Growing experience with decentralization indicates that a country’s public finance system suffers when subnational governments expose themselves to excessive risk. But central governments often lack the information needed to monitor the fiscal risks of subnational governments.

Several countries, having experienced subnational fiscal crises, have established systems to monitor such risks. These systems assess subnational fiscal health and call for central government attention—and possible intervention—if preset indicators of fiscal imprudence are exceeded. In developing countries such systems also provide useful information for subnational credit ratings. This note describes several country experiences with indicators of subnational fiscal risks, identifies some limitations of such indicators, and suggests alternative indicators.

**Brazil’s limits on subnational risk**

In the 1990s, after three subnational debt crises, Brazil began tightening controls on subnational borrowing. The central government now restricts both the demand for and supply of subnational debt. For instance, subnational governments are not permitted to borrow from their own enterprises or suppliers, total debt cannot exceed the capital budget, new borrowing cannot exceed 18 percent of net current revenue, debt service cannot exceed 13 percent of net current revenue, the debt stock should be less than 200 percent of net current revenue, indebted governments should maintain a primary surplus, defaulters should not borrow further, outstanding guarantees should not exceed 25 percent of net current revenue, borrowing in anticipation of future revenue should not exceed 8 percent of net current revenue, new bond issues (other than rollovers) are prohibited, and at least 5 percent of all bond issues should be retired at maturity.

The central bank is authorized to control the amount of credit supplied to subnational governments by domestic banks and to advise the Senate on subnational borrowing practices. The Senate, however, is free to bypass legal restrictions on borrowing, which makes the control mechanism vulnerable to political pressures.

**Colombia’s “traffic light” system**

During 1993–97 Colombia established a system that links each subnational government’s debt to its payment capacity. Two indicators act as “traffic lights”—alerting the central government to potentially excessive subnational debt (table 1). The first indicator, the ratio of interest payments to operational savings, suggests a subnational government’s liquidity. The second, the ratio of debt to current revenue, implies debt sustainability. Subnational governments facing a yellow or red light are able to borrow only with permission from the Ministry of Finance and a performance agreement with the lender. The performance agree-

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**Prudent public finance requires assessing subnational fiscal risks**
Backward-looking warning indicators may not provide a reliable signal of potential financing pressures.

**Ohio’s Fiscal Watch Program**

Following the defaults of New York City in 1975 and Cleveland (Ohio) in 1978, in 1979 the U.S. state of Ohio, in a path-breaking move, launched a local government monitoring system called the Fiscal Watch Program. The program, implemented by the Office of Auditor of the State, covers local governments in Ohio—defined to include counties, municipalities, school districts, and state universities and colleges. In simplified terms, if a local government’s accrued deficit exceeds one-twelfth of its annual revenue, the state auditor issues a fiscal watch warning. Once under fiscal watch, local authorities and agencies are required to limit spending and build reserves. During this process the Office of Auditor of the State provides advice, such as in the form of a performance audit indicating options for budget cuts and operational improvements.

If the situation worsens, a local government may experience a fiscal emergency—defined by Ohio state code as occurring when, among other things, there is more than a 30-day default on a debt obligation, a failure to pay employees within 30 days, or a deficit or overdue amounts payable exceeding one-sixth of the previous year’s revenue. Once a local government is declared in emergency, the state is required to establish a financial planning and supervision commission. The commission has the power to review all of the local government’s tax, spending, and borrowing policies, to bring civil actions to enforce the fiscal emergency law, and to ensure proper accounting and reporting.

**Limitations**

Early warning indicators, some examples of which are given above, tend to be static and backward-looking. They also tend to focus on cash flows and direct debt (see table 2 for more examples). But in developing and transition economies the fiscal performance, off-budget fiscal activities, and associated contingent liabilities of subnational governments are often significant. (For a discussion of contingent liabilities, see PREMnote 9.) Thus backward-looking warning indicators may not provide a reliable signal of potential financing pressures.

Furthermore, without sound fiscal reporting and auditing at the subnational level, even the best-designed early warning system will be ineffective. To capture subnational fiscal risks, reporting requirements must be broad—including, for instance, activities of and guarantees issued by financial institutions owned by subnational governments. Information reported to the central government is useful only if it can be used to analyze risk.

In addition, clear rules are needed for dealing with subnational governments in financial distress. In Argentina, Colombia, Hungary, and South Africa such rules include a control board or performance agreement that empowers the central government to straighten out subnational finances. Clear rules reduce moral hazard.

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**Table 1: Colombia’s Traffic Light System for Subnational Debt**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Autonomous debt—</th>
<th>Intermediate debt—</th>
<th>Critical debt—</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity indicator: interest payments/operational savings&lt;sup&gt;a&lt;/sup&gt;</td>
<td>&lt;40%</td>
<td>40–60%</td>
<td>&gt;60%</td>
</tr>
<tr>
<td>Solvency indicator: debt/current revenue</td>
<td>&lt;80%</td>
<td>&lt;80%</td>
<td>&gt;80%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Operational savings is defined as current income minus operational expenses and transfers paid by the subnational government. Current income mainly includes tax revenue, nontax revenue, royalties and fees, transfers from the central government, national revenue sharing, and interest income. Operational expenses include wages and salaries, honorariums, social welfare benefits, and social security expenditures. 

*Source: Law 359, 1997.*
in intergovernmental finance because subnational governments know the conditions that will trigger higher-level government action as well as the nature of such action.

