GOOD PRACTICE GUIDELINE

FINANCIAL ANALYSIS OF REVENUE-GENERATING ENTITIES: SECTOR ANALYSIS, AND FINANCIAL RATIOS AND COVENANTS

I. INTRODUCTION

1. Developing and transition countries are underserved by infrastructure services, particularly in poor and rural areas. In areas that do have service, systems are often badly maintained and service is unreliable. Common problems include below-cost tariffs and inappropriate tariff design; inefficient operations, with little incentive to improve efficiency; low billing and collection levels; and massive and poorly targeted subsidization. These problems can lead to high financial losses, deterioration of capital stock, and inadequate funding of new investment.

2. ***Purpose of Financial Analysis.*** Financial analysis can be used to diagnose the scope and sources of such problems, and identify ways to improve the financial viability and efficiency of existing and prospective service providers. Used as an input to sector dialogue and investment lending, financial analysis can help promote the financial sustainability of enterprises and the sectors in which they operate; develop local capacity to manage without external assistance, ultimately enabling enterprises to gain access to capital markets; and protect the borrowers' and the MDBs' financial interests.[1]

3. ***Scope of this Guideline.*** This note provides good practice guidance in using financial analysis to underpin policy advice and to aid in structuring operations in the infrastructure (and, potentially, social) sectors, including investment loans whose beneficiaries are non-bank, public-sector, revenue-generating entities, as well as sector adjustment loans and guarantee operations. It discusses the scope and content of financial analysis, and it provides recommendations on key financial analysis issues that, since MDBs work in developing and transition countries, they need to approach somewhat differently than do commercial banks working in countries with highly developed financial sectors. This note specifically targets two sets of interrelated issues: at the sector level, tariffs, subsidies, and affordability; and at the level of the executing agency, the use of financial ratios as covenants and as monitoring tools.

II. SCOPE AND CONTENT OF FINANCIAL ANALYSIS

4. ***Scope.*** Financial analysis underpins sector dialogue and advice from MDBs by contributing to public expenditure reviews and to the quantification of the government's financial and risk exposure, for example, to long-term power purchase contracts. It is also critical for structuring sound investment projects. It involves the following activities:

- Assessing and forecasting the financial viability of projects and their executing agencies in the sectoral context.

[1] Adapted from *Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank (Manila, the Philippines: Asian Development Bank, 2002), available online from Asian Development Bank website.*

- Recommending policies and practices to improve financial sustainability and enhance service delivery, including

  - the design of tariffs and (where appropriate) subsidies,
  - incentives for efficiency, including competition,
  - improved management (e.g., of technical and commercial losses, billing, and collections),
  - scale and scope of capital investment, and
  - scope for cost reductions and adequate funding of recurrent costs (operations and maintenance).

- Structuring and monitoring the project components, financial conditionalities, and loan covenants intended to improve the project sponsor's and sector's financial performance and viability.

5. ***Content.*** Financial analysis should consider the sector policy setting, the executing agency's capacity to implement the project, and the project itself, in the context of the other elements of investment appraisal—economic, technical, institutional, environmental, and social. It should include the following elements.

- ***Sector analysis***

  - Assessment of the existing structure, policy, and regulation of the sector against its capacity to support cost-effective service delivery, especially to poor people, and to enhance economic growth.
  - Assessment of financial performance against appropriate benchmarks to identify scope for improvement.
  - Identification of policy and regulatory changes—notably tariff and competition policy—aimed at improving financial sustainability.

- ***Analysis of the executing agency***

  - Evaluation of recent historical, current, and expected future performance of the executing agency: key assumptions and financial statements, with an emphasis on cash flows, financial ratios and debt service capacity.
  - Identification of the project's financing plan—including its coverage of recurring costs, that is, operations and maintenance expense—and assesses its adequacy.
  - Assessment of the executing agency's ability to fund recurring costs (including operations and maintenance, and capital expenditures), using all sources of revenue, including user charges and subsidies.
  - Sensitivity analysis on key risks affecting the achievement of the project's development objectives, in order to assess the financial viability of the executing agency, including adequate liquidity and a sustainable financing plan.

- ***Analysis of the project***

  - Discounted cash flow analysis demonstrating that the project's unleveraged cash flow has positive net present value (NPV) and acceptable financial internal rate of return (FIRR), using a discount rate that reflects the opportunity cost of capital.
    - Assessment of project cash flows to ensure adequate liquidity, solvency, and profitability (see discussion of ratios and covenants in the next section).
    - Identification of the scope for requiring subsidies to ensure financial viability at the project level, and ensures that arrangements are in place to fully finance the project's construction and operations and maintenance.
    - Recommendations and agreement with the borrower on a program to improve the project's financial sustainability.
    - Sensitivity analysis on key risks affecting the financial performance of the project.

