

Legal Implementation and Management of Infrastructure Finance Models: Trade-offs Between Risk and Maturity

Jodie A. Kirshner*

ABSTRACT

Many economies have difficulty financing infrastructure development: Bank loans of the long tenure necessary pose currency and maturity risks, and stable capital markets require robust legal foundations. Shortfalls in infrastructure finance, however, reduce the quality of life for citizens and inhibit the productive capacity of economies. Intermediate financing models therefore must sustain private finance in infrastructure projects in economies in which legal reforms remain ongoing. Previous studies have explored possible structures for these models. The studies, however, have not considered the legal infrastructure necessary to implement and support these financing techniques. This paper analyzes the tradeoffs that intermediate models for financing infrastructure present, in terms of augmenting the availability of long-term capital versus managing its risks. The paper explores potential fault lines in each model, and the necessary role for law in each.

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DOI: <https://dx.doi.org/10.15779/Z38SB3WZ5R>

* The author is grateful to the Bank for International Settlements for funding this project and to Madhusudan Mohanty, the head of economics and financial markets for Asia & the Pacific at the BIS. The law cited in this article is current as of March 2017.

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INTRODUCTION

Many emerging economies urgently require investment in infrastructure.¹ According to a McKinsey study, total infrastructure finance must increase from 3.8% of GDP to 5.6% of GDP by 2020.² In emerging economies, the G20 has suggested the need for an additional \$1 trillion in infrastructure finance per year.³

Quality of life depends on sufficient infrastructure, and infrastructure also can generate economic growth.⁴ Infrastructure supports services essential to the needs of citizens.⁵ Many industries also depend on infrastructure, and shortfalls in infrastructure make production more costly or impossible.⁶

Infrastructure projects have proven difficult to finance.⁷ Infrastructure projects typically are large scale, with large up-front capital requirements, a long initial period without returns, and extended payback periods.⁸ Nevertheless, the projects create positive externalities beyond the revenue stream the projects eventually may generate.⁹

Because infrastructure projects demand long-term finance, capital markets can contribute suitable finance,¹⁰ but the risks of this type of finance necessitate a developed legal system.¹¹ When, for example, investors lack information about the potential risks of bond issuances¹² and the legal system cannot manage the

1. See FERNANDA RUIZ-NUNEZ & ZICHAO WEI, INFRASTRUCTURE INVESTMENT DEMANDS IN EMERGING MARKETS AND DEVELOPING ECONOMIES, 2 (Sept. 2015), <http://documents.worldbank.org/curated/en/141021468190774181/Infrastructure-investment-demands-in-emerging-markets-and-developing-economies>.

2. See GROUP OF THIRTY, LONG-TERM FINANCE AND ECONOMIC GROWTH (2013), http://group30.org/images/uploads/publications/G30_LongtermFinanceEconGrowth.pdf.

3. WORLD BANK INFRASTRUCTURE POLICY UNIT, DEMAND FOR LONG-TERM FINANCING OF INFRASTRUCTURE, 1 (2013), http://www.g20india.gov.in/pdfs/7a_Demand_for_Long-Term_Financing_of_Infrastructure_FINAL.pdf.

4. GROUP OF THIRTY, *supra* note 2, at 20.

5. UNITED NATIONAL INDUSTRIAL DEVELOPMENT ORGANIZATION, NEEDS AND OPPORTUNITIES FOR PRIVATE FINANCING OF INFRASTRUCTURE PROJECTS IN AFRICA – A CONCEPT FOR INTERNATIONAL PARTNERSHIP, 2 (July 2001), <http://www.unido.org/fileadmin/import/userfiles/timminsk/ecosocneedsandoppsprivatefinance.pdf>.

6. *Id.*

7. WORLD BANK, FINANCING FOR DEVELOPMENT POST-2015, 24 (Oct. 2013); See also Priya Basu, Varsha Marathe, & Inderbir Singh Dhingra, *Infrastructure Financing in India: Constraints and Challenges*, in INFRASTRUCTURE FINANCE: TRENDS AND TECHNIQUES, 146 (Henry A. Davis ed., 2008).

8. *See id.*

9. *See generally* Antonio Estache, *Infrastructure Finance in Developing Countries: An Overview*, in EIB PAPERS: PUBLIC AND PRIVATE FINANCING OF INFRASTRUCTURE 60 (2010), http://www.eib.org/attachments/efs/eibpapers/eibpapers_2010_v15_n02_en.pdf.

10. ORG. FOR ECON. CO-OPERATION & DEV., BOND MARKET DEVELOPMENT IN ASIA, 238 (2001) (*hereinafter* OECD).

11. *See* Luc Laeven, *The Development of Local Capital Markets: Rationale and Challenges*, 10 (Int'l. Monetary Fund, Working Paper WP/14/234, Dec. 2014).

12. This paper focuses on bonds, leaving equity financing techniques outside the scope of the paper. As residual claimants, equity investors in infrastructure bear the highest risks, which limits the

risks in foreseeable ways,¹³ investors cannot anticipate losses accurately.¹⁴ As a result, they misprice bonds and overinvest,¹⁵ creating instability that can spread if the law cannot adequately manage the instability.¹⁶

The countries with the greatest need for infrastructure investment often are the countries without the legal foundations to support capital markets, and most emerging economies have depended on finance by governments and from banks.¹⁷ Budget limitations constrain government investment¹⁸ and maturity risk constrains banks from extending long-term loans.¹⁹ The recent global financial crisis also demonstrated the ability of the banking system to propagate risks²⁰ and the difficulty of maintaining investment during disruptions to the banking system.²¹

A broader mix of financing models could mobilize untapped sources of private capital.²² Previous studies have suggested financing models without

potential pool of equity investors. In many countries, pension funds invest in unlisted infrastructure equity, but in several emerging economies, including India, pension funds legally cannot enter into such investments. In many emerging economies, potential equity investors also may perceive a lack of sufficient exit opportunities.

13. See WORLD ECONOMIC FORUM, *ACCELERATING EMERGING CAPITAL MARKETS DEVELOPMENT CORPORATE BOND MARKETS* 6, 14, 23 (April 2015); See also Dieter Helm, *Infrastructure and infrastructure finance: The role of the government and the private sector in the current world*, in EIB PAPERS: PUBLIC AND PRIVATE FINANCING OF INFRASTRUCTURE 8, 15 (2010).

14. See Fitch: *Bond Defaults a Long-Term Positive for China Market*, REUTERS (April 9, 2015), <http://www.reuters.com/article/idUSFit91926620150410> (discussing a default in the Chinese bond market as positive because it established a clear legal process in cases of default enables “more effective and appropriate pricing of risk”); See also Olufemi Olugbemiga Soyaju, *Public Assets Financing Nigeria: The Imperatives for Legal Reforms to Unlock Domestic Financial Resources and Foreign Capital for Infrastructure Development*, 58-59 (2012) (doctoral dissertation, Faculty of Law, University of Pretoria).

15. See *id.*

16. See INTERNATIONAL MONETARY FUND, *GLOBAL FINANCIAL STABILITY REPORT: MARKET DEVELOPMENTS AND ISSUES*, 139 (2007).

17. See Shubhomoy Ray, *Infrastructure Finance and Financial Sector Development*, 4 (Asian Dev. Bank, Working Paper No. 522, Mar. 2015), <http://www.adb.org/sites/default/files/publication/159842/adbi-wp522.pdf>.

18. See Hannah Levinger, *Current Issues Emerging Markets: What’s behind recent trends in Asian corporate bond markets?*, DEUTSCHE BANK RES. (Jan. 31, 2014).

19. See Vivek Rao, *Developing the Financial Sector and Expanding Market Instruments to Support a Post-2015 Development Agenda in Asia and the Pacific*, 10 (Asian Dev. Bank Sustainable Dev., Working Paper No. 36, Mar. 2015).

20. See Eugenio Cerutti, et al., *Systemic Risks in Global Banking: What Available Data can tell us and What More Data are Needed?*, 3 (Int. Monetary Fund, Working Paper WP/11/222, 2011).

21. See Stijn Claessens & Neeltje van Horen, *Foreign Banks and the Global Financial Crisis: Investment and Lending Behavior*, CENTER FOR ECON. & POL’Y RES. (Jan. 31, 2012), <http://voxeu.org/article/foreign-banks-and-global-financial-crisis-investment-and-lending-behaviour>; See also GROUP OF THIRTY, *supra* note 2, at 29.

