The World Bank
Financial Sector Operations and Policy

Financial Sector Development Indicators

Comprehensive assessment through enhanced information capacity

Introduction

The financial sector is a crucial sector of any economy, affecting its business environment, investment, economic prospects and social dimensions, including poverty. Vulnerabilities in financial sectors often result in financial crises, economic slowdowns, and fiscal costs. Financial sectors are thus important to monitor and compare across economies and over time. Data typically available and analyses thereof, however, lack the robustness needed to comprehensively and succinctly assess countries' financial sector development. Information is scattered, disparate, often limited to measuring only the size of the financial system, not allowing other dimensions of financial sector to be easily compared over time or across countries. Furthermore, in an increasingly integrated world, where shocks transmit swiftly across boundaries, the need for comprehensive financial risk assessment data has become all the more imperative.

Motivation for the project | *Compensate for existing deficiencies*

The collection of statistics and assessments of financial sectors and supporting institutional infrastructure are underway in many forms and by many international and national institutions. However, these efforts are still deficient in four important aspects:

- Lack of benchmarking. The data do not have the explicit objective of benchmarking countries in the multiple dimensions of financial sector development, rather they are mostly mere data collection exercises in a one or few, selected dimensions.
- Lack of a single focal point. While many data collection and analyses efforts are underway, there is not a single focal point, at least for a large cross-section of countries. Rather, data are scattered and often not easily accessible, and lack comparability.
- Lack of comprehensive information. There are important dimensions for which data are still missing or for which there is no systematic monitoring of them. They include access to financial services, stability and aspects such as efficiency, competitiveness, costs, as well as measures of the supporting institutional environment.
- Lack of proper definitions. Heterogeneous definitions, sources and caveats not well defined make it difficult to fully and correctly utilize existing data sources.

The Project

The foundation | A "clearing-house" with analytically robust measures and new data

The Financial Sector Development Indicators (FSDI) project aims to be the first port of call for statistics and analytical tools for assessing financial sector. The one-stop-shop for existing information would make FSDI serve as the "clearing-house" for financial sector statistics. And with new data collected through surveys, FSDI would provide valuable information for enhanced assessment and understanding of financial sector development. This aim requires that the indicators, and the data used to develop them, are grounded in robustly researched and empirically relevant concepts, using reliable sources of information and demonstrated statistical techniques, drawing upon the extensive experience of the financial sector experts.

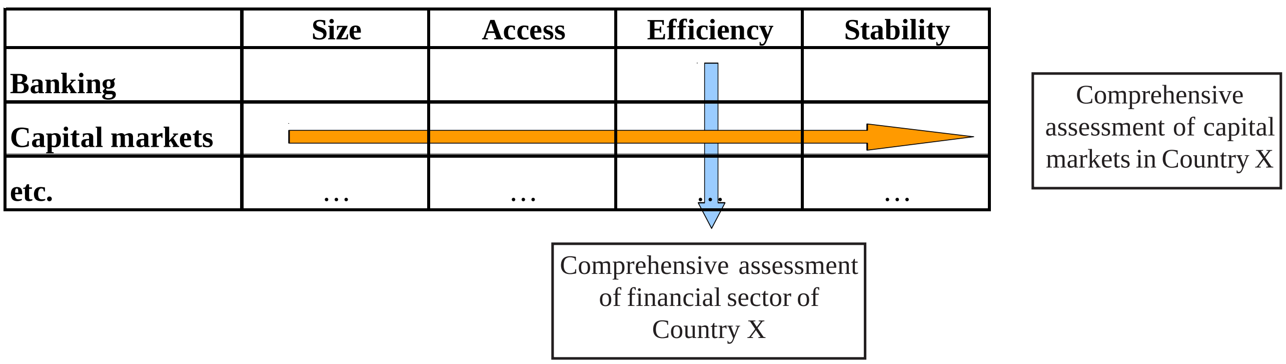
The data effort takes stock of existing information, reviewing its quality, coverage and frequency using robust selection criteria. This includes synthesizing information already being collected by international and national organizations (such as BIS, CGAP, IMF, OECD, UNDP etc.). Information from various existing data sources (including among others Bankscope, Bloomberg, Dealogic, Worldscope etc.) has been integrated and harmonized. Since cross-country data on outreach, breadth, and access of financial sector is non-existent, new information has been been obtained to enhance the understanding of financial sectors. Primary, new information has been collected via **surveys** in areas such as access to financial services and barriers in accessing finance, obtained from bank regulatory agencies and individual financial institutions. Data and information has been aggregated and classified in templates designed by various financial sector experts of the World Bank, in collaboration with outside experts. Combined with related aspects, data has been processed using **analytically** robust methods to give details and easy management. Thus, FSDI functions as a **"clearing-house"** for statistics and analytical tools for assessing financial sector development.

