus countries have reached the completion point under the HIPC Initiative, enabling them to begin receiving debt relief.

Economies with high public-debt-to-GDP ratios can result in a crowding out of private credit. The extent of public borrowing from the financial system has obvious implications for the availability of bank credit for private enterprises. High demand for credit from government-owned enterprises and high overall levels of lending to the government pose structural impediments to private sector credit. However, as indicated in appendix table 2.3, where a number of countries have both relatively low public-debt-to-GDP and private-bank-credit-to-GDP ratios, there must be other factors that constrain private credit. These are more fully discussed in the next chapter but can include high banking transaction costs and banks' perceived higher risks associated with lending to the private sector.

## 2 Financial intermediation and bank lending

A minimum degree of financial intermediation is necessary to establish a market for term finance capable of funding infrastructure projects. This section will examine the degree to which domestic savings are being intermediated in the local financial sectors of the 24 focus countries.

Except in South Africa, the region's financial sectors tend to be characterized as having a limited range of investment instruments (particularly for longer tenors), with commercial banks predominating, and a shortage of medium- and long-term bank credit and other forms of financing. Institutional and regulatory frameworks are relatively weak, and institutional investors are underdeveloped or nonexistent in some cases. In some countries, such as Chad, Democratic Republic of the Congo, and other countries of the Central African Economic and Monetary Community (CEMAC), the effectiveness of financial intermediation is undermined by factors including weak payment systems and floors on lending rates and ceilings on deposit rates that do not reflect market fundamentals, and regulatory impediments that make local sources of longer-term financing costly and scarce.<sup>5</sup>

Among the selected indicators for assessing the level of financial depth and financial intermediation are (i) the total assets of financial intermediaries (and the ratio of those assets to GDP) and (ii) bank credit to the private sector as a share of GDP (table 2.1).

Other traditional indicators of financial development are the ratio of broad money to GDP and the level of real interest rates. However, recent studies have found evidence that these latter indicators may produce misleading signals about the extent of financial development because they do not account for certain factors, such as the economy's openness to capital flows, banking sector competitiveness, and government borrowing from the financial system (Pill and Pradhan 1995). Bank credit to the private sector as a ratio to GDP is a favored indicator of financial intermediation and financial depth in developing economies, but it too has flaws. It does not adequately take into account nonperforming loans and credit granted by nonbank financial institutions and other financial innovations. Nor does it take into account the impact of commercial bank lending to other financial intermediaries (Pill and Pradhan 1995). None of the indicators we have mentioned captures the effects of the institutional environment on financial depth and development (McDonald and Schumacher 2007; Gelbard and Leite 1999), which can be considerable.

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<sup>5</sup> IMF 2006a; BEAC 2007. Commercial credit is very scarce in the Democratic Republic of the Congo; banks serve chiefly as financial agents for the government (EIU 2006b).

**Table 2.1 Indicators for assessing financial intermediation in 24 focus countries and comparators**

Country	Total assets of financial intermediaries as % GDP /a	Private credit by deposit money banks as % GDP	Longest maturity terms available for loans (years)	Average lending rate (%)
	<i>end-2006 or most recent</i>	<i>end-2006</i>	<i>end-2006</i>	<i>end-2006</i>
Benin	21.6	16.1	10+	—
Burkina Faso	21.0	19.2	10+	—
Cameroon	12.9	9.2	—	15
Cape Verde	107.3	63.7	5	12
Chad	5.9	2.8	—	15
Congo, Dem. Rep.	3.0	2.1	3	67
Côte d'Ivoire	21.4	14.9	10+	—
Ethiopia	14.2	23.3	—	7
Ghana	46.9	19.9	20	26
Kenya	52.4	25.1	10+	14
Lesotho	26.7	7.5	20	12
Madagascar /b	16.2	10.9	See note b	30
Malawi	23.3	9.0	5	29
Mozambique	21.5	11.3	10+	19
Namibia	165.5	61.5	20	11
Niger	10.7	9.0	10+	—
Nigeria	25.7	12.6	5+	17
Rwanda	25.1	13.9	10 +	16
Senegal	32.2	26.7	10+	—
South Africa	192.1	76.5	20	11
Sudan	17.0	13.8	—	11
Tanzania	22.9	11.7	5 +	15
Uganda	23.5	8.1	20	19
Zambia	17.8	8.1	20	23
Chile	156	71	25	8.0
Malaysia	199	118	—	6.5

Sources: International Monetary Fund International Financial Statistics; central banks and finance ministries.

— = Not available.

a. Due to asset data limitations for pension systems and insurance sectors in several countries, the reported figures may be under- or overestimates. Total deposit money bank assets data in the Democratic Republic of the Congo, Rwanda, and Nigeria are current for end-2005.

b. In Madagascar, the seven commercial banks offer only very basic savings and credit vehicles to select clients; bank loans to the 10 largest corporate clients comprised nearly one-quarter of the banking sector's total corporate loan portfolios (IMF, 2006e).

## Assets of financial intermediaries

The total amount of domestically available funds, as indicated by the total assets of financial intermediaries in the country, provides a theoretical maximum that these entities could possibly invest in infrastructure. Depending on the particular national regulatory environment (for example, regulations governing institutional investor investments of their assets and specific restrictions on asset allocation), some proportion of these funds could be invested in infrastructure (see chapter 4).

South Africa's financial sector is much larger and more developed than those of the other focus countries. The total assets of deposit money banks in South Africa amounted to \$211.2 billion at the end of 2006, more than triple the total assets of the 23 other African focus countries combined (\$64.8 billion). South Africa's bank assets are twice the size of Chile's and about 10 percent greater than those of Malaysia.

The disparity is still larger when comparing estimated total assets of financial intermediaries for South Africa with the combined total for the other 23 African countries. Reflecting South Africa's well-developed pension and insurance subsectors, the total assets of South Africa's financial intermediaries (estimated at \$465.3 billion at end-2006) are more than five times greater than the combined total of the other 23 African focus countries. As a percentage of GDP, the total assets of South Africa's financial intermediaries (192.1 percent) are also much greater than those of the other focus countries, except Namibia (165.5 percent), with which South Africa has extensive financial and economic connections,<sup>6</sup> and Cape Verde (107.3 percent).<sup>7</sup> The next highest ratio is only 52.4 percent (Kenya). Five countries have ratios between 25 and 50 percent; 15 countries have ratios below 25 percent.

Interestingly, Namibia tops the list in total pension system assets as a percentage of GDP. At 58 percent, it exceeds the South African pension system's ratio by 21 percentage points (table 2.2). The basis for Namibia's pension system was acquired on obtaining independence in the late 1940s (albeit with extremely limited coverage in its early form), and pension funds have grown rapidly since, driven by private sector growth. Namibia's high ratios must be viewed in the context of the (small) size of the country's economy. The country's estimated total pension system assets (at \$3.3 billion) are far less than South Africa's (\$80.2 billion).<sup>8</sup> South Africa's estimated total insurance sector assets (at \$173.9 billion) is 77 times the counterpart figure for Namibia (\$2.24 billion). The rest of the focus countries trail far behind.

Thus, institutional investors play a relatively predominant role as financial intermediaries in South Africa compared with the other African focus countries. According to the data in table 2.2, total estimated assets of South African institutional investors (based on the combined assets of insurance companies and pension funds) were \$254.1 billion, or 109 percent of GDP. This number is likely a significant underestimate, given the lack of recent data for South African pension fund assets, and that this figure

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<sup>6</sup> These links antedate Namibia's independence from South Africa in 1990. Namibia's four commercial banks continue to have strong ties with South Africa's banking sector. Three of them are subsidiaries of South African banks; the fourth has a South African bank as its largest shareholder (IMF 2007c).

<sup>7</sup> In Cape Verde, the banking sector accounts for the vast majority of financial intermediaries' assets. The ratio of banking sector assets to GDP has increased rapidly, from 70 percent at end-2004 (IMF 2006b) to 86.7 percent at end-2006, with lending concentrated heavily in the real estate and construction sectors. Even more so than in the case of Namibia, the relatively high ratio of bank assets to GDP also reflects the small size of the country's economy relative to the financial sector: With nominal GDP in 2006, at \$919 million, Cape Verde's economy was by far the smallest of all the AICD countries.

<sup>8</sup> Data on pension fund assets in Namibia and South Africa are rough estimates, given that the figures are dated (2004). Namibia's nonbank regulator, Namibia Financial Institutions Supervisory Authority (NAMFISA), is reportedly limited in its capacity to compile comprehensive, accurate and timely data (IMF 2007c). According to South Africa's Financial Services Board release of 2005 data was delayed until September 2007. Data on South African pension fund assets include statistics for privately administered funds, which represent 3,407 of the 13,603 funds under the supervision of the regulator; the balance of 10,196 funds are underwritten funds that consist exclusively of insurance policies.

excludes the considerable assets of South African mutual funds/unit trusts, which have been growing rapidly over the past several years.<sup>9</sup>

**Table 2.2 Assets of financial intermediaries as a percentage of GDP in focus countries and comparators**

As of end-2006 or most recently available

Country	Deposit money bank assets as % of GDP	Total pension assets (US\$ millions)	Total pension assets as % GDP	Total insurance assets (US\$ millions)	Total insurance assets as % GDP	Total assets of financial intermediaries as % GDP
Benin	17.0	125.0	3.1	71.9	1.5	21.6
Burkina Faso	20.0	—	—	53.0	1.0	21.0
Cameroon	11.6	—	—	252.4	1.5	12.9
<b>Cape Verde</b>	<b>86.7</b>	<b>170.0</b>	<b>18.5</b>	<b>18.9</b>	<b>2.1</b>	<b>107.3</b>
Chad	5.5	n.a.	n.a.	9.9	0.4	5.9
Congo, Dem. Rep.	2.6	n.a.	n.a.	18.8	0.3	3.0
Côte d'Ivoire	18.5	—	—	491.2	3.0	21.4
Ethiopia	12.6	—	—	171.9	1.5	14.2
Ghana	34.9	1,076.7	10.9	96.9	1.1	46.9
Kenya	36.0	1,770.3	9.4	1,308.7	7.0	52.4
Lesotho	12.8	—	—	250.5	13.9	26.7
Madagascar	13.2	62.4	1.2	89.7	1.8	16.2
Malawi	13.3	n.a.	—	221.6	10.0	23.3
Mozambique	18.6	—	—	198.4	2.9	21.5
<b>Namibia</b>	<b>68.3</b>	<b>3,312.0</b>	<b>58.0</b>	<b>2,240.0</b>	<b>39.2</b>	<b>165.5</b>
Niger	10.0	78.7	2.2	22.7	0.7	10.7
Nigeria	20.6	3,507.8	2.9	1,575.2	1.6	25.7
Rwanda	16.0	132.7	7.4	27.7	1.7	25.1
Senegal	30.3	—	—	149.9	1.9	32.2
<b>South Africa</b>	<b>83.1</b>	<b>80,202.3</b>	<b>37.0</b>	<b>173,913.0</b>	<b>72.0</b>	<b>192.1</b>
Sudan	16.8	—	—	96.1	0.6	17.0
Tanzania	17.6	577.9	4.4	123.5	1.0	22.9
Uganda	17.3	470.6	5.2	70.4	1.0	23.5
Zambia	13.6	314.1	3.0	121.1	1.2	17.8
Chile	71.7	88,293.5	65.0	25,542.6	18.8	155.5
Malaysia	125.2	69,659.0	53.2	30,715.9	20.6	199.1

Sources: Pension system and insurance sector asset data sourced from national pension funds and financial authorities; CEMA for the five WAEMU countries and Cameroon; Axco country reports.

Note: Total pension and insurance sector assets are underestimated for several countries.

— = Not available; n.a. = Not applicable.

Although three of the African focus countries have relatively high ratios of total assets of financial intermediaries to GDP (Cape Verde, at 107.3 percent, as well as South Africa and Namibia), the next

<sup>9</sup> As of end-June 2006, South Africa's 678 mutual funds (unit trusts) managed an estimated \$62.76 billion in assets, up from \$52 billion in assets managed by 567 funds one year earlier (EIU 2006a, which cites the Unit Trusts Survey).

highest ratio is only 52.4 percent (Kenya). Five countries have ratios ranging from 25 to 50 percent, while as many as 15 countries have ratios below 25 percent. It is thus clear that the level of financial depth (as indicated by the ratio of total financial intermediaries' assets to GDP) of the vast majority of these countries is very low.

In practice, in the case of the majority of commercial banks in this region, there would be a significant mismatch in the maturities of assets and liabilities, given that African banks' deposits and other liabilities currently tend to have largely short-term maturities (see table 2.3) while infrastructure projects have longer-term financing needs. Note that table 2.3 gives the maximum available tenors and, in practice, holdings in time deposits often are for considerably shorter tenors.<sup>10</sup> Administratively set floors on bank lending rates still in effect in some countries discourage banks from accumulating deposits, while administrative ceilings keep yields on bank deposits artificially low, particularly at longer tenors, providing a disincentive to savers.

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<sup>10</sup> According to the Central Bank of Nigeria, for example, very few bank clients are willing to hold time deposits for tenors exceeding 90 days and it is virtually impossible to find time deposits with tenors exceeding 365 days.

**Table 2.3 Loans and deposits in the focus countries and comparators**

Country	Longest term available for loans (years)	Longest tenor for time deposits (years)	Lending rate (%) /a	Spread (percentage points) /a
	2006	2006	end-2006	end-2006
Benin	10+	1+	—	—
Burkina Faso	10+	1+	—	—
Cameroon	—	—	15	11
Cape Verde	5	1+	12	9
Chad	—	—	15	11
Congo, Dem. Rep.	3	1	67	52
Côte d'Ivoire	10+	1+	—	—
Ethiopia	—	2+	7	3
Ghana	20	3	26	17
Kenya	10+	1+	14	9
Lesotho	20	1	12	8
Madagascar	See note b	—	30	7
Malawi	5	1	29	20
Mozambique	10+	10+	19	8
Namibia	20	—	11	5
Niger	10+	1+	—	—
Nigeria	5+	1	17	7
Rwanda	10+	1	16	8
Senegal	10+	1+	—	—
South Africa	20	—	11	4
Sudan	—	—	11	—
Tanzania	5+	2	15	9
Uganda	20	2	19	10
Zambia	20	7	23	13
Chile	25	2	8	3
Malaysia	—	5+	6	3

Sources: Central banks; IMF *IFS*. Data for 2006 with the exception of the Democratic Republic of Congo, Nigeria, and Rwanda (2005).

— = Not available.

a. Lending rates can differ significantly according to borrower creditworthiness and financing objectives.

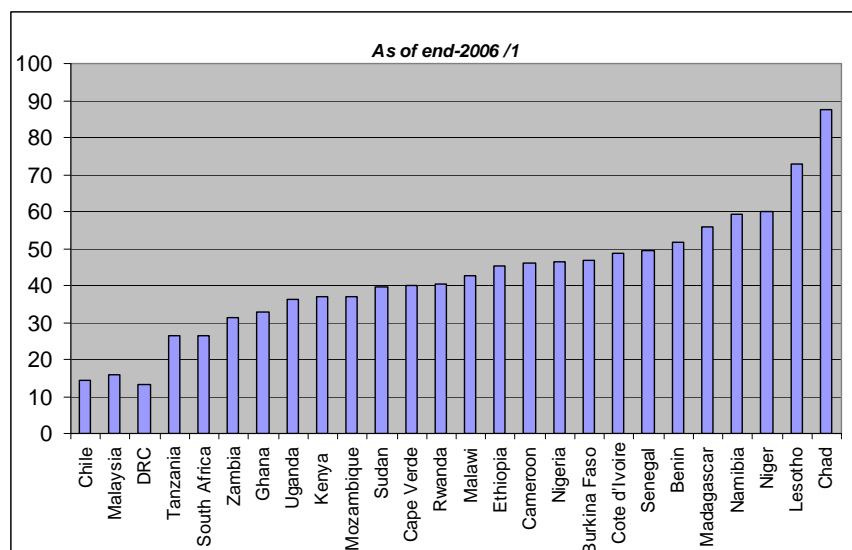
b. Madagascar's seven commercial banks offer only very basic savings and credit vehicles to select clients.

The unwillingness to tie up savings in relatively low-yielding bank time deposits is demonstrated by the relatively high share of demand deposits in total bank deposits in the focus countries. That share exceeds 40 percent in 17 countries, contrasting with the ratios of 14 percent and 16 percent for Chile and Malaysia (figure 2.1). Given that total deposits in some countries (such as the Democratic Republic of the Congo) comprise a large amount of foreign currency deposits held abroad for some countries, the actual



share of bank time deposits in total deposits may be even lower than shown in figure 2.1.<sup>11</sup> Moreover, structural constraints to lending still in place in several of these countries (discussed below) mean that banks tend to be highly risk averse.

Figure 2.1 Demand deposits as a share of total bank deposits



Source: International Monetary Fund International Financial Statistics.

Note: Data for 2006 with the exception of the Democratic Republic of the Congo, Nigeria, and Rwanda (2005).

The typical financial liabilities of institutional investors, which are largely medium- to long-term, would better match the longer terms of infrastructure projects. Pension funds and insurance companies would thus seem to have significant potential as sources of medium- to long-term financing. But institutional investors in Africa remain largely underdeveloped, impeded by factors that can include a continued predominance of state-controlled pension funds/systems in a number of countries and a lack or small number of private pension funds, underdeveloped capital markets and a narrow range of alternative financial investment instruments, investment practices that consequently often favor illiquid real estate holdings, short-term bank deposits and government securities, and inappropriate or nonexistent regulations governing investment of their assets (see chapter 4 on institutional investors). Moreover, these institutional investors lack the ability to undertake the credit-risk evaluation necessary to involve themselves in infrastructure projects. The nature of the risks to which infrastructure projects are exposed would necessitate the development of some mechanism(s) for sharing and/or reducing risks associated with investments in infrastructure projects. In Chile, a public-private risk-sharing arrangement that evolved during the late 1990s centered on the issuance of local currency-denominated bonds for infrastructure financing of government road construction projects. A private monoline insurance company,<sup>12</sup> and the Inter-American Development Bank as coguarantor, provided a financial guarantee on future timely payment of interest on the project financing. This long-term financing instrument eliminated the need for potential investors in the bond to undertake specialized credit risk evaluation. By mitigating

<sup>11</sup> Banks in the Democratic Republic of the Congo moved many of their assets abroad during the civil war earlier in this decade (Beck and Honohan 2007).

<sup>12</sup> A monoline insurance company provides guarantees to issuers, which enhance the credit of the issuer.

the project risk, the guarantees enabled Chilean institutional investors to invest in these issues, which were well-suited for infrastructure projects, with maturity terms typically for 20 years, at fixed-rate terms, and denominated in a local inflation-adjusted unit of account. Chile's A- credit rating paved the way for the monoline insurers' participation in these arrangements.

### Ratio of private bank credit to GDP as an indicator of financial depth

A typical indicator for measuring the degree of financial intermediation by the banking sector is the ratio of private credit by banks to GDP (table 2.4).<sup>13</sup> Three countries have high ratios of private credit by banks to GDP: South Africa (77 percent), Cape Verde (64 percent), and Namibia (62 percent). But the level of financial intermediation is low for the majority of the focus countries. Eighteen of the 24 countries have ratios of private credit by banks to GDP below 20 percent; eight are below 10 percent, two of which have ratios below 3 percent. In these countries, official development assistance remains a critical source of external financing (appendix 3).

**Table 2.4 Private credit by banks as a share of GDP**

	West Africa	Central Africa	East Africa	Southern Africa
< 10%	Niger	Cameroon, Chad, Congo, Dem. Rep.	Uganda	Lesotho, Malawi, Zambia
10–20%	Benin, Burkina Faso, Nigeria, Côte d'Ivoire, Ghana (19.9%)		Rwanda, Sudan, Tanzania	Madagascar, Mozambique
20–50%	Senegal		Ethiopia, Kenya	
50–75%	Cape Verde			Namibia
> 75%				South Africa

Bank credit to the private sector in these countries has been constrained by various factors that can include underdeveloped domestic financial markets, poor credit discipline, poor enforcement of creditors' rights and overall deficiencies in national legal and judicial frameworks, and a shortage of creditworthy borrowers and projects. Other factors include high banking transaction costs, ceilings on bank lending rates that are out of line with market conditions (and that thus impede banks' ability to price risk, as in CEMAC countries), and an inability of many private-sector borrowers to pledge sufficient collateral, often because the range of assets accepted as collateral is very narrow).<sup>14</sup> In many of these countries, banks continue to lend to a small number of corporate clients and accumulate large holdings of government securities.

In economies where the oil sector is predominant and largely foreign-financed (such as Cameroon, Chad, Côte d'Ivoire, and Nigeria), the ratio of private sector credit to GDP is low, although not lower than

<sup>13</sup> Private credit by deposit money banks is calculated as claims on the private sector by deposit money banks (sourced from International Monetary Fund International Financial Statistics, June 2007).

<sup>14</sup> The value of collateral required for a loan can range considerably within countries. In Zambia, the amount required ranged from 50 percent to 200 percent in May 2007. In Namibia, the average value of collateral required for a loan in mid-2006 was 100 percent, but several firms reported that the requirement could be as high as 700 percent (World Bank 2007d).

several non-oil-exporting focus countries. Nevertheless, the competitiveness of the non-oil sector in major oil-exporting developing economies is often impeded by limited access to bank credit and other structural impediments, as well as overall Dutch disease effects. Countries with a commodities-dominated economic structure often have a shallow financial sector with a very limited role in financing non-oil economic activities (see, for example, IMF 2007a). A recent IMF surveillance mission in the CEMAC region observed that the expansion of Chad's oil sector correlated with a decline in the competitiveness of other sectors (IMF 2007b).

In all of the focus countries, the level of financial intermediation, measured by total private credit by banks and nonbank financial institutions as a percentage of GDP, is significantly below that of South Africa, where the ratio stands at 145 percent (table 2.5). Cape Verde and Namibia have the next-highest ratios, at 64 percent and 62 percent.<sup>15</sup> South Africa's significantly higher ratio largely reflects its sophisticated, highly developed nonbank financial subsector.

As well as being limited in size, bank lending to the private sector tends to be short in tenor for all but the most select bank clients. That said, maturities vary considerably by client, bank lender, and lending purpose.<sup>16</sup> In Benin, Burkina Faso, Côte d'Ivoire, Niger, and Senegal, maturity terms for infrastructure project loans vary greatly depending on the type of infrastructure financed, with some maturities in excess of 10 years.<sup>17</sup> Loans arranged by a syndicate of banks, international and local, generally have longer maturities. Syndicated lending to the focus countries had grown in recent years, but still remains relatively limited, except to borrowers in South Africa (see chapter 3).

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<sup>15</sup> Private credit by nonbank financial institutions data are only available from IMF IFS for Kenya (2006), Malawi (2006), South Africa (2005), Ethiopia (2006), and Chile (2006). Because claims on the private sector by nonbank financial institutions is not compiled by IMF IFS for many of the AICD countries, and given the generally small size of most of these countries' nonbank financial subsectors, in these cases the value for private credit by deposit money banks can be used as a rough approximation for private credit by deposit money banks and other financial institutions.

<sup>16</sup> In Lesotho, for example, mortgage loans carry the longest maturity terms available for bank loans (maximum 20 years), followed by vehicle finance loans, with a maximum of five years (Central Bank of Lesotho).

<sup>17</sup> According to the Banking Commission of the West African Economic and Monetary Union's regional central bank, BCEAO (Banque centrale des états de l'Afrique de l'ouest).