22. See RICHARD DOBBS, ET AL., MCKINSEY GLOBAL INSTITUTE, *FAREWELL TO CHEAP CAPITAL? THE IMPLICATIONS OF LONG-TERM SHIFTS IN GLOBAL INVESTMENT AND SAVING*, 56 (Dec. 2010).

considering the legal infrastructure necessary to implement and support them.²³ Many of the models, including securitization of bank loans, government interventions in bond markets, and credit default swaps on corporate bonds, also pose risks in emerging economies in which legal reforms remain ongoing.²⁴ Others, including consortium lending by banks and covered bonds appear easier for emerging economies to implement.²⁵

This paper analyzes the tradeoffs that intermediate models for financing infrastructure present, in terms of augmenting the availability of long-term capital versus managing its risks. The paper uses India as a lens through which to explore the potential fault lines in each model, and the necessary role for law in each.

The analysis suggests that covered bonds could best mobilize investment in infrastructure. Covered bonds enable banks to sell their loans to downstream investors and also ring fence assets on the balance sheets of the banks to provide liquidity against the maturity risk that the bank loans entail.²⁶ Although covered bonds do not eliminate the maturity risk or facilitate significantly longer bank loans, and therefore do not attract capital from institutional investors, the assets in the cover pool reduce the risk exposure of investors in the covered bonds, which enables the investors to charge low interest rates on the bonds.²⁷ The legal foundations for the model appear easy to implement, even at early stages of legal development, and the model generates minimal risks for the law to contain.²⁸

Section I first anchors the arguments of the paper in financial theory.²⁹ The Section explains how bank finance of long-term infrastructure development projects introduces currency and maturity risks and information asymmetries, while, with the proper safeguards, the capital markets may offer a source of finance more suitable to the projects.³⁰

Section II portrays the infrastructure shortfalls that persist in emerging economies including India.³¹ The section argues that bank lending and public finance lack the capacity to eliminate the infrastructure deficits.³²

Section III explores the risks of using a long-term bond market to channel capital to infrastructure projects.³³ The Section presents three case studies that

23. See, M. S. Mohanty & Philip Turner, *Banks and financial intermediation in emerging Asia: reforms and new risks*, 45 (Bank for Int'l. Settlements, Working Paper No. 313, June 2010) (noting "dearth of legal-focus scholarly literature" in the context of infrastructure finance arrangements).

24. See *infra* Section IV.

25. *Id.*

26. See *infra* Section IV.A.3.1.

27. See *infra* Section IV.A.3.

28. *Id.*

29. See *infra* Section I.

30. *Id.*

31. See *infra* Section II.

32. *Id.*

33. See *infra* Section III.

illustrate the difficulties both of predicting the risks and resolving instability in a bond market.³⁴

Section IV sets out five intermediate financing models and evaluates the qualities of a legal system necessary to implement the models and manage their risks.³⁵ The Section presents three modifications to bank finance that accommodate maturity risk in different ways but do not offer long-term investment vehicles to attract additional capital from institutional investors.³⁶ The Section then presents two modifications to bond finance that provide long-term investment vehicles and attract institutional investors by transferring default risks onto governments and third parties but depend on improvements to macro-level governance and transparency within the financial market.³⁷ The Section concludes that covered bonds offer the most appropriate financing model for countries with legal systems at equivalent stages of development to India.³⁸ While covered bonds do not eliminate maturity risk, the implementation of covered bond structures by banks requires legal foundations that appear easy for countries to implement, and covered bonds appear to pose few risks.³⁹

Currently, when infrastructure investment needs run high, capital-constrained banks are limiting lending⁴⁰ and increasing the interest margins that they charge,⁴¹ and the Basel III regulations likely will constrain bank lending further.⁴² Capital markets could supplement bank lending, but developing the legal supports necessary to backstop the risks that the markets may produce takes time.⁴³ Emerging economies have more realistic options for mobilizing private finance into infrastructure development that pose risks that their legal systems may more easily accommodate. Turning to alternative models could more quickly increase the availability of funding for improvements to infrastructure.

34. *Id.*

35. *See infra* Section IV.

36. *See infra* Section IV.A.

37. *See infra* Section IV.B.

38. *See infra* Section IV.A.3.

39. *Id.*

40. *See* UNTT Working Group on Sustainable Development Financing, *Chapter 3: Challenges in raising private sector resources for financing sustainable development*, <https://sustainabledevelopment.un.org/content/documents/2106UNTT%20Chapter%20III.pdf>.

41. *See, e.g.*, Frank Damerow, et al., *How Covered Bond markets can be adapted for Renewable Energy Finance and How This Could Catalyse Innovation in Low-Carbon Capital Markets*, 2 (Climate Bonds Initiative, Discussion Paper, May 2012).

42. *See* JIM TURNBULL, RES. BANK OF AUSTR., CONFERENCE VOLUME DISCUSSION, 92 (2014), <http://www.rba.gov.au/publications/confs/2014/pdf/ehlers-packer-remolona-disc.pdf>; *See also* ANDRE LABOUL ET AL., ORG. FOR ECON. CO-OPERATION & DEV., PRIVATE FINANCING AND GOVERNMENT SUPPORT TO PROMOTE LONG-TERM INVESTMENTS IN INFRASTRUCTURE, 20 (Sept. 2014).

43. *See* Barry Eichengreen, et al., *A Tale of Two Markets: Bond Market Development in East Asia and Latin America*, 36 (Hong Kong Inst. for Monetary Res., Occasional Paper No.3, Oct. 2006).

I.

VARIETIES OF INFRASTRUCTURE FINANCE

To channel investment into infrastructure, economies may rely on bank-centered financial intermediation, or they may develop domestic capital markets.⁴⁴ While bank finance offers a basic form of funding from the deposits of individual savers,⁴⁵ bank finance of longer-term investments introduces risk deriving from currency and maturity mismatches⁴⁶ and information asymmetries.⁴⁷ By offering contracts to investors which specify payments over extended periods, domestic bond markets provide capital better suited to long-term finance;⁴⁸ however, without the proper safeguards, the introduction of a bond market into an economy also may destabilize the economy.⁴⁹ Both bank-based and bond-based funding strategies depend for their performance on legal supports, including reliable property rights and debt enforcement mechanisms.⁵⁰ This section examines the risks of bank and bond finance in the context of infrastructure development and argues that with sufficient legal protections bond finance better suits infrastructure development.

A. *Bank Finance*

Because of its relative simplicity, many less-developed economies have relied on bank finance of infrastructure, but the use of bank finance for long-term investments has restricted the availability of funding and introduced vulnerabilities into the economies.⁵¹ Banks extend loans from short-term deposits generally in domestic currency, but the depositors can withdraw the deposits supporting the loans at any time, and the fluctuation of foreign exchange rates introduces additional risk.⁵² Adverse selection problems also can result from the use of bank finance for infrastructure development because of limitations to the ability of banks to distinguish the quality of borrowers.⁵³ To offload some of these risks, banks have sold loans in the form of asset-backed securities to downstream

44. See Cedric Achille & Meng Mezui, *Assessing Local Markets for Infrastructure: Lessons for Africa*, 12 (African Dev. Bank, Working Paper No. 153, Oct. 2012).

45. See TODD A. GORMLEY ET AL. *CORPORATE BONDS: A SPARE TIRE IN EMERGING MARKETS?*, 2 (June 7, 2006), <http://apps.olin.wustl.edu/workingpapers/pdf/2006-06-042.pdf>.

46. See Carmen M. Reinhart & Mohsin S. Khan, *Macroeconomic Management in APEC Economies: The Response to Capital Inflows*, in *CAPITAL FLOWS IN THE APEC REGION* 15, 15 (1995).

47. See *id.*

48. See OECD, *supra* 10, at 240.

49. *Id.* at 244, 256, 269, 300.