The approach | Comprehensive, yet flexible

The FSDI project employs numerous variables spanning, banking systems, capital markets, non-bank financial sectors, the accessibility to finance, as well as institutional environments. The project's information strength provides capacity for comprehensiveness, yet retains flexibility for customized assessments.

The matrix approach. The FSDI harbors capacity to combine the multitude dimensions of a financial sector—Size, Access, Efficiency and Stability—with traditional financial sub-sectors, such as Banking, Capital Markets etc. The framework for presenting the indicators is presented on the next page.

Flexibility for focused assessment. While the dimensions (i.e., the columns—Size, Access, Efficiency, Stability) remain fixed, the sector (rows) can be adjusted depending on the review desired. As such, the matrix approach improves over the commonly utilized one-dimensional measures and provides the capacity



for assessing individual sub-sectors, while holding constant the attributes of other sectors. This matrix approach is easy to understand, yet refers closely to commonly used characteristics. Furthermore, the flexibility of substituting information allows for tailored assessments, thus facilitating tiering of countries by dimension or sector. As the FSDI evolves, this approach will allow both a traditional sector view—Banking, Capital Markets, Insurance etc.—or an institutional view—deposit taking institutions, NBFIs—to be employed. It would also allow for a demand-driven view, such as a division by Household Finance, Corporate Finance, or Public Sector, to be utilized.

The product Indicators, benchmarks and detailed statistics

The FSDI translates wide-ranging and somewhat abstract concepts into concrete and practical assessment measures. Indicators based on the weighted sum of columns/rows (in the matrix) provide the basis for assessing either a dimension of the financial sector (in the case of column), or a specific sub-sector (in the case of rows). The weighted sum of the whole matrix provides the basis for assessing a country's overall financial sector, especially when benchmarked against international, regional, or cross-country standards. To serve different requirements and audiences, the following indicators are produced:

- <u>Headline numbers</u>. These are limited in number, ten at most, and indicative of broad financial system. The indicators are grouped into the four broad dimensions: (1) Size; (2) Efficiency; (3) Access; and (4) Stability. These headline indicators include traditional measures, such as private credit to GDP ratios, stock market capitalization to GDP ratios, non-performing loans and banking spreads, but also new indicators (collected via surveys), such as ease of access to a bank account by a household and ease of access to financing for a company.
- <u>Benchmarking capacity</u>. The benchmarking indicators fill the cells of the matrix. They are combinations of ratios and synthetic statistics and provide the capacity to tier countries in the same four dimensions (size, efficiency, access, and stability). The indicators take "raw" data and use weights and other techniques (expert opinions, regression and principal component analysis or other statistical techniques) to create

measures such as "Efficiency" and "Stability" in the banking system, or "Access" to capital markets in a country. In addition, it allows countries to be tiered, similar to the tiering and scoring that World Competitiveness Report and credit rating agencies provide.

- <u>Detailed data</u>. Included here is detailed qualitative and quantitative indicators on institutional environment, banking system, capital markets, non-bank financial sector and accessibility to finance. This also provides, in a summary fashion, background information and analytical underpinnings on how to interpret and use the data collected.

The output is made available in the form of:

- Currently, a globally accessible interactive website, with information down-load and data manipulation capabilities. This also serve as a portal for financial sector development outputs other than FSDI, such as country and topic analysis.
- In near future, a CD-ROM with data management and manipulation capacity, and
- A "hard-copy" publication.

Value added	Wealth of information for global and national level strategic purposes

While the value added of the FSDI project is vast, the information can be especially utilized for:

- <u>Raising awareness</u>. Better and comprehensive assessments of countries' financial sectors can help solicit greater support from policy makers and others who can exert influence in shaping financial sector development polices. Greater awareness can also help international policy makers, as well as institutions in channeling efforts more efficiently to develop financial sectors, managing global financial stability and tackling potential pressure points.
- <u>Identifying opportunities</u>. The wealth of information embodied in FSDI can be used for strategic global corporate development purposes, as it helps identify unique and lucrative opportunities, especially in emerging market economies (harboring 80 percent of the world population) that represent frontiers for economic and business growth.
- <u>Spotting risks</u>. Since risks can take many dimensions, or can remain hidden due to lack of information, FSDI enables financial sector monitoring in a wide set of areas as measures extend beyond the single and simplistic tools typically used.
- <u>Detecting best practices</u>. Collection and synthesis of a variety of data helps identify best practices in financial sector reform. This assists with efficient financial and economic policy interventions in countries, as well as help establish guidelines on how to best to develop the various aspects of a financial sector.