**Table 2.5 Private credit by banks and other financial institutions as a percentage of GDP**

Country	Private credit by deposit money banks as % GDP	Private credit by deposit money banks (2006)	Private credit by deposit money banks and other financial institutions as % GDP	Private credit by deposit money banks and other financial institutions (2006)
	end-2006	(US\$ millions)	end-2006	(US\$ millions)
Benin	16.1	834.8	16.1	834.8
Burkina Faso	19.2	1,083.6	19.2	1,083.6
Cameroon	9.2	1,724.6	9.2	1,724.6
Cape Verde	63.7	585.6	63.7	585.6
Chad	2.8	170.8	2.8	170.8
Congo, Dem. Rep.	2.1	149.4	2.1	149.4
Côte d'Ivoire	14.9	2,563.3	14.9	2,563.3
Ethiopia	23.3	3,090.6	26.9	3,576.1
Ghana	19.9	2,231.9	19.9	2,231.9
Kenya	25.1	5,868.6	25.9	6,064.3
Lesotho	7.5	125.8	7.5	125.8
Madagascar	10.9	591.5	10.9	591.5
Malawi	9.0	199.1	12.1	268.7
Mozambique	11.3	856.9	11.3	856.9
Namibia	61.5	3,936.4	61.5	3,936.4
Niger	9.0	319.4	9.0	319.4
Nigeria	12.6	15,012.6	12.6	15,012.6
Rwanda	13.9	296.6	13.9	296.6
Senegal	26.7	2,221.8	26.7	2,221.8
South Africa	76.5	194,296.7	144.8	367,986.3
Sudan	13.8	5,127.1	13.8	5,127.1
Tanzania	11.7	1,542.6	11.7	1,542.6
Uganda	8.1	734.4	8.1	734.4
Zambia	8.1	842.8	8.1	842.8
Chile	70.9	96265.9	86.5	117,489.1
Malaysia	117.6	174885.2	117.6	174,885.2

Source: IMF IFS June 2007.

Note: Private credit by deposit money banks is calculated as claims on the private sector by deposit money banks.

The longest reported maturities for bank loans in the focus countries are still several years shorter than in Chile (see table 2.3), in which the longest terms for bank loans are 25 years (for road construction).<sup>18</sup> Financial sector officials in Ghana, Lesotho, Namibia, South Africa, Uganda, and Zambia reported maximum maturity terms of 20 years, the longest such maturities among the focus countries. Eight other countries reported maximum loan maturities of “10 years plus,” while maximum maturities in four countries were reported as five or more years. Even where 20-year terms are reportedly available, they may not be affordable for infrastructure purposes. In Ghana and Zambia, for example, average

<sup>18</sup> According to La Superintendencia de Bancos e Instituciones Financieras (SBIF), Chile’s regulator of banks and other financial institutions.

lending rates exceed 20 percent. This is because it is difficult to find infrastructure projects that generate sufficient returns to cover a cost of debt that is greater than 20 percent.

The share of total bank loans used to finance infrastructure has been on an overall upward trend in recent years (table 2.6). Of the 20 focus countries that reported these figures for the most recent two consecutive years, 12 countries showed an increase in bank loans outstanding to sectors that develop infrastructure. For Lesotho, the increase was particularly dramatic, with the figure rising from 2 percent in 2005 to 43 percent in 2006. In four other countries, the share of outstanding local bank loans for infrastructure remained stable over the most recent two years, at relatively high levels in two of these countries (Niger and Senegal). Three countries (Benin, Côte d'Ivoire, and Rwanda) reported a drop in the last two years. The largest decline in the allocation of local bank loans for infrastructure occurred in Benin (dropping from 18 to 12 percent over 2005–06).

These figures vary widely from country to country—from nil in Chad to 45 percent in Cape Verde. The absolute amount of the lending, except in South Africa and Nigeria, is small compared with the situation in the comparator countries. After Nigeria, which reported just over \$2.4 billion in bank loans outstanding to infrastructure sectors at end-2006, the next-largest amount outstanding in a focus country, at \$575 million, was in Kenya.

#### Box 2.1 Bank lending to infrastructure sectors in Chile and Malaysia

The African focus countries compare fairly well overall with comparator countries Chile and Malaysia in terms of the share of bank lending going to infrastructure sectors (table 2.6). However, the total amount of outstanding loans to infrastructure sectors is dramatically lower than corresponding amounts for Chile and Malaysia in all focus countries except South Africa (for example, at \$7.2 billion for Chile and \$5 billion for Malaysia, and less than \$500 million for all but three countries). Excluding South Africa, the total amount of outstanding loans for infrastructure sectors for all African focus countries for which these data are available (\$5 billion for the 22 other countries) is equivalent to just under the corresponding amount for Malaysia alone and is \$2.2 billion less than the corresponding amount for Chile alone. Moreover, the infrastructure financing needs of many African focus countries are greater than those for upper-middle-income countries.

Sixty-four percent of Chile's outstanding bank loans for infrastructure (\$7.2 billion at the end of 2006) was for the construction of roads, railways, ports, and airports; 29 percent was for electricity generation, water, and sanitation; and 8 percent was for telecommunications. The proportion of electricity generation and water and sanitation loans was up 12 percentage points from year-end 2005 while telecoms' proportion dropped 6 percentage points; the share of construction of roads, rail, ports, and airports declined 5 percentage points.

In Malaysia, transport, storage, and communication attracted 56 percent of the total \$5 billion in bank loans for infrastructure development purposes as of March 2006 (up slightly from just over half a year earlier). Twenty-six percent went to electricity, gas and water supply, down from 30 percent a year earlier.

Nearly three-quarters, or just under \$5 billion, of the total syndicated lending to borrowers in Chile went to infrastructure development. As in the African countries, excluding South Africa, transport infrastructure received the most money from syndicated loans in Chile and Malaysia in 2006, attracting 36 percent (\$1.8 billion) and 20 percent (\$476 million), respectively, of such lending. Electricity generation ranked second in Chile as a destination for syndicated lending for infrastructure sectors, attracting 34 percent of the total in 2006, followed by telecommunications with 22 percent. Telecommunications, driven by mobile-phone service providers, attracted \$1.22 billion, or just over half of all syndicated lending for infrastructure in Malaysia.

Source: Bank Negara Malaysia and La Superintendencia de Bancos e Instituciones Financieras de Chile.

**Table 2.6 Share of total bank loans outstanding used for infrastructure financing**

Country	Infrastructure loans as % total bank loans /a	Infrastructure loans as % total bank loans /a	Total outstanding loans to infrastructure sectors (US\$ millions) /b
	2005	2006	2006
Benin	18	12	123.6
Burkina Faso	8	10	84.5
Cameroon	—	—	—
Cape Verde	24	45	107.6
Chad	0	0	0.0
Congo, Dem. Rep.	8	—	5.8
Côte d'Ivoire	16	15	334.7
Ethiopia	6	7	247.9
Ghana	6	8	177.9
Kenya	7	9	574.5
Lesotho	2	43	20.9
Madagascar	3	3	67.6
Malawi	5	9	17.4
Mozambique	6	6	60.7
Namibia	3	4	117.1
Niger	20	20	66.5
Nigeria	11	12	2,443.6
Rwanda	10	8	25.6
Senegal	12	12	286.0
South Africa	2	3	6,274.9
Sudan	8	9	5.2
Tanzania	8	—	93.0
Uganda	7	8	74.9
Zambia	—	7	72.9
Chile	10	11	7,213
Malaysia	4	3	5,023.8

Source: National and regional central banks and finance ministries.

a. Data for 2005–06 or most recently available consecutive two years.

b. Data for end-2006 with the exception of: Democratic Republic of the Congo (end-2003), Madagascar (end-2004), Namibia (end-June 2005), Tanzania (end-2005), Ghana (June 2006), South Africa (end-September 2006), Zambia (May 2007), and Chad and Malaysia (March 2006).

— = Not available.

Differences in the categorization of economic sectors by central banks in several countries make it difficult to rank specific infrastructure sectors by receipts of local bank lending. Despite the limited local bank lending data by infrastructure sector, certain trends can be identified. The “transport, communication, and storage” sector, although quite broad, can be identified as the recipient of the largest amount of total local bank loans outstanding in 2006 (or the most recent year) for the 23 African focus countries that compile and report these data (table 2.7). The category accounted for just over \$8.3 billion, or just under three-quarters of the \$11.3 billion in total loans outstanding for infrastructure purposes. Of this amount, \$232.5 million was allocated to the narrower “transport” category (by Madagascar,

Tanzania, and Uganda), \$2.5 million to road construction (Zambia), \$1 million to airport projects (Zambia), and \$33.1 million to telecommunications projects (Zambia). Cape Verde's central bank reported a further \$21.3 million of bank loans outstanding for construction of public works related to infrastructure.

Electricity, water, and gas/public utilities received the next-largest amount, \$2.7 billion, or just under one-quarter of the total \$11.3 billion in loans outstanding for infrastructure financing in the focus countries. Of this amount, \$29 million was identified as going specifically to electricity generation (Zambia) and \$1.8 million to water and sanitation (Zambia).

Bank lending in some of the focus countries remains characterized by a concentration of lending to a few sectors. Even where bank lending has become more diversified across economic sectors, banks often concentrate their lending to a few large, corporate, blue-chip borrowers. Chad is an extreme example. Bank lending in Chad finances the annual cotton crop (with government guarantees); in the infrastructure arena, they lend only to cell-phone operators, which are multinational companies with their own sources of financing. Government borrowing for infrastructure purposes is limited to official sources.

As discussed above, there remains a dearth of bank financing at longer maturities in many countries, reflecting the predominantly short-term nature of banks' deposits and other liabilities. Longer-term deposits are needed to finance long-term credit commitments. In Rwanda, for example, nearly half of the total outstanding credit at the end of 2006 had maturities of one year or less.

For the majority of the 24 countries, the capacity of local banking systems is too small and constrained by structural impediments to adequately finance infrastructural development. There may be somewhat more potential in this regard for syndicated lending to infrastructure projects with the participation of local banks, which has been on an overall trend of increase in recent years, albeit with significant variability across the 24 countries (see the next chapter on syndicated bank lending for infrastructural development).

**Table 2.7 Allocation of total bank loans outstanding by infrastructure sector**

Year-end 2006; US\$ millions, unless otherwise specified /a

Country	Transport	Telecoms	Transport, communications & storage	Transport, communication, energy & water	Electricity, water & gas/public utilities	Construction of public works /b	Total, infrastructure sectors	Total, all economic sectors	Infrastructure loans as % total bank loans
Benin			82.4		41.2		123.6	1,009.0	12
Burkina Faso			74.9		9.6		84.5	817.9	10
Cameroon	—	—	—	—	—	—	—	—	—
Cape Verde			28.3		58.0	21.3	107.6	239.6	45
Chad	0	0	0	0	0	0	0	270.7	0
Congo, Dem. Rep.				5.8			5.8	70.0	8
Côte d'Ivoire			271.7		63.0		334.7	2,267.3	15
Ethiopia			243.8		4.1		247.9	3,314.2	7
Ghana				177.9			177.9	2,156.6	8
Kenya			574.5				574.5	6,438.7	9
Lesotho				20.9			20.9	48.7	43
Madagascar	67.6						67.6	2,164.4	3
Malawi			14.0		3.4		17.4	186.7	9
Mozambique			60.7				60.7	986.7	6
Namibia			93.1		24.0		117.1	3,003.7	4
Niger			49.0		17.5		66.5	329.2	20
Nigeria			1,360.8		1,082.8		2,443.6	19,765.9	12
Rwanda			24.8		0.8		25.6	311.4	8
Senegal			193.1		92.8		286.0	2,301.8	12
South Africa			5,011.0		1,263.8		6,274.9	249,020.2	3
Sudan			5.2				5.2	55.3	9
Tanzania	93.0						93.0	1,222.7	8
Uganda	71.9				3.0		74.9	997.5	8
Zambia	3.5	33.1		5.5	30.7		72.9	1,088.7	7
<b>Total AICD</b>	<b>236.0</b>	<b>33.1</b>	<b>8,087.5</b>	<b>210.2</b>	<b>2,694.7</b>	<b>21.3</b>	<b>11,282.7</b>	<b>298,066.8</b>	<b>4</b>
Chile			2,900.3		2,085.9		7,213.4	63,063.8	10
Malaysia			2,790.6		1,322.8	910.3	5,023.8	155,153.6	3

Sources: National central banks, finance ministries, and other national financial authorities.

a. Data for end-2006 with the exception of the Democratic Republic of the Congo (end-2003), Madagascar (end-2004), Namibia (end-June 2005), Tanzania (end-2005), Ghana (June 2006), South Africa (end-September 2006), Zambia (May 2007), and Chad and Malaysia (March 2006).

b. Breakdown by type of public works financing (for infrastructure versus other public works) is not available.

— = Not available.



### 3 Syndicated bank lending for infrastructure development

Syndicated lending represented an increasingly important source of private financing for developing country borrowers in recent years, including some of the African focus countries, which had grown considerably in the past few years—a trend largely attributable to the favorable external financing environment characterized by ample global liquidity that prevailed until recently.<sup>19</sup> The proportion of total syndicated lending to the focus countries for infrastructure development purposes also increased in recent years (table 3.1), although varying greatly from country to country. The number of loans transacted (eight loans in 2006 for all 24 countries, little changed from the tallies in 2000 and 2005), was still modest. Nevertheless, this source of financing continued to evolve. Some of the loan facilities arranged for these countries in 2006 were considered landmark project financing deals—because of their structure and/or size—within the borrowers’ countries of origin.

Table 3.1 Syndicated loans for borrowers in infrastructure sectors in focus countries, 2000–06

	Amount (US\$ millions)	No. of loans	Amount (US\$ millions)	No. of loans	Amount (US\$ millions)	No. of loans
	2000	2000	2005	2005	2006	2006
Total syndicated loans for infrastructural development						
to focus countries excluding South Africa:	138	5	431	4	1,178	5
of which:						
Telecommunications, wireless/mobile	51	2	177	3	270	2
Telecommunications-services	0	0	0	0	0	0
Construction/building of infrastructure	0	0	0	0	211	1
Transportation and shipping	70	1	254	1	680	1
Utilities, electric power	18	2	0	0	17	1
Utilities, water supply	0	0	0	0	0	0
Total syndicated loans (all purposes) to countries exc. South Africa	790		2,668		4,315	
% of total for infrastructure sectors: Focus countries exc. South Africa	18		16		27	
Total syndicated loans for infrastructural development to South Africa:	475	2	0	0	5,081	3
of which:						
Telecommunications, wireless/mobile	475	2	0	0	4,605	2
Construction/building of infrastructure	0	0	0	0	475	1
Total syndicated loans (all purposes) to South Africa	9,800		3,115		11,105	
% of total for infrastructure sectors: South Africa	5		0		46	

Source: Dealogic Loanware.

<sup>19</sup> Note this subsection draws entirely on data for syndicated loan transactions from Dealogic’s Loanware dataset. Although Loanware is considered to be the most comprehensive dataset available for syndicated loan transactions, its dataset also includes bilateral loans, where these are reported.

Total syndicated lending to borrowers in the 23 focus countries, excluding South Africa<sup>20</sup>, for infrastructure development purposes grew from \$138 million in 2000 to \$1.18 billion in 2006. Lending rose more than 173 percent in 2005–06. The increase in infrastructure lending as a share of total lending increased less significantly, however, rising from 16 percent to 27 percent in the same period. It must also be noted that the \$1.18 billion loaned in 2006 went to borrowers in only 3 of the 23 countries: Kenya, Nigeria, and Zambia. Nearly half of the syndicated lending transacted in 2006 for borrowers in South Africa went to infrastructure. In Chile, three-quarters (just under \$5 billion) of the total syndicated lending went to infrastructure development (table 3.2).

**Table 3.2 Syndicated loans for infrastructure development in Chile and Malaysia**

Amount in US\$ millions unless otherwise specified; number of loans

	2006	No. of loans
Total syndicated loans for infrastructural development to Chile:	4,978.4	16
<i>of which:</i>		
Telecommunications, wireless/mobile	369.6	2
Telecommunications-telephone, internet and other services	725	1
Transportation, ship	900.0	2
Transportation, rail	817.6	4
Transportation, services	77.4	1
Utilities, electric power	1710.0	5
Utilities, water supply and treatment	378.8	1
Total Dealogic loans for all purposes to Chile	6,729.8	48
<b>Share of total toward infrastructural development: Chile (%)</b>	<b>74</b>	
Total syndicated loans for infrastructural development to Malaysia:	2414.7	7
<i>of which:</i>		
Telecommunications, wireless/mobile	880	1
Telecommunications-telephone, internet and other services	343.5	1
Transportation, ship	246.25	2
Transportation, ar	230	1
Utilities, electric power	715	2
Utilities, water supply and treatment	0	0
Total Dealogic loans for all purposes to Malaysia	7,668.9	28
<b>Share of total toward infrastructural development: Malaysia (%)</b>	<b>31</b>	

Source: Dealogic Loanware.

The transport-shipping sector received the majority of lending for infrastructure development in the focus countries (excluding South Africa), followed by telecoms in all three years covered in table 3.1. In each of these years, however, a single large loan constituted the entire amount going to transport and shipping. Although telecommunications ranked second as a borrowing destination for infrastructure development lending to the 23 countries, at \$270 million the amount loaned was considerably smaller than the amount borrowed by South African telecoms firms.

<sup>20</sup> The remainder of this analysis, except where specified, will focus on lending to the low- and lower-middle-income AICD countries (that is, excluding South Africa).

Following a year in which there was no new syndicated lending for infrastructure sectors, the \$5.1 billion in syndicated lending to South Africa in 2006 dwarfed the corresponding amount loaned to the 23 other countries. This lending comprised two exceptionally large transactions, totaling \$4.6 billion, for two South African companies in the cellular telecommunications sector. Mobile Telephone Networks, Ltd. borrowed \$3.5 billion (of which \$2.5 billion was U.S.-dollar-denominated, the remainder Rand-denominated) in a multitranche facility, with maturity terms ranging from one to five years. The loan was used to support the \$5.5 billion acquisition of Investom and to refinance a bridge loan taken out previously the same year. The other large loan, a Rand-denominated \$1.1 billion, five-year term loan, was borrowed by Vodacom Group for general corporate purposes.

In Chile and Malaysia, transport infrastructure received 36 percent (\$1.8 billion) and 20 percent (\$476 million), respectively, of total syndicated lending to infrastructure borrowers. Electricity generation ranked second in Chile as a destination for syndicated lending to infrastructure sectors; it received 34 percent of the total in 2006, followed by telecommunications, which received 22 percent. Telecommunications, driven by mobile-phone service providers, received just over half, or \$1.2 billion, of syndicated lending to infrastructure in Malaysia.

Of the 23 other focus countries, Nigeria was the top destination country for loans financing infrastructure development in 2006 (table 3.3), borrowing \$890.6 million. Of this, \$680 million went to Bonny Gas Transport, in two tranches of 12 and 12.5 years, for construction of a liquefied natural gas train. The other \$210.6 million went to a four-tranche loan for United Cement Co. (UNICEM), with maturities ranging from four to nine years, toward construction of a 47MW power plant in Calabar, Nigeria. Kenya ranked second as a destination in 2006. Its \$181.9 million loan went to borrowers in telecoms (Safaricom, \$165.1 million) and electrical utilities (Iberafrika Power, \$16.8 million). Zambia was the third destination country for a syndicated lending to infrastructure development in 2006. There, cellular telecoms company Celtel borrowed \$105 million for capital expenditure purposes.<sup>21</sup>

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<sup>21</sup> Sudan (Al Manara Water Co.) and Mozambique (Fundo do Investimento e Patrimônio do Abastecimento de Água, FIPA) attracted a further \$93.3 million and \$38.8 million, respectively, in bilateral loan deals tracked by Dealogic, for financing of a water treatment plant (Sudan) and upgrading and expansion of water supply services within the Greater Maputo metropolitan area (Mozambique).

**Table 3.3 Characteristics of syndicated loan transactions for infrastructure sectors in 2006**

Borrower/country of domicile	Sector	Amount (US\$ millions)	Currency	Maturity	Pricing	Bank participation: local vs. nonlocal	Financing by local banks /a (US\$ millions)
<i>Transactions for borrowers in AICD countries excluding South Africa in 2006</i>							
Safaricom, Kenya	Telecoms	165.1	Ksh, 3 tranches	5 years	91 day tbill, 100BP	4 local; 1 South African bank (Standard Bank); 4 developed country banks	50.9
Celtel Zambia, Zambia	Telecoms	105.0	kwacha & US\$, 2 tranches	5 years	Undisclosed	2 local; 2 South African banks; 1 Mauritian; 6 developed country	Undisclosed
UNICEM, Nigeria	Construction of power plant	210.6	naira & US\$, 4 tranches	4-, 7-, & 9- yrs.	Undisclosed	8 local; 1 U.S. bank (Citibank); 1 local affiliate of regional Ecobank	Undisclosed
BGT	Transport (shipping)	680.0	US\$, 2 tranches	12-yrs. & 12-yrs, 6 mo.	LIBOR + 75 BP	12 major developed country banks	0
Iberafrica Power, Kenya	Electrical utility	16.8	US\$, 1 tranche	5 years	Undisclosed	1 local; Banque de Afrique (Benin); 1 local subsidiary of Stanbic Bank (South Africa); 2 U.K. banks	Undisclosed
<i>Transactions for borrowers in South Africa in 2006</i>							
MTN, Ltd.	Telecoms	3,467.9	US\$ & Rand, 3 tranches	5 yrs. (2 tr.); 3 yrs. (1 tr.)	LIBOR+65BP; LIBOR+90BP; LIBOR+60BP	2 local; 15 major developed country; 1 Chinese bank (BoC)	Undisclosed
Vodacom Group	Telecoms	1,137.6	Rand, 1 tranche	5 years	Undisclosed	4 local; 1 German (Commerzbank)	Undisclosed
Trans African Concessions	Construction of toll road	475.3	Rand, 2 tranches	1 yr & 20 yrs.	Undisclosed	3 local banks	475.3

Source: Dealogic Loanware.

a. Where this is disclosed. Note that actual participation by each bank in a given loan transaction is not always provided to Dealogic given variance in disclosure practices across bank syndicates.

The proportion of syndicated loans for infrastructure denominated in local currencies has been rising in the focus countries since 2000. Sixty-six percent of the total syndicated lending to infrastructure in 2006, as tracked by Loanware, was denominated in U.S. dollars (\$773 million).<sup>22</sup> The remaining \$404.8 million (just over one-third) was denominated in local currency. In contrast, none of the syndicated loans arranged in 2000 for borrowers in the 23 countries was denominated in local currency, and only 17 percent (\$77.2 million, for a loan to cellular-phone company Celtel Nigeria) in 2005 was denominated in local currency. None of the syndicated loans for infrastructure purposes transacted in 2006 for borrowers in Chile and Malaysia was denominated in local currency. These last mentioned loans were U.S.-dollar-denominated with the exception of a \$343.5 million U.S.-dollar-equivalent loan denominated in Singapore dollars.

A few of the recent syndicated loans to the focus countries have been specially structured to reduce the risks of currency mismatch. In 2006, the majority of the U.S.-dollar-denominated lending went to

<sup>22</sup> A large share of foreign-currency-denominated or foreign-indexed debt has been identified as a characteristic that can render an emerging market economy vulnerable to capital flow reversals and financial crisis (see, for example, Goldstein and Turner 1996).

Bonny Gas (BG), a liquefied natural gas tanker owner and operator in Nigeria. BG signed a 20-year agreement to deliver gas to its U.S. gas marketing business based in Louisiana, United States. BG's revenues, on which they will rely to service the loan, are also denominated in U.S. dollars, so the risk of a mismatch on the balance sheet is lower. Unicem's (Nigeria) \$210.6 million multitranche project financing facility, of which \$57 million is dollar-denominated, set a new benchmark for naira-denominated project debt financing.<sup>23</sup> The Unicem loan was specially structured to address the mismatch between the company's foreign-currency-denominated construction costs and the project income earned in local currency by enabling the company to pay its primary contractors in dollars accessed from the local market while the naira-denominated tranches served as a natural hedge for the company's revenues earned in naira. Celtel Zambia's loan, which comprised an \$86 million kwacha-denominated tranche raised primarily from Zambian banks and international development finance institutions, was the largest locally raised kwacha and foreign-currency-denominated syndicated term loan with offshore participation arranged for a Zambian corporation to date.

Maturity terms for borrowers' infrastructure loans in 2006 ranged from 4 to 13.7 years, with some variance by borrowing sector—longer overall than the 2.5 to 5 year range in 2005 and 5 to 10 years in 2000.<sup>24</sup> The longest available maturity terms in 2006 exceeded those for infrastructure borrowers in Malaysia (12 years) and were just over a year below those for infrastructure borrowers in Chile (15 years). The lending facilities for African telecoms concerns in 2006 were all arranged with five-year maturity terms (versus five to eight years for corresponding borrowers in Chile). Loans for firms in the focus countries' shipping and water utilities sectors were arranged with longer maturities of 12 to 13.7 years. In addition to being uniquely structured to overcome the company's particular foreign-exchange exposure, Unicem of Nigeria's \$210.6 million multitranche project financing facility is a landmark deal for the Nigerian corporate sector in that it has the longest maturity terms for naira-denominated syndicated loan facilities to date, with seven- and nine-year naira-denominated tranches and four- and seven-year dollar-denominated tranches.