Alternative indicators

To overcome some of the limitations of early warning indicators, a composite indicator can be constructed that is both comprehensive (reflecting likely fiscal pressures as well as the current fiscal position) and easy to calculate. First, a subnational government’s comprehensive borrowing requirement can be estimated as:

\[
\text{comprehensive borrowing requirement} = \text{comprehensive deficit} + (\text{repayment rate} \times \text{comprehensive debt}),
\]

where comprehensive deficit is the sum of the primary deficit and off-budget deficit (which reflects any increase in arrears and contingent liabilities) and comprehensive debt is the sum of direct debt and contingent debt (adjusted for risk). Then, dividing by revenue, a composite fiscal risk index adjusts the borrowing requirement to reflect the subnational government’s revenue-raising capacity, making the index comparable across subnational governments:

\[
\text{composite risk index} = \frac{\text{comprehensive deficit}}{\text{general revenue}} + \frac{\text{comprehensive debt}}{\text{general revenue}}.
\]

(For a more precise theoretical derivation, see Ma forthcoming.)

The composite risk index can be supplemented by other indicators and medium-term fiscal projections (table 3). Given the presence of contingent liabilities in the calculation, the composite risk index is measured in a probabilistic sense. For the indicator to convey useful information, it is crucial to disclose its underlying assumptions and scenario analysis. Several techniques, such as those used in credit risk models, can be adapted to model the possibility of a subnational default. Two thresholds can be set for the composite risk index: one to indicate a potential fiscal emergency—in the lingo of Colombia’s system, a yellow light—and another to indicate an actual emergency—a red light.

Although the indicators suggested in table 3 are useful, they are not ideal and should not be applied too rigorously or as an end in themselves. Rather, results in the yellow and red light zones indicate the need for more detailed analysis of subnational fiscal risks. Such analysis should consider the structure of subnational government assets and liabilities, exposure of subnational finances to different types of risks (such as interest rate, exchange rate, and rollover risks), institutional arrangements and capacity for managing subnational finances, and compatibility between

<table>
<thead>
<tr>
<th>Country</th>
<th>Debt service ratio</th>
<th>Debt-revenue ratio</th>
<th>Other restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>≤25% of own revenue net of certain earmarked funds</td>
<td></td>
<td>Only for capital spending; no foreign borrowing allowed</td>
</tr>
<tr>
<td>Japan</td>
<td>Three-year average ≤20% of own revenue</td>
<td>≤30% of total revenue</td>
<td>Mainly for subnational infrastructure projects; no foreign borrowing allowed</td>
</tr>
<tr>
<td>Lithuania</td>
<td>≤15% of general revenue</td>
<td>≤30% of total revenue</td>
<td>No state guarantees; Ministry of Finance can lower the ceiling for municipalities; long-term credit can be used only for investment</td>
</tr>
<tr>
<td>Russian</td>
<td>≤15% of general revenue</td>
<td>≤30% of own revenue for provinces ≤15% of own revenue for municipalities</td>
<td>Long-term credit can be used only for investment; approval required for foreign borrowing</td>
</tr>
<tr>
<td>Federation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>≤25% of total revenue</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

the assignment of subnational government responsibilities and financing capacity.

**Further reading**


This note was written by Jun Ma (Senior Economist, Deutsche Bank) and Hana Polackova Brixi (Senior Economist, PREM Sector Unit, East Asia and Pacific Region). It is based on a policy note by Jun Ma (then Senior Economist, PREM Sector Unit, East Asia and Pacific Region) and technical assistance work in China. The authors received support from the PREM Network’s Quality of Fiscal Adjustment and Subnational Regional Economics thematic groups and the decentralization and subnational economics team in the East Asia and Pacific Region’s PREM Sector Unit.

If you are interested in similar topics, consider joining the Quality of Fiscal Adjustment Thematic Group (contact Craig Burnside, x39607) or the Subnational Regional Economics Thematic Group (contact Vivian Hon, x33429). For more information, click on Thematic Groups on PREMnet.

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**Table 3  Possible indicators of fiscal health**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt/revenue</td>
<td>Indicates future debt service burden</td>
<td>Does not indicate risks in the debt portfolio or the impact of fiscal balance on debt sustainability</td>
</tr>
<tr>
<td>Debt service/revenue</td>
<td>Indicates fiscal pressures from the debt portfolio</td>
<td>Does not indicate obligations poised to become debt or the impact of fiscal balance on debt sustainability</td>
</tr>
<tr>
<td>Deficit/revenue</td>
<td>Indicates current borrowing requirement</td>
<td>Does not indicate future borrowing requirement</td>
</tr>
<tr>
<td>Contingent liabilities adjusted for risk</td>
<td>Indicates future fiscal pressures</td>
<td>Requires scenario analysis and many assumptions. Results can be disputed</td>
</tr>
<tr>
<td>Liquid assets/spending needs</td>
<td>Indicates liquidity risk</td>
<td>Does not reflect revenue capacity, overall balance, or debt sustainability</td>
</tr>
<tr>
<td>Borrowing requirement/revenue</td>
<td>Predicts likely fiscal pressures</td>
<td>Does not indicate borrowing capacity, present discount value of debt, or risks in the debt portfolio. Coefficients (the revenue growth rate and interest rate) are arbitrary</td>
</tr>
</tbody>
</table>

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