50. See Eichengreen, *supra* note 43, at 9-10.

51. GROUP OF THIRTY, *supra* note 2, at 29.

52. See *infra* Section A.

53. See, e.g., P. Luengnaruemitchai & L. Ong, *An Anatomy of Corporate Bond Markets: Growing Pains and Knowledge Gains*, 3 (Int'l Monetary Fund, Working Paper WP/05/152, 2005); Philip E. Strahan, *Borrower Risk and the Price and Nonprice Terms of Bank Loans*, *BANKING STUDIES FUNCTION*, 1 (Oct, 1999), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.460.3804&rep=rep1&type=pdf>.

investors,⁵⁴ but the recent financial crisis exposed the potential for the arrangements to destabilize economies.⁵⁵ Other banks successfully have collaborated to finance infrastructure projects.⁵⁶

Bank finance currently accounts for roughly 75% of all finance in economies at earlier stages of economic development including, for example, Malaysia and Thailand.⁵⁷ By developing relationships with firms and monitoring them over time, banks can sidestep some deficiencies in information about the firms that they lend to and generally can re-contract easily in the event of default.⁵⁸ Direct relationships with borrowers enable banks to enforce their agreements and reclaim their collateral through reputational pressures and repeat contact.⁵⁹ Nevertheless, bank finance of long-term infrastructure projects can create problems in the economies that rely on it.⁶⁰

Banks frequently must supplement domestic savings with external borrowing,⁶¹ which exposes the banks to currency risk.⁶² The performance of banks depends on both the success of their loans and any changes in the value of the foreign capital relative to the domestic capital.⁶³ A sharp depreciation in the domestic currency of the infrastructure project revenues can prevent banks from servicing foreign currency lenders.⁶⁴

In addition to the currency risk inherent to banks, which infrastructure finance accentuates, the general problem of duration mismatches within banks becomes severe when banks finance long-term infrastructure projects.⁶⁵ Banks lend to borrowers using assets from their depositors, but the depositors retain the right to withdraw the assets at any time.⁶⁶ When the time horizon of bank loans

54. See, e.g., Raffaele Della Croce & Stefano Gatti, *Financing Infrastructure: International Trends*, 1 *ORG. FOR ECON. CO-OPERATION & DEV. J.*, 131 (2014) (discussing basics of securitization).

55. See, e.g., Ray, *supra* note 17.

56. Croce & Gatti, *supra* note 54, at 131 (discussing basics of lending by bank consortia).

57. Levinger, *supra* note 18, at 4.

58. *Id.*

59. OECD, *supra* note 10, at 106 (stating that banks, as relationship-based systems, can function even in the absence of weak law related to contract enforcement).

60. See *infra* Section A.

61. See, e.g., MONTEK AHLUWALIA, *FINANCING PRIVATE INFRASTRUCTURE: LESSONS FROM INDIA*, 12, planningcommission.gov.in/aboutus/speech/spemsa/msa009.doc; TIMOTHY IRWIN, *GOVERNMENT GUARANTEES: ALLOCATING AND VALUING RISK IN PRIVATELY FINANCED INFRASTRUCTURE PROJECTS*, 72 (2007).

62. Basu, *supra* note 7, at 147.

63. See, e.g., Reinhart, *supra* note 46 (discussing possibility for “mismatch between the currency denomination of bank loans and the currency denomination of profits and incomes of the borrowing sector”).

64. See, e.g., Basu, *supra* note 7 (discussing risks related to foreign-currency borrowings and domestic infrastructure revenues and the need to hedge against the resulting currency risk).

65. See, e.g., Rao, *supra* note 19, at 10.

66. See, e.g., Christa H.S. Bouwman, *Liquidity: How Banks Create It and How It Should Be Regulated*, in *OXFORD HANDBOOK OF BANKING* (Allen .N. Berger et al. eds., 2nd ed. 2015); see also Anil Kashyap, et al., *Banks as Liquidity Providers: An Explanation For the Coexistence of Lending*

increases, the risk increases that banks will become unable to back their loans with sufficient assets, for example because the amount of deposits that a bank holds decreases or the value of the assets that a bank holds falls.⁶⁷ Requiring banks to retain more assets or charge higher interest rates to borrowers may decrease the risk, but these rules increase the cost of credit.⁶⁸

In addition to financing long-term investments in a high-risk and expensive way,⁶⁹ a large volume of long-term lending by banks can increase the vulnerability of economies to corrections.⁷⁰ During periods of economic stress, depositors tend to withdraw their deposits from banks.⁷¹ As a result, banks may lose the assets to support their long-term loan commitments at a time when replacing the assets has become difficult.⁷² If depositors withdraw their deposits at once, banks may fail.⁷³ The failures may spread through the domestic economies of banks and into the economies of other countries in which the banks have conducted business.⁷⁴

Meanwhile, banks cannot perfectly distinguish the quality of potential borrowers, and this information asymmetry becomes important in the context of bank financing of infrastructure.⁷⁵ If banks charge high interest rates to compensate for the uncertainty, only lower-quality projects may seek funding from banks, leaving the banks with high-risk lending portfolios.⁷⁶

and Deposit-Taking 57 J. FIN 33, 34-35 (2004).

67. See, e.g., Strahan, *supra* note 53, at 6 (stating that limiting the size of a bank loan limits the maturity risk and that as the time horizon of the loan increases, the size of the loan increases and maturity risk increases).

68. FIN. STABILITY BD, FINANCIAL REGULATORY FACTORS AFFECTING THE AVAILABILITY OF LONG-TERM INVESTMENT FINANCE: REPORT TO G20 FINANCE MINISTERS AND CENTRAL BANK GOVERNORS, 4 (Feb. 8, 201).

69. See BANKRUPTCY LAW REFORM COMMITTEE, INTERIM REPORT, 34 (Feb. 2015), http://finmin.nic.in/reports/Interim_Report_BLRRC.pdf.

70. OECD, *supra* note 10, at 239.

71. See, e.g., Hirwa Amatus & Nasiri Alireza, *Financial Inclusion And Financial Stability in Sub-Saharan Africa (SSA)*, 36 INT'L J. SOC. SCI. 39, 45 (2015).

72. See, e.g., Viral V. Acharya & Nada Mora, *Are Banks Passive Liquidity Backstops? Deposit Rates and Flows during the 2007-2009 Crisis*, 3, 4, 10, (Nat. Bureau Econ. Res., Working Paper 17838, Feb. 2012) <http://www.nber.org/papers/w17838.pdf>.

73. This is commonly known as a bank run, see Bouwman, *supra* note 66 at 4.

74. See, e.g., George G. Kaufman, *Bank Contagion: Theory and Evidence*, 8-12 (Fed. Res. Bank of Chi., Working Paper WP-92-13, 1992).

75. See, e.g., Iris Claus & Arthur Grimes, Treasury of New Zealand, *Current theories of financial intermediation Asymmetric Information, Financial Intermediation and the Monetary Transmission Mechanism: A Critical Review*, 12 (New Zealand Treasury, Working Paper 03/19, Sept. 2003).

76. See *id.* ("The interest rate an individual is willing to pay may act as a screening device. Those who are willing to pay high interest rates may, on average, be worse risks. They are willing to borrow at high interest rates because they perceive their probability of repaying the loan to be low.")

To circumvent some of these problems, some banks have sold their loans as asset-backed securities,⁷⁷ but the recent global financial crisis revealed that new risks can flow from this practice.⁷⁸ The process of securitization has enabled banks to transform their loans into tradable notes.⁷⁹ The banks have sold their loan books to special-purpose vehicles (“SPVs”), which have pooled the loans and sold rights to the repayment streams of the loans to downstream investors.⁸⁰ The crisis, however, demonstrated in part the incentives the securitization process created for banks inadequately to screen and monitor borrowers, among other problems, and the ability of banks to spread risks and the difficulty of resolving instability in the banking sector.⁸¹ The paper discusses securitization more fully in Section IV.⁸²

Banks also have provided finance for infrastructure development in cooperation with other banks.⁸³ Lead investors have arranged consortia of banks that have provided loans secured by project assets and repaid from the revenues produced by the projects.⁸⁴ The distribution of the risk of the project among multiple lenders has reduced the cost of capital for the projects and allowed for greater leverage.⁸⁵ European banks, for example, extensively have employed joint financing techniques, and many European banks offered infrastructure finance in Latin America prior to the recent financial crisis.⁸⁶ The paper discusses this financing technique in greater detail in Section IV.⁸⁷

B. Bond Finance

When an economy has established the safeguards necessary for managing a local bond market, bond finance of infrastructure may contribute to a lower cost of capital⁸⁸ and lower level of economic risk than bank finance.⁸⁹ Robust local-currency bond markets insulate economies from bad events that may occur in the banking sector and shift currency risks to foreign investors.⁹⁰ Domestic bond

77. Croce & Gatti, *supra* note 54, at 131.

78. See, e.g., Steven L. Schwarcz, *The Conundrum of Covered Bonds*, 66 *BUS. LAW.* 561, 574 (2011).

79. Croce & Gatti, *supra* note 54, at 131.

80. See *id.*

81. See Schwarcz, *supra* note 78.

82. See Section IV.A.2.

83. See, e.g., BRUCE COMER, PROJECT FINANCE TEACHING NOTE, 4 (1996), <http://finance.wharton.upenn.edu/~bodnarg/ml/projfinance.pdf>.