South African-based borrowers in the telecoms sector also borrowed for five-year maturity terms, with the exception of a three-year, \$1.5 billion tranche for Mobile Telephone Networks's (MTN) \$3.47 billion loan. The longest-tenor lending facility in 2006 for South African borrowers involved in infrastructure development, as tracked by Loanware, exceeded that of the other focus countries by several years: a 20-year loan for Trans African Concessions Pty Ltd, to refinance a facility signed in 1998 to support development of a Maputo Corridor Toll Road from South Africa to Mozambique. Forty-nine percent of South African corporate borrowing for infrastructure purposes was U.S.-dollar-denominated in 2006. The remainder was in local currency.

Although Dealogic reported no euro-denominated syndicated loans for infrastructure financing in the 24 focus countries, there were a few euro-denominated loans transacted bilaterally in 2005–06 in the water treatment and electrical utility sectors. In fact, reported loans arranged for borrowers in the water sector were all bilateral.<sup>25</sup> Development finance institutions were prominent in these bilateral transactions,

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<sup>23</sup> "African Industrial Deal of the Year 2006," *Project Finance*, March 1, 2007.

<sup>24</sup> Maturity terms are not disclosed in the case of some loans, however.

<sup>25</sup> Although Loanware is considered to be the most comprehensive dataset available for syndicated loan transactions, its dataset also includes bilateral loans where these are reported.

particularly the European Investment Bank. South Africa's Industrial Development Corp. loaned \$93.3 million-equivalent denominated in euros, for construction of a water-treatment facility in Sudan in 2006.

Local banks participated in all three syndicated loans transacted for infrastructure borrowers in South Africa, and in four of the five transacted in the other 23 countries. Local banks also played prominent roles in these syndicates. For example, eight local banks participated in the financing of Nigeria's Unicem in 2006, which also involved a local affiliate of the West African regional bank, Ecobank, and Citibank, which was the lead mandated arranger. This represents a marked change from just a few years ago. In 2000, there were no local bank participants in any of the transactions for infrastructure sector borrowers in the 23 countries. In 2005, local banks participated in only one of the four syndicated loans arranged for infrastructure borrowers in focus countries: a \$77.2 million, five-year loan to Nigeria's M-Tel cellular-phone company, in which five Nigerian banks (United Bank for Africa, Guaranty Trust, Zenith International, IBTC Chartered Bank, and Diamond Bank) and the Nigerian operations of regional bank Ecobank participated.

Major South African-headquartered banks have played a big part in syndicated deals arranged for telecoms sector borrowers domiciled in their home country for some time and for borrowers in low- and lower-middle-income focus countries in 2006. Major South African banks Standard Bank and Nedcor participated in the two syndicated deals transacted in 2000 for infrastructure sector borrowers (mobile-phone operators). Standard Bank provided \$27.5 million while four Kenyan banks provided \$50.9 million for a total \$165 million financing facility arranged for Kenya's telecoms company, Safaricom, in 2006. Similarly, two South African banks (ABSA Capital and Development Bank of South Africa) and the local affiliate of South Africa's Standard Bank, along with four local banks, a Mauritian bank (Mauritius Commercial Bank), and international banks Citigroup and the local affiliate of Standard Chartered (U.K.), participated in the financing arranged for Celtel Zambia.

Local banks were relatively infrequent participants in syndicated loans transacted for infrastructure sector borrowers in Chile and Malaysia as compared with the African focus countries in 2006. Only one of the deals in the top-borrowing transport sector, a \$700 million loan for Santiago train operator, Empresa de Transporte de Pasajeros Metro, involved a local bank's participation (Banco de Crédito e Inversiones, BCI), with a relatively minor role as one of nine banks in a syndicate involving major European banks. Chilean banks BCI, Banco Bice, and Banco del Estado had more prominent roles as mandated arrangers in a \$190 million deal for mobile-phone operator Telefonica Moviles de Chile, but this also constituted the sole syndicated loan by a Chilean telecoms borrower with local bank participation in 2006. Similarly, two Chilean banks, BCI and Banco del Estado, participated in one of the five loans transacted in the electricity generation sector and these two banks together with Bicecorp provided 8 percent of the total \$378.8 million in syndicated loan financing of a loan for a water treatment utility. In Malaysia, only one of the total seven syndicated loans for infrastructure providers in 2006 involved local bank participation: RHB Sakura Merchant Bankers participated with Kuwait Finance House in a \$230 million loan financing commercial aircraft for national airline AirAsia.

## 4 Institutional investors as a potential source of infrastructure financing

In all of the African focus countries except South Africa, further financial sector development, including notably of institutional investors such as pension funds and insurance companies, is needed to increase the availability of longer term financing, including for infrastructure. The underdeveloped institutional investor base that continues to exist in nearly all of these countries also impedes overall capital markets development. One country, the Democratic Republic of Congo, does not even have a functioning pension system.<sup>26</sup>

A combination of factors constrains the development of insurance sectors and pension systems in these countries. Social security systems are very basic in many of these countries. High, widespread poverty prevents people from buying insurance or obtaining pension coverage. In some countries (for example, Ethiopia), pension systems only cover government employees, the military, civil servants, and state enterprise employees. Pensions paid are thus very modest and often insufficient. Postretirement benefits can be less than 50 percent of earnings in many cases.

The HIV/AIDS pandemic has shortened average life spans and has taken a toll on national social security systems in several countries. There are also cultural reasons for the slow development of insurance sectors: in certain countries (in Niger, for example), some people view insurance services as improper because they involve speculating on an individual's lifespan.<sup>27</sup> In Muslim countries such as Senegal and Sudan, insurance companies have been offering *takaful* policies to comply with *sharia*, since conventional insurance services are not permitted under Muslim law.

Limited investment options in the African focus countries excluding South Africa make it difficult to achieve a balanced investment portfolio suitable for a pension fund. There is thus significant scope for private pension providers, which have begun marketing to private-sector employers in several countries as a good way to attract staff (Madagascar). There are some cases where investment allocation thresholds for institutional investors have been set that are too onerous to allow for compliance in practice (Tanzania's insurance sector). Financial impropriety/scandal has troubled several national pension systems and some insurance sectors have been troubled by suspensions of activities of some companies (Uganda).

There is a trend away from defined benefit and towards defined contribution schemes in many of these countries. The latter are viewed as less costly, more transparent, and easier to manage. In Nigeria's reformed pension system, for example, funds are now mostly defined contribution, involving privately managed pension funds. Assuming this trend ultimately fosters a well-managed, appropriately regulated institutional investor base with private fund participation, there could be significant growth of assets

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<sup>26</sup> Pension system coverage in the Democratic Republic of the Congo is severely limited, in the wake of the conflict situation that prevailed in the 1990s. Pensions are provided by the National Social Security Institute (Institut National de Security Sociale, INSS), supervised by the Ministry of Labor and Social Security, but only covered around 1 percent of the working population in the sectors it was charged with covering as of 2003, according to the most recently available data (Axco).

<sup>27</sup> Axco, various dates..

under management by these financial institutions in future years. In 12 of the 24 focus countries that have some form of operating pension system, defined benefit and defined contribution schemes concurrently operate; in each of these countries, defined contribution schemes are becoming more prevalent while defined benefit schemes have been declining under pension system reforms that allow a larger role for privately managed pension fund administrators. In a thirteenth country (Rwanda), policy reforms have been underway to transition from a defined benefit to defined contribution system. It is currently common for the state to administer a defined benefit scheme while complementary defined contribution pension schemes are provided by private-sector employers (Madagascar, Mozambique, Senegal). Under proposed reforms in Ghana, Social Security and National Insurance Trust (SSNIT), the largest state-run scheme, would likely remain a defined benefit scheme and form one tier of a three-tier pension system, the second tier of which would be a privately managed defined contribution scheme. Malawi's government is also looking for ways to introduce a defined contribution component to the national system.

Because pension funds are not adequately regulated in a number of the focus countries, it is not possible to obtain accurate data on the number of such funds or their assets and investment allocations. Even in South Africa, the pension fund regulator (Financial Services Board, FSB) releases very little timely data on the sector or individual funds (EIU 2006a). Indeed, the most recently available data from South Africa's FSB as of end-2007 on pension system assets and investment breakdown was for 2004.<sup>28</sup> There have been proposals and reforms to improve data and transactions reporting by pension fund managers to sector regulators, however. In Nigeria, the Pensions Reform Act 2004 mandates that only licensed pension fund administrators having a minimum capital of NGN 150 million may manage pension funds. Pension Fund Administrators (PFAs) must maintain accounting records of all transactions of investment and management of pension fund assets and report regularly on investment strategy, market returns and other performance indicators to the National Pension Commission (PenCom 2006).

The lack of data makes it hard to evaluate the extent to which institutional investors in the focus countries invest their assets specifically in local infrastructure. Only three of the 24 countries (Cape Verde, Tanzania, and Uganda) have specifically reported pension system investments in local infrastructure (table 4.1), amounting to only a combined estimated \$31.5 million, or a tiny 0.03 percent of total combined estimated assets of \$91.8 billion for all national pension systems in the focus countries for which data were available.

Cape Verde financial authorities reported the largest amount of pension system assets invested specifically in infrastructure, at \$22.5 million (13 percent of total national pension system assets) as of July 2007 (figure 4.1). Most of this (\$19.1 million) was invested in equity issues by telecoms concern Cabo Verde Telecom, and the remaining \$3.4 million was newly invested in that country's launch corporate bond listing on the Cape Verde stock exchange in mid-1997, by electricity generation utility Elektra.

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<sup>28</sup> Only 70 percent of the registered self-administered pension funds in South Africa provided data on the operations for the annual statistical report for 2004 compiled by the FSB.



**Table 4.1 Allocation of national pension system assets by infrastructure sector**

Year-end 2006 or most recent available; US\$ millions

Country	Total pension assets	Total pension assets invested in infrastructure	Sector and type of funds, where known
	US\$ millions		
Benin	125	—	
Cape Verde	170	22.5	Telecoms equities (19.1) and electrical utility bonds (3.4)
Chad	n.a.	0	
Congo, Dem. Rep.	n.a.	0	
Ghana	1,076.7	0	
Kenya	1,770.3	—	
Madagascar	62.4	—	
Malawi	—	0	
Namibia	3312	—	
Niger	79	—	
Nigeria	3,507.8	0	
Rwanda	132.7	—	
South Africa	80,202.3	—	
Tanzania /c	578	0.4	Feasibility study of Kigamboni Bridge
Uganda	470.6	8.6	Telecoms and EADB bonds /a
Zambia	314.1	0	
Total	91,800.5	32	
Chile /b	88,293.5	7,393	
Malaysia	69,659.0	—	

Sources: Pension system asset data sourced from national pension funds and financial authorities; Axco country reports.

Note: Total pension assets are underestimated for several countries because national authorities do not compile data covering all funds (in some cases due to inadequate regulation of the sector). Pension funds assets data are for 2006 with the exception of Benin (2004), Cape Verde (July 2007), South Africa (2004), Rwanda (2005), Namibia (2004), Tanzania (June 2007 for National Social Security Fund), Uganda (June 2007), Madagascar (2005), Niger (April 2007), Nigeria (August 2007), Zambia (March 2007), and Chile (July 2007). Data breakdown not available for Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Ethiopia, Lesotho, Mozambique, Namibia, Niger, Rwanda, Senegal, South Africa, and Sudan.

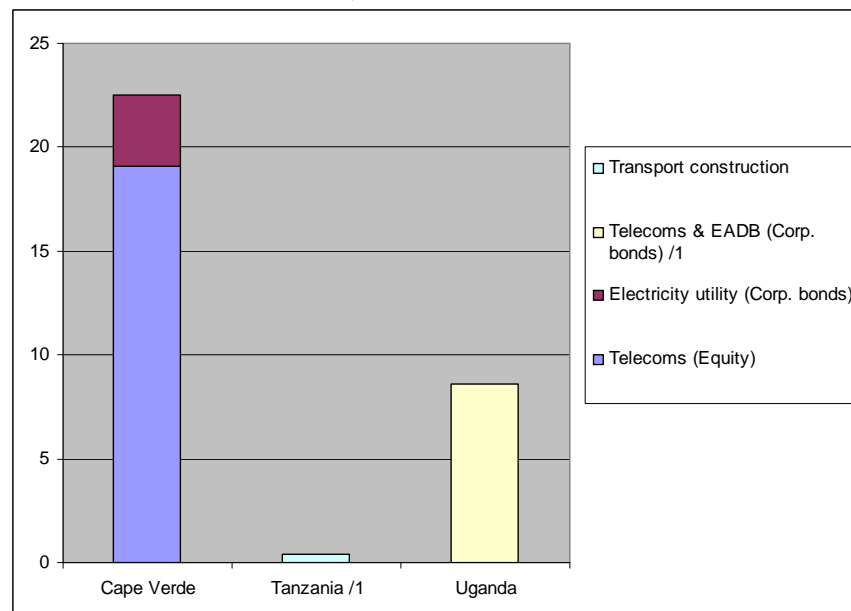
a. East African Development Bank (EADB) provides development finance within the East African Community (EAC) to projects in sectors including agriculture, transport and communication, construction and manufacturing, electricity, water supply, and housing.

b. Chilean authorities were unable to specify the pension system's asset allocation specifically in infrastructure sectors but given that corporate bonds issued for financing infrastructure development as a share of total (excluding nondomestically issued as well as bank bonds and securitized) is 48 percent and domestically issued equity issued by firms in infrastructure sectors accounts for 27 percent of total market cap, one can roughly estimate that up to \$3.3 billion of pension fund asset holdings were in corporate bonds issued by companies/projects in infrastructure sectors; and around \$4 billion can be estimated as holdings in domestically issued equity issued by infrastructure companies/projects.

— = Not available; n.a. = Not applicable.

**Figure 4.1 Allocation of national pension system assets by infrastructure sector**

Year-end 2006 or most recent available; US\$ millions /1



Sources: Pension system asset data sourced from national pension funds and financial authorities; Axco country reports.

/1 As of July 2007, for Cape Verde. EADB provides development finance within the EAC to projects in sectors including agriculture, transport and communication, construction and manufacturing, electricity, water supply, and housing. For Tanzania: Cost of financing Feasibility Study of Kigamboni Bridge.

In Uganda, 1.8 percent of total national pension system assets as of June 2007 were invested in local infrastructure (via total holdings of \$8.6 million in corporate bonds issued by Uganda Telecom and the East African Development Bank, EADB). Even here, the data are incomplete and provide only a very rough estimate, as they only cover the holdings of the National Social Security Fund (NSSF), the public pension fund.<sup>29</sup> In Tanzania, an estimated 0.07 percent (\$0.41 million) of national pension system assets was invested in local infrastructure to fund a feasibility study for construction of the Kigamboni Bridge.

Institutional investors in some of the other focus countries may have been investing a portion of their assets in infrastructure development, through their holdings of government securities and other financial instruments, but existing data compiled by the funds and their regulators makes it impossible to quantify this. For six countries—Chad, the Democratic Republic of the Congo, Ghana, Malawi, Nigeria and Zambia (all but two of which, Nigeria and Zambia, are largely defined benefit systems)—national authorities or local market analysts confirmed that none of the pension system’s assets were invested in infrastructure development.

Only two focus countries, Cape Verde and Mozambique, were able to specifically report investment by their insurance sectors in infrastructure assets as of year-end 2006—in the telecoms sector in both cases (table 4.2). Cape Verde’s insurance sector held 0.5 percent (\$0.09 million) of the sector’s total

<sup>29</sup> Moreover, it is unclear as to the actual extent that the EADB bond issues finance infrastructure in Uganda as the declared intent of its issues is to provide development finance within the East African Community to projects in sectors including agriculture, transport and communication, construction and manufacturing, electricity, water supply, and housing.

assets in shares issued by the telecoms concern Cabo Verde Telecom. In Mozambique, the insurance sector held 1.9 percent (\$3.9 million) of its total assets in mobile telecoms company Mozambique Cellular (MCEL). Five countries (Ghana, Lesotho, Namibia, Nigeria, and Zambia) were able to confirm that none of their insurance sector assets were invested in infrastructure sectors.

**Table 4.2 Allocation of national insurance assets by infrastructure sector**

Year-end 2006 or most recent available; US\$ millions

Country	Total insurance assets US\$ millions	Total insurance sector assets invested in infrastructure	Sector and type of funds, where known
Benin	71.9	—	
Burkina Faso	53.0	—	
Cameroon	252.4	—	
Cape Verde	18.9	0.1	Telecoms equities
Chad	9.9	—	
Congo, Dem. Rep.	18.8	—	
Côte d'Ivoire	491.2	—	
Ethiopia	171.9	—	
Ghana	96.9	0	
Kenya	1,308.7	—	
Lesotho	250.5	0	
Madagascar	89.7	—	
Malawi	221.6	—	
Mozambique	198.4	3.9	Telecoms bonds
Namibia	2,240.0	0	
Niger	22.7	—	
Nigeria	1,575.2	0	
Rwanda	27.7	—	
Senegal	149.9	—	
South Africa	173,913.0	—	
Sudan	96.1	—	
Tanzania	123.5	—	
Uganda	70.4	—	
Zambia	121.1	0	
Chile /a	25,542.6	4263	
Malaysia	30,715.9	—	

Sources: Insurance sector assets data sourced from national financial authorities; CEMA (for WAEMU countries and Cameroon); Axco country reports; EIU 2006a (for South Africa).

Note: Total insurance sector assets are underestimated for some countries because national authorities do not compile timely data covering all companies (in some cases due to inadequate regulation of the sector). Data breakdown not available for Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Kenya, Madagascar, Malawi, Niger, Rwanda, Senegal, South Africa, Sudan, Tanzania, Uganda, and Malaysia.

a. Chilean authorities were unable to specify the insurance sector's asset allocation specifically in infrastructure sectors but given that corporate bonds issued for financing infrastructure development as a share of total is 48 percent and domestically issued equity issued by firms in infrastructure sectors accounts for 27 percent of total market cap, one can roughly estimate that up to \$4 billion of pension fund asset holdings were in corporate bonds issued by companies/projects in infrastructure sectors; and around \$263 million can be estimated as holdings in domestically issued equity issued by infrastructure companies/projects.

— = Not available.

The portfolio breakdown of pension system assets varies among the focus countries, although certain patterns are discernable based on level of financial sector development and the extent to which state-run fund(s) predominate (table 4.3). In a number of countries, investment practices of pension funds and insurance companies continue to favor largely short-term government securities, bank deposits, and real estate, largely due to a lack of investment alternatives. In a number of countries with underdeveloped financial sectors, asset allocation of pension system assets is characterized by heavy investment of assets in real estate and other large illiquid assets. This varies considerably among the pension systems for which data are available, from no holdings in real estate assets by Namibia's pension system to 26 percent of the total investment by Zambia's pension scheme.

Table 4.3 Allocation of national pension system assets by investment vehicle

Year-end 2006 or most recent available; US\$ millions

Country	Total pension assets (US\$ millions)	Direct investment in infrastructure projects	Cash and deposits	Government securities	Corp. bonds issued by infrastructure sector firms	Other corp. bonds	Loans	Equities issued by infrastructure sector firms	Other equity issues	Real estate	Other domestic securities	Foreign assets (where specified)
Cape Verde	170		7	76	2		0.7	11	3	0.5		
Ethiopia	—		35	65								
Ghana	1,077		36	0.2	0		22	0	30	11	1	
Kenya	1,770		3	42		4			24	6	21	
Madagascar	62		0	90	0		0	0	4	6	0.4	
Malawi	—			20			11		48	21		
Namibia	3,312		11	16	Unsp.	0.1	2		58	0		
Niger	79		8				92					
Nigeria	3,508		5	27		0.3			33	7	21	6
South Africa	80,202		6	12			0		33	1	48	
Tanzania	578	0.1	11	24		7	16		17	23	2	
Uganda	471		26	48	1.8		0	Unsp.	5	17	3	
Zambia	314		8	9					24	26	32	
Chile	88,293		17	13		8			17	0	9	32
Malaysia	69,659			38					19	0.6	43	

Sources: Pension system asset data sourced from national pension funds and financial authorities; Axco country reports.

Note: Total pension assets are underestimated for several countries because national authorities do not compile data covering all funds (in some cases due to inadequate regulation of the sector). Pension funds assets data are for 2006 with the exception of Cape Verde, Niger, Nigeria, Tanzania (for NSSF), Uganda, Zambia, and comparator country Chile (2007); Rwanda and Madagascar (2005); Benin, Namibia, and South Africa (2004); Ethiopia (FY 2002-03). For Niger, \$92 million in loans are loans to government. For Tanzania, direct investment in infrastructure projects took the form of the financing of a feasibility study for construction of the Kigamboni Bridge.

— = Not available; Unsp. = Unspecified

In some cases where time-series data are available, however, national pension systems have most recently been investing a smaller portion of their assets in real estate. In Tanzania, for example, 20 percent of the total investment portfolio of Tanzania's Parastatal Pensions Fund (PPF) pension scheme, one of the larger state-run pension schemes, was invested in real estate as of year-end 2006, down from 40 percent a few years ago.<sup>30</sup> Tanzania's largest state-owned insurance company, National Insurance Corporation (NIC), remained heavily invested in commercial and other real estate, according to the latest available data, however, at 42 percent of total assets. NIC was in the process of being privatized and restructured as of mid-2007, prompted by its inability to pay its claims on time, largely because of its lack of liquidity associated with its investment in real estate and other large illiquid assets.<sup>31</sup>

In the absence of investment alternatives, a sizeable portion of pension system assets have been directed to government securities, which are mostly short-term in many countries (table 4.3). In five of the 12 focus countries for which specific data on portfolio investment allocation of pension system assets are available as of end-July 2007 (Ethiopia, Kenya, Uganda, Cape Verde, and Madagascar), investment in government securities accounted for more than 40 percent of total assets. Although specific data were not compiled/available for pension systems in Chad, Mozambique, and Rwanda, then-current investment practices were known to direct funds largely to short-term government securities and bank time deposits.<sup>32</sup> Madagascar's public pension schemes, deemed "fiscally unsustainable" by a 2006 World Bank-IMF Financial Sector Assessment Program, held just over 90 percent of total assets in short-term government securities as of 2005 (IMF 2006e). In Niger, 92 percent of the assets of the Caisse Nationale de Sécurité Sociale (CNSS) were in the form of claims on Niger's treasury, and discussions were underway as of September 2007 to decide whether the treasury would repay this amount gradually or issue a bond to the CNSS repayable over a 10-year period.<sup>33</sup>

Deposits at commercial banks are another popular investment vehicle for pension system assets, according to the most recently available asset allocation data. Bank deposits as a proportion of total asset holdings exceeded 25 percent in three countries: Ethiopia, Ghana, and Uganda. For Ghana, 36 percent of state pension system assets were held as cash and deposits. In a fourth country, Cameroon, data estimates as of 2004 indicated pension investment holdings of nearly 61 percent in cash or bank deposits.<sup>34</sup> Considering the short-term tenors of bank time deposits, specifically reported at a maximum of one year

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<sup>30</sup> In Tanzania, the two main state-run pension funds, National Social Security Fund (NSSF) and Parastatal Pensions Fund (PPF), had been criticized in the past for their overinvestment in commercial and other real estate.

<sup>31</sup> Government plans to privatize NIC have stalled and further delays have occurred most recently due to significant changes in the value of the company's assets since the onset of the tendering process.

<sup>32</sup> Axco reports for Chad and Mozambique; IMF (2005) for Rwanda.

<sup>33</sup> IMF staff (mission for Fourth Review under the Poverty Reduction and Growth Facility, PRGF).