III. ISSUES IN FINANCIAL ANALYSIS

A. Sector-Level Issues

6. Sector-level economic, regulatory and institutional issues have an important bearing on the financial performance of a project and its executing agency. A company's ability to recover its financial costs, for example, is influenced heavily by sector policies, notably with respect to tariffs, competition policy, and treatment of delinquent customers. Therefore financial analysis should take these issues into consideration; in turn, the results of financial analysis can usefully contribute to policy recommendations on these broader sectoral issues.

1. Tariff and Competition Policy

7. Tariffs for infrastructure services should cover the full cost of service provision, including capital cost, operations and maintenance expense, and the cost of negative environmental and social externalities. The level and structure of tariffs should offer incentives to service providers to minimize costs, and to customers to consume services efficiently. When tariffs are inadequate, Bank projects should (a) identify a plan for improving cost recovery, and (b) identify sources of financing for the full cost of service provision. The Asian Development Bank has commissioned a study aimed at developing a framework for tariff setting which will integrate financial, economic and institutional issues. The results will be incorporated into future editions of this guideline.

8. It generally costs more to serve small users and users in remote areas than to serve larger, urban users. Incumbent service providers may be unwilling to extend service to such users if they are unable to recapture the additional cost through higher tariffs. Competition policy should provide opportunity for alternative providers to serve customers who do not have access (as well as those who do). Unbundling of infrastructure sectors provides such an opportunity. Introducing competition through unbundling implies a need to consider the following:

- tariffs for each segment of an "unbundled" sector (e.g., wholesale, retail);
- applying price cap regulation vs. rate-of-return regulation;
- open access to "natural monopoly" segments at appropriate prices; and
- limiting the duration of any monopoly concessions.

2. Subsidies

9. If full-cost-recovery tariffs exceed affordable[2] levels, subsidies may be justified on the grounds of equity (subsidies targeted to poor people who cannot afford cost-recovering tariffs[3]), positive externalities (subsidies to encourage individual use, if it gives rise to environmental or social benefits to the public), or efficiency **(**subsidies to support a transition to the market).

10. Financial analysis should do the following:

- Fully identify existing and proposed subsidies,[4] considering the following aspects:[5]
  - Objectives of the proposed subsidy,
  - Effectiveness of existing subsidy programs in meeting their objectives,
  - Appropriate duration of the program,
  - Transparency in regard to the amount and source of financing, and
  - Feasibility of financing the proposed subsidy.
- Justify a proposed subsidy on the grounds listed in para. 9.
- For a subsidy justified on the grounds of equity, ensure that the borrower puts in place credible mechanisms to ensure that the proposed subsidy is targeted explicitly to poor people (a transition period for existing subsidies is permissible)—for example, direct payment to consumers through fiscal relief (preferred alternative), or indirect payment, via below-cost tariffs.
- Identify a plan for fully financing the subsidy—for example, (a) tariff increases (preferably as a precondition to a Bank operation); (b) industry levies that can be tapped by providers who serve poor areas; (c) limited cross-subsidies from other consumer groups, such as lifeline block tariffs (generally, a less preferred alternative to industry levies) or Ramsey pricing; and (d) output-based payments to the provider.
- Identify ways to eliminate unfunded subsidies, i.e. those based on systematic underpricing of service.

3. Affordability

11. Poor households without access to network infrastructure services often pay high unit costs for infrastructure substitutes—such as batteries, kerosene, and vendor-supplied water—in terms of both financial costs and externalities (such as negative impacts on public health). This fact challenges the conventional wisdom that poor people cannot afford to pay for infrastructure

---

[2] Affordability is discussed later in this paper.

[3] Studies have shown that infrastructure subsidies benefit nonpoor people disproportionally; see *World Development Report 1992: Development and the Environment* (New York: Oxford University Press for the World Bank, 1992).

[4] Financial and (where possible) economic subsidies should be identified in project appraisal documents. Social/transitional considerations should be identified in Country Assistance Strategies within a country's Comprehensive Development Framework. Estimates of financial subsidy and qualitative assessment of economic subsidy should be reported in the Report and Recommendation to the President (for both projects and country strategies); see *Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank*, op. cit.