84. See *id.* at 2.

85. See *id.*

86. See, e.g., GUSTAVO HERNÁNDEZ & TONI SANDELL, AID FOR A GREEN DEVELOPMENT: THE LATIN AMERICAN INVESTMENT FACILITY (LAIF) ON THE MAKING, 3 (March 2013), http://actalliance.eu/wp-content/uploads/2016/04/LAIF-on-the-making_march.pdf.

87. See Section IV.A.1.

88. See, e.g., Dobbs et al., *supra* note 22, at 56.

89. See, e.g., WORLD BANK, *supra* note 7, at 29–30.

90. INT’L MONETARY FUND, LOCAL CURRENCY BOND MARKETS – A DIAGNOSTIC FRAMEWORK 6 (July 9, 2013), <http://www.imf.org/external/np/pp/eng/2013/070913.pdf>; GORMLEY,

markets also match long-term assets to long-term investments in infrastructure, which eliminates the maturity risk endemic to bank loans.⁹¹

A bond market introduces complexities not present in plain bank lending. Each bond represents a promise from its issuer to repay the investors in the bond, plus interest, by a specific date.⁹² The original investors may trade their rights to repayment to downstream investors, spreading the risk of nonpayment to a larger number of secondary investors.⁹³ Whereas banks assume credit risk from their depositors, who provide the assets that the banks lend to borrowers, and manage the risk of the loans by monitoring the borrowers,⁹⁴ numerous investors in the bonds of an issuer accept the risk that the issuer will default in exchange for interest payments.⁹⁵ The investors in the bonds may have no direct relationship with the original issuer, which can make bonds more difficult to restructure than bank loans.⁹⁶

Nevertheless, the development of a domestic bond market diversifies the types of finance available in an economy, which in many cases increases economic stability in the economy while also satisfying a broader range of investment needs.⁹⁷ Because the bond market may have the ability to continue operating even when banks fail, reducing the dependence of the economy on banks helps to insulate the economy from financial stresses in the banking sector.⁹⁸ Mexico and several countries in Asia, for example, maintained economic stability during the recent financial crisis because impairments to other financing channels did not affect their domestic bond markets.⁹⁹ Several emerging economies including Argentina, Brazil, Russia, and Turkey, however, have succumbed to earlier financial crises, and their domestic bond markets seemed to spread financial contagion rather than limit contagion.¹⁰⁰

ET AL., *supra* note 45; *see also* GROUP OF THIRTY, *supra* note 2, at 20.

91. *See, e.g.*, ORG. FOR ECON. CO-OPERATION AND DEV., *BOND MARKET DEVELOPMENT IN ASIA* 239 (2001).

92. *See, e.g.*, Alan Deardorff, *Univ. of Michigan Econ. 102 Bond Price Handout 1* (Jan. 27, 2002), <http://www-personal.umich.edu/~alandear/courses/102/handouts/BondPrices.pdf>.

93. *See, e.g.*, Rohini Tendulkar & Gigi Hancock, *Corporate Bond Markets: A Global Perspective, Volume 1* 41-46 (Int'l Org. of Sec. Comm'ns, Working Paper No. 4, Apr. 2014).

94. *See id.*

95. *See, e.g.*, SEC. AND EXCH. COMM'N., *WHAT ARE CORPORATE BONDS?* (June 2013), http://www.sec.gov/investor/alerts/ib_corporatebonds.pdf.

96. *See, e.g.*, Pipat Luengnaruemitchai & Li Lian Ong, *An Anatomy of Corporate Bond Markets: Growing Pains and Knowledge Gains*, Int'l Monetary Fund Working Paper WP/05/152, at 9 (2005).

97. *See* Deardorff, *supra* note 92; GROUP OF THIRTY, *supra* note 2, at 20.

98. Guorong Jiang et al., *The Costs and Benefits of Developing Debt Markets: Hong Kong's Experience*, 105 (Bank of Int'l Settlements, Working Paper No. 11, 2001) (observing that studies have indicated that the ability of the bond market to fulfill such a "spare tire" role may depend on variables including a lack of co-movement between bank lending, and bond and equity finance in the domestic setting, and the absence of contagion in the international capital markets).

99. *See* Deardorff, *supra* note 92.

100. Philip Turner, *Weathering Financial Crisis: Domestic Bond Markets in EMEs*, 17 (Bank of Int'l Settlements, Working Paper No. 63, 2012).

In many instances, a domestic bond market may eliminate the need for external borrowing, which also contributes to increased economic stability.¹⁰¹ External borrowing introduces exposures to foreign exchange risk¹⁰² and risks related to contagion.¹⁰³ A domestic bond market, by contrast, can intermediate local investments in local currency,¹⁰⁴ and sudden changes in foreign exchange rates or reversals in foreign capital flows will not directly affect the domestic bond market.¹⁰⁵ During the recent financial crisis, for example, bond markets in Mexico and several Asian countries contributed to the economic stability of the countries by reducing their reliance on external borrowing in foreign currency.¹⁰⁶ By contrast, other countries without developed bond markets including Hungary, Romania, Estonia, Latvia, and Lithuania remained reliant on foreign currencies and fared poorly during the recent crisis.¹⁰⁷ The development of a robust domestic bond market, however, has not prevented contagion through other channels.¹⁰⁸ In some economies, codependence between the banking system and capital markets amplified shocks during the recent crisis,¹⁰⁹ and inter-linkages among economies spread the shocks globally.¹¹⁰ In addition, the development of domestic bond markets may occur in conjunction with increasing integration with other economies,¹¹¹ which also can increase vulnerabilities to fluctuations in exchange rates¹¹² and reversals in the flow of foreign capital.¹¹³

101. Galina Hale, *Bonds or Loans? On the Choice of International Debt Instrument by Emerging Market Borrowers* 3 (Nov. 14, 2001), <http://www.econ.yale.edu/~gh79/jmp.pdf>.

102. See, e.g., HARINDER KOHLI ET AL., CHOICES FOR EFFICIENT PRIVATE PROVISION OF INFRASTRUCTURE IN EAST ASIA 97 (1997); GEORG INDERST & FIONA STEWART, INSTITUTIONAL INVESTMENT IN INFRASTRUCTURE IN EMERGING MARKETS AND DEVELOPING ECONOMIES 16 (2014).

103. See, e.g., *Financial Contagion in the Era of Globalized Banking?* (Org. for Econ. Co-Operation and Dev. Econ. Dep't, Policy Note No. 14, Paris), Jun. 2012, at 3 (stating that “[i]nternational financial integration is commonly seen as increasing economic efficiency and growth, but it may also increase countries’ vulnerability to contagion. Not surprisingly, the more banks lend to each other through cross-border loans, the higher the risk of contagion.”).

104. Dilip K. Das, *Evolving Domestic Bond Markets and Financial Deepening in Asia*, 14 GLOB. ECON. J. 89, 92 (2014).

105. See, e.g., WORLD BANK, FINANCING FOR DEVELOPMENT POST-2015, at 29-30 (2013), <http://www.imf.org/external/np/pp/eng/2013/070913.pdf>.

106. See, e.g., Deardoff, *supra* note 92.

107. Turner, *supra* note 100, at 16.

108. Including real sector linkages such as similar macroeconomic fundamentals and trade flows.

109. See, e.g., M. S. Mohanty & Philip Turner, *Banks and Financial Intermediation in Emerging Asia*, BANK OF INT’L SETTLEMENTS, WORKING PAPER NO. 313, 10(2012).

110. See, e.g., Jiang et al., *supra* note 98, at 106.

111. See, e.g., Carmen Reinhart & Kenneth Rogoff, *Serial Default and Its Remedies*, MPRA PAPER NO. 7423, 5 (2005).

112. See, e.g., James R. Lothian, *Capital Market Integration and Exchange-Rate Regimes in Historical Perspective*, 1 RESEARCH IN BANKING AND FIN. 139, 139-40 (2000).