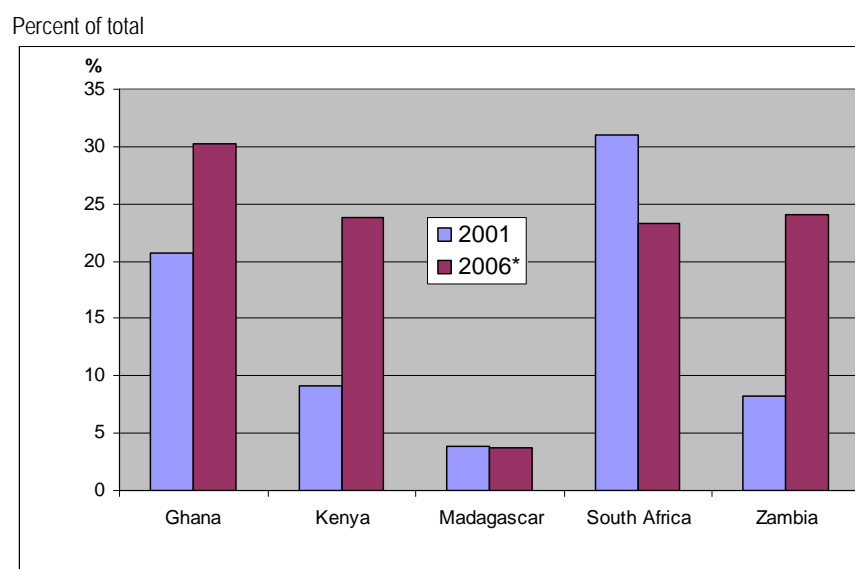
<sup>34</sup> Axco report for Cameroon.

in the case of at least five of these countries (table 2.3, chapter 2), these are not the investment vehicles best suited to pension funds and other institutional investors that tend to adopt longer-term investment horizons that seek to maximize returns, particularly when portfolios are heavily weighted in these investment vehicles. They can, however, play a role in a balanced portfolio.

A relatively low portion of pension fund assets were held in corporate bonds, while holdings in equities range widely by country. For the six countries (Cape Verde, Kenya, Namibia, Nigeria, Tanzania, and Uganda) reporting some portion of pension system assets invested in corporate bonds, the allocation ranges from only 0.1 to 7.3 percent at a maximum. Investment of pension system assets in equity ranged widely among the 11 countries reporting these securities in their asset portfolios, from 4 percent (Madagascar) to a high of 58 percent (Namibia). For Namibia, a significant amount of these equities are known to have been issued abroad, mostly by firms in South Africa, given Common Monetary Area links.

For those focus countries for which time-series data on pension system asset allocation are available (Ghana, Kenya, Madagascar, South Africa, and Zambia), there are signs of a somewhat more diversified portfolio approach to asset allocation and a shift away from large holdings in assets generating little or no returns, although not consistently (figures 4.2, 4.3, and 4.4). In three of these five countries (all except Madagascar and South Africa), the percentage allocation of pension system assets to equities and other non-government-issued securities has increased over the past several years. In South Africa's case, the percentage allocation of these assets to equity securities declined over the period, but the amount was still large at 23 percent. In three of the five countries (Ghana, Madagascar, and South Africa), the portion of pension system asset holdings in real estate declined, by more than 15 percentage points, in the case of Ghana and Madagascar. In South Africa, the allocation declined further from already low levels.

Figure 4.2 Pension system assets invested in equities: Signs of a more diversified portfolio approach



Sources: Pension-system asset data sourced from national pension funds and financial authorities.

\* End-2006 or most recent available; end-2005 for Madagascar and South Africa; end-2007 for Zambia.

Patterns in pension system asset allocation varied among the five countries for which these time-series data are available, reflecting different levels of capital markets development, among other factors. In Zambia, the share of pension system assets invested in equities increased from 8 percent in 2001 to 24

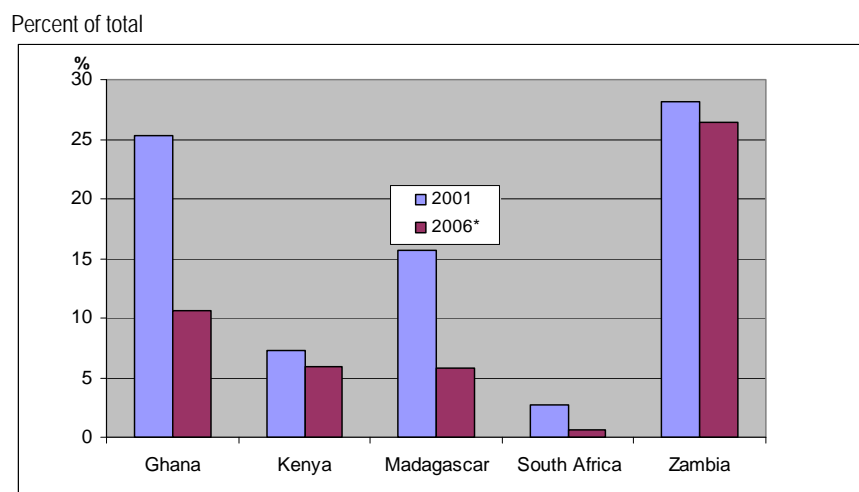
percent by 2007, as the share of assets invested in fixed cash deposits declined over the period from 12 percent to 7 percent. Zambia's pension system asset allocation in real estate decreased overall over the 2001–07 period, from 28 percent to 26 percent, although there was an increase of two percentage points (up from 24 percent) from 2005–07.

In Kenya's pension system, there has also been a greater emphasis on holdings of equities over the 2001–06 time series for which asset allocation data are available, with the investment allocation increasing from 9 percent to 24 percent. At the same time, holdings of government securities declined somewhat over the period from 50 percent to 42 percent. The share of the Kenyan pension system's assets invested in real estate remained within the 6–8 percent range over the 2001–06 period.

In Ghana, available time-series data for SSNIT indicate a shift of assets away from real estate over the 2000–06 period, with holdings reported as 11 percent in mid-2006, down from 31 percent in 2000 and 25 percent in 2001. Most of the remaining holdings in real estate projects as of mid-2006 (8 percent of SSNIT's total asset allocation) were projects under construction, which do not generate cash flow. SSNIT's holdings of cash and deposits also increased significantly over the period 2000–06, from 7 percent to 36 percent and total asset holdings in the form of corporate and student loans, although down by five percentage points, to 20 percent at mid-2006, still represented a significant share of the total portfolio invested in assets typically generating weak returns. SSNIT further increased its total asset holdings in equities, from 21 percent in 2001 to 30 percent by mid-2006.

In Madagascar, pension system assets held in real estate also declined over the 2000–05 time series, from 21 percent in 2000, to 16 percent in 2001, to 6 percent by 2005. But because alternative investment vehicles were severely limited, total pension system assets invested in nongovernment-issued securities remained low at just under 4 percent while asset holdings in government securities increased over the period, from 73 percent in 2000, to 80 percent in 2001, to 90 percent as of 2005. Pension fund asset allocation patterns for South Africa reflected that country's better-developed capital markets. Asset holdings in cash/deposits and government securities stayed around 6–7 percent and 9–12 percent, respectively, and holdings in real estate fell further, from 4 percent to just under 1 percent.

Figure 4.3 Pension-system assets invested in real estate: Signs of a more diversified portfolio approach



Sources: Pension-system asset data sourced from national pension funds and financial authorities.

\* End-2006 or most recent available; end-2005 for Madagascar and South Africa; end-2007 for Zambia.

There is no comprehensive data set on the investment allocation practices of national insurance sectors in the focus countries, especially for investments in infrastructure services. Even in South Africa's relatively well-developed insurance sector (where the FSB has compiled and publicly released the most recently available data for the one-year period ending 2005), it is clear that insurance companies did not serve as major sources of financing for new projects. South African insurers strongly preferred investments in securities issued by blue-chip corporates (which received most of the sector's 51 percent of total assets invested in equities) and real estate investments (the destination of \$6.96 billion, or 4 percent of total assets). This is despite the high income from life insurance premiums in South Africa's sector, which is ranked among the highest worldwide, at 12.4 percent of GDP in 2005 (EIU 2006a).

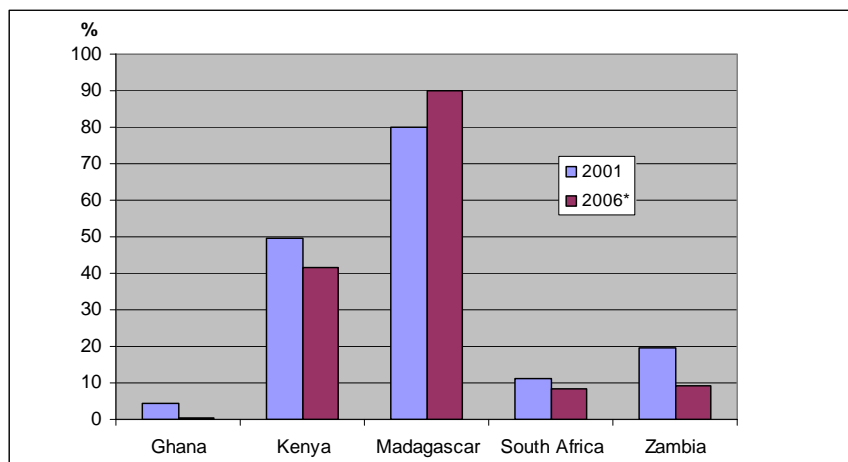
According to the most recently compiled data, several insurance sectors in the focus countries placed significant amounts of their assets in real estate. For two countries (Tanzania and Mozambique), the percentage of total assets held in real estate exceeded 40 percent. For a further seven countries—Cameroon, Cape Verde, Kenya, Madagascar, Malawi, Niger, and Senegal—the percentage exceeded 20 percent. Among the few countries for which a quantitative breakdown of insurance sector asset allocation was not available, such as Chad and the Democratic Republic of the Congo, industry sector analysts reported from available market information that real estate constituted a major investment vehicle for assets held by these national sectors.<sup>35</sup> DRC life insurer SNAV, for example, reported that it invested its assets in real estate and bank deposits. In Chad, real estate, government bonds issued within the region, and bank deposits are the popular options, but there are limited government securities vehicles available, particularly taking into account demand from insurers elsewhere in the region.

<sup>35</sup> Axco country reports.



Figure 4.4 Pension-system assets invested in government securities: Signs of a more diversified portfolio approach

Percent of total



Sources: Pension system asset data sourced from national pension funds and financial authorities.

\* End-2006 or most recent available; end-2005 for Madagascar and South Africa; end-2007 for Zambia.

Two countries’ insurance sectors reported sizeable investment allocations in government securities (Kenya, 45 percent, and Uganda, 65 percent), but insurance sectors overall held a relatively smaller proportion in government securities than their counterpart pension systems. In addition to Kenya and Uganda, Madagascar had holdings in government securities exceeding 20 percent. Tanzania’s insurance sector reported that a combined 33 percent of assets were held in a combined category of “bank deposits and government securities.”

Bank deposits and cash constitute a large proportion of insurers’ asset holdings in several countries: the West African Economic and Monetary Union (WAEMU) countries, where these holdings range from 29 to 47 percent, and Sudan, where 71 percent of total sector assets were held in deposits, according to the most recently available data<sup>36</sup>). Although data are not available, in Chad, bank deposits reportedly constitute a “sizeable portion” of insurers’ investment portfolios. Nevertheless, bank deposits and cash make up a lower portion of holdings by insurance sectors than corresponding national pension systems in some countries: Ghana, Nigeria, Uganda, and Zambia.

Somewhat surprisingly, those national insurance sectors with relatively higher holdings in non- or low-yielding investment vehicles such as cash/bank deposits and government securities do not in all cases accord a smaller role to the private sector in the provision of insurance services. For example, the five WAEMU countries—Benin, Burkina Faso, Côte d’Ivoire, Niger, and Senegal—which overall have insurance sectors with a small or no role for the state, nevertheless hold large amounts in cash and deposits (see above). This could reflect the severely underdeveloped financial markets and lack of suitable investment vehicles, rather than a lack of appropriate emphasis on maximizing investment returns.

Institutional investors across the focus countries keep the vast majority, if not all, of their assets in domestic assets, with a few exceptions, although some countries are lowering ceilings on offshore

<sup>36</sup> The most recently available data for Sudan’s insurance sector asset allocation are only current as of 2003, however (World Bank, FSAP database).

investment of assets. In South Africa, there were regulatory reforms under consideration as of mid-2007 that would increase the 15 percent ceiling on pension funds permitted to be invested overseas to 25 or 30 percent, along with a broader set of reforms that would strengthen supervision and regulatory oversight of the sector. Pension funds in Zambia may invest up to 30 percent of their assets abroad under a 2000 regulatory amendment. In Namibia, institutional investors invest extensively in overseas assets—mostly assets in South Africa, given Common Monetary Area links (IMF 2007c).<sup>37</sup> There is a ceiling of 15 percent (slated to be raised to 20 percent) on total assets invested outside of the Common Monetary Area in southern Africa. Although pension funds and insurance companies in Namibia are expected to comply with the minimum local investment requirement of 35 percent of assets, in practice only 15 percent of pension fund and insurance sector assets are invested in domestic assets since investment of assets in shares of foreign companies listed on the National Stock Exchange (NSX) can count toward the minimum local investment requirement (World Bank, FSAP database). Proposed legislative reforms in Namibia would compel pension fund managers to report their international investments in more detail.

In Nigeria, pension fund managers had until recently been prohibited by foreign-exchange regulations from investing their assets abroad. As of August 2007, 6 percent of total pension fund assets were held in foreign-issued money market securities. Nigeria's Pencom (2006) intended to determine with the country's pension fund administrators guidelines for investing pension fund assets abroad. In many African focus countries, managers of insurance and pension funds are deterred from placing some part of their assets abroad due to poor incentives in many of these systems to search for good investment opportunities and concerns about currency mismatch due to obligations denominated in domestic currency and a lack of hedging instruments in most of these markets. Actual data are not available for Mozambique, but given the tiny size of local equity markets (one stock listing), market observers indicate that a sizeable amount of pension system assets are thought to be invested overseas, in South African and other equity markets.<sup>38</sup> In comparator country Malaysia, as a way for the compulsory pension scheme for private sector employees to diversify its investments, pension funds were first allowed in 2005 to invest in offshore listed equities through designated international fund managers.

Well-regulated institutional investors could be reliable sources of longer-term financing for infrastructure development, but regulatory and supervisory frameworks are inadequate or nonexistent in some of these countries. Investment practices suffer from excessively restrictive regulations governing pension fund investments and place too much emphasis on stability and uniform portfolio performance without regard for return. Many of these overly restrictive pension fund regulatory regimes discourage or render it impossible for pension funds to invest in infrastructure assets. In some other countries, state-run institutional investors still enjoy special exemptions from regulations governing the activities of these financial intermediaries.<sup>39</sup> The effective functioning of supervisory oversight is also complicated by

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<sup>37</sup> There is a ceiling of 15 percent (slated to be raised to 20 percent) on total assets invested outside of the Common Monetary Area in southern Africa.

<sup>38</sup> Axco report, downloaded Aug. 2007.

<sup>39</sup> For example, in Tanzania a comprehensive system for regulating and supervising insurance companies was implemented in 1998; the state insurer NIC continued to enjoy special exemptions because its policies are backed by the government (FSSA, May 2003 FSAP mission). Regulations governing the investment activities of the two state-run pension funds, NSSF and PPF, impose few restrictions other than a prohibition on their investment in assets outside Tanzania. Investment policies are largely determined by the respective boards of the two funds (Tanzania

systems whereby different pension fund managers report to different regulatory authorities.<sup>40</sup> In several countries (Mozambique) where a regulatory framework for state-run funds exists, privately run pension systems remain unsupervised. In some countries (Mozambique and Nigeria), there have been reported practices of employers deducting social security contributions from workers' wages and not forwarding these contributions to the respective pension scheme.<sup>41</sup> In Cape Verde, the Ministry of Labor and the Ministry of Finance are jointly responsible for regulating the pension system, but there are no guidelines or regulatory restrictions governing pension fund investments.<sup>42</sup> Other countries, such as Chad, Lesotho, Madagascar, and Rwanda, completely lack a regulatory framework and provide no investment guidelines for asset allocation.

Nevertheless, a number of countries are currently undergoing, have recently restructured or instituted, or plan in the near term to restructure the regulatory framework governing the activities of pension systems and insurance companies. The Ugandan government plans to overhaul the legal and regulatory framework for pension and insurance companies to ensure that pensions and other long-term savings managed by these financial institutions are more prudently managed (IMF 2007e). As part of the restructuring, begun in 2005, of Mozambique's National Social Security Institute (INSS), the government plans to enhance pensions' regulatory and supervisory frameworks (IMF 2007f). Under a law passed in December 2006, measures were implemented to stop the hitherto common practice of employers deducting social security contributions from workers' wages and not forwarding these contributions to the INSS (Agencia de informacao de Mocambique, December 11, 2006). The government is also planning to strengthen the regulatory capacity of Mozambique's insurance sector regulator, Inspeccao geral de Seguros (IGS), by establishing a new supervisory body not under the statutory supervision of the Bank of Uganda, for the purpose of regulating pension funds, insurance companies and other nonbank financial institutions.

Many focus countries' national pension systems are planning reforms that would promote and develop privately managed pension funds as a complementary tier to a state-sponsored system that has been providing inadequate pension benefits. In contrast, South Africa's pension system is on the verge of undergoing a process of consolidation as part of a broader reform of the national system. More than 13,600 funds are likely to be reduced to a few hundred large funds. National financial sector authorities are encouraging mergers and consolidation in insurance sectors in several countries (South Africa, Kenya, Namibia, Nigeria, and Uganda). Following a significant increase in capital requirements for insurance companies in Nigeria, effective from February 2007, the tally of registered insurers had fallen to 71 by

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FSSA, following May 2003 FSAP mission). There were cases several years ago in which some of Tanzania's 6 pension funds were making unsecured loans to senior politicians and political parties.

<sup>40</sup> In Tanzania, the six funds report to different regulatory authorities. As of 2005, PSPF, PPF, GEPF, and ZSSF were supervised by MoF, LAPF was supervised by the Ministry of Local Government, and the NSSF by the Ministry of Labor.

<sup>41</sup> New legislation has recently been put in place in both Mozambique and Nigeria seeking to stop this practice.

<sup>42</sup> Finance director of the National Social Welfare Institute, Cape Verde.

mid-2007, down from 103 in October 2006, and is expected to fall further as the sector continues to consolidate.<sup>43</sup>

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<sup>43</sup> As of August 2007, according to Axco reports, no insurance company operating in Nigeria had yet met the new capital adequacy requirements imposed by the National Insurance Commission (NAICOM).

## 5 Domestic capital markets

Capital markets are a natural source of infrastructure finance in developed country markets and an increasing number of developing country markets, providing longer-term finance than bank lending does. Typically, an infrastructure finance transaction begins with a bank loan with medium-term maturity during the project's construction period, followed by refinancing in capital markets at longer maturity terms once the project has begun to generate revenues that can support debt finance repayment. In this section, we assess the depth of domestic capital markets in the focus countries with regard to their actual and potential role in financing local infrastructure projects.

### Government bonds

Looking at the size of government bond markets in the focus countries (table 5.1), South Africa's government bond market is significantly larger in absolute terms than the other focus countries and larger than all others but Cape Verde's market as a percentage of GDP (at 25 percent and 29 percent of GDP, respectively). The size of bond markets relative to GDP is known to be much smaller in developing countries, which tend to have shallower, underdeveloped financial markets. To put this in larger perspective, the bond market in the United States was about twice the size of the economy in 2006, while in emerging East Asia, it was roughly half the combined size of these economies.<sup>44</sup> For 9 of the 15 countries that had government bonds outstanding at the end of 2006 and released these data, bonds outstanding as a percentage of GDP was less than 5 percent.

For the most part, government bond issuance has been too small in both issue amount and frequency to crowd out corporate borrowers, which have been deterred by illiquid secondary markets and other impediments, as discussed in the next section. Where corporate sector borrowing has been crowded out, it has been the result of too much government borrowing through short-term debt securities (treasury bills) purchased by local banks, which prefer such high-yielding, short-term investment instruments to riskier lending to private-sector borrowers.

Except in South Africa, the markets for government bonds tend to be illiquid and shallow. The illiquidity that characterizes these bond markets—particularly secondary market illiquidity—often means that, where investors do buy government securities, they tend to prefer shorter maturities and avoid the longer maturities. Investors tend to buy and hold. The major investors are local commercial banks, although local institutional investors and foreign portfolio investors have been gaining ground in recent years—in Kenya and Zambia, for example (see chapter 4).

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<sup>44</sup> Goldstein and Turner (2004), however, further point out that developing country bond markets vary considerably in liquidity and ability to hedge risk, for a given size.

**Table 5.1 Bond markets in the African focus countries at end-2006**

Country	Amount of total outstanding government bonds as % GDP	Maximum term of government bonds (years) /a	Amount of total outstanding corporate bonds as % GDP	Corporate bonds issued by infrastructure providers as % total outstanding	Maximum term of corporate bonds outstanding (years) /b
Benin	0	5	1.1	94	7
Burkina Faso	0	4	0.7	100	6
Cape Verde	29	14	0	n.a.	n.a.
Côte d'Ivoire	2	3	0	n.a.	n.a.
Ghana	8	5	0.5	0.0	5
Kenya	14	15	0.5	51	7
Lesotho /c	n.a.	10	n.a.	n.a.	n.a.
Madagascar	n.a.	1	n.a.	n.a.	n.a.
Malawi	1	25	n.a.	n.a.	n.a.
Mozambique	2	10	0.3	55	10
Namibia	11	20	7.1	65	10
Nigeria	4	28	0.1	0	8
Senegal	1	5	0.8	93.5	7
South Africa	25	30	13.3	20.2	27
Sudan	—	6	—	—	—
Tanzania	4	10	0.4	0	10
Uganda	6	10	0.3	58	10
Zambia	4	5	0.2	43	12

*Sources:* Bond data are sourced from national and regional securities exchanges and from national regulatory authorities.

*Note:* No data were available for Cameroon. Organized bond markets did not exist in Chad, the Democratic Republic of the Congo, Ethiopia, Niger, or Rwanda as of this table's reference date.

a. For issues outstanding at end-2006, except in the case of Benin. In Benin, no issues were outstanding, but the government issued a five-year bond traded on the Bourse régionale des valeurs mobilières (BRVM) in 2000. The maximum maturity terms for government bond issues in Kenya in 2006 was 12 years; in March 2007, the Kenyan government issued and listed its first 15-year bond on the Nairobi Stock Exchange. In Malawi, two special issues of 25-year government securities appeared in June 1983; otherwise, the longest term for outstanding government securities was 13 years.

b. For countries listing bonds on the BRVM (Benin, Burkina Faso, Côte d'Ivoire, Senegal), the applicable date for outstanding bond amounts is April 30, 2007.

c. There is no government bond market per se in Lesotho, but in the late 1990s, the Lesotho government made 5- and 10-year issues of special purpose bonds to finance the restructuring of the Lesotho Bank; the 10-year issue remains outstanding and matures in 2009. The Central Bank of Lesotho was unable to release data/further information on the outstanding bond issues for confidentiality reasons (CBL 2006).

— = Not available; n.a. = Not applicable.

Again with the exception of South Africa, trading activity of government bonds in 2006 was much lower than in other developing country markets, although some markets, such as Kenya's, saw a considerable boost in trading activity over the period.<sup>45</sup> The 2,495 percent turnover ratio<sup>46</sup> of South

<sup>45</sup> In Kenya, total annual bond turnover (government and corporate issues) increased by 257 percent in 2006 over the prior year, according to data reported by the Nairobi Stock Exchange. According to the NSE, the current system does not provide separate information for corporate bond turnover and Government of Kenya Treasury bond turnover; the relatively small amount of corporate bonds listed on the NSE rarely trade and are held to maturity.

<sup>46</sup> Turnover ratio refers to the ratio of the annual trading volume of government bonds in 2006 to total outstanding government bonds as of year-end.

African government bonds stands in marked contrast to turnover ratios of 0.3 percent for Nigeria, nil for Cape Verde, and less than 10 percent for Côte d'Ivoire, Mozambique, Senegal, Tanzania, and Zambia.