The Bank's unique position

The World Bank is uniquely placed to undertake the FSDI project, as it capitalizes on its extensive and diverse (economic, financial and legal) operational, policy making and research strengths as regards the financial sector, both in terms of staff knowledge and other resources. The Bank's strengths have not only been acquired from being a de facto entity in shaping and analyzing financial development policies, but also from its vast experience with financial sectors in countries.

Building on the Bank's global status and existing linkages with other international organizations, partnerships with other institutions in both the private and public sectors will continued to be explored. Such liaisons will include efforts to further streamline data definitions, methodologies and data collection, and can build on ongoing efforts in academic circles, consultative agencies, and in the diverse private sector financial community.

Timetable and contacts

The FSDI is expected to be functional in Spring 2006.

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Annex

The data selected for active use in FSDI have been carefully curtailed from an enormous and widely spread set of information and sources. The actively utilized data represent only a small portion, about 35 percent, of all the information that has been diligently and tediously explored (covering in excess of 200 variables). Not all information is immediately used because of limited country-coverage, periodicity and robustness—criteria necessary for conducting a standardized assessment exercise in a sustainable manner.

The data presented in this annex are representative snapshot of information to be utilized. Some of the variables are "synthetic" in nature, i.e., created utilizing raw information processed through rigorous econometric and statistical methods to draw out most useful systematic information. The raw information has not always been separately mentioned.

The FSDI exercise intends to put forth options and flexibility in its use. While certain variables can be assessed to be the most representative for reflecting the state of affairs in a particular dimension of a country's financial (sub-) sector, users will also be able to employ other information to come up with their own separate assessments. For example, either only the variable "Private Credit to GDP" can be used for assessing the size of the banking sector, or a combination of all other "Size" variables can be used for the purpose of assessing the degree of resource mobilization through financial intermediaries. Analytical tools would be explored to provide such flexibility.

Snapshot of select data to be utilized for Financial Sector Development Indicator project

	Size	Access	Efficiency	Stability
Banking 41 variables actively considered after exploring 55 variables. 9 synthetic variables created by applying econometric and statistical techniques to raw data.	*Size* Deposit money banks assets to GDP Central Bank assets to GDP M2 to GDP Deposits to GDP *Intermediation* Private credit to GDP Private credit to total credit Private credit to deposits	*Broad access* Branch (ATM) density Average loan (deposit) size/GDP per capita Number of loans (deposits) per capita Distribution of loans (deposits) vs. income distribution *Household access* Percent of people with bank account Cost of opening an account *Firm access* Requirements for obtaining a loan Value of collateral needed for a loan Percent of firms reporting financing obstacles	*Profitability* Return on assets (equity) Net interest margin to gross income Ratio of trading and FX gains/losses to total income Ratio of trading and FX gains/losses to tota assets *Efficiency* Operating costs to operating income Lending-Deposit Spread Number of days to clear a check *Competitiveness* 3-bank concentration ratio (assets/deposits) Percent state ownership Percent foreign ownership H-statistic	*Capital adequacy* Regulatory capital to risk-weighted assets Distribution of capital adequacy *Asset quality* (a) Lenders Non-performing loans (including net of provisions) Real credit growth (de-trended) Loan concentration Large loan exposures to capital Share of total credit to related parties (b) Borrowers Corporate debt to equity capital Interest coverage ratio Corporate net foreign currency exposure Household debt to GDP (incl. housing) *Liquidity* Liquid assets-to-total assets Liquid assets-to-short term liabilities *Sensitivity to market risk and default probability* Default probability of top-10 listed banks (stock returns)
Capital Markets 22 variables actively considered after exploring 77 variables. 10 synthetic variables created by applying econometric and statistical techniques to raw data.	**Equity** Market capitalization to GDP **Debt** Size of LCY Bond Market in USD FCY bonds to GDP ratio Value of bonds listed Value of bond trading	**Equity** Concentration of top 10 firms (market capitalization) Concentration of top 10 firms based on volume. Closely held shares in top 10 firms **Debt** Number of issuers, bonds listed and newly listed Foreign issues in local currencies	**Equity** Synchronicity / Comovement measure based on: Daily stock returns Daily market index returns Exchange rates Detectable private information trading based on: Daily stock returns Daily trading volume data Liquidity / Transaction costs based on: Daily stock prices Turnover ratio **Debt** Trading volume Yield volatility - 10yr LCY Bonds Credit Spread - Major USD Issues vs US Treasuries LCY Bond return index	**Equity** Skewness of market return index based on: Daily market return index Vulnerability to earnings manipulation based on: Receivables Sales Cost of goods sold Current assets Property, plant and equipment (net) Depreciation Long term debt Current liabilities Total assets Selling, general and administrative expense Income before extraordinary items Net cash flows Duration (measuring equity risk) based on: Book value of equity Earnings Sales Market capitalization Autocorrelation coefficient for return on equity Cost of equity capital Autocorrelation coefficient for growth in sales/book value Long-run growth rate in sales/book value **Debt** Ratio of marketable securities to public debt