113. See, e.g., UNTT WORKING GROUP ON SUSTAINABLE DEVELOPMENT FINANCING, CHAPTER 3: CHALLENGES IN RAISING PRIVATE SECTOR RESOURCES FOR FINANCING SUSTAINABLE DEVELOPMENT 21 (2016).

With sufficient legal safeguards, however, a domestic bond market can offer more suitable finance for long-term investments than banks can provide.¹¹⁴ Unlike banks, which must transform their short-term deposits into more long-term loans, bond finance does not entail a maturity transformation.¹¹⁵ Investors in bonds enter contracts for a specific period of time.¹¹⁶ Whereas banks, moreover, lose the assets that have supported the loans they have extended if the amount and value of their deposits fall, investors in bonds have committed their capital for the duration of the contract and use the interest rates that they charge to manage the risk of nonpayment.¹¹⁷

In particular, the long-term nature of a bond market can offer finance for infrastructure development at a lower cost and fewer risks. Because infrastructure projects typically have a large scale, large up-front capital requirements, a long initial period without returns, and extended payback periods, infrastructure projects demand long-term finance.¹¹⁸ A domestic bond market can deploy capital to infrastructure development better than banks can by providing long-term finance supported by long-term capital, when sufficient legal protections have developed.¹¹⁹

Many emerging economies have established government bond markets with minimal default risk but have failed to develop corporate bond markets.¹²⁰ Governments generally enjoy inexpensive access to lending markets,¹²¹ since investors often perceive the power of governments to tax citizens and impose losses on them as eliminating the risk of default.¹²² By contrast, investors rely on

114. See, e.g., Kohli et al., *supra* note 102; see also Jonathan Batten & Peter Szilagyi, *Developing Foreign Bond Markets: The Arirang Bond Experience in Korea*, INST. FOR INT'L INTEGRATION STUDIES, DISCUSSION PAPER NO. 138, 4 (2006).

115. See, e.g., Philip Lowe, *The Transformation in Maturity Transformation*, Address at Thomson Reuters' Third Australian Regulatory Summit (May 27, 2015); see also MAHMOOD PRADHAN, ET AL., *ASEAN BOND MARKET DEVELOPMENT: WHERE DOES IT STAND? WHERE IS IT GOING?* 4 (2011).

116. BANKR. LAW REFORM COMM., INTERIM REPORT 34 (Feb. 2015).

117. See *id.*

118. UNTT WORKING GROUP, *supra* note 113, at 21.

119. See, e.g., John D. Burger et al., *Bond Market Development in Developing Asia*, ASIAN DEV. BANK, WORKING PAPER SERIES NO. 448, at 239 (2015).

120. See, e.g., Clemente del Valle, *Developing Bond Markets: A Comprehensive View* 9 (unpublished manuscript), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.200.9896&rep=rep1&type=pdf>. On ease of government debt issuance, see, for example, Jorge Castellanos, *Developing Government Bond Markets*, INT'L MONETARY FUND, WORKING PAPER NO. IFM-111, 4 (1998) (observing that in fact, in India, the government bond market may have crowded out the corporate bond market); MONTEK S. AHLUWALIA, FINANCING PRIVATE INFRASTRUCTURE 14 (1997), planningcommission.gov.in/aboutus/speech/spemsa/msa009.doc; TIMOTHY C. IRWIN, WORLD BANK, *GOVERNMENT GUARANTEES: ALLOCATING AND VALUING RISK IN PRIVATELY FINANCED INFRASTRUCTURE PROJECTS* (2007).

121. See, e.g., U.S. Agency for Int'l Dev. *Developing Government Bond Markets* FS SERIES NO. 12 (2010), http://www.csdrrms.org/uploads/public/documents/publications/FS%20Series%2012%20-%20Government%20Bonds_Final.pdf.

122. See, e.g., del Valle, *supra* note 120, at 9.

a complicated legal infrastructure to gain the ability to estimate the probability that corporate bond issuers will default and, if they do, the amount of recoveries they might receive from the liquidation or sale of the issuers.¹²³ The capacity of investors to predict and manage risk depends on strong disclosure requirements; credible accounting and auditing practices; reliable, independent rating agencies; clear laws setting out the rights of bondholders in the event of default; a strong enforcement mechanism for such rights, and an efficient judiciary to oversee the enforcement of creditor rights.¹²⁴ Among the countries that successfully have utilized a domestic bond market to support long-term investments in infrastructure, Chile, for example, has financed local road projects with long-term bonds of an average maturity of twenty-one years.¹²⁵ The road projects avoided the expense, capital shortfalls, and maturity transformation risks that reliance on bank finance might have introduced.¹²⁶

II.

THE INFRASTRUCTURE GAP

Many emerging economies urgently require investment in infrastructure.¹²⁷ Quality of life depends on sufficient infrastructure, and infrastructure also can generate economic growth.¹²⁸ India, for example, faces an acute need for investment in infrastructure.¹²⁹ The country, however, has relied on banks for financing infrastructure, and, though the Indian government has prioritized reducing the infrastructure gap, banks have not had the capacity to fund the infrastructure that India needs.¹³⁰ India requires new tools for meeting the challenge of financing the substantial deficits in infrastructure that have persisted in India.

A. Infrastructure and Economic Development

Facilitating investments in infrastructure can help to meet the needs of citizens and expand the productive capacity of an economy.¹³¹ Without sufficient infrastructure, living conditions suffer and economic development may slow.¹³²

123. *See id.*

124. *See, e.g.*, U.S. Agency for Int'l Dev., *supra* note 125.

125. James P. Walsh et al., *Financing Infrastructure in India*, INT'L MONETARY FUND, WORKING PAPER NO. 181, 18 (2011).

126. *See id.*

127. *See, e.g.*, NUNEZ & WEI, *supra* note 1, at 2.

128. GROUP OF THIRTY, *supra* note 2, at 20.

129. PwC, *The Opportunity and Challenge of India's Infrastructure*, GRIDLINES, Summer 2013, at 1.

130. *See, e.g.*, Rao, *supra* note 19, at 10.

131. Group of Thirty, *supra* note 2, at 20.

132. *See, e.g.*, UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, NEEDS AND OPPORTUNITIES FOR PRIVATE FINANCING OF INFRASTRUCTURE PROJECTS IN AFRICA – A CONCEPT FOR INTERNATIONAL PARTNERSHIP 2 (2001),

Infrastructure supports services essential to a basic quality of life.¹³³ Infrastructure lies behind the provision of health, education, heating, lighting, transportation, and communication, among other services.¹³⁴ Disease prevention, for example, depends on clean water and sanitation.¹³⁵ Individual welfare depends on easy mobility¹³⁶ and the ability to communicate over distances.¹³⁷ Hospitals and new housing units offer vital services and improve living conditions.¹³⁸

Investing in infrastructure also can contribute to economic development.¹³⁹ The World Bank has estimated that an increase in infrastructure investments of ten percent would result in an increase in GDP of one percent.¹⁴⁰ Roads, bridges, and ports, for example, reduce transportation and logistics expenses, which decreases the cost of trade.¹⁴¹ When workers can travel easily to potential jobs, employment levels rise.¹⁴² Access to rural roads also can ameliorate health outcomes such as maternal mortality rates,¹⁴³ and the availability of advanced machinery and well-equipped factories can bolster production.¹⁴⁴ In India, for example, the development of railroad services has increased trade.¹⁴⁵

Conversely, unmet infrastructure needs pose an obstacle to development.¹⁴⁶ One economic study has indicated that if any country in Africa had access to the infrastructure of Mauritius, the GDP of that country would grow by an additional 2.2 percent per year.¹⁴⁷ In many countries, the absence of power, telecommunications, transportation, and access to water has made industrial production more costly.¹⁴⁸

<http://www.unido.org/fileadmin/import/userfiles/timminsk/ecosocneedsandoppsprivatefinance.pdf>.

133. *Id.*

134. Dieter Helm, *Infrastructure and Infrastructure Finance: The Role of the Government and the Private Sector in the Current World*, 15 Eur. Inv. Bank Papers 2, at 12 (2010).

135. *See, e.g.*, United Nations Industrial Development Organization, *supra* note 132, at 2.