Except in a few countries (Cape Verde, Namibia, Nigeria, South Africa, and Zambia)—and with the exception of some ad hoc issues (by Ethiopia, Lesotho and Malawi)—the focus countries have issued securities with tenors of more than one year only in the past 10 years.<sup>47</sup> Moreover, issues are infrequent. Even in South Africa, the government issued bonds only periodically “on demand” in the decade following the first issues in the late 1970s, and there was no active secondary market and no refined yield curve, with the introduction of government benchmark bonds being a relatively recent phenomenon.<sup>48</sup> Nigeria began issuing bonds in 1961, less than a year after independence, but an 18-year period of nonissuance ended in 2003, when the federal government declared its intention to retire short-term government securities and to finance budget deficits with limited recourse to medium-term debt securities (Federal Government of Nigeria bonds). These longer-tenor issues are also intended to provide a benchmark yield for issues by the corporate sector. In recent years, governments have been issuing debt securities at longer tenors with two goals in mind: first, to lengthen the maturity profile of government issues to establish a benchmark yield curve for later corporate and parastatal bond issues as part of an overall aim to develop local capital markets and, second, to improve debt management.<sup>49</sup>

A few of the countries that do not yet issue government bonds have indicated their intention to do so as part of a plan to develop long-term finance. This will be feasible only if macroeconomic stability can

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<sup>47</sup> Several “special issues” in Ethiopia, Lesotho, and Malawi are a partial exception to this statement. In the late 1990s, the Lesotho government made 5- and 10-year issues of special-purpose bonds to finance the restructuring of the Lesotho Bank; the 10-year issue remains outstanding and matures in 2009. The Central Bank of Lesotho was unable to release data or other information on the outstanding bond issues, for reasons of confidentiality (Treasury Operations, CBL). For Malawi, there are two “special issues” of government securities for 25 years, issued in June 1983; otherwise, the longest maturity term for outstanding government securities is 13 years; in the recent past, the Malawi government has not favored issuing bonds, deeming them a less attractive financing instrument than treasury bills, owing to uncertainty on the future movement of interest rates on government securities (Reserve Bank of Malawi). The Ethiopian government occasionally issues bonds to finance expenditures or absorb excess liquidity in the banking system, but the twice-monthly auction of treasury bills is the only regular market for securities transactions.

<sup>48</sup> In 1989, the South African government consolidated several smaller issues by reissuing new 5-, 10-, 15- and 20-year benchmark bonds (South Africa National Treasury, *South Africa Case Study on Debt Management*, June 2003).

<sup>49</sup> This is illustrated, for example, by the stated aim of domestic debt management under the Nigerian authorities’ core economic reform program, to restructure the government’s domestic debt portfolio by issuing more securities at longer tenors and to restrict the previous practice of monetizing fiscal deficits. This stands in contrast to a case such as Botswana (mentioned here for comparator purposes, although not covered in the cross-country Diagnostic analysis), in which the government has also been issuing debt securities at longer tenors, although raising financing has not been an aim in issuing local currency government debt securities, given a track record of overall budget surpluses over much of the past two decades. In this latter case, rather, local capital markets development has been the primary stated reason for issuance of government debt securities.

be achieved.<sup>50</sup> Some countries already issuing government bonds plan to further lengthen maturity profiles.<sup>51</sup>

The maximum maturity of government bonds outstanding at the end of 2006 varied widely from country to country (table 5.1). In five countries (Chad, Democratic Republic of Congo, Ethiopia, Niger, and Rwanda), only short-term government securities of less than one-year had been issued.<sup>52</sup> In South Africa, government bond maturities ran as high as 30 years, but only three other focus countries had government bonds outstanding with a maturity longer than 10 years (Cape Verde, 14 years; Kenya, 15 years; and Namibia, 20 years).<sup>53</sup> A further five countries had government bonds outstanding with a maturity of more than 5 years (10 years maximum for Tanzania, Uganda, Lesotho,<sup>54</sup> and Mozambique; and 6 years for the Sudan).<sup>55</sup>

In the past, the Nigerian government issued bonds with maturity terms as long as 28 years, but no such bonds have been outstanding since 1996. In recent years, the maximum maturity of bonds issued by the Nigerian government has been seven years. Because the longer issues (5–10 years) of the Federal Government of Nigeria's first series in 2003 (following an 18-year period of nonissuance) were greatly undersubscribed, subsequent issues under the government's second series of bonds, in 2005, had shorter terms (2–5 years). In 2006, however, a third series of three-, five-, and seven-year bonds was oversubscribed.

Government bond issues specifically designated for infrastructure are rare in the focus countries (table 5.2). Nigeria and Senegal were the only focus countries in which outstanding government bonds had been issued specifically to finance infrastructure development. Each country had issued one such bond as of end-2006. In Côte d'Ivoire, two government bonds have been issued "to finance the government budget, energy, and the agricultural sector," although the extent to which this financing has gone toward infrastructure development is unclear.

The Senegalese government had \$93.3 million outstanding, as of April 2007, on a five-year bond issued in 2005 to finance road and rail transport infrastructure and traded on the regional stock exchange, the Bourse régionale des valeurs mobilières (BRVM). In 2004, Nigeria's Akwa Ibom state issued a three-year bond for 6 billion naira (approximately \$46.8 million at the exchange rate prevailing at the end of

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<sup>50</sup> The Rwandan government introduced its first treasury bond issues in early 2008, as part of an overall aim to develop local capital markets and raise long-term funds for development. Madagascar's government may consider lengthening the maturity profile of its treasury security issues if sustained macroeconomic stability is achieved (IMF, Rwanda: FSSA (Country Report No. 06/305), August 2006).

<sup>51</sup> The Bank of Zambia had been authorized by the government under the Financial Sector Development Plan to further extend the maturity profile (by issuing 7-, 10- and 15-year bonds) and began issuing bonds with such longer maturities in August 2007 (Bank of Zambia).

<sup>52</sup> Rwanda's government has since issued three treasury bonds (in the first quarter of 2008).

<sup>53</sup> Although the Malawian government has made special issues of bonds with maturity terms as long as 25 years, in the recent past, the Malawi government has not favored issuing bonds, deeming them a less attractive financing instrument than Treasury bills due to uncertainty on the future movement of interest rates on government securities.

<sup>54</sup> The Lesotho government does not issue "regularly traded bonds," however, and the single 10-year bond issue outstanding was one of two special purpose bonds issued in 1999 to finance the restructuring of the Lesotho Bank.

<sup>55</sup> As of mid-2006 (reference date for Ghana's total amount of government bonds) the longest maturity terms for outstanding government bonds in Ghana were five years. In September 2007, however, Ghana issued a 10-year Eurobond, becoming the first HIPC beneficiary country to tap international private capital markets.



2006) to finance “infrastructure development.” Since 1986, four different Nigerian states have made five issues, ranging from 15 million to 5 billion naira, to finance a variety of infrastructure development projects including water and drainage improvement, urban and rural road construction, and rural electricity. But none of the federal government’s bonds, which make up 95.6 percent of all Nigerian government bonds outstanding, had infrastructure development as their designated purpose. Consequently, the percentage of total government bonds outstanding that were issued specifically to finance infrastructure was very small: 0.93 percent.

**Table 5.2 Local government bond markets and infrastructure financing as of end-2006**

Country	Amount of total outstanding government bonds as % of GDP	Amount of government bonds issued to finance infrastructure as % of total government bonds outstanding	Maximum term of government bond (in years) /1
Benin	0	0	5
Burkina Faso	0	0	4
Cape Verde	29.2	—	14
Côte d’Ivoire	2.1	0	3
Ghana	8.3	0	10
Kenya	14.4	0	15
Lesotho	n.a.	0	10
Madagascar	n.a.	n.a.	1
Malawi	1.2	0	25
Mozambique	2.1	0	10
Namibia	11.2	0	20
Nigeria	4.2	0.93	28
Senegal	1.1	100	5
South Africa	24.7	1.2	30
Tanzania	3.9	0	10
Uganda	5.7	0	10
Zambia	4.0	n.a.	5

*Sources:* Data on outstanding government bonds were obtained from national authorities, except for Ghana (Standard Chartered Ghana).

*Note:* No data were available for Cameroon and Sudan. Organized bond markets do not exist in Chad, the Democratic Republic of the Congo, Ethiopia, Niger, or Rwanda.

a. For Kenya and for countries listing bonds on the Bourse régionale des valeurs mobilières—Benin, Burkina Faso, Côte d’Ivoire, and Senegal—the applicable date for outstanding bond amounts is April 30, 2007.

— = Not available; n.a. = Not applicable.

An estimated 1.2 percent of all South African government bonds outstanding were specifically issued to finance infrastructure. St South African Reserve Bank (SARB) staff estimated that all municipal bonds outstanding at end-2006 (valued at just over \$760 million) were for infrastructure.

The actual share of government bond financing used for infrastructure development in Nigeria, South Africa, and other focus countries may be higher than shown in table 5.2, because some of the financing raised through government bond issues may have been applied to infrastructure development. This is difficult to gauge, however, because of the difficulty of differentiating within the government bond

financing raised, the amount that was directly allocated to specific projects. Most national finance ministries, central banks, and stock exchanges were unable to provide even rough estimates of these amounts. According to the Bank of Zambia, for example, it is difficult to determine how much of the financing raised from government bond issues has been used for financing infrastructure, because financial provisions for these sorts of projects are normally made out of the government's annual capital expenditure budgets, and funds raised through securities issues are used to finance an overall deficit rather than a particular component of government spending.

In September 2007, Ghana became the second of the focus countries, after South Africa, to issue a sovereign bond on international capital markets. The first beneficiary of the Heavily Indebted Poor Countries initiative to tap international private capital markets, Ghana listed its 10-year, \$750 million Eurobond on the London Stock Exchange to raise financing for infrastructure projects, including road construction and energy resources. Another stated intention of the issue was to provide a benchmark for future bond issues by corporate entities.<sup>56</sup> With demand reaching \$3 billion, the landmark dollar-denominated issue was heavily oversubscribed. Some 40 percent was placed with U.S. investors, 36 percent with U.K. investors, and the remainder with investors in Europe, the Middle East, and Asia. Kenya, Zambia, and Nigeria had publicly stated their intention to issue sovereign bonds on international capital markets in the near future, although these plans have apparently been postponed given the much tighter liquidity conditions in global capital markets in 2008 (appendix 1).

Comparator country Chile placed its first issue of a \$500 million sovereign bond in the U.S. market in 1999 with the aim of providing a benchmark for private bond issuance in international markets. Five additional sovereign issues including a Eurobond have followed: the total amount outstanding for the four unexpired bonds as of September 2007 was \$2.85 billion, according to the central bank.

According to the Chilean Central Bank Financial Operations Division, Chile has not issued a government bond specifically to finance infrastructure.<sup>57</sup> As in the focus countries, the share of government bond financing devoted to infrastructure development is difficult to determine, given that some of the overall financing raised via government bond issues may have been allocated toward this financing purpose. Outstanding Chilean government bonds as a percentage of GDP have been declining since 2000, when a budget surplus target was set (initially at 1 percent of GDP, but adjusted downward to 0.5 percent in May 2007) (EIU 2007). As of end-2006, outstanding Chilean government bonds amounted to just 1.5 percent of GDP, a level below that of most focus countries with government bonds outstanding.

No Chilean government debt is issued with maturity terms of less than two years, according to the Central Bank of Chile, and consumer-price-indexed instruments constitute the largest part of domestic debt. At the same time, Chile's turnover ratio<sup>58</sup> of 1,286 percent for government bonds in 2006 is

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<sup>56</sup> Ghana's Ministry of Finance and Economic Planning press statement, October 10, 2007.

<sup>57</sup> During the late 1990s, a public-private risk-sharing arrangement evolved in Chile, which involved issuance of local-currency-denominated bonds for infrastructure financing of government road construction projects (see chapter 2).

<sup>58</sup> Turnover ratio refers to the ratio of annual trading volume of government bonds to the total outstanding government bonds as of year-end.

dramatically higher than the turnover ratios of below 25 percent for all African focus countries with government bond markets, except South Africa.

Both Chile and Malaysia have corporate bond markets that are becoming more important than their corresponding government bond markets, as explored in the next section.

## Corporate bond markets

In the past decade, governments in the region have extended the maturity profile of their securities issues in an effort to establish a benchmark against which corporate bonds can be priced. Except in South Africa, however, corporate bond markets remain small and illiquid, where they exist at all. Even in South Africa's relatively developed capital market, the first listing of a corporate bond on an organized securities exchange occurred as recently as 1994 (by South African Breweries). As a percentage of GDP, outstanding corporate bonds amounted to no more than 1 percent in 13 of the 15 focus countries that had a corporate bond market at the end of 2006 (table 5.3).

At 13 percent of GDP, South Africa's corporate bond market is by far as the largest among the countries, with \$33.8 billion in issues outstanding at year-end 2006, followed by Namibia's at \$457 million (7.1 percent of GDP), where the corporate sector has strong ties with South African companies. In South Africa, corporate bond issues have grown at a faster rate than government issues in recent years. The country saw 77 new corporate bond issues worth R 161 billion (\$23.1 billion) in 2006, up from 57 issues in 2005 and 4 in 1998. A few landmark issues notable for their size and long maturity illustrate the growing depth of this segment of the market. Increased supply of corporate bond issues has been matched by an increase in demand: with decreased government bond issuance, South Africa's investors have been seeking alternative investments.

New issues by the South African banking sector accounted for most of the growth in recent years, especially asset-backed commercial paper and other securitizations of banks' rapidly growing consumer and mortgage loan portfolios. But because of the small local investor base in South Africa, the effects of saturation had taken hold by early 2007. An increasing number of corporate issuers, particularly South African banks and issuers of high-yield bonds, were looking to access the external bond market for the first time, as the premium for issuing in the European, United States, and other global financial markets at that time had become less onerous (see below).

Issues by entities in infrastructure sectors constituted just over 20 percent (\$6.84 billion) of all outstanding corporate bond issues on the Bond Exchange of South Africa as of end-2006 (table 5.4). Electricity utility Eskom's \$3.6 billion issue led the way. MTN and Telkom together accounted for \$1.9 billion. Infrastructure development financing needs are expected to continue to drive corporate, parastatal, and municipal bond issues in South Africa's local market, albeit more slowly than in recent years. Bond issues by corporate entities elsewhere in the region, beginning with issues in 2006 of \$50.2 million (R 350 million) by Mauritius Commercial Bank and \$4.3 million (R 30 million) by Swaziland Post & Telecoms, are also expected to give continued impetus to corporate bond market development.

**Table 5.3 Characteristics of corporate bond markets**

Country	Tally of corporate bonds listed on the local securities exchange	Amount of total outstanding corporate bonds as % of GDP	Annual turnover ratio of corporate bonds (%) /a	Corporate bonds issued by infrastructure providers as % total outstanding	Maximum term of corporate bonds outstanding (years)
	end-2006	2006	2006	end-2006	end-2006 or end-April 2007 /b
Benin	3	1.1	2.5	94	7
Burkina Faso	2	0.7	1.5	100	6
Côte d'Ivoire	0	0	0	n.a.	n.a.
Ghana	3	0.5	0.1	0	5
Kenya /c	8	0.5	—	51	7
Mozambique	6	0.3	0.9	55	10
Namibia	9	7.1	19.9	65	10
Nigeria	3	0.1	0.0	0	8
Senegal	2	0.8	1.5	93	7
South Africa	563	13.3	351.1	20	27
Tanzania	6	0.4	1.1	0	10
Uganda	3	0.3	0.3	58	10
Zambia	4	0.2	0	43	12

Sources: Corporate bonds data are sourced from national stock exchanges and other national sources.

Note: At the end of 2006, corporate bonds had not been issued in Cape Verde, Chad, Democratic Republic of the Congo, Ethiopia, Lesotho, Madagascar, Malawi, Niger, or Rwanda. Cape Verde's market was launched with a debut issue by electricity generation utility Elektra in mid-2007. Data are not available for Cameroon or Sudan.

a. Bond turnover ratio is defined as the ratio of annual trading volume to outstanding corporate bonds at year-end.

b. For countries listing bonds on the Bourse régionale des valeurs mobilières (BRVM)—Benin, Burkina Faso, Côte d'Ivoire, and Senegal—the applicable date for outstanding bond amounts is April 30, 2007. Côte d'Ivoire's transport, storage, and shipping company, Saga CI, had a bond issue that traded in 2006.

c. According to the Nairobi Stock Exchange, the current system does not provide separate information on corporate and government bond turnover. For several reasons, including a lack of product diversity and the small size and number of corporate bond issues, most corporate bonds are held to maturity and rarely traded.

— = Not available; n.a. = Not applicable.

Outside South Africa, the few focus countries that had corporate bonds listed on their national or regional securities exchange at the end of 2006 had only a handful of such listings, and the amounts issued were small. Only three corporate bond issues by two issuers were listed on the Nigerian Stock Exchange, prompting the formation of a Bond Market Steering Committee (BMSC) to encourage bond market development as a key priority for overall national economic development.<sup>59</sup>

The extent to which corporate bonds finance infrastructure across the countries varies, although there seems to be an emerging trend of new issuers operating in infrastructure sectors coming to the market. In at least one case, an infrastructure entity made the market's debut issue.<sup>60</sup> The share of corporate bonds outstanding that had been issued to finance infrastructural development exceeded 50 percent in 7 of the 12

<sup>59</sup> Between 1990 and 1992, there were 40 corporate bonds issued in the Nigerian bond market. Between 1999 and 2006, there were only 11 such issues (Nigerian Securities and Exchange Commission).

<sup>60</sup> The first corporate bond issued and listed on the Cape Verde stock exchange, in mid-June 1997, was by the electrical utility Elektra. It was well received by investors, being six times oversubscribed (Bolsa de Cape Verde).

focus countries that had corporate bond issues outstanding as of end-2006 (figure 5.1).<sup>61</sup> In Ghana, Nigeria, and Tanzania, none of the corporate bond issues outstanding at that time was by an infrastructure-related company. However, such companies were strongly represented on the BRVM, where they accounted for 94 percent of the total outstanding issues by companies from Benin (electricity generation), 100 percent by corporates from Burkina Faso (telecommunications), and 94 percent from Senegal (port operations).<sup>62</sup>

**Table 5.4 Corporate bonds outstanding on the Bond Exchange of South Africa**

Nominal value, US\$ millions, end-2006	
Total "corporate bond" issues on BESA /a	33,817.2
<i>of which issues by:</i>	
Banks /b	7,994.2
<i>of which inward listings:</i>	
Mauritius Commercial Bank	50.2
<b>Total "corporate bond" issues by entities in infrastructure sectors /c</b>	<b>6,841.3</b>
<i>of which local listings by:</i>	
Telkom (issued in 1998; 10 years maturity)	662.3
Telkom (issued in 2005; 15 years maturity)	358.7
Mobile Telephone Networks (Issued 2006; 4 years)	717.4
Mobile Telephone Networks (Issued 2006; 8 years)	186.5
Eskom	3,613.9
SA National Roads Agency	772.5
Infrastructure Finance Corp. (CDOs)	525.8
<i>of which inward listings by:</i>	
Swaziland Post & Telecoms	4.3
<b>Issues by entities in infrastructure sectors</b>	
<b>as % of total corporate bond issues</b>	<b>20.23</b>

Source: BESA.

a. That is, issues not made by the central or municipal government.

b. Does include inward listing by Mauritius Commercial Bank but does not include listings by state-owned development banks.

c. Includes inward listing by Swaziland Post & Telecoms.

The infrastructure sectors of the corporations issuing these bonds varied. Several issues were made by companies operating in telecommunications, which had the highest number of issues outstanding (five) of all infrastructure sectors (table 5.5). Other recent debt issues have been made by companies operating in the telecommunications sector in South Africa and Ghana that have tapped international investors. Issues by telecommunications providers were listed on exchanges in West Africa (by Burkina Faso's Celtel and Office National des Télécommunications, ONATEL), Kenya (Celtel), Uganda (Uganda Telecom), and Mozambique (Telecommunication de Mozambique, TDM; and Mozambique Cellular, MCEL). A single,

<sup>61</sup> It should be noted here again, however, that the overall tally of corporate bond issues outstanding tends to be small, as do total amounts raised.

<sup>62</sup> In addition, Côte d'Ivoire transport, storage and shipping company, Saga CI, had a bond issue that traded in 2006 but was redeemed in March 2007. (This issue is not included in total outstanding amount for Côte d'Ivoire because the reference date for the outstanding amount of bonds listed on the BRVM is end-April 2007.)

exceptionally large listing (Celtel Kenya) accounted for nearly half of total corporate bonds outstanding on Kenya's stock exchange. Excluding South Africa, telecoms accounted for 12 percent (\$124.3 million) of the total value of bond issues outstanding in all sectors in the focus countries.

**Table 5.5 Outstanding corporate bonds issued by infrastructure providers in the focus countries, excluding South Africa**

As of end-2006 except for issues traded on the BRVM (April 2007)

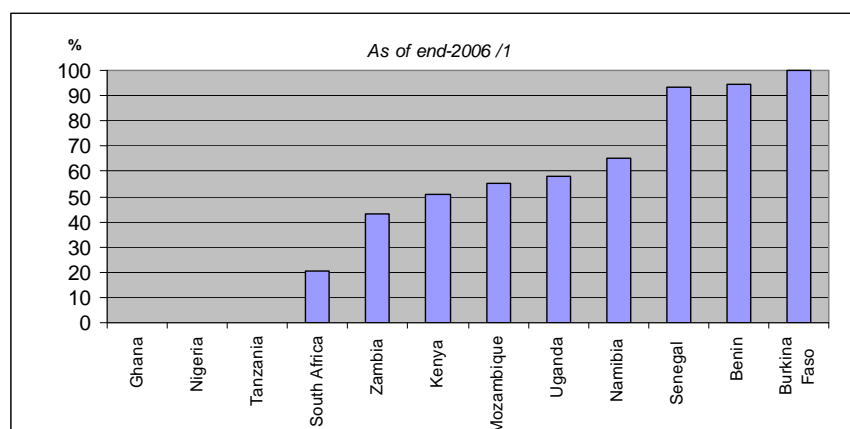
Issuer of corporate bonds	Domicile of issuer	Securities exchange	Sector	Issue date (yr.)	Maturity terms (yrs.)	Outstanding value of issues (US\$ millions)	% share of all corporate bond issues in issuer's domicile
RFA10 Loan Stock 2010	Namibia	NSX	transport (roads) construction	2004	6	251	55
RFA16 Loan Stock 2016	Namibia	NSX	transport (roads) construction	2006	10	47	10
Port Autonome de Dakar	Senegal	BRVM	port management	2004	7	62	93
<b>Total transport</b>						<b>361</b>	<b>34</b>
Celtel Burkina Faso	Burkina Faso	BRVM	telecoms	2003	6	6	16
ONATEL	Burkina Faso	BRVM	telecoms	2005	6	33	84
Celtel Kenya	Kenya	Nairobi SE	telecoms	2005	4	65	51
Uganda Telecom	Uganda	USE	telecoms	2003	5	7	22
TDB	Mozambique	Maputo SE	telecoms	2004	6	3	13
MCEL	Mozambique	Maputo SE	telecoms	2005	5	10	42
<b>Total telecoms</b>						<b>124</b>	<b>12</b>
Comunauté Electrique de Benin	Benin	BRVM	electricity generation	2003	7	33	60
Comunauté Electrique de Benin	Benin	BRVM	electricity generation	2004	7	19	34
Lunsemfwa Hydro Power	Zambia	LuSE	electricity generation	2003	7	7	43
<b>Total electricity generation/power</b>						<b>59</b>	<b>6</b>
Shelter-Afrique (Senegal)	Senegal	BRVM	provides regional housing finance & other development assistance including for infrastructure	2003	7	4	0.4

Source: National securities exchanges.

Note: For individual issues, percent share of all listed issues for the country of domicile; for sector totals, given as a share of all listed corporate bond issues in the focus countries except South Africa. BRVM = Bourse régionale des valeurs mobilières; SE = stock exchange; LuSE = Lusaka Stock Exchange.

Transport infrastructure accounted for just over one-third (\$360.6 million) of all corporate issues outstanding in these markets (excluding South Africa and Sudan) at end-2006. Two very large issues loom large in that total: one of \$298.4 million for road construction by Namibia's Road Fund Administration, and another of \$62.2 million for transport infrastructure development by Senegal's Port Autonome de Dakar. Bonds listed by corporations in other infrastructure sectors included power generation (Communauté Electrique de Benin and Zambia's Lunsemfwa Hydro Power Company), which accounted for 6 percent of all total issues in the focus countries. Bank issues also dominated in several countries, constituting 100 percent and 96 percent of the total amount outstanding in the corporate bond markets in Ghana and Nigeria at end-2006. Corporate bonds issued by banks made up 35 percent of the total amount outstanding in Namibia.

Figure 5.1 Corporate bonds issued by infrastructure providers as share of total outstanding



Sources: Corporate bond data are sourced from national stock exchanges and other national sources.

