

## Fiscal Governance, Information Capacity, and Subnational Capital Finance

### APPENDIX 1. Distribution of aggregate SNG debt by country, (unbalanced) 2007-2014.

Country	Mean Debt Size, USD Mn	Std. Dev. Debt Size, USD Mn	SNG Units in the Analysis	Data source
Argentina	\$723.12	\$574.39	Province	Ministerio de Hacienda y Finanzas Públicas
Australia	\$55,999.27	\$44,445.97	State and local	Australian Bureau of Statistics
Austria	\$43,231.94	\$735.57	Lander and local	Eurostat; Statistics Austria
Belgium	\$65,038.83	\$13,855.82	Regional and local	Eurostat
Bolivia	\$533.16	\$42.80	Department and local	Ministerio de Economía y Finanzas Públicas
Brazil	\$173,325.20	\$82,865.77	State and local	Tesouro Nacional
Bulgaria	\$530.27	\$168.47	Local	Eurostat; Ministry of Finance
Canada	\$583,154.96	\$81,268.30	Province and local	Bank of Canada
Colombia	\$1,623.54	\$138.76	Local	National Department of Planning
Costa Rica	\$60.68	\$16.98	Local	National Institute of Statistics and Censuses
Croatia	\$512.70	\$270.87	Local	National Bank of Croatia
Cyprus	\$397.39	\$34.06	Local	Eurostat
Czech Republic	\$2,964.42	\$2,097.62	Local	Eurostat; Czech National Bank
Denmark	\$18,051.85	\$827.22	Local	Eurostat; StatBank Denmark
El Salvador	\$240.16	\$115.23	Local	Ministerio de Hacienda
Estonia	\$539.65	\$288.76	Local	Eurostat; Statistics Estonia
Finland	\$10,903.01	\$6,037.68	Local	Eurostat; Statistics Finland
France	\$176,230.71	\$55,332.24	Local	Eurostat
Germany	\$740,375.77	\$210,946.65	Lander and local	Eurostat; DeStatis
Greece	\$1,566.34	\$822.08	Local	Eurostat
Hungary	\$2,273.33	\$1,952.94	Local	Eurostat
India	\$62,731.24	\$54,912.52	State	Ministry of Finance; Reserve Bank of India
Ireland	\$7,110.41	\$486.34	Local	Eurostat; Comptroller and Auditor General
Italy	\$126,454.33	\$44,652.95	Local	Eurostat
Japan	\$757,073.19	\$122,805.87	Prefecture and local	Japan Local Government Bond Association
Korea, Rep.	\$193.71	\$46.54	Province and local	Ministry of the Interior
Latvia	\$960.19	\$697.90	Local	Eurostat; Central Statistical Bureau of Latvia
Lithuania	\$361.80	\$302.19	Local	Eurostat; Statistics Lithuania

Note: continued on the next page

**APPENDIX 1 Continued.** Distribution of aggregate SNG debt by country, (unbalanced) 2007-2014.

<b>Country</b>	<b>Mean Debt Size, USD Mln</b>	<b>Std. Dev. Debt Size, USD Mln</b>	<b>SNG Units in the Analysis</b>	<b>Data source</b>
Macedonia, FYR	\$6.06	\$8.65	Local	Ministry of Finance
Mexico	\$17,067.20	\$10,416.73	State	Secretaría de Hacienda y Crédito Público
Netherlands	\$61,060.37	\$7,851.47	Local	Eurostat
New Zealand	\$2,001.79	\$1,012.74	Local	Government Statistical Office
Norway	\$31,643.55	\$19,624.76	Local	Eurostat; Statistics Norway
Peru	\$646.59	\$157.04	Regional and local	Ministerio de Economía y Finanzas
Philippines	\$236.61	\$35.98	Provincial and local	Bureau of Local Government Finance
Poland	\$11,398.75	\$7,293.81	Local	Eurostat; Ministry of State Treasury
Portugal	\$8,137.83	\$4,368.24	Local	Eurostat
Romania	\$1,874.53	\$1,883.72	Local	Eurostat
Russian Federation	\$28,237.27	\$10,919.77	Regional and local	Ministry of Finance
Serbia	\$245.67	\$105.59	Local	National Bank of Serbia
Slovak Republic	\$2,175.66	\$42.01	Local	Eurostat
Slovenia	\$494.34	\$342.53	Local	Eurostat
South Africa	\$4,858.51	\$1,465.27	Local	Statistics South Africa
Spain	\$141,923.85	\$92,718.45	Regional and local	Eurostat
Sweden	\$42,208.16	\$5,003.04	Local	Eurostat
Switzerland	\$89,235.36	\$16,575.02	Canton and local	Federal Department of Finance
Thailand	\$10.13	\$7.39	Local	Bank of Thailand
Turkey	\$1,820.35	\$864.43	Local	Statistic Turkey
Ukraine	\$2,217.20	\$2,646.65	Regional and local	Ministry of Finance
United Kingdom	\$108,088.84	\$15,977.68	Local	Eurostat
United States	\$491,141.48	\$189,501.47	State and local	The Bond Buyer
Uruguay	\$12.88	\$7.95	Department	Ministerio de Economía y Finanzas

## APPENDIX 2. Sampling strategy.

The sampling strategy is designed to identify all the countries where subnational governments—either at the regional level, the local level, or both—have capital market debt issuance authority and activity during the study period. Capital market debt refers to debt from private lenders, including private banks and bond markets; it excludes debt provided by or guaranteed by the central government.