136. *See, e.g.*, Georg Inderst & Fiona Stewart, *Institutional Investment in Infrastructure in Emerging Markets and Developing Economies*, WORLD BANK GROUP PUBLIC-PRIVATE INFRASTRUCTURE ADVISORY FACILITY 14 (2014),

137. *See, e.g.*, United Nations Industrial Development Organization, *supra* note 132, at 2.

138. *See, e.g.*, Helm, *supra* note 134, at 12.

139. *See, e.g.*, Walsh et al., *supra* note 125.

140. *See, e.g.*, Frank Beckers & Uwe Stegemann, *A Risk Management Approach to a Successful Infrastructure Project*, MCKINSEY WORKING PAPERS ON RISK, NO. 52, at 1 (2013).

141. *See, e.g.*, GROUP OF THIRTY, *supra* note 2, at 20.

142. *See* Beckers & Stegemann, *supra* note 140, at 2.

143. *See, e.g.*, Hubert Strauss et al., *Public and private financing of infrastructure: Policy challenges in mobilizing finance*, 15 EUROPEAN INVESTMENT BANK PAPERS 12 (2010) (speaking of death because of lack of transport to hospitals).

144. *See, e.g.*, GROUP OF THIRTY, *supra* note 2, at 20 (listing machinery and factories as important infrastructure assets).

145. *See* Walsh et al., *supra* note 125.

146. *See* Beckers & Stegemann, *supra* note 140, at 1.

147. *Id.*

148. *See, e.g.*, United Nations Industrial Development Organization, *supra* note 132, at 2.

B. Indian Infrastructure Needs

The World Economic Forum has estimated a global gap in infrastructure finance of \$1 trillion per year,¹⁴⁹ and in India the need for infrastructure development has become acute (Figures 1, 2, 3). A long period of underinvestment has left India with deficits in power, water, housing, rail, roads, ports, airports, and telecommunications relative to its growing population.¹⁵⁰ The Global Competitiveness Report of the World Economic Forum for 2014-15 ranked India 90th out of 144 countries on infrastructure.¹⁵¹

Figure 1: Annual Infrastructure and Investment Needs¹⁵²

Region	Investment and Maintenance Needs (2005 constant \$US, billions)	% projected 2010-20 GDP
East Asia and the Pacific ^a	406.7	5.5
Central Asia ^b	12.5	5.2
Europe	—	—
Latin America and the Caribbean ^b	81.2	2.6
Middle East and North Africa ^c	78.5	9.2
South Asia ^a	191.2	10.8
Sub-Saharan Africa ^d	93.3	9.8
Weighted average	—	6.1

Sources: Various sources as described in notes.
 Note: — = not available.
 a. Source: Bhattacharyay, Biswa, and Nath 2010. "Estimating Demand for Infrastructure in Energy, Transport, Telecommunications, Water and Sanitation in Asia and the Pacific: 2010–2020." Asian Development Bank Institute Working Paper No. 248. East Asia and the Pacific includes three original regions: East Asia, Southeast Asia, and the Pacific. Afghanistan and Pakistan are included in South Asia instead of Central Asia. The needs are estimated for the 2010–20 period.
 b. Source: Fay and Morrison 2007. "Infrastructure in Latin America and the Caribbean: Recent Developments and Key Challenges." The needs are estimated for the 2005–15. The model assumes 2.7 percent real growth.

149. See Beckers & Stegemann, *supra* note 140, at 3.

150. See PwC, *supra* note 129, at 1.

151. Klaus Schwab et al., *Global Economic Competitiveness Report, 2014–2015*, WORLD ECON. FORUM 213 (2014).

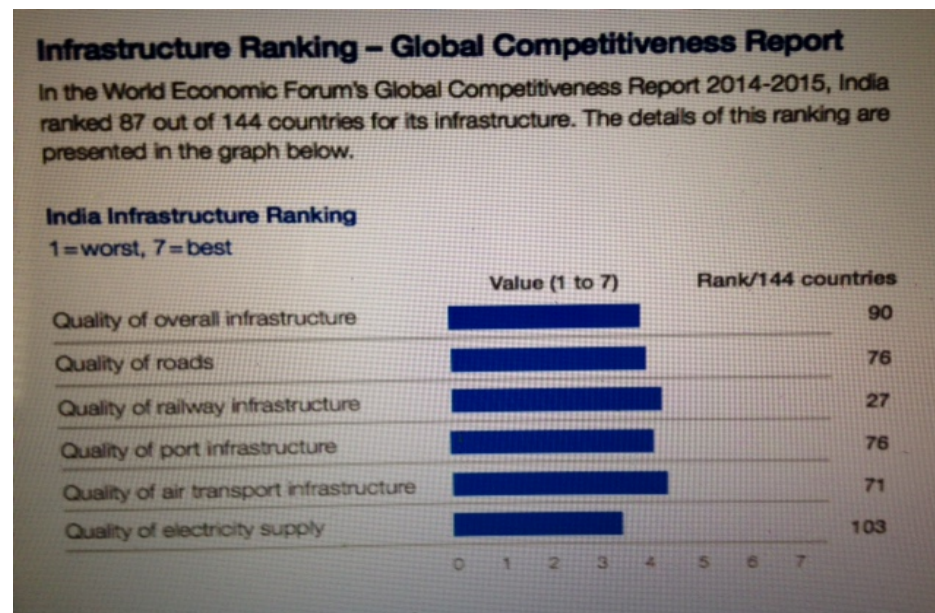
152. G20 DEVELOPMENT WORKING GROUP, INFRASTRUCTURE NEEDS ASSESSMENT 7 (2011), <http://www.g20dwg.org/documents/pdf/view/11/>.

Figure 2: Basic Infrastructure Access by Region¹⁵³

Table A.1: Basic Infrastructure Access by Region

Region	Population without electricity (millions)	% total population	Population without improved water (millions)	% total population	Rural population without access (millions)	% rural population
East Asia and the Pacific	186	9.2	237	11.9	57	5.6
Europe and Central Asia	3	0.2	18	5.1	29	25.1
Latin America and the Caribbean	31	6.6	38	6.5	24	46.1
Middle East and North Africa	24	5.9	107	28.8	26	66.2
South Asia	612	37.8	149	9.3	410	41.7
Sub-Saharan Africa	585	69.5	330	40.2	238	69.5

Sources: IEA World Energy Outlook 2010; Roberts, Shyam, and Rastogi 2006 "Rural Access Index"; WHO and UNICEF Progress on Sanitation and Drinking-Water 2010.

Figure 3: India Infrastructure Ranking¹⁵⁴153. *Id.* at 15.154. INFRASTRUCTURE INVESTMENT POLICY BLUEPRINT: COUNTRY PERFORMANCE ASSESSMENT 10 (World Economic Forum, Jan. 2015), http://www3.weforum.org/docs/WEF_Infrastructure_Investment_Policy_Blueprint.pdf.

The Indian population has surpassed 1.2 billion and continues to grow,¹⁵⁵ but infrastructure in India already fails to meet the needs of its people. The peak power deficit in India, for example, remains roughly ten percent.¹⁵⁶ According to the multinational management consulting firm McKinsey, India must also double its water generation capacity by the year 2030.¹⁵⁷ The multinational auditing and advisory firm KPMG has found that nearly one-fifth of Indian households have limited access to housing and that India would need to build 30,000,35,000 units of housing per day for the next eight years to meet the demand.¹⁵⁸

The urgency of upgrading infrastructure in India appears especially critical in its cities. India's urban population of roughly 375 million is projected to reach 500 million by 2017.¹⁵⁹ By 2030, sixty-eight Indian cities likely will have more than one million residents.¹⁶⁰

Since liberalizing its economy during the 1990s,¹⁶¹ rapid industrialization in India¹⁶² has intensified the strain on infrastructure.¹⁶³ Foreign trade, for example, has more than doubled in India over the last decade,¹⁶⁴ but the country lacks the logistics infrastructure to support the growth.¹⁶⁵ Because the Indian railway system does not have sufficient freight capacity, for example, most freight is transported by road, where traffic reduces highway speeds to roughly thirty-five kilometers per hour.¹⁶⁶

155. See, e.g., *World Population Prospects: The 2015 Revision, Key Findings and Advance Tables* 1, 4 (United Nations Department of Economic and Social Affairs Population Division, ESA/P/WP.241, 2015).