Note: For countries listing bonds on the BRVM (Benin, Burkina Faso, Senegal), the applicable date for outstanding bond amounts is April 30, 2007. The Côte d'Ivoire transport, storage & shipping company, Saga CI, had a bond issue that traded in 2006 but was no longer listed at reference date.

Although it may seem that more corporate bonds than government bonds have been issued to finance infrastructure, it should be noted that it is far easier to assess the extent to which corporate issues finance infrastructure, by identifying the issuer's industry sector.

Many companies operating in these markets would like to borrow on longer terms by issuing bonds but many of the markets still lack a benchmark for pricing (see above). With medium- to long-term bank financing costly and scarce, and macroeconomic conditions stabilizing in a number of the focus countries, corporate bond financing is increasingly seen as a viable alternative (Peterside 2006). Further progress is needed in many countries, however, in developing a well-established yield curve, maintaining low and stable inflation rates and interest rates, improving corporate governance and transparency, developing a larger and well-regulated institutional investor base, putting in place credible rating agencies, and increasing awareness of prospective issuers and investors. In December 2006, the International Finance Corporation issued its first local-currency bond in Sub-Saharan Africa—a five-year, AAA-rated, \$44.6 million bond, denominated in CFA francs and listed on the BRVM. A key purpose of the issue was to set an efficient benchmark yield, reinforce credit differentiation, and promote development of the regional bond market in the eight WAEMU member countries. Prior to this issue by the IFC, the West African Development Bank (BOAD) had been the de facto benchmark issuer on the WAEMU regional bond market, even though its bonds did not have a credit rating (IFC 2007).

Corporate-bond-trading volumes are low or nonexistent on some exchanges. Turnover ratios in these markets, where they exist, are even lower than on the government bond markets (see table 5.3). Most corporate bonds are held to maturity and not traded because of their small size and number and lack of financial product diversity. The corporate bonds listed on the Nigerian and Zambian securities markets did not trade at all during 2006, and turnover ratios were less than 3 percent in all of the other focus country markets on which corporate bonds were listed. The exceptions were Namibia, where the bond-turnover ratio was 20 percent, and South Africa, 351 percent. Even South Africa's corporate bond market is shallow compared with those of other emerging and developed-country markets and it has a relatively

illiquid secondary market. South African corporate bonds are much less tradable than government issues, with investors in corporate bonds more likely to buy and hold. Although the supply of new corporate issues in South Africa has been growing rapidly, investor demand remains low, which has driven some issuers to go offshore.

Maturity terms for corporate bonds in the focus countries do not exceed 10 years, except in South Africa (where the observed maximum is 27.5 years) and Zambia (12 years). In South Africa in 2006, ESKOM, an electricity utility, issued a landmark 27.5-year, R65 billion multi-term note program, comprising seven different local currency bonds, with an initial issue of R2.5 billion. But average maturity terms in South Africa's corporate bond market are still only five years. In contrast, corporate bonds in Chile had a typical maturity of 16 years during the period from 1991 to 2005; bonds issued by firms in the construction, transportation, and utilities sectors (which accounted for the largest amount of issuance activity) typically had longer maturities than firms in other sectors (Braun and Briones, forthcoming). Average corporate bond maturities for Chilean issuers were nearly three times as long as the average in other developing countries over the period.

With a few exceptions, access to external markets remains restricted, and with the onset of the global financial crisis in the fourth quarter of 2008, the ability to tap external markets appeared increasingly remote for nearly all of the African focus countries. Given the limitations to the South African domestic bond market's capacity due to still-limited investor appetite, cross-border bond issues increased rapidly into early 2007, particularly by banks and high-yield issuers; this has since slowed significantly, however. South African cellular-phone operator Cell C went offshore to raise debt financing: in 2005 it issued R 5.1 billion in high-yield Eurobonds due in 2012 and high-yield dollar bonds due in 2015. For the first time since the early 1990s, two Nigerian corporations turned to the international capital markets in early 2007 and issued Eurobonds. Guaranty Trust Bank raised \$350 million through a January 2007 five-year issue that yielded 8.625 percent. Rated BB- by Standard & Poor's, the issue was oversubscribed by \$221 million. It was followed a month later by First Bank's \$175 million subordinate Eurobond, yielding 9.75 percent and rated B by Standard & Poor's. Although no Ghanaian corporations have yet issued bonds on international capital markets, Ghana's largest telecoms company, Ghana Telecom, raised \$40 million in December 2006 through a five-year debt issue, denominated in cedis, of which 53 percent was placed with local investors and 47 percent with foreign investors, including pension funds and mutual funds in Denmark, the United Kingdom, and the United States. In the current external financing environment, it is considered unlikely that further such examples of African companies raising debt financing externally will follow in the foreseeable future. Chile's corporate bond market is profiled in box 5.1.



### Box 5.1 The case of Chile: Corporate bonds issued to finance infrastructure have spurred market development

Chile has a fairly large corporate bond market that has developed rapidly over the past two decades, especially when compared with most other emerging market economies. Corporate issues accounted for 38 percent of total bonds outstanding in Chile, according to the most recently available data.<sup>a</sup>

Issues in the public utilities and transport sectors have been credited with speeding up the development of Chile's corporate bond market (Braun and Briones, forthcoming). These sectors were the sole local issuers of corporate bonds until 1998, and they constituted nearly half of all issues on the domestic market and more than 40 percent of average amounts raised from 1990 to 2005, according to one estimate. Private firms in the construction sector participating in the government's concession scheme for transport infrastructure drove much of the growth in the country's corporate bond market from 1990 to 2005.

Infrastructure sectors have played a major role in corporate bond market development in Chile largely because they have been able to attract a high credit rating, which has been key to the growth of the corporate bond market, given the importance of pension funds and insurance companies on the investor side, and the regulations that have governed their investment choices over the past two decades.<sup>b</sup> Corporate bonds issued to finance infrastructure development in Chile amounted to 13 percent of all outstanding bonds as of the fourth quarter 2007. Excluding bonds issued outside the country, as well as bank bonds and securitizations, the proportion of corporate bonds issued by infrastructure providers rises to just under half of Chile's total bond activity.

a. The figure for corporate bonds outstanding as a percentage of total bonds for Chile is current as of September 2007 and sourced directly from Chile's Superintendencia de Valores y Seguros (SVS).

b. The Chilean insurance sector's investment in corporate bonds increased from 7 percent of total assets in 1999 to 33 percent by 2006, according to the Central Bank of Chile.

## Equity markets

To date, stock exchanges in the focus countries have played a minimal role in effectively mobilizing and allocating resources. Aside from the Johannesburg Securities Exchange, most African stock exchanges have very few listings (particularly by national companies), low liquidity levels, and inadequate market infrastructure. Trading activity is often concentrated in one or just a few stocks. Development of the region's exchanges also has been hindered by high levels of poverty and the reluctance of local companies to become less reliant on bank finance and issue securities. That reluctance can be traced to insufficient resources, inexperience, wariness of financial disclosure requirements, and the cost of listings. On the demand side, there is a general lack of awareness of the benefits of investing in shares. In many African countries, most of the local investors who do invest in securities prefer short-term government securities that offer high and liquid returns. An underdeveloped institutional investor base, poor corporate governance practices, and inadequate protection of minority shareholder rights also stand in the way of well-functioning stock exchanges.

To assess the actual and potential role of equity markets in financing infrastructure development and the depth of local and regional stock markets (where they exist), we used the following indicators: recent stock market capitalization, ratios of market capitalization to GDP, listing tallies, annual turnover ratios, the market capitalization of companies operating in infrastructure development sectors as a share of total market cap of listed companies, and the extent to which Africa-based firms are raising equity financing via cross-border listings on regional and international exchanges. These indicators are summarized in tables 5.6 and 5.9.

Table 5.6 Equity markets in the focus countries at end-2006

Country	Stock market cap as percent of GDP	Annual turnover ratio (%)	Tally of listed companies	Tally of listed companies in infrastructure sectors	Market cap of infrastructure companies as share of total market cap of listed companies (%)
BRVM total /3	9	3.3	40	6	47
of which:					
Benin	—	—	1	0	0
Burkina Faso	—	—	0	0	0
Côte d'Ivoire	—	—	36	5	10
Niger	—	—	1	0	0
Senegal	—	—	1	1	100
Cameroon	0	0	1	0	0
Cape Verde	3	7.1	3	0	0
Ghana	29	2.1	32	0	0
Kenya	49	14.6	52	3	18
Malawi	27	3.5	11	0	0
Mozambique	1	0.04	1	0	0
Namibia	8	3.8	28	0	0
Nigeria	27	13.6	202	10	0
South Africa	245	48.8	377	25	8
Sudan	12	20.6	52	2	50
Tanzania	19	2.1	10	2	25
Uganda	26	5.2	8	1	33
Zambia	31	0.7	16	0	0
Chile	129	18.5		47	27
Malaysia	158	32.1		—	—

Sources: Equity markets data are sourced from national securities exchanges and/or national regulatory authorities; S&P, *Global Stock Markets Factbook 2007*.

Note: At the end of 2006, there were no organized equity markets in Chad, Democratic Republic of the Congo, Ethiopia, Lesotho, Madagascar, and Rwanda. Note: GDP figures for 2006 are sourced from World Bank DDP database (Development Prospects Group annual estimates). The turnover ratio is defined as the total value of shares traded during the specified one-year period, divided by average market capitalization for the specified one-year period and the preceding one-year period. Turnover ratios for Kenya, Tanzania, Uganda, Côte d'Ivoire, Ghana, Malawi, Nigeria, Namibia, South Africa, Chile, and Malaysia are calculated by dividing total 2006 U.S.-dollar value traded by average U.S.-dollar market capitalization for 2005 and 2006. Data for the BRVM cover all eight member countries. Côte d'Ivoire, Benin, Burkina Faso, Niger, and Senegal are members of the BRVM, headquartered in Côte d'Ivoire but with trading floors in each member country. Companies domiciled in Côte d'Ivoire, Benin, Burkina Faso, Niger, and Senegal have issued shares on the BRVM.

— = Not available.

The Johannesburg Stock Exchange in South Africa overshadows all other exchanges in the region. Its market capitalization of \$621.6 billion at the end of 2006 accounted for nearly 90 percent of the total market capitalization in Sub-Saharan Africa. WAEMU's eight member-country regional exchange, the BRVM, had a total market capitalization of only \$4.16 billion and 40 equity listings at end-2006, 36 of which were from Côte d'Ivoire.

In most countries with organized securities markets, including South Africa, the equity market is much larger than the corporate bond market, however.<sup>63</sup> Equity listing tallies and market capitalizations for the second- and third-largest stock exchanges—Nigeria and Kenya—were 202 (\$32.82 billion) and 52 (\$11.38 billion), respectively, at end-2006, compared with corporate bond listing tallies of three (\$128.13 million) and eight (\$128.25 million), respectively. Total stock market capitalization as a percentage of GDP was less than 33 percent in all of the focus countries except Kenya (61 percent), Nigeria (33 percent), and South Africa (295.5 percent). It was as low as 0.03 percent in Cameroon (with a single small listing).

Annual turnover ratios (the value of shares traded for the year divided by year-end market capitalization) are very low, except in South Africa—often only a few stocks are traded. Annual turnover ratios in 2006 were less than 10 percent in 9 of the 14 national and regional stock markets covered in this study, and less than 1 percent for stock exchanges in Cameroon, Mozambique, and Zambia. At 48.8 percent, the Johannesburg Stock Exchange had the highest turnover ratio by far among the focus countries, followed by Kenya's at 14.6 percent. In contrast, most developed economy markets and some emerging economy markets had turnover ratios exceeding 100 percent. In 2006 Saudi Arabia had a turnover ratio of 288.4 percent, the highest worldwide (S&P 2007).

Although equity markets tend to be larger and somewhat more developed than bond markets across the focus countries, infrastructure companies have accounted for a smaller share of the market capitalization of many national stock exchanges than of the corresponding national bond markets. Seven of the 14 organized national and regional stock exchanges that operate in the focus countries (those of Cape Verde, Ghana, Malawi, Mozambique, Namibia, Zambia, and Cameroon) had no equity listings by infrastructure companies. Equity listings by companies operating in infrastructure sectors accounted for only 7.75 percent of the total market capitalization of the Johannesburg Stock Exchange (table 5.7), versus 20.2 percent for South Africa's Bond Exchange. The market capitalization of infrastructure companies listed on the Nigerian Stock Exchange, the second largest stock exchange, constituted a very tiny portion of total market capitalization (0.4 percent). On both the Johannesburg Stock Exchange and the Nigerian Stock Exchange, infrastructure listings were mostly of companies providing civil engineering and construction services for transport infrastructure. Sudan's stock exchange, the Khartoum Stock Exchange, had the highest share of market capitalization comprised of equity listings by infrastructure providers, at just below 50 percent as of end-2006. On the Khartoum Stock Exchange, this was nearly entirely comprised of a single large \$2.3 billion issue by telecommunications company Sudan Telecom. West Africa's regional exchange, the BRVM, had the next-highest share of infrastructure companies in overall market capitalization, at 47 percent as of end-2006. Infrastructure service providers listing shares on the BRVM cut across a range of subsectors—electricity generation, telecommunications, transport services, engineering and construction of roads, and water utilities—but an exceptionally large listing by a single telecoms company, Sonatel, accounted for 44 percent of market capitalization.

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<sup>63</sup> The size of South Africa's corporate bond market vis-à-vis its equity market remains very small, estimated at 2–4 percent of the size of the equity market at year-end 2006, according to the Bond Exchange of South Africa.

**Table 5.7. Outstanding equity issues by infrastructure providers on the Johannesburg Stock Exchange**

Corporate issuer	Sector	Market capitalization of issues (US\$ millions)	% share of all corporate equity issues
<i>Transport infrastructure construction</i>			
Aveng Ltd	Transport infrastructure construction	1,909.7	
Basil Read Hldgs Ltd	Transport (roads) construction	128.5	
Group Five Ltd Ord	Transport (roads) construction	653.5	
Wilson Bayly Hlm	Transport infrastructure construction	691.2	
Esor Ltd	Transport infrastructure construction	102.8	
Sanyati Holdings Ltd	Transport (roads) construction	60.2	
<i>Transport services</i>			
Comair Ltd	Aviation/commercial air	138.6	
Cargo Carriers Ltd	Trucking/shipping services	28.7	
Grindrod Ltd	Marine transport	1,048.9	
Imperial Holdings Ltd	Transportation services	4,931.9	
Millionair Charter Ltd	Aviation/commercial air	0.4	
Mobile Industries Ord	Transportation services	93.6	
Super Group Ltd	Transport/shipping services	670.9	
Trencor Ltd	Transport/shipping services	693.2	
Value Group Ltd	Transport/shipping services	89.4	
Spectrum Shipping	Marine transport/shipping	27.4	
Total transport		11,268.8	1.8
<i>Telecommunications</i>			
Allied Technologies	Telecoms & equipment	941.6	
Mobile Telephone Networks	Telecoms	22,766.3	
Shawcell Telecomm Ltd	Telecoms	12.9	
Telkom South Africa	Telecoms	10,991.1	
Africa Cellular Towers	Telecoms	44.0	
Celcom Group	Telecoms	29.1	
Total Telecoms		34,785.0	5.6
<i>Electricity generation</i>			
Murray and Roberts	Construction including in power generation	1,909.5	
Ipsa Group Plc	Electricity generation	56.0	
Total electricity generation		1,965.4	0.3
<i>Water and sanitation</i>			
Enviroserv Holdings Ltd	Waste and disposal services	129.5	
Total water and sanitation		129.5	0.02
Issues by entities in infrastructure sectors as % of all equity issues			7.7

Source: Johannesburg Securities Exchange.

Note: "Transport infrastructure construction" includes construction of roads, dams, harbors, power stations.

The national exchanges of East Africa also have a relatively high proportion of infrastructure providers among their equity listings—infrastructure companies accounted for 18 percent, 25 percent, and 33 percent, respectively, of the markets capitalization of the Kenyan, Tanzanian, and Ugandan stock exchanges at the end of 2006. Kenya Airways' primary listing on the Nairobi Stock Exchange and secondary listings on Uganda and Tanzania's exchanges in 2001–02 have been credited with boosting both the market capitalization and trading volume of the latter two exchanges. Infrastructure service providers' corporate bonds, however, accounted for a much higher share of total outstanding corporate bonds on the BRVM, the Nairobi Stock Exchange, and the Uganda Stock Exchange—at 97 percent, 51 percent, and 58 percent, respectively.<sup>64</sup>

The telecommunications sector's \$4.1 billion in total equity issues outstanding was the most of any infrastructure sector (table 5.8). Two large issues by Senegal's Sonatel on the BRVM and Sudan's Sudan Telecom on the Khartoum Stock Exchange constituted 99.96 percent of that sum.

The transport sector ranked second in terms of equity financing by infrastructure sectors. Equity issues for transport infrastructure accounted for 3.6 percent (\$2.3 billion) of all corporate equity issues outstanding in these markets at end-2006, however, which was a smaller portion of total issues compared with corporate bond markets but a larger amount in absolute terms (table 5.9). The vast majority of the total was issued by firms providing transport services, rather than actual transport construction projects. Nearly all of the \$63.7 million of equity issues for transport construction was for road construction (mainly issued by Nigerian firms). Five countries (Côte d'Ivoire, Kenya, Nigeria, Sudan and Tanzania) were the domicile of all equity issues outstanding in the transport infrastructure sector. Electricity generation was the third-ranking infrastructure sector in terms of the value of equity issues outstanding—95 percent of the share value in question was issued by Kenya's electricity utilities, Kenya Power & Lighting, and KenGen.

Cross-border listings by African firms and cross-border investment, while falling short of regionally integrating national exchanges, could help overcome impediments of small size, illiquidity, and inadequate market infrastructure and facilitate the ability of companies and governments to raise financing for infrastructural development. Cross-border listings and investment could improve firms' ability to mobilize funds for expansion and provide for diversification of sources of capital. The eight-member-country BRVM was established with this objective in mind. But although infrastructure companies have listed shares, overall listings, market capitalization, and trading activity remain low. In addition to the Kenya Airways cross-listing in East Africa, two other cross-border listings have been made on the three national exchanges in the East African Community. Some other notable debut cross-border listings include those of Ecobank in West Africa on the BRVM, the Ghana Stock Exchange, and the Nairobi Stock Exchange.

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<sup>64</sup> For the BRVM, this statistic is based only on corporate bonds outstanding by companies domiciled in those BRVM member countries included in the diagnostic (Benin, Burkina Faso, Côte d'Ivoire, Niger, and Senegal).

**Table 5.8 Outstanding equity issues by infrastructure providers in focus countries, except South Africa**

As of end-2006 except as noted

Domicile of issuer	Tally of issues (by domicile country)	Securities exchange(s)	Market cap of issues (US\$ millions)	% share of all equity issues in issuer's domicile country /b
<i>Transport infrastructure construction</i>				
Côte d'Ivoire	1	BRVM	2	0.1
Nigeria	4	Nigeria SE	62	0.3
Sudan	1	Khartoum SE	0.01	0.0002
<i>Transport services</i>				
Côte d'Ivoire	2	BRVM	67	5
Nigeria	3	Nigeria SE	26	0.1
Tanzania /a	1	Dar Es Salaam SE	20	0.8
Kenya /a	3	Nairobi SE, USE, DSE	2,173	64
Total transport			2,349	4
<i>Telecoms service providers</i>				
Nigeria	1	Nigeria SE	2	0.01
Senegal	1	BRVM	1,827	100
Sudan	1	Khartoum SE	2,302	50
<b>Total telecoms</b>			<b>4,131</b>	<b>6</b>
<i>Electricity generation/power</i>				
Côte d'Ivoire	1	BRVM	53	4
Kenya /a	4	Nairobi SE	1,235	11
Nigeria	1	Nigeria SE	15	0.06
Total electricity generation/power			1,303	2
<i>Water &amp; sanitation</i>				
Côte d'Ivoire	1.0	BRVM	11	0.9
Nigeria	1.0	Nigeria SE	2	0.01
Total water and sanitation			13	0.02
<b>Total equity issues by infrastructure providers</b>			<b>7,796.19</b>	<b>12</b>

Source: National and regional securities exchanges.

Note: BRVM = Bourse régionale des valeurs mobilières; SE = stock exchange; DSE = Dar Es Salaam Stock Exchange; USE = Uganda Stock Exchange.

a. For issues on Tanzania's Dar Es Salaam Stock Exchange, the reference date is end-March 2007; for listings on the Nigerian Stock Exchange, the date is end-June 2006.

b. For individual issues, the percentage share of all listed issues in all sectors on the relevant national exchange, with the exception of BRVM-listed stocks; for BRVM-listed stocks, the percentage share of all listed issues in all sectors for the country of domicile. For sector totals, the percentage share is given as a share of all listed corporate equity issues in focus countries, except South Africa, on June 30, 2006.

The majority of cross-border listings by African-domiciled firms have been carried out on the Johannesburg Stock Exchange and, to a lesser extent, the Namibian Stock Exchange (which has trading technology links and other ties with the Johannesburg Stock Exchange). These two exchanges had 22 and

19 such listings, respectively (table 5.9).<sup>65</sup> Malawi's small exchange in southern Africa also had two secondary listings from within the subregion, and the Zambian and Sudanese exchanges each had one. The cross-border listings on the southern African exchanges have been primarily in the banking, retail, and mining sectors, however. Indeed, aside from Kenya Airways, there have not yet been cross-border equity listings by companies providing infrastructure services on the national exchanges covered in this study.

Table 5.9 Cross-listings and overseas listings by companies in focus countries at end-2006

Country	Market cap of infrastructure companies as share of total market cap of listed companies (%)	Tally of African domiciled firms cross-/dual listed on other exchanges in the SSA region	Tally of African domiciled firms listed on international exchanges
BRVM total	47	1	0
of which:			
Benin	0	—	—
Burkina Faso	0	—	—
Côte d'Ivoire	10	—	—
Niger	0	—	—
Senegal	100	—	—
Cameroon	0	0	0
Cape Verde	0	0	0
Ghana	0	1	1
Kenya	18	3	0
Malawi	0	2	1
Mozambique	0	0	0
Namibia	0	19	2
Nigeria	0.4	1	0
South Africa	8	22	21
Sudan	50	1	1
Tanzania	25	3	0
Uganda	33	3	0
Zambia	0	1	1

Source: Equity markets data are sourced from national/regional securities exchanges and/or national regulatory authorities.

Note: At the end of 2006, there were no organized equity markets in Chad, Democratic Republic of the Congo, Ethiopia, Lesotho, Madagascar, and Rwanda. Data for the eight-member country BRVM. Côte d'Ivoire, Benin, Burkina Faso, Niger and Senegal are all members of the BRVM, headquartered in Côte d'Ivoire but with trading floors in each member country. Companies domiciled in Côte d'Ivoire, Benin, Burkina Faso, Niger and Senegal have issued shares on the BRVM.

— = Not available.

A N\$500 million, 13-year, rand-denominated corporate bond issued in August 2007 by Namibia's electricity utility, Nampower, was the first infrastructure-finance bond to be dual listed on two Sub-Saharan exchanges: the Bond Exchange of South Africa, where it was able to access South Africa's large

<sup>65</sup> However, the relatively large number of primary as well as dual listings by southern African firms on the Johannesburg Stock Exchange have created uncertainties regarding possible shifts in capital flows toward Johannesburg within the South African Development Community.

investment base, and the exchange in its country of domicile, the Namibia Stock Exchange. In the latter case, the stated purpose of the financing is regional. It is to be used mainly for constructing a linkage between the electricity networks of Namibia, South Africa, and Zambia, creating an alternative channel for electricity imports and exports between the countries in southern Africa.