The initial population is based on a list of 214 countries reported in the World Bank database. We omit from this list 23 entities that are territories or autonomous self-governing parts of another nation and lack their own sovereignty.<sup>1</sup> We also omit small and micro-city states from the sample due to economies of scale that are essential for a viable SNG capital market. Small and micro-city states are countries with a population of less than 1 million or with a territory smaller than 1,000 square kilometers (about 386 square miles). This omission drops another 36 countries from the target population.<sup>2</sup> We further omit 8 countries that are extreme authoritarian regimes or personality cults, new countries, and entities with a disputed sovereignty status. Finally, we omit failed or near-failed states and countries that have experienced significant civil wars and armed conflicts during the period under our evaluation. This step filters out another 21 countries. The final workable sample of countries that we are left with contains 126 countries from around the world.<sup>3</sup>

Based on the list of 126 countries that remain in the filtered viable sample of countries, we reviewed existing empirical studies on SNG government debt financing around the world. Many of these studies are reports and case-studies prepared by respective governing institutions of the countries or international organizations. This final assessment of the viable sample has shown us that during the period of our review there were 52 countries with SNG debt issuance *authority and activity*. The remaining 74 countries, as our search suggests, by and large appear to provide debt financing for SNGs either directly with a guaranty of the central government or using non-market government-dominated capital financing schemes.<sup>4</sup>

Such distribution of debt issuing authority and activity around the world is consistent with our *ex ante* expectations. In particular, in addition to the need of acquiring a certain level of institutional capacity—economic, political and legal, and financial and market institutions—countries must retain a certain level of institutional capacity to resolve information asymmetry problems in their respective capital market systems. Therefore, all else equal, the remaining 74 countries may require reaching more mature levels of information capacity, other institutional capacities held constant. Furthermore, in the sub-sample of 52 countries that have SNG debt issuance authority and activity, which is the final sample for this article, the levels of such debt are expected to be related to the existing levels of information capacity within the nation's system.

### Notes

1. Only two or three of these territories had any meaningful capacity and could match the necessary economies of scale to have a viable SNG capital market. A separate study could survey the SNG debt financing dynamics in non-sovereign entities.
2. These small and micro-/city states were mostly island states or principalities, often dependent on their larger neighbors. A separate study could survey this sub-population of countries for their SNG debt financing dynamics.

3. The list of all omitted countries and detailed reasons for their omission are available upon request.
4. Not all SNG entities in countries that had debt issuance authority were issuing much debt, however. This may likely be due to lacking of proper institutional capacities in the surrounding environments, and importantly, due to lower levels of information capacity in the respective capital market systems. Consequently, despite the SNG debt issuance authority, the markets with negligible or zero issuance activity are grouped as part of the 74 countries with still emerging information capacity systems.

### APPENDIX 3. Index items and data sources.

<i>Index 1: Information capacity factors</i>	
Transparency/depth of credit information	Doing Business project: <a href="http://www.doingbusiness.org/methodology/getting-credit">http://www.doingbusiness.org/methodology/getting-credit</a> .
Extent of disclosure	Doing Business project: <a href="http://www.doingbusiness.org/methodology/protecting-minority-investors">http://www.doingbusiness.org/methodology/protecting-minority-investors</a> .
Regulatory quality	Worldwide Governance Indicators project: <a href="http://info.worldbank.org/governance/wgi/index.aspx#doc">http://info.worldbank.org/governance/wgi/index.aspx#doc</a> .
<i>Index 2: Economic factors</i>	
Gross domestic product, USD current	World Bank Economy & Growth indicators: <a href="http://data.worldbank.org/indicator">http://data.worldbank.org/indicator</a> .
Gross national income, USD current	World Bank Economy & Growth indicators: <a href="http://data.worldbank.org/indicator">http://data.worldbank.org/indicator</a> .
Gross savings, USD current	World Bank Economy & Growth indicators: <a href="http://data.worldbank.org/indicator">http://data.worldbank.org/indicator</a> .
Gross national expense, USD current	World Bank Economy & Growth indicators: <a href="http://data.worldbank.org/indicator">http://data.worldbank.org/indicator</a> .
<i>Index 3: Financial and market factors</i>	
Legal rights	Doing Business project: <a href="http://www.doingbusiness.org/methodology/getting-credit">http://www.doingbusiness.org/methodology/getting-credit</a> .
Investor protections	Doing Business project: <a href="http://www.doingbusiness.org/methodology/getting-credit">http://www.doingbusiness.org/methodology/getting-credit</a> .
Ease of investor suites	Doing Business project: <a href="http://www.doingbusiness.org/methodology/getting-credit">http://www.doingbusiness.org/methodology/getting-credit</a> .
<i>Index 4: Political factors</i>	
Government effectiveness	Worldwide Governance Indicators project: <a href="http://info.worldbank.org/governance/wgi/index.aspx#doc">http://info.worldbank.org/governance/wgi/index.aspx#doc</a> .
Political stability and violence	Worldwide Governance Indicators project: <a href="http://info.worldbank.org/governance/wgi/index.aspx#doc">http://info.worldbank.org/governance/wgi/index.aspx#doc</a> .
Voice and accountability	Worldwide Governance Indicators project: <a href="http://info.worldbank.org/governance/wgi/index.aspx#doc">http://info.worldbank.org/governance/wgi/index.aspx#doc</a> .
<i>Index 5: Legal factors</i>	
Corruption control	Worldwide Governance Indicators project: <a href="http://info.worldbank.org/governance/wgi/index.aspx#doc">http://info.worldbank.org/governance/wgi/index.aspx#doc</a> .
Rule of law	Worldwide Governance Indicators project: <a href="http://info.worldbank.org/governance/wgi/index.aspx#doc">http://info.worldbank.org/governance/wgi/index.aspx#doc</a> .