156. See, e.g., Charles K. Ebinger, *India's Energy Policy and Electricity Production*, BROOKINGS INSTITUTE (2011) (discussing 2010); *Energy in India: The Future is Black*, ECONOMIST, Jan. 21, 2012 (discussing 2012).

157. Gardiner Harris, *Rains or Not, India Is Falling Short on Drinkable Water*, N.Y. TIMES (Mar. 12, 2013), <http://www.nytimes.com/2013/03/13/world/asia/rains-or-not-india-is-falling-short-on-drinkable-water.html>.

158. FUNDING THE FUTURE – HOUSING FOR ALL BY 2020, at 22 (KPMG, 2014).

159. See PwC, *supra* note 133, at 1.

160. *Id.*

161. See, e.g., ASIA DEV. BANKS, INDIA: EQUITY INVESTMENT IN AND LOAN TO INFRASTRUCTURE DEVELOPMENT FINANCE COMPANY, at iii (Asia Development Bank, Sept. 2014).

162. See, e.g., Krishna Chaitanya, *Rapid Economic Growth and Industrialization In India, China & Brazil: At What Cost?* 3–4 (William Davidson Institute Working Paper Number 897, Oct. 2007).

163. See, e.g., ASIA DEV. BANKS, *supra* note 161, at iii.

164. See, e.g., Françoise Lemoine & Deniz Ünal-Kesenci, *China and India in international trade: from laggards to leaders?* Fig. 3 (CEPII, Working Paper No 2007-19, Nov. 2007).

165. See, e.g., INDIAN LOGISTICS: FOCUS ON INFRASTRUCTURE CREATION TO SUSTAIN AND DRIVE GROWTH 6, (Deloitte, Feb. 2014), https://www2.deloitte.com/content/dam/Deloitte/in/Documents/IMO/in-imo-indian_logistics_focus_on_infrastructure-noexp.pdf.

166. See, e.g., Arvind Kumar, *Freight Logistics & Intermodal Transport: Implications for Competitiveness* (Institute for Studies in Industrial Development, Working Paper 175, Dec. 2014).

C. Finance Landscape in India

Currently, banks finance most infrastructure investments in India,¹⁶⁷ with some supplemental public finance.¹⁶⁸ Bank lending has not provided enough capital¹⁶⁹ at a low cost,¹⁷⁰ and the lending has created risks related to the use of short-term loans to finance long-term projects.¹⁷¹ Regulators have restricted the concentration of infrastructure loans on bank balance sheets, and most banks have reached the ceilings.¹⁷² Meanwhile, the government has lacked the capacity to fill the remaining shortfalls, and the domestic bond market in India has not developed.¹⁷³

The legacy of the controlled economy that India adopted after independence from Britain has continued to influence the Indian financial market.¹⁷⁴ Upon independence, India created development financial institutions (“DFIs”) to provide long-term finance to industrial projects, stimulating domestic industry and reducing dependence on foreign imports.¹⁷⁵ The central bank and the government provided the DFIs with access to low-cost funds, so that the DFIs could provide inexpensive long-term finance,¹⁷⁶ and barred commercial banks from extending large, long-term loans to industry.¹⁷⁷

The Indian central bank and Indian government developed the DFIs into the primary source of long-term investment.¹⁷⁸ Until recently, the central bank fixed the interest rates in the economy,¹⁷⁹ setting them so that the DFIs could charge

167. Walsh et al., *supra* note 125, at 30; OECD, *supra* note 10.

168. Pronab Sen et al., *Developing the Indian Debt Capital Markets: Small Investor Perspectives* 5–6 (Perspective Planning Division, Planning Commission, Government of India, Jul. 2003).

169. See, e.g., Shubhomoy Roy, *Infrastructure Finance and Financial Sector Development* 7 (ADBI Working Paper Series No. 522, Mar. 2015), <http://www.adb.org/sites/default/files/publication/159842/adbi-wp522.pdf>.

170. Jacqueline Irving & Astrid Manroth, *Local Sources of Financing for Infrastructure in Africa* 51 (World Bank Policy Research Working Paper 4878, Mar. 2009) (noting that bank finance generally is expensive).

171. TORSTEN EHLERS ET AL., *INFRASTRUCTURE AND CORPORATE BOND MARKETS IN ASIA* 67 (2014), <http://www.rba.gov.au/publications/confs/2014/pdf/ehlers-packer-remolona.pdf>.

172. See, e.g., Walsh et al., *supra* note 125, at 30.

173. See, e.g., Asia Development Banks, *supra* note 161, at 14, 18.

174. James W. Fox et al., *Developing the Capital Market in Asia* 3 (US Agency for Int’l Dev., Apr. 1999), http://pdf.usaid.gov/pdf_docs/PNACA922.pdf.

175. See, e.g., SUBHASH CHANDRA DAS, *THE FINANCIAL SYSTEM IN INDIA: MARKETS, INSTRUMENTS, INSTITUTIONS, SERVICES AND REGULATIONS* 538–39 (2015).

176. Abdul Naser, *Changing Role of Development Financial Institutions in Indian Financial Sector*, 3 INT’L J. MGM’T RESEARCH & REV. 2658, 2661 (2013); R. H. Patil, *Broadbasing and Deepening the Bond Market in India* 2 (The Wharton Financial Institutions Center, Working Paper No. 01-32, 2001), <http://fic.wharton.upenn.edu/fic/papers/01/0132.pdf>.

177. See, e.g., Patil, *supra* note 176, at 1.

178. *Id.* at 1-2.

179. See, e.g., DAS, *supra* note 175, at 541.

lower interest rates than commercial banks and the nascent bond market.¹⁸⁰ As a result, industrial firms relied on the DFIs for finance and the corporate bond market in India did not grow.¹⁸¹

As the Indian economy liberalized, however, competition increased and the DFIs receded.¹⁸² Banks gained access to cheaper funds and more deposits, and they became able to offer less expensive finance.¹⁸³ A more liberal import policy subjected industrial firms to global competition, and many of the firms that the DFIs had funded defaulted on their loans. In response to the defaults, the DFIs restricted lending.¹⁸⁴

Eventually, banks overtook the DFIs to become the primary source of finance in India,¹⁸⁵ but recent defaults on bank loans have made banks less willing to finance long-term projects.¹⁸⁶ Between 2007 and 2013, for example, Indian banks lent roughly \$153 billion to develop infrastructure projects including improvements to roads, ports, power, telecoms, and railways.¹⁸⁷ Many of the borrowers, however, have defaulted,¹⁸⁸ and according to the Indian central bank,

180. See, e.g., Patil, *supra* note 176, at 1.

181. *Id.* at 2.

182. See Sen et al., *supra* note 168, at 7.

183. See, e.g., Sanjana Juneja, *Evaluation of Various Government Policies in Strengthening the Secondary Money Market and Debt Market*, 5 INT'L RESEARCH J. MGM'T SOC. & HUM. 712 (2014).

184. Patil, *supra* note 176, at 2.

185. Sen, *supra* note 168, at 19.

186. In 2010, India introduced a new category of financial institution, infrastructure finance companies, and gave them more access to borrowing in order to increase the flow of capital to infrastructure. The 2015 budget proposed to improve the access of the infrastructure finance companies to capital by raising their credit rating through investments from a newly-created National Investment in Infrastructure Fund. The National Investment in Infrastructure Fund, however, has failed to attract sufficient funding.

India has approached government partnerships with caution because of concerns over national security and the risks attending external capital flows, although Prime Minister Modi has increasingly courted investment from foreign government. While India has refused past offers of Chinese investment to protect its national security, last year China invested in Indian rail infrastructure and the development of industrial parks. Japan has financed transportation initiatives, and the U.S. has invested in the development of "smart cities," which use technology in the delivery of municipal services.

Other external investment carries similar risks and has failed to attract foreign lenders. Between 2007 and 2012, the private sector invested \$225 billion in Indian infrastructure, but many of the projects have failed. In 2013, for example, the London-based private equity, infrastructure, and debt management firm 3i, which had the world's largest India-dedicated infrastructure fund, exited all of its portfolio companies in the country after its investments did not generate adequate returns.

187. This period constitutes India's "Eleventh Plan Period," in which banks provide half the lending to Indian infrastructure. See, e.g., Arvind Kumar, *Infrastructure Investment: A Trillion Dollar Question* 5-6 (CIRC, Working Paper No. 06, 2013), http://circ.in/pdf/Infrastructure_Investment_A_Trillion_Dollar_Question.pdf.