There were only two firms operating in an infrastructure sector and based in an African focus country that were listed on an international exchange, both of which were in the telecoms sector. South Africa's Telkom SA, Ltd. was listed on the New York Stock Exchange, and Sudan's telecommunications company, Sudatel, was listed on the Abu Dhabi and Dubai exchanges in the United Arab Emirates—as well as having listings on their home exchanges. Aside from Sudatel and Telkom, firms based in African focus countries and listed on international exchanges tended to operate in natural resources or financial services and favored listings on major European stock exchanges, such as the London Stock Exchange and Euronext. The small representation of infrastructure sector firms based in focus countries largely reflects an overall small number of focus-country-domiciled firms listed on international exchanges—with the exception of South African firms, only 21 have listings on major overseas exchanges. South Africa's financial services firm, Old Mutual, has listings on the London exchange and on the exchanges of three focus countries (South Africa, Malawi, and Namibia). Barloworld, a diversified South African corporation involved in financial services, distribution, and manufacturing, has listings on Euronext (Brussels) and the London, Frankfurt, and Swiss exchanges, in addition to the Johannesburg and Namibian exchanges. AngloGold-Ashanti, formed from a merger in 2004 of AngloGold and Ghana's Ashanti Goldfield's gold-mining concern, is headquartered in South Africa and has its primary listing on the Johannesburg Stock Exchange, with secondary listings on the Ghana Stock Exchange, as well as several international exchanges worldwide: the New York Stock Exchange, Australia Stock Exchange, London Stock Exchange, and Euronext (Paris and Brussels). Aside from these South African firms and Sudan's Sudatel, there was only one other firm headquartered in a focus country with a listing on an African international exchange as well as its home exchange: ZCCM (Zambian Consolidated Copper Mines) Investment Holdings is listed on Euronext (Paris) and the London Stock Exchange, as well as the Lusaka Stock Exchange.

Various initiatives to integrate capital markets within and across subregions—notably, within the Southern African Development Community; among East African Community members Kenya, Tanzania, and Uganda; and among the BRVM and the Nigerian and Ghanaian securities exchanges in West Africa—have achieved some progress toward harmonizing rules, technology, and systems. Those achievements are expected to pave the way for more cross-border listings from companies based in the region, potentially offering issuers access to much wider markets, boosting the supply of listed securities, and increasing market capitalization and liquidity. However, the potential for raising capital for infrastructure development through cross-border listings and investment remains largely untapped.



## 6 Conclusions and policy recommendations

With the obvious exception of South Africa, local financial markets in the African focus countries remain underdeveloped, shallow, and small in scale. Locally sourced financing with maturity terms commensurate with the longer-term horizons of infrastructure projects is particularly scarce. Official development assistance thus remains an important source of (external) financing in Africa, particularly for those focus countries with very low levels of financial intermediation.<sup>66</sup> Private participation in infrastructure (PPI) can also serve as a significant external financing source for infrastructure projects in certain niche sectors and has undergone a resurgence in recent years.<sup>67</sup> There is growing awareness, however, of the need to explore the potential for accessing local and regional sources of private financing, particularly as national financial market reforms, in many cases taking a regional approach, gather increasing momentum across the countries.

### Macroeconomic stability, financial depth, and infrastructure financing

Sound macroeconomic policies provide the foundations for developing a national financial system that makes available sustainable and affordable medium- to long-term finance, which can be accessed for infrastructure development. In the absence of macroeconomic stability, sources of medium- to long-term finance at predictable (preferably fixed) interest rates required by infrastructure projects are scarce if not nonexistent. The overall trend in the focus countries has been one of improvement in macroeconomic policies and performance in recent years, as reflected in the macroeconomic stability indicators discussed in chapter 1. But in several countries one or more key indicators of macroeconomic stability—volume of savings, savings rates, and ratios of domestic and external debt to GDP—fall far short of the foundations needed for well-functioning local financial markets capable of financing infrastructure. It is important for the focus countries, including those that have made good progress in recent years, to build on the regional momentum to further macroeconomic and structural reforms to accelerate sustainable economic growth, reduce poverty, raise living standards, increase their ability to weather external shocks, and provide an enabling environment for private sector activity and financing.

A minimum degree of financial intermediation is needed to establish a market for term finance that could potentially serve as a source of finance for local infrastructure. Chapter 2 looked at the levels of financial depth and intermediation in the focus countries based on selected indicators. The level of financial depth (as indicated by the ratio of total financial intermediaries' assets to GDP) of the majority of the focus countries is very low, with 15 of 24 countries having ratios below 25 percent. Three countries have ratios of financial intermediaries' assets to GDP exceeding 100 percent (Cape Verde and Namibia, as well as South Africa), but the next highest ratio is only 52 percent (Kenya). Ratios of private credit by banks to GDP also point to a low level of financial intermediation in a large majority of the focus

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<sup>66</sup> ODA commitments for Sub-Saharan Africa amounted to \$5.1 billion for 2006, with low-income countries receiving the vast majority (80 percent), primarily for transport but also for improving water supply, according to data compiled by the Infrastructure Consortium for Africa (ICA), set up following the G8 Summit meeting in Gleneagles in 2005.

<sup>67</sup> Annual PPI flows to the region tripled over the past decade (to \$8.7 billion in 2006), outpacing recent ODA flows.

countries—with three quarters (18) of the countries having ratios below 20 percent (eight of which have ratios of less than 10 percent). Bank credit to the private sector in these countries has been constrained by various structural impediments to lending that can include, inter alia, poor credit discipline, deficiencies in national legal and judicial frameworks, administrative controls on lending rates, and high transaction costs.

With the exception of South Africa—which has a financial sector that is significantly larger and more developed than those of all of the other African focus countries—the ability of commercial banks in the focus countries to finance infrastructure projects is thus impeded. In addition to the structural constraints to lending noted above, there would be a significant asset-liability maturity mismatch in the case of most banks in the region, given that African banks' deposits and other liabilities currently tend to have largely short-term maturities, while infrastructure projects require medium- to long-term financing. Longer-term deposits are needed to finance longer term credit commitments. Moreover, structural constraints to lending in some of these countries make banks highly risk averse. Lending to the private sector thus tends to be generally short in tenor. In financial markets where banks make credit available at medium- to long-terms, they often concentrate their lending to a select few, large corporate blue-chip borrowers.

Even for the five focus countries (in addition to South Africa), where long-term loans with maturities greater than 20 years are available (Ghana, Lesotho, Namibia, Uganda, and Zambia), average interest rates exceed 20 percent in two of these countries (Ghana and Zambia), thus rendering them hardly affordable for infrastructure lending purposes. This is because it is difficult to find infrastructure projects that generate sufficient returns to cover a cost of debt that is greater than 20 percent.

Despite the overall scarcity of affordable medium- to long-term financing from banks, the share of bank loans used to finance infrastructure in the focus countries has been on an overall upward trend in recent years. In 12 of the 20 countries for which time-series data are available, there was an increase in bank loans outstanding to sectors that develop infrastructure, relative to total loans. At the same time, it must be noted that these figures vary widely from country to country, however, and the absolute amount of lending is relatively small, with the exception of South Africa and Nigeria. Excluding South Africa, the total amount of outstanding loans to infrastructure sectors for all the other 22 focus countries for which recent data are available is just \$5 billion—roughly equal to the corresponding amount for Malaysia alone and well below the corresponding amount for Chile alone.

The sector known in many national accounts as “transport, communication, and storage” was the destination of the largest amount of local bank loans outstanding at the end of 2006 for the 23 focus countries that reported such data: just over \$8.3 billion, or nearly three-quarters of the \$11.3 billion in total loans outstanding for infrastructure financing for all countries reporting these data. Electricity, water, and gas was the destination of the next-largest amount by overall sector category: \$2.7 billion, or just under one-quarter of the total bank loans outstanding for infrastructure financing.

For the majority of the 24 focus countries, however, the capacity of local banking systems would be too small and remains too constrained by structural impediments to adequately finance their infrastructural development needs. There may be somewhat more potential in this regard for syndicated lending to infrastructure projects with the participation of local banks, which had been on an overall trend of increase in recent years, albeit with significant variability across the countries and from a very low

base. Notably, the share of syndicated lending for infrastructure denominated in local currencies increased for the focus countries in 2000–06 and a few of the recent syndicated loans to these countries were specially structured to reduce the risks of currency mismatch.

## Growing potential role of institutional investors

Well-functioning institutional investors such as pension funds and insurance companies typically seek out financial liabilities that are medium- to long-term—liabilities that would better match the longer terms of infrastructure projects than those of banks. Well-regulated institutional investors would thus have significant potential to be natural sources of longer-term financing, including for infrastructure development. To exploit that potential, it will be important to continue with financial sector reforms that develop capital markets, including by encouraging the establishment of appropriately regulated, privately managed pension funds and other institutional investors with long-term investment horizons. This would be a key step toward improving financial intermediation in these markets and would pave the way for these financial institutions to serve as a well-needed source of financing for infrastructure. Moreover, the competition that would arise in an appropriately-regulated national system that allows private pension funds to operate alongside state-run funds could not only help develop capital markets but it would reward good management and better analyses of investment alternatives. It would also constitute a key step toward enhancing efficiency and competition in the financial sector in general.

In many of the countries, however, regulatory and supervisory frameworks remain inadequate and/or inappropriate and, in some cases, the necessary framework does not exist at all. Overly restrictive regulations governing pension-fund investments—often placing an excessive emphasis on stability and uniform portfolio performance, without regard for return—have tended to result in investment practices in many focus countries that have made it difficult or impossible for national pension funds to invest in infrastructure assets. In some focus countries, state-run institutional investors continue to enjoy special exemptions from regulations governing their activities, also resulting in suboptimal investment practices. At the same time, investment vehicles in these countries excluding South Africa are still limited, reflecting the underdeveloped state of local capital markets. Moreover, institutional investors lack the ability to undertake the credit-risk evaluation necessary ahead of involvement in infrastructure development projects. Investment practices of institutional investors in these countries consequently often favor illiquid real estate holdings, short-term bank deposits and government securities.

Although data limitations impede an accurate evaluation of the extent to which institutional investors in the focus countries invest their assets specifically in local infrastructure, available data reported by institutional investors and their regulators indicate that the amount is relatively small. Of the three focus countries—Cape Verde, Tanzania, and Uganda—that have specifically reported pension system investments in infrastructure, the total combined amount was estimated at \$31.5 million as of mid-2007, or a tiny 0.03 percent of the total combined estimated assets of \$91.8 billion for all national pension systems in the focus countries for which data were available.

There are signs of change on the horizon, however. Private pension providers have begun to emerge across the countries, particularly in the past several years, as a way for private sector employers in several countries to attract staff in response to national capital market reforms. At the same time, there is an

overall trend of shift away from defined-benefit to defined contribution schemes across many of the focus countries, with the latter viewed as less costly, more transparent, and easier to manage. If this trend ultimately fosters development of a well-managed, appropriately regulated institutional investor base with private fund participation, the volume of assets under management by these financial institutions could grow significantly in future years. Moreover, for those countries for which time-series data on the allocation of pension-system assets are available (Ghana, Kenya, Madagascar, South Africa, Zambia), there are clear signs overall of a more diversified portfolio approach to asset allocation and some indications of a shift away from large holdings in assets generating little or no returns.

There also is scope for an intraregional response to increasing available financing for infrastructure projects with the participation of African institutional investors and other financial services providers. One concrete initiative to this end, a Pan-African Infrastructure Development Fund (PAIDF), established in mid-2007, is a 15-year fund designed to raise financing for commercially viable infrastructure development projects in Africa, with investment commitments in its first close, in July 2007, of \$625 million, including from South African and Ghanaian institutional investors. South Africa's Government Employees Pension Fund (GEPF) committed \$250 million to PAIDF as of mid-2007; South African insurer Old Mutual committed \$50 million; Ghana's SSNIT state pension fund committed \$10 million; and Metropolitan, a South African provider of insurance, pension and other financial services, committed \$10 million. The remaining \$305 million was committed by African banks, including the African Development Bank and the Development Bank of Southern Africa.

South Africa's Public Investment Corporation, an investment management company owned by the South African government, initiated the PAIDF and has set a total capitalization goal of \$1 billion, following a second funding round targeting international institutional investors as well as institutional investors from more African countries. The fund's managers are aware that greater investment commitments from institutional investors from a broader range of African countries will in several cases require the easing of national legislative obstacles that currently impede their participation.

### Local capital markets: bonds and equities

With the exception of South Africa, the focus countries' local capital markets are shallow and illiquid. They thus have not played a major role in financing infrastructure projects to date (table 6.1). In recent years, there has been an identifiable trend across the countries, however, whereby governments have begun to issue debt at longer tenors in an attempt to establish benchmark yield curves for later corporate and parastatal bond issues, as part of an overall aim to develop local capital markets and improve debt management.

Government bond issues on local markets that are specifically designated for raising infrastructure financing remain rare in the focus countries, with only Nigeria and Senegal having a designated issue outstanding as of end-2006. The actual share of government bond financing going toward infrastructural development is likely higher for the focus countries than is indicated by the data for the few issues specifically designated for infrastructure financing, however, given that some of the financing raised on local capital markets via government bond issues may have been allocated toward this financing purpose.

Where they exist at all, corporate bond markets in the focus countries are undeveloped, with few issues, except in South Africa, where corporate issues had been growing faster than government issues in recent years. Due to factors including a lack of financial product diversity and the small number and size of issues, most of the corporate bonds in these countries rarely trade and are often held to maturity, with the investors tending to adopt a buy-hold strategy.

**Table 6.1 Overview of countries' locally sourced infrastructure financing by financial instrument**

Amount outstanding at end-2006 or most recent available (US\$ millions)

	Bank loans /a	Government bonds /b	Corporate bonds	Equity issues
Benin	123.6	0	51.9	0
Burkina Faso	84.5	0	39.4	0
Cameroon	—	—	—	0
Cape Verde	107.6	—	n.a.	0
Chad	0.0	n.a.	n.a.	n.a.
Congo, Dem. Rep.	5.8	n.a.	n.a.	n.a.
Côte d'Ivoire	334.7	0	n.a.	133.4
Ethiopia	247.9	n.a.	n.a.	n.a.
Ghana	177.9	0	0	0
Kenya	574.5	0	64.8	3,408.0
Lesotho	20.9	0	n.a.	n.a.
Madagascar	67.6	n.a.	n.a.	n.a.
Malawi	17.4	0	n.a.	0
Mozambique	60.7	0	13.2	0
Namibia	117.1	0	298	0
Niger	66.5	n.a.	n.a.	n.a.
Nigeria	2,443.6	46.8	0	0
Rwanda	25.6	n.a.	n.a.	n.a.
Senegal	286.0	93.3	66.6	1,827.1
South Africa	6,274.9	762.8	6,841.3	48,148.7
Sudan	5.2	—	—	2,302.3
Tanzania	93.0	0	0	0
Uganda	74.9	0	7	0
Zambia	72.9	n.a.	7	0

Sources: National finance ministries, national/regional central banks and securities exchanges.

a. Total outstanding loans to infrastructure sectors. Data for end-2006 with the exception of: Democratic Republic of the Congo (end-2003); Madagascar (end-2004); Namibia (end-June 2005); Tanzania (end-2005); Ghana (June 2006); South Africa (end-Sept. 2006); Zambia (May 2007); Chad (March 2006).

b. The actual amount of government bonds financing infrastructure may be an underestimate as specific financing purpose for these bond issues is generally unavailable.

— = Not available; n.a. = Not applicable (no such issues/no organized market).

## The importance of corporate bonds issued to finance infrastructure

Despite the generally underdeveloped state of these markets and significant variance in the extent to which corporate bonds are financing infrastructure across the countries, new corporate bond issuers operating in infrastructure sectors appear to be coming to the market, in at least one case constituting the

market's debut issue. The share of corporate bonds outstanding that was issued to finance infrastructure exceeded 50 percent in 7 of 12 focus countries that had such bonds outstanding at the end of 2006, though the overall amounts were small. It is also worth noting that in Chile, one of the comparator countries for this study, issuers of bonds in infrastructure sectors such as public utilities, the transport sector, and construction of transport infrastructure have played a major part in the development of the corporate bond market over the past few decades.

Perhaps the most striking finding of this research is that a larger share of the total amount of corporate bonds outstanding went toward infrastructure as of end-2006 than was the case for other local sources of financing, for the 23 focus countries excluding South Africa (table 6.2). That is, for these 23 countries as a group, corporate bonds are more likely to be used for infrastructure purposes than are local bank loans, government bonds, or equity issues. More than half of the total amount of corporate bonds outstanding at the end of 2006 (albeit a small amount overall) was for infrastructure. Equity issues ranked next in this respect, with 12 percent of total equity issues outstanding for the 23 countries. Despite the predominance of banks in the financial systems of these countries, only 10 percent of outstanding bank loans were for infrastructure purposes.

**Table 6.2 Overview of financial instruments for locally sourced infrastructure financing: Focus countries excluding South Africa**

Amount outstanding at end-2006 or most recent available (US\$ millions)

	Bank loans /a	Gov't bonds /b	Corporate bonds	Equity issues
AICD excl. South Africa: Total outstanding, all financing purposes	49,046.5	12,389.0	1,060.8	65,528.4
<b>AICD excl. South Africa: Total outstanding financing infrastructure (% of total)</b>	<b>10</b>	<b>1</b>	<b>52</b>	<b>12</b>
AICD excl. South Africa: Total outstanding financing infrastructure (US\$ millions)	5,007.9	140.1	548.1	7,796.2
Of which:				
Transport	236.0		360.6	2,349.4
Telecoms	33.1		124.3	4,131.0
Transport, communications and storage	3,076.5			
Electricity generation/power	1,430.9		58.9	1,302.9
Water and sanitation	Note a			12.9
Other /c	231.4	140.1	4.4	

Sources: National/regional central banks and securities exchanges.

a. Fairly broad catch-all categories for economic sectors in use by central banks in several countries, such as "transport, communications, and storage" (seven countries) and "transport, communication, energy and water" (four countries), make it difficult to disaggregate lending by specific infrastructure sectors. The amount of bank loans outstanding to the telecoms sector (and the electricity and water sectors) is likely higher than indicated because of the use of such catch-all categories; similarly, bank loans to transport are likely lower than indicated.

b. The actual amount of government bonds financing infrastructure may be an underestimate as specific financing purpose for these bond issues is generally unavailable. Some of the financing raised via these issues may have been allocated toward infrastructure financing.

c. "Other" consists of large catch-all categories, including "public works" (which cannot be disaggregated).

Telecommunications companies had the highest number of bond issues outstanding (five) among companies operating in infrastructure sectors in the focus countries (excluding South Africa). But as indicated in chapter 3, the transport sector was the predominant infrastructure sector in terms of the amount of total corporate bonds outstanding for these countries—with a few large issues from Namibia

and Senegal accounting for two-thirds of the total \$548 million in corporate bonds outstanding by infrastructure providers.

With medium- to long-term bank financing costly and scarce, and macroeconomic conditions stabilizing in a number of the focus countries, corporate bond financing is increasingly seen as a viable alternative by firms, including those operating in infrastructure sectors. Further progress is needed in many countries, however, in developing a benchmark for pricing in the form of a well-established yield curve, maintaining low and stable inflation rates and interest rates, improving corporate governance and transparency, developing a larger and well-regulated institutional investor base, putting in place credible rating agencies, and increasing awareness of prospective issuers and investors.

With the exception of the Johannesburg Stock Exchange, the stock exchanges of the focus countries have a small number of equity listings (particularly by local companies), very low ratios of market capitalization to GDP, and low turnover ratios. They have not yet contributed substantially to efficient resource mobilization and allocation. Although equity markets tend to be larger and somewhat more developed than bond markets across the countries, companies providing infrastructure services have accounted for a relatively smaller percentage of the market capitalization of many national stock exchanges than of the corresponding national bond markets. Seven of the 14 organized national and regional stock exchanges that operate in these countries (those of Cameroon, Cape Verde, Ghana, Malawi, Mozambique, Namibia, and Zambia) had no equity listings by companies operating in infrastructure at the end of 2006. In contrast, bond listings by companies operating in infrastructure sectors comprised more than half of total outstanding bonds listed on two of these exchanges (those of Mozambique and Namibia). In South Africa, equity listings by companies operating in infrastructure comprised only 7.8 percent of the total market capitalization of South Africa's stock exchange, as opposed to 20 percent of the country's bond exchange (table 6.3).

**Table 6.3 Overview of financial instruments for locally sourced infrastructure financing: South Africa**

Amount outstanding at end-2006 or most recent available (US\$ millions)

	Bank loans /a	Government bonds /a	Corporate bonds	Equity issues
South Africa: Total outstanding, all financing purposes	249,020.2	62,858.0	33,817.2	621,633.8
<b>South Africa: Total outstanding financing infrastructure (% of total)</b>	<b>3</b>	<b>1</b>	<b>20</b>	<b>8</b>
South Africa: Total outstanding financing infrastructure (US\$ millions)	6,274.9	762.8	6,841.3	48,148.7
Of which:				
Transport			772.5	11,268.8
Telecoms			1,929.1	34,785.0
Transport, communications, and storage	5,011.0			
Electricity generation/power	1,263.8		3,613.9	1,965.4
Water and sanitation				129.5
Other /a		762.8	525.8	

Source: South African Reserve Bank, Johannesburg Securities Exchange, Bond Exchange of South Africa.

a. See corresponding notes, table 6.2.

Infrastructure companies listed on the Nigerian Stock Exchange, the second-largest stock exchange among the focus countries, comprised a very tiny portion of the exchange's total market capitalization

(0.4 percent). West Africa's regional exchange, the Bourse régionale des valeurs mobilières (BRVM), had the highest share of infrastructure companies in its market capitalization—47 percent as of end-2006.

In contrast to the picture in corporate bond markets, issuers of telecommunications equities overshadowed other infrastructure sectors, accounting for 53 percent (just under \$4 billion) of total equity issues outstanding by infrastructure companies in the focus countries, excluding South Africa.<sup>68</sup> The vast majority of the amount, however, consisted of two exceptionally large issues, by Senegal's Sonatel on the BRVM and Sudan Telecom on the Khartoum Stock Exchange. More cross-border listings and investment could greatly facilitate the ability to raise finance for infrastructure

Cross-border listings (of both corporate bonds and equity issues) by firms in the focus countries and cross-border investment fell short of regional integration of national exchanges. Nevertheless, such cross-border activity could help overcome national capital markets' impediments of small size, illiquidity, and inadequate market infrastructure and, in so doing, facilitate the ability of companies and governments in these countries to raise financing for infrastructure development.

So far, however, this regional approach to raising infrastructure financing remains largely untapped. Aside from Kenya Airways, there have not yet been cross-border equity listings by companies in infrastructure sectors on the national and regional exchanges in the focus countries. A \$62.2 million, 13-year, rand-denominated corporate bond issued in August 2007 by Namibia's electricity utility, Nampower, became the first bond raising finance for an infrastructure sector to be dual listed on two Sub-Saharan African exchanges: the Bond Exchange of South Africa, where it gained access to South Africa's large investment base, and the Namibia Stock Exchange. In this latter case, the purpose of the financing is also regional—proceeds are to be used to link the electricity networks of Namibia, South Africa, and Zambia, creating an alternative channel for electricity imports and exports among the countries in the southern Africa subregion.

Various initiatives to integrate capital markets within and across subregions—notably, within the Southern African Development Community; among East African Community members Kenya, Tanzania, and Uganda; and among the BRVM and the Nigerian and Ghanaian securities exchanges in West Africa—have achieved some progress toward harmonizing rules, technology, and systems. Building further on these initiatives could pave the way for more cross-border listings from infrastructure providers and other companies based in the region, potentially offering issuers access to much wider markets, boosting the supply of listed securities, and increasing market capitalization and liquidity.

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<sup>68</sup> In South Africa, equity issues by telecoms providers predominated, accounting for 72 percent (\$34.8 billion) of the total outstanding equity issues by infrastructure providers. Mobile Telephone Network's \$22.8 billion equity issue made up the lion's share.



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## Appendix 1 Sovereign credit ratings

In the past several years, a number of Sub-Saharan African countries, including several low-income countries, have newly applied for and obtained sovereign credit ratings. This marks a significant change from the situation in the late 1990s, when only South Africa had a sovereign credit rating among all countries in the region. Programs sponsored by the United Nations Development Programme (UNDP) and the U.S. government subsidize some of the initial application cost and other fees. These programs aim, at least in the short term, to put these countries “on the road” to being able to access international capital markets in future and to attract a larger share of foreign investment, particularly foreign direct investment. A sovereign credit rating is thought to make it easier for foreign investors and other potential sources of external financing to assess risk.

Sovereign credit ratings can provide some indication of a country’s investment climate, creditworthiness, and capacity to service existing debt. Many low-income countries in Sub-Saharan Africa are still considered too risky despite significant improvement in fundamentals. There is not as much information on these so called frontier markets as there is for middle-income emerging-market economies. Thus, additional perceived benefits of obtaining a sovereign credit rating is that a rating signals a government’s intention to open its books to public scrutiny and that the ratings process can foster governmental transparency. On the other hand, a credit rating secured prematurely—in cases where a country is unable to secure an investment grade rating—could deter the ability to attract foreign private capital that would promote sustainable economic development. The ratings methodology used for sovereigns assesses many of the same variables as those which are typically looked at by prospective foreign direct investors.<sup>69</sup> To the extent that prospective investors consult a country’s ratings report to determine its investment climate, a rating could discourage some foreign investment that might otherwise go to strong enclave sectors, especially in the case of a low speculative grade rating.