[5] World Bank, *Treatment of Subsidies.*

services, and suggests that more attention should be paid to identifying the services that poor people want and are willing to pay for, through social assessments of income, consumption patterns, and willingness to pay. Such assessments should include analysis of (a) how low-income households purchase infrastructure services, (b) whether nontraditional supply is available, and (c) to what extent low-income households are willing to pay for alternatives and for improved access and quality. Financial analysis should contribute to the collection of the socioeconomic data required to conduct such analyses—for example, by formulating questions for formal social assessments.[6] When it is not feasible to obtain such data, rules of thumb can be applied.

12. ***Service and Quality Alternatives.*** Since different types of service may be appropriate for small, poor, or rural users than for higher-volume users, the data gained from such analysis should be used, with the data from the technical analysis of the proposed project, to consider alternative service and quality standards. For example, technical innovations that yield declining minimum efficient scale of technologies—such as pico-hydro and small-scale sewage treatment—can make services more accessible to poor, remote areas, and less costly than network-connected alternatives. Other alternatives could include, for example, community water delivery instead of in-house water connections, using tankers, community standpipes, or low-cost piping; different quality standards for water for drinking vs. washing; access to telecommunications via prepaid wireless phones or privately owned phone booths; and off-grid renewable rural electrification as an alternative to grid extension. It is also important to consider regulatory incentives for serving small or remote users—for example, water quality standards, open market entry, and unregulated tariffs for water delivered by tanker. Facilitating entry by new service providers can help expand the range of price and quality options in service provision to low-income areas, thus improving quality and lowering prices.

B. Financial Ratios at the Executing Agency Level

13. Financial ratios are used to assess and monitor the project's financial sustainability, the financial viability of the executing agency, and the project's impact on the borrower's fiscal balance. They are used during project preparation and appraisal to identify potential performance issues, assess the sensitivity of financial results to changes in critical assumptions, and quantify the scale of public financial support that may be required. They are used during project supervision to monitor financial performance and achievement of the project's broader development goals.

14. Financial ratios can be used as covenants to (a) bind the borrower/executing agency to take action to improve financial performance, and (b) protect the lender by precluding actions that might lead to default (e.g., a debt limitation covenant) and providing triggers for default that enable the lender to exercise remedies. This section defines key classes of financial ratios and provides best practice guidance on their use in the financial analysis of projects and in structuring financial covenants.

---

[6] "Better Household Surveys for Better Design of Infrastructure Subsidies," *Public Policy for the Private Sector, Viewpoint* No. 213, June 2000, which provides recommendations for adapting Living Standard Measurement Study to yield the information required for affordability analysis and subsidy design.

1. Key Classes of Financial Ratios

15. Financial ratios are used to monitor and enforce three important financial objectives: liquidity, solvency, and profitability. Reflecting these objectives, there are three major classes of financial ratios:

- ***Cash flow and liquidity ratios and covenants*** assess the enterprise's ability to generate sufficient cash to cover its debt service payments, the enterprise's ability to meet its current obligations in a timely manner and to conduct its operations without financial constraints, and the extent of subsidies that may be required to meet shortfalls.

- ***Leverage ratios and covenants*** control the capital structure of the executing agency by measuring its solvency—the extent to which its assets exceed its liabilities—and prevent additional borrowing unless there is sufficient capital.

- ***Operating ratios and covenants*** measure elements of enterprise profitability.

2. Application of Financial Ratios as Covenants and Monitoring Tools.

16. Financial ratios need to be tailored on a case-by-case basis, based upon the country context and objectives, and upon the results of the financial and economic analysis of the borrower, the executing agency and the project. A key objective of investment lending is to improve the sector's commercial performance, often with the ultimate goal of financial independence for the sector (or at least financial autonomy with a clear mechanism for subsidies, as described in para. 9).

17. ***Primacy of Cash Flow.*** Historically, many MDBs have focused on operating ratios (such as return on fixed assets) as a key financial ratio in their lending operations. But operating ratios focus on profitability, which is more subjective than cash flow, and which neglects the importance of maintaining liquidity in order to sustain financial viablility. Recognizing this limitation, in recent years MDBs have put a greater emphasis on cash flow ratios in their analysis, covenants and monitoring. This evolution toward cash flow analysis reflects a similar evolution in thinking within the financial community at large.

18. ***Limitations of Profitability Covenants.*** Specifically, MDBs have moved away from using rate of return on fixed assets as a financial ratio covenant, generally retaining it as a monitoring tool only. Objectively establishing reliable indicators of profitability is difficult, particularly in the developing/transition country environment. Rate of return calculations require subjective judgments about, for example, revaluation of fixed assets, which is particularly difficult in high-inflation environments.

19. ***Key Financial Covenants.*** Financial covenants must be developed and applied in a way that reflects the attributes and needs of each individual project and lender. Nonetheless, three key financial covenants are prevalent. The MDB Working Group endorses their use in most cases due to their nearly universal applicability and their scope:

- ***Debt service coverage ratio*** should be used as a key indicator and covenant as it is the most objective, easily available measure of liquidity and financial sustainability**.**

- ***Current ratio*** also provides a quick, objective measure of liquidity; however, it is not a complete measure as it includes assets that may not be readily liquidated to meet short-term cash needs. When liquidity of inventories is a concern, the quick ratio, which excludes inventory, may be a useful measure. Attention should also be paid to turnover of other current assets—the accounts receivable turnover, often used for utilities that have collections problems and may not be adequately provisioning for bad debt.

- ***The leverage ratio***, as defined by EBRD (total liabilities to tangible net worth) should be used as a standard measure of solvency. This represents a departure from the classical definition of financial leverage, which generally measures *long-term* obligations only; total liabilities, however, also encompasses payables and other short-term funding, which developing country enterprises typically use as a substitute for long-term debt. Leverage is particularly important for new enterprises that have no earnings record, and for cyclical industries; and it is also used when there is a need to cap the overall use of debt for growth in a corporate or group loan.

20. ***Other Financial Covenants.*** Other financial covenants may be included in loan agreements as appropriate. Table 1 provides a list of commonly used ratios, recommendations for their use (e.g., whether they are recommended as key financial covenants or as monitoring tools), and consensus definitions agreed upon by the MDB Working Group for Financial Analysis and Management.

21. ***Compliance Tools.*** Borrowers' poor track record in complying with financial covenants—and the complexity of enforcing such covenants—has brought attention to the need to take greater care in structuring financial covenants, monitoring tools, and remedies to promote financial sustainability. These considerations should include the following:

- sensitivity analysis to identify the impact of changes in key risk factors on a project's financial sustainability,
- consideration of the scale of a project—either its total size, or the possibility of using low-cost technology alternatives to reduce the financial burden on the executing agency,
- applying stricter conditions to loan approval (e.g., tariff increase, collection improvements, and other reductions of arrears) to improve financial sustainability and reduce the risk of default,
- using realistic assumptions about future reform, and
- seeking remedies that are meaningful and enforceable.

Table 1. Key Financial Ratios and Recommended Application

Ratio	***Applicability***	***Definition***
Cash Flow and Liquidity Ratios and Covenants		
Debt service coverage covenant	DSC, the primary financial covenant and monitoring tool, is an indicator of the executing agency's cash flow margin enabling it to service debt from internal sources. This covenant is recommended to be required for all revenue-generating projects.[7] In addition, the DSC ratio may be used as a trigger for a *debt limitation covenant*.	Free cash flow divided by debt service, where: • Free cash flow = EBDIT [net earnings plus depreciation and interest, +/- extraordinary income/loss, +/-non-cash expense and amortizations], +/- decrease/increase in working capital other than cash, minus *agreed capex.* [At appraisal, DSC ratio is calculated using actual historical and projected capex. In monitoring performance, *the higher of actual or agreed capex* is recommended for calculating DSC, in order to assess whether cash flow supports a sustainable investment program. Using *actual* capex, if lower than *agreed,* may mask a cash shortfall.] [8] • Debt service = principal and interest payments on all *debt.* [*Debt* is defined as financial obligations with original maturity of more than one year, including financing leases.]
Current ratio covenant	Measure of short-term liquidity (i.e., whether company would have sufficient cash to repay its current liabilities if it liquidated its current assets). Highly dependant on quality and content of current assets.	Current assets divided by current liabilities, where: • Current assets = Assets capable of being liquidated within one year without substantial penalty = cash and marketable securities, inventory, accounts receivable • Current liabilities = original maturity of one year or less (plus current maturities of long-term *debt*) [*Debt* is defined as financial obligations with original maturity of more than one year, including financing leases.]
Self-financing Ratio/ covenant	Addresses the need for the enterprise to generate sufficient internal cash flow to meet a *specified portion*[9] of *its investment requirements*.[10]	Cash from internal sources divided by *planned capital expenditure* [Using *planned* rather than actual capex demonstrates EA's ability to implement project as planned. May be derived from an average over multiple years.]
Quick ratio covenant	Like current ratio but focuses on most liquid items. Recommended where the EA's inventories would be costly to liquidate.	Cash + Marketable securities + Accounts receivable + Other liquid assets (excluding inventories) *divided by* Current liabilities

[7] *Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank*, op.cit., Version A: Historical orientation (see 3.6.3.3) Version B: Forecast orientation (see 3.6.3.3).