188. See, e.g., Amy Kazmin & Simon Mundy, *India's banks face up to corporate debt problems*, FINANCIAL TIMES (Apr. 20, 2016), <https://www.ft.com/content/67409efa-02ca-11e6-9cc4-27926f2b110c>; see also Victor Mallet & James Crabtree, *Bad loans spiral in India's 'broken' banking system*, FINANCIAL TIMES (Oct. 8, 2015), <https://www.ft.com/content/23890fb4-6d77-11e5-aca9-d87542bf8673>.

Indian banks have restructured \$22 billion of infrastructure loans.¹⁸⁹ The 2010-2014 Financial Stability Reports published by the Indian central bank have documented consistent declines in the growth of credit from banks.¹⁹⁰

The Indian government has offered supplementary public finance,¹⁹¹ but the infrastructure needs of the country have exceeded the capacity of the government to fund them. The 2015 national budget, for example, delayed deficit reductions to allocate an additional \$11 billion to infrastructure projects including roads, railways, and ports and doubled spending on transportation.¹⁹² The budget prioritized the construction of an elevated rail corridor in Mumbai, three airports, two ports, and almost 6,000 miles of new roads.¹⁹³ The Indian Planning Commission, however, has estimated that the country needs 180 additional airports over the next ten years, and the Ministry of Road Transport has called for additional road-widening projects and improvements at ports.¹⁹⁴ The government also has identified shortfalls in power generation from coal and gas that wind, solar, and other energy development projects could help to ameliorate.¹⁹⁵

The long-term bond market in India, meanwhile, has not contributed significantly to infrastructure funding.¹⁹⁶ Few smaller investors have participated in the bond market, and daily trading volumes have remained minimal.¹⁹⁷ The bond market has not developed to the levels that other bond markets in Asian economies such as China, Korea, and Malaysia have attained (Figure 4).¹⁹⁸ In India, bank loans represent approximately thirty-six percent of GDP, while corporate bonds represent only about four percent of GDP.¹⁹⁹ By contrast, corporate bonds represent forty-nine percent of GDP in South Korea.²⁰⁰

189. See, e.g., *Infrastructure Issues Loom Over Modi's Dream*, TODAY ONLINE (Jul 31, 2014), <http://www.todayonline.com/chinaindia/india/infrastructure-issues-loom-over-modis-dream>.

190. BANKR. LAW REFORM COMM., INTERIM REPORT 35 (Feb. 2015).

191. See, e.g., Deloitte, *supra* note 165, at 7.

192. Anant Vijay Kala & Rajesh Joy, *India's Budget Focuses on Infrastructure*, WALL STREET J. (Feb. 28, 2015), <http://www.wsj.com/articles/india-budget-focuses-on-infrastructure-1425111915>.

193. Mukesh Jagota & Anant Vijay Kala, *India's PM Unveils Infrastructure Investment Plan*, WALL STREET J. (June 6, 2012), <http://online.wsj.com/article/SB10001424052702303665904577450692014546230.html>.

194. PwC, *supra* note 129, at 2.

195. *Id.*

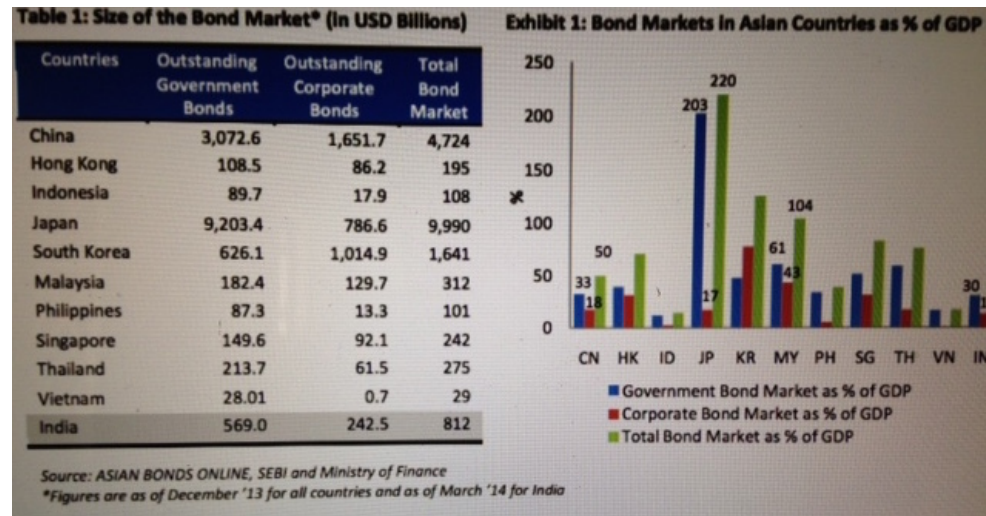
196. See, e.g., Asia Development Banks, *supra* note 161, at 18.

197. Sen et al., *supra* note 168, at 4, 12; Juneja, *supra* note 183, at 722.

198. Asian Development Bank, *supra* note 161, at 14.

199. Rajeswari Sengupta & Vaibhav Anand, *Indian Corporate Debt Market: Current Status* (IFMR Trust, Aug. 8, 2012), <http://www.ifmr.co.in/blog/2012/08/08/indian-corporate-debt-market-current-status/>.

200. *Id.*

Figure 4: Comparison of Asian Bond Markets²⁰¹

III.

CASE STUDIES ON RISK AND THE ROLE OF LAW IN THE BOND MARKET

The experience of the recent crisis has underscored the need for developing economies to develop domestic financing sources, in order to fund infrastructure projects while insulating their economies from shocks in more developed economies, but domestic bond markets require legal backstops to protect economies from the instability that bond markets can introduce.²⁰² Bank finance has grown less available due to losses at American and European banks during the recent crisis and regulatory reforms in response to the crisis.²⁰³ In addition, the dependence of other economies on foreign lending spread the crisis to additional countries.²⁰⁴ While long-term bond markets would offer a new and potentially less expensive source of finance for infrastructure,²⁰⁵ that also could

201. See CARE RATINGS, INDIAN BOND MARKET: STRIKING A CHORD WITH ASIAN PEERS, 2 (June 10, 2014), <http://www.careratings.com/upload/NewsFiles/Studies/Indian%20Bond%20Market-%20Striking%20a%20Chord%20with%20Asian%20Peers.pdf>.

202. See Batten & Szilagyi, *supra* note 114, at 4.

203. See Inderst & Stewart, *supra* note 136, at 4; *Infrastructure financing: A long and winding road*, ECONOMIST (Mar. 22, 2014), <http://www.economist.com/news/finance-and-economics/21599394-world-needs-more-infrastructure-how-will-it-pay-it-long-and-winding>.

204. For an analysis of this issue, See, e.g., ALLEN N. BERGER, TANAKORN MAKAEW, & RIMA TURK-ARISS, HOW DID FOREIGN BANK LENDING CHANGE DURING THE RECENT FINANCIAL CRISIS? EVIDENCE FROM A VERY COMPREHENSIVE DATASET, 1 (Dec. 2015), <http://moore.sc.edu/UserFiles/moore/Documents/Finance/Berger/BergerMakaewTurkAriss-ForeignBankLending.pdf>.

205. See Achille, *supra* note 44, at 11.

withstand disruptions in the banking sector,²⁰⁶ bond markets present risks that legal systems must have the capacity to contain.²⁰⁷ This section sets out three case studies that illustrate risks from fostering a long-term bond market and the necessity of a robust legal infrastructure to manage the risks. In Korea, the government sought to develop a domestic bond market, but investors expected the government to bail out firms including the Korean conglomerate firm Daewoo if they defaulted.²⁰⁸ The investors priced the bonds accordingly, but the government allowed Daewoo and other firms to go bankrupt.²⁰⁹ The investors consequently lost confidence in market prices, and the bond market collapsed.²¹⁰ In Dubai, the domestic investment firm Dubai World defaulted on its bonds after raising more bond finance than the firm had developed the capacity to manage.²¹¹ Nevertheless, the Dubai government created a new bankruptcy regime, which supported a fair resolution of the firm,²¹² and the domestic bond market rebounded.²¹³ In Argentina, the public budget became reliant on bond finance without a legal system capable of addressing the risks that the bond market introduced, and the country has become stuck in a cycle of repeated defaults.²