As of September 2007, 16 of the 24 focus countries had obtained ratings from one or more of the three major international ratings agencies (table A1.1).<sup>70</sup> Of these 16 countries, 11 are low-income countries. All of the low-income focus countries that have been rated, except Kenya and Nigeria, which are not part of the Heavily Indebted Poor Countries (HIPC) initiative, have also recently seen declines in their debt burdens due to multilateral debt relief granted under the HIPC Initiative and Multilateral Debt Relief Initiative. Oil revenues have enabled Nigeria to cut down its external debt: it has paid all of its Paris Club debt and nearly all of its London Club debt.

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<sup>69</sup> For example, S&P ranks each sovereign on a scale for a number of categories, including political risk, national income and economic structure, economic growth prospects, fiscal and monetary performance indicators, financial sector’s effectiveness in intermediating funds, competitiveness and profitability of nonfinancial private sector, and even labor flexibility.

<sup>70</sup> These countries comprise upper- middle-income country South Africa; lower-middle-income countries Cameroon, Cape Verde, Lesotho and Namibia; and low-income countries Benin, Burkina Faso, Ghana, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Senegal, and Uganda.

**Table A1.1 Sovereign credit ratings, savings rates, and status under HIPC Initiative**

Country	Fitch Sep-07	Moody's Sep-07	Standard & Poor's Sep-07	Gross domestic savings (as % GDP) 2005	HIPC Initiative status Sep-07
<i>Investment grade</i>					
Chile	A	A2	A/Positive/A-1	31	n.a.
Malaysia	A-	A3	A-/Positive/A-2	43	n.a.
South Africa	BBB+	Baa1	BBB+/Stable/A-2	17	n.a.
Namibia	BBB-	n.a.	n.a.	27	n.a.
<i>Non-investment grade (B+ — BB-)</i>					
Lesotho	BB-	n.a.	n.a.	-16	n.a.
Nigeria	BB-	n.a.	BB-/Stable/B	39	n.a.
Cape Verde	B+	n.a.	n.a.	-5	n.a.
Ghana	B+	n.a.	B+/Stable/B	3	Completion point
Kenya	n.a.	n.a.	B+/Stable/B	9	n.a.
Senegal	n.a.	n.a.	B+/Negative/B	9	Completion point
<i>Non-investment grade (B)</i>					
Benin	B	n.a.	B/Stable/B	7	Completion point
Burkina Faso	n.a.	n.a.	B/Positive/B	—	Completion point
Cameroon	B	n.a.	B/Stable/B	19	Completion point
Madagascar	n.a.	n.a.	B/Stable/B	8	Completion point
Mozambique	B	n.a.	B/Positive/B	11	Completion point
Uganda	B	n.a.			Completion point
<i>Non-investment grade (B- or less)</i>					
Malawi	B-	n.a.	n.a.	-12	Completion point
Rwanda	B-	n.a.	n.a.	2	Completion point
Unrated AICD countries					
Chad	n.a.	n.a.	n.a.	37	Decision point
Congo, Dem. Rep.	n.a.	n.a.	n.a.	6	Decision point
Côte d'Ivoire	n.a.	n.a.	n.a.	18	Pre-decision point
Ethiopia	n.a.	n.a.	n.a.	4	Completion point
Niger	n.a.	n.a.	n.a.	9	Completion point
Sudan	n.a.	n.a.	n.a.	13	Pre-decision point
Tanzania	n.a.	n.a.	n.a.	10	Completion point
Zambia	n.a.	n.a.	n.a.	17	Completion point

— = Not available; n.a. = Not applicable.

Ratings sources: Fitch, Moody's, Standard and Poor's (downloaded from each ratings agency website in September 2007).

Savings rates are sourced from World Bank, WDI; HIPC Initiative status is sourced from the World Bank, HIPC Initiative web pages (Sept. 2007).

African low-income countries that have recently received ratings pursuant to debt relief tend to be rated in the upper speculative grade classifications (BB and B ratings by ratings agencies Standard & Poor's and Fitch), while Namibia, a lower-middle-income country, joined South Africa and Botswana in

the investment grade category, albeit in the lowest classifications of BBB- for its long-term foreign currency debt and BBB for long-term local currency debt.<sup>71</sup> Investment-grade sovereign credit ratings mean that a country is unlikely to default on its sovereign debt. Speculative, or non-investment grade, ratings signal a higher probability of default or indicate that a default has already occurred.<sup>72</sup>

Sovereign credit ratings allow investors to differentiate countries' credit risk profiles, and they could promote investment by mature institutional investors—a major source of capital to emerging markets—that are constrained, in part, by the absence of credit ratings. The investment grade ratings assigned to Botswana and South Africa are seen as having raised foreign investor interest.

It is still unclear, however, how the recently assigned sovereign ratings to African focus countries rated noninvestment grade have affected the ability of these countries to attract private capital, particularly capital flows that would enhance sustainable economic development. Private capital flows to some of the newly rated countries increased, at times significantly, in the period following their ratings, particularly portfolio investment in local-currency debt issues sourced from foreign investors. Much of that interest, however, can be attributed to the liquidity of international financial markets over the period, which prompted portfolio investors to go further afield in search of yield. Indeed, Zambia attracted a very large amount of foreign portfolio investment inflows over the past few years through the end of 2007 even though it lacks a sovereign credit rating. Moreover, in Nigeria foreign investors reportedly held 18 percent of total marketable debt at the end of 2005 (IMF 2006d), ahead of that country obtaining a credit rating. It may become clearer how noninvestment grade credit ratings impact the relative ability of these countries to attract capital in the tight credit conditions that currently prevail. The illiquidity and lack of depth that continues to characterize nascent local African bond markets means that foreign investors, overall, prefer shorter maturities and avoid longer maturities because of the risk that an early exit could require a steep discount.<sup>73</sup> Without well-developed local institutional investors that could take up these securities in the event of a withdrawal by foreign investors, the underdeveloped local bond markets are vulnerable, especially since there are indications that much of these early foreign investment inflows are from foreign hedge funds and other investors with short-term horizons (World Bank 2007b).

Sovereign credit ratings that have been assigned to focus countries do show an overall relationship between countries with the highest ratings, on one hand, and the highest savings rates and most-developed financial systems, on the other, compared with the lowest-rated countries, however (table A1.1). The countries rated investment grade all have savings rates above 25 percent; the countries with the lowest rating of B-, Malawi and Rwanda, have savings rates below 5 percent. The level of financial

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<sup>71</sup> Major ratings agencies often rate sovereign foreign currency obligations below local currency obligations because sovereigns are considered to have a higher probability of default on foreign currency than local currency debt. See, for example, Cavanaugh 2005.

<sup>72</sup> The two largest international ratings agencies— Moody's and Standard & Poor's —have ratings categorization systems that divide ratings into investment grade (Aaa–Baa and AAA–BBB, respectively) and speculative or non-investment grade (Ba–C and BB–D, respectively). According to Fitch Ratings' definitions, investment grade ratings are in the AAA–BBB categories and speculative (non-investment-grade) ratings are in the BB–D range.

<sup>73</sup> In fact, in the past few years, foreign investment flows have tapered off or come to a sudden stop in some African markets (for example, Botswana) as governments have reduced or halted new issuance at shorter maturities as part of an effort to lengthen the maturity profile to restructure government financing and establish a benchmark yield curve for corporate bond issues.

intermediation, as measured by the ratio of private credit by banks and other nonbank financial institutions to GDP, also is high in investment-grade rated countries: South Africa, 145 percent; Namibia, 62 percent; Chile, 87 percent; and Malaysia, 118 percent (see chapter 2). Predictably, Malawi and Rwanda have very low levels of financial intermediation according to this indicator, at 12 percent and 14 percent, respectively.

The correlation is less clear for the countries rated a few notches below investment grade. Some of the focus countries whose ratings are just below investment grade have savings rates below 5 percent (see chapter 1). Lesotho and Cape Verde have negative savings rates.

Credit ratings also indicate the ability to raise external finance and show its likely associated cost. Investment grade countries (rated BBB- or higher) such as South Africa, Namibia, Chile, and Malaysia have easier and cheaper access to external finance than non-investment grade countries. Further subdividing the latter group into three groups, countries with a rating just below investment grade, yet above a B rating, would still have access to external finance at reasonable rates: Lesotho (BB-), Nigeria (BB-),<sup>74</sup> Cape Verde (B+), Ghana (B+), Kenya (B+), and Senegal (B+). While the external debt market would theoretically be open to the countries with single B ratings, the cost of raising external finance would be much higher: Benin, Burkina Faso, Cameroon, Mozambique, and Uganda. Countries with investment grade ratings of B- and lower would have problems raising external term finance: Malawi (B-) and Rwanda (B-).

In September 2007, Ghana became the first HIPC beneficiary country to tap international private capital markets, via a \$750 million, 10-year Eurobond issue, with an 8 percent coupon. Although the bond has not been specifically designated as an infrastructure bond, the bond's prospectus and statements by Ghanaian officials suggest that proceeds from the issue are intended to finance infrastructure projects with high rates of return in the transport and energy sectors. Part of the proceeds are also to be channeled into public-private partnerships, according to the bond's prospectus. The bond was listed on the London Stock Exchange shortly after issuance. The bond was rated B+ by S&P and Fitch, in line with the rating assigned to Ghana's long-term foreign currency sovereign debt in 2006 by these ratings agencies. The landmark U.S.-dollar-denominated issue was reportedly four times oversubscribed. Some 40 percent was placed with U.S. investors, 36 percent with U.K. investors, and the remainder with European, Middle East, and Asian investors.

Some of the other focus countries that have obtained sovereign credit ratings and received debt relief under MDRI/HIPC initiatives were reportedly considering tapping external private bond markets. Nigeria, Kenya, and Zambia have indicated intentions to access international capital markets to launch debut sovereign bonds at some point in future. Although the debt relief under the MDRI has increased the capacity of a number of its beneficiary countries to raise private external financing, it was considered unlikely as of mid-2008 that many others would do so in the near term, particularly given the higher costs of doing so in the tighter external financing conditions.

There could be an improved ability for focus countries to finance infrastructure through local financial markets that may derive from a sovereign credit rating—even for those countries whose rating

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<sup>74</sup> When Nigeria received its initial BB- rating in 2006, market analysts tended to react to this rating as a sign of growing international confidence in the economy.

precludes them from accessing international capital markets in the foreseeable future. The enhanced public-sector transparency that is associated with the ratings application process and the periodic reporting subsequently required could lead to improved governance and macroeconomic policies and conditions. Accountable, prudent fiscal performance could clear the way for more domestic private financing of infrastructure projects. Dependable domestic sources of finance would carry less risk of asset-liability mismatch than external financing because infrastructure providers such as telecommunications enterprises and utilities tend to have their revenues denominated in local currency.



## Appendix 2 Basic macroeconomic data

Appendix table A2.1 Macroeconomic stability: Focus countries and comparators

As of end-2006 or most recent available (US\$ millions) /1

	Size of economy (GDP) /a	Gross domestic savings /a	Gross domestic savings as % of GDP /a	Inflation /b
Benin	5,195	298	7	4
Burkina Faso	5,653	565	9	2
Cameroon	18,661	3160	17	2
Cape Verde	919	-25	-2	0
Chad	6,004	2750	42	8
Congo, Dem. Rep.	7,170	398	5	21
Côte d'Ivoire	17,224	4820	28	2
Ethiopia	13,271	-813	-6	12
Ghana	11,190	1000	8	11
Kenya	23,404	1710	8	14
Lesotho	1,675	-103	-7	3
Madagascar	5,451	748	14	11
Malawi	2,212	-189	-8	14
Mozambique	7,606	1540	20	7
Namibia	6,398	2180	34	5
Niger	3,552	317	9	0
Nigeria	98,756	38,400	40	8
Rwanda	2,139	40	2	9
Senegal	8,309	790	9	2
South Africa	254,061	41,200	16	5
Sudan	37,185	5,310	14	8
Tanzania	13,207	1,540	12	10
Uganda	9,117	738	8	7
Zambia	10,440	1,970	18	18
Chile	135,797	36,700	31	3
Malaysia	148,764	62,300	42	4
Lower-income AICD /c	48,601	16,183	33	9
Lower-middle-income AICD /d	14,205	2,630	19	3
Upper-middle-income AICD /e	254,061	41,200	16	5
Oil exporters /f	77,329	29,409	36	7
Non-oil exporters (excl. SA)	16,761	1,884	28	10
Non-resource rich AICD /g	17,595	1,866	29	10
AICD excl. South Africa	45,776	15,070	32	8

Sources: GEM and WDI databases (October 2007), with the exception of gross domestic savings data for Burkina Faso (sourced from IMF 2007d).

a. Data for 2006 with the following exceptions: GDP data for Democratic Republic of the Congo, Nigeria, and Rwanda are for 2005. Gross domestic savings data for Benin, Chile, Niger, and Nigeria are for 2005.

b. Inflation rates are for 2006 with the exception of Cameroon, Cape Verde, Chad, Democratic Republic of the Congo, Ethiopia, Lesotho, Mozambique, Rwanda, Sudan, and Zambia (2005).

c. Low-income AICD countries comprise Benin, Burkina Faso, Chad, Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sudan, Tanzania, Uganda, Zambia.

d. Lower-middle-income AICD countries comprise Cameroon, Cape Verde, Lesotho, and Namibia.

e. Upper middle-income countries comprise South Africa.

f. Cameroon, Chad, Côte d'Ivoire, Nigeria.

g. All AICD countries except Cameroon, Chad, Côte d'Ivoire, Namibia, Nigeria, and Zambia.

Appendix table A2.2 Macroeconomic stability: Focus countries and comparators

Country	External debt (as % GDP)	External debt (as % GDP)	Inflation (%)	Inflation (%)	Sovereign credit ratings, long-term foreign currency		
					Fitch	Moody's	Standard and Poor's
					Sep-07	Sep-07	Sep-07
Benin	47	43	5	4	B	n.a.	B/Stable/B
Burkina Faso	41	40	6	2	n.a.	n.a.	B/Positive/B
Cameroon	66	42	2	—	B	n.a.	B/Stable/B
Cape Verde	55	56	0	—	B+	n.a.	n.a.
Chad	40	30	8	—	n.a.	n.a.	n.a.
Congo, Dem. Rep.	179	149	21	—	n.a.	n.a.	n.a.
Côte d'Ivoire	76	66	4	2	n.a.	n.a.	n.a.
Ethiopia	82	56	12	—	n.a.	n.a.	n.a.
Ghana	79	63	15	11	B+	n.a.	B+/Stable/B
Kenya	42	33	10	14	n.a.	n.a.	B+/Stable/B
Lesotho	58	48	3	—	BB-	n.a.	n.a.
Madagascar	79	69	19	11	n.a.	n.a.	B/Stable/B
Malawi	182	152	15	14	B-	n.a.	n.a.
Mozambique	76	77	7	—	B	n.a.	B/Positive/B
Namibia	—	—	2	5	BBB-	n.a.	n.a.
Niger	63	58	8	0	n.a.	n.a.	n.a.
Nigeria	50	22	18	8	BB-	n.a.	BB-/Stable/B
Rwanda	90	71	9	—	B-	n.a.	n.a.
Senegal	51	46	2	2	n.a.	n.a.	B+/Negative/B
South Africa	13	13	3	5	BBB+	Baa1	BBB+/Stable/A-2
Sudan	92	67	8	—	n.a.	n.a.	n.a.
Tanzania	72	64	9	10	n.a.	n.a.	n.a.
Uganda	71	51	8	7	B	n.a.	n.a.
Zambia	135	78	18	—	n.a.	n.a.	n.a.
Chile	—	39	3	3	A	A2	A/Positive/A-1
Malaysia	—	39	3	4	A-	A3	A-/Positive/A-2
Low-income AICD/a	69	47	13	6			
Lower-middle-income AICD/b	49	33	2	1			
Upper-middle-income AICD/c	13.4	12.8	3.4	4.6			
Oil exporters /d	55.5	30.4	13.8	6.4			
Non-oil exporters (excl. South Africa)	76.3	60.6	10.0	4.7			
Non-resource rich AICD /e	77	62	10	5			
AICD excl. South Africa	67	46.1	12	5			

Sources: World Development Indicators database (downloaded 9/07 and 10/5/07) unless otherwise noted. Ratings sourced from Fitch, Moody's, Standard and Poor's (downloaded from each ratings agency website in Sept. 2007).

a. Low-income AICD countries comprise Benin, Burkina Faso, Chad, Democratic Republic of the Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sudan, Tanzania, Uganda, Zambia.

b. Lower-middle-income AICD countries comprise Cameroon, Cape Verde, Lesotho, and Namibia.

c. Upper middle-income countries comprise South Africa.

d. Cameroon, Chad, Côte d'Ivoire, Nigeria.

e. All AICD countries except Cameroon, Chad, Côte d'Ivoire, Namibia, Nigeria, and Zambia.

— = Not available; n.a. = Not applicable.

**Appendix table A2.3 Domestic debt and private bank credit**

	Gross domestic public debt as % GDP	Private credit by deposit money banks as % of GDP
	2005	end-2006
Benin	3	16
Burkina Faso	4	19
Cameroon	—	9
Cape Verde	34	64
Chad	5	3
Côte d'Ivoire	—	15
Congo, Dem. Rep.	8	2
Ethiopia	46	23
Ghana	20	20
Kenya	22	25
Lesotho	7	8
Madagascar	—	11
Malawi	3	9
Mozambique	—	11
Namibia	28	62
Niger	—	9
Nigeria	11	13
Rwanda	—	14
Senegal	—	27
South Africa	30	76
Sudan	—	14
Tanzania	17	12
Uganda	12	8
Zambia	16	8

Source: World Bank, WDI database.

— = Not available.

## Appendix 3 Official development assistance as a source of infrastructure financing

External financing can offer an alternative source of financing of infrastructural projects, access to which becomes particularly critical for countries that have poor infrastructure and underdeveloped local financial markets. These countries tend to have lower macroeconomic performance and overall macroeconomic stability, rendering access to private sources of external finance prohibitively costly or impossible. In such cases, official development assistance (ODA) is often the only available source of external financing for infrastructure development.

Thus far, in the majority of these countries, most of the financing from nonlocal sources tends to continue to take the form of ODA, although private capital flows have been increasing. Privately sourced external financing does not act as much of a competitive spur to local financing sources (with the major exception of South Africa), although this has begun to change in the banking sectors of some countries.

ODA remains a critical source of external financing, particularly for countries with very low levels of financial intermediation (table A3.1). The three largest recipients of ODA (as a percentage of GDP) in 2005—Malawi and postconflict countries Rwanda and the Democratic Republic of the Congo—all had private-credit-to-GDP ratios below 15 percent. Similarly, those countries with relatively high levels of financial intermediation as indicated by the private-credit-to-GDP ratio—South Africa, Cape Verde, and Namibia—received close to nil (South Africa) or low levels of ODA (Cape Verde and Namibia). There were, of course, some countries that both received low levels of ODA and had low private credit to GDP ratios. This latter group includes resource-rich countries: Cameroon, Côte d’Ivoire, and Zambia).

Ranked sixth in terms of ODA as a percentage of GDP among the focus countries in 2005, Ethiopia allotted the largest amount of ODA (\$459.4 million in current U.S. dollars) to infrastructure financing among the focus countries, up from \$343 million in 2004. The most recently available data providing a breakdown by type of infrastructure projects financed by ODA, for 2004, show that \$202.6 million (59 percent) went toward transport and \$113.4 million went to water and sanitation.

Kenya used the largest amount of ODA for infrastructure financing in 2004. Forty percent of the \$517.7 million went to transport infrastructure projects. Although its share of ODA expressed as a percentage of GDP remained stable at around 4 percent over 2004–05, Kenya saw a significant decline in the amount ODA used for infrastructure financing in 2005, to \$202.4 million.

Appendix table A3.1 Official development assistance and infrastructure investment needs

Country	ODA used for financing infrastructure (US\$ millions)	ODA used for financing infrastructure (US\$ millions)	ODA used for financing infrastructure (US\$ millions)	ODA as % of total infrastructure investment needs /a	Total ODA and official aid (as % GDP)	Private credit by deposit money banks and other financial institutions as % GDP
	2001	2004	2005	2005	2005	2006
Benin	31.6	218.3	182.7	35	8	16
Burkina Faso	139.2	188.3	64.5	11	13	19
Cameroon	120.3	16.7	45.1	2	2	9
Cape Verde	13.5	13.5	156.5	170	16	64
Chad	31.8	26.3	161.2	27	7	3
Congo, Dem. Rep.	14.6	11.2	102.7	13	26	2
Côte d'Ivoire	15.3	0.6	0.4	0.02	1	15
Ethiopia	212.2	343.0	459.4	35	17	27
Ghana	282.7	402.8	160.6	14	10	20
Kenya	123.4	517.7	202.4	9	4	26
Lesotho	5.4	34.9	48.7	29	5	8
Madagascar	46.9	147.6	192.3	35	18	11
Malawi	41.8	29.8	58.7	27	28	12
Mozambique	303.3	179.6	222.8	29	19	11
Namibia	17.9	30.1	26.6	4	2	62
Niger	64.2	32.3	134.2	38	15	9
Nigeria	114.4	230.7	381.3	3	7	13
Rwanda	2.9	30.6	74.5	30	27	14
Senegal	222.7	71.7	242.2	29	8	27
South Africa	15.4	75.7	38.1	0.1	0	145
Sudan	4.1	10.9	18.2	0.5	7	14
Tanzania	427.2	368.5	289.8	22	12	12
Uganda	324.6	150.0	221.5	24	14	8
Zambia	52.6	211.6	69.2	7	13	8

Sources: World Bank staff estimates based on data sourced from the Development Assistance Committee of the Organisation of Economic Co-operation and Development; ODA and official aid as a percentage of GDP sourced from World Bank, WDI.

a. For purposes of the AICD, the World Bank Sustainable Development Department (Africa Region) has estimated infrastructure investment needs as 10 percent of GDP.



## About AICD

This study is part of the Africa Infrastructure Country Diagnostic (AICD), a project designed to expand the world's knowledge of physical infrastructure in Africa. AICD will provide a baseline against which future improvements in infrastructure services can be measured, making it possible to monitor the results achieved from donor support. It should also provide a more solid empirical foundation for prioritizing investments and designing policy reforms in the infrastructure sectors in Africa.

AICD will produce a series of reports (such as this one) that provide an overview of the status of public expenditure, investment needs, and sector performance in each of the main infrastructure sectors, including energy, information and communication technologies, irrigation, transport, and water and sanitation. The World Bank will publish a summary of AICD's findings in July 2009. The underlying data will be made available to the public through an interactive Web site allowing users to download customized data reports and perform simple simulation exercises.

The first phase of AICD focuses on 24 countries that together account for 85 percent of the gross domestic product, population, and infrastructure aid flows of Sub-Saharan Africa. The countries are: Benin, Burkina Faso, Cape Verde, Cameroon, Chad, Democratic Republic of Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Sudan, Tanzania, Uganda, and Zambia. Under a second phase of the project, coverage will be expanded to include additional countries.

AICD is being implemented by the World Bank on behalf of a steering committee that represents the African Union, the New Partnership for Africa's Development (NEPAD), Africa's regional economic communities, the African Development Bank, and major infrastructure donors. AICD grew from an idea presented at the inaugural meeting of the Infrastructure Consortium for Africa, held in London in October 2005.

Financing for AICD is provided by a multi-donor trust fund to which the main contributors are the Department for International Development (United Kingdom), the Public Private Infrastructure Advisory Facility, Agence Française de Développement, and the European Commission. A group of distinguished peer reviewers from policy making and academic circles in Africa and beyond reviews all of the major outputs of the study, with a view to assuring the technical quality of the work.

This and other papers analyzing key infrastructure topics, as well as the underlying data sources described above, will be available for download from [www.infrastructureafrica.org](http://www.infrastructureafrica.org). Freestanding summaries are available in English and French.

Inquiries concerning the availability of datasets should be directed to [vfoster@worldbank.org](mailto:vfoster@worldbank.org).