	Banking sector	**Capital markets** — Equity	**Capital markets** — Debt	
Supporting information Variables collected to enhance analyses.	*Creditor rights*	*Securities Laws Characteristics*	*Composition*	*General government finance*
	Legal protection of creditor rights	Disclosure Index	Government securities maturity profile-LCY	Can the government borrow from the Central Bank?
	Cost to complete bankruptcy (% of estate)	Burden of Proof Index	Investment flows - new capital raised by bonds	Legal limits on government borrowing
	Cost to resolve disputes (% of debt value)	Supervisor Characteristics Index		
	Credit Information	Investigative Powers Index	*Market liquidity*	*Primary market characteristics*
	Credit information sharing	Orders Index	Annual bonds turnover ratio	Does MoF has discretionary powers over:
	Registry coverage (% adults)	Criminal Index	Govt. securities - Bid-Ask spread (survey data)	Issuing domestic securities vs resorting to other channe
			Issue concentration ratio - Government bonds	Type of securities to be issued; Timing
	Supervision and regulation	*Clearing and Settlement*		Features of newly issued securities; Interest rate of new
	Activity and ownership restrictions	Settlement efficiency index	Investor profile - Government bonds	Purchase of outstanding securities and advance redemp
	Competition restrictions (entry requirements)	Capital Market Infrastructure Risk Ratings		Buy backs or bond exchanges
	Capital stringency	Safekeeping Benchmark	Benchmark Yield Curve - LCY Bonds	Issuing of Forex securities in the domestic market
	Official supervisory action (power and promptness)	Operational Risk Benchmark		Securities addressed to retail market
	Official supervisory resources		*Mismatch indicators*	Placement techniques; Issuing program; Auction Mark
	Independence of supervisory authority	*Supervision and regulation*	Share of FCY bonds to total bonds outstanding	Re-openings and advanced redemption of issues
	Compliance with BCP	Level of Compliance with IOSCO Principles	Aggregate effective currency mismatch index	
			Ratio of short term debt to long term debt	*Secondary market characteristics*
	Financial safety net	*Taxes and Fees*	Size of external debt	Forward trading
	Deposit coverage ratio	Dividends and capital gains taxes		Lending and borrowing of securities
			Institutional framework	Short selling
			Agency responsible for:	Platform for trading government securities
			Planning of new issues	Primary dealers
			Arranging syndicated placements	
			Auctions	*Investor base*
			Disbursements, reimbursements and interest payments	Extent of captive buyers of government securities
			Accounting and record keeping for govt. debt	
			Risk analysis, monitoring & reporting	*Market infrastructure*
			Supervisory Agencies for primary (secondary) market	Degree of dematerialization of government securities
			Institutionalized objectives for debt management?	Settlement characteristics of government securities

	Households	**Corporate sector**
Additional information For policy implications, these indicators will be related to a large number of variables on corporate sector and households.	Proportion of financially served	Performance (return on equity/assets, EBIT margin, sales growth, capital intensity)
	Access to transactions and payment services	Earnings management (loss avoidance, earnings smoothing, earnings aggressiveness, composite index)
	Access to loan and credit services	Dividend policy (dividend payout ratio, dividend yield)
		Growth opportunities (P/E ratio, Tobin's q, capital expenditures to the book value of assets ratio)
		Financing contraints (external financing, Rajan-Zingales index, Kaplan-Zingales index)
		Liquidity (current ratio, quick ratio, cash to total assets ratio, cash-flow to sales ratio, interest coverage ratio)
		Leverage (debt-to-assets ratio, debt-to-sales ratio, debt-to-cash-flows ratio, short-term debt to total debt ratio)
		Vulnerability (Altman's Z and EMS scores, Ohlson's O-score, KMV probability of default)
		Capital structure (detailed breakdown of the capital structure over time)
		Cross-listing activity (cross-listing, number of ADRs, type, effective date)
		Corporate bonds (issue date, duration, spread, currency, type)
		Industry structure (industrial classification, operations diversification)
		Ownership (closely held shares)
		Auditing (auditor is one of the Big-5 accounting firms)