[8] Although EBRD guidelines recommend agreed capex, there is some flexibility to use actual capex. Although actual capex may mask a cash shortfall, it also reflects that capex may be flexible (recognising that this flexibility is greater than some instances than in others) and if a company is under liquidity pressure, it would be able to reduce capex to service its debt.

[9] The specified portion will vary between countries and sectors, and on the recent performance of the executing agency, particularly if current performance is inadequate to support its operations, where the specified portion may need to be substantially above current levels.

[10] May be supplemented by *internal source of funds analysis* calculating internal cash generation as a percentage of construction costs, current liabilities, and/or projected next year's current liabilities

Ratio	***Applicability***	***Definition***
Dividend limitation covenant	Prohibits dividend issuance the payment of which would cause a specified ratio to fall before a specified minimum. Limited to EAs with common stock.	The Borrower shall not declare any dividend or make any other distribution with respect to its share capital, unless, *after* such dividend/ distribution has been made, the [specified ratio]would equal or exceed ____.
Leverage / Capital Structure Ratios and Covenants		
Debt: Equity or Leverage covenant	Recommended as a *debt limitation covenant;* optional as a standalone covenant.	Total Debt:Equity = Total liabilities /Total assets [Financial leverage ratios comparing *long-term* debt to *equity* are more commonly used in countries with highly developed capital markets (e.g., most OECD countries); however, ratios using *total* liabilities are more appropriate in the developing country context, where short-term funding (through payables and other current liabilities) is often used to substitute for long-term debt.] Leverage = Total liabilities, excluding tangible net worth, *divided by* tangible net worth less goodwill.
Debt limitation covenant	Prohibits contracting new debt which would cause cash flow (DSCR-IBRD) or leverage (D:E or TL:TNW) to fall before a specified minimum.	The Borrower may not incur any debt unless the net revenues of the Borrower for the [fiscal] year immediately preceding the date of such incurrence shall be at least __ times the Borrower's estimated maximum debt service requirements for the succeeding fiscal year on all debt of the Borrower, including the debt to be incurred. [See definition of debt above]
Operating Ratios and Covenants		
Tariff coverage covenant	Appropriate in cases where tariff level and/or structure need to be raised over time to keep up with costs. Commonly used for power (including rural electrification), telecommunications, water and sanitation sectors, and negotiated based upon the financial and economic analysis of the borrower/executing agency institution.	The Borrower is obligated to establish tariffs that will produce revenues at least sufficient to enable the executing agency to cover all operating and maintenance expenditures.
Rate of return ratio	Usually, rate of return on fixed assets. Recommended for use as an *indicator* only, not as a covenant.	Net operating income, excluding government grants and subsidies, *divided by* Average net revalued fixed assets in service for the period
Operating ratio or Working ratio	Provide an indication of how much operating costs are covered by revenues. Normally used when the financial performance of an entity has been very poor, for example, to ensure that earnings would at minimum cover operating expenses.	Operating ratio = Total operating expenses, wages, costs of fuel or cost of goods sold, and other expenditures, *including* depreciation and taxes, *divided by* Total operating revenues Working ratio = Total operating expenses, including wages, costs of fuel (or cost of goods sold) and other expenditures, but *excluding* interest and depreciation, *divided by* Total operating revenues
Break-even ratio	Used where internally generated funds are not expected to contribute significantly to investment, this ratio is intended to ensure the continued operating capability and solvency of the public sector enterprise and, like the operating ratio, to identify the extent of	Total revenues [operating revenue plus net non-operating income] must not be less than: Total operating expenses *minus* depreciation *plus* Debt service

Ratio	***Applicability***	***Definition***
	required subsidies.	
Turnover and capacity utilization	Used to measure specific operational activities, notably, ability to collect revenues (measured by A/R turnover and losses from bad debt). Ratios vary by industry, reflecting the different sources of cash flow.	Accounts receivable turnover = Net revenues *divided by* Average A/R [or Days A/R = Average accounts receivable x 360 *divided by* Revenues] Inventory turnover = Cost of goods sold in period *divided by* Average inventory for period
Gross margin	Operating profitability (i.e., percentage of revenues used to meet operating expense)	Cost of goods sold divided by revenues
Other profita-bility ratios	• Return on sales • Return on equity • Return on capitalization. • Return on total assets	Net profit *divided by* • Sales • Equity • Total capitalization • Total assets
Operating perfor-mance analysis	Sector-specific performance benchmarks	Examples: • Net operating income/Total revenues • Net income/Total revenues • Sales volume (e.g., kWh)/Average employees • Average customers/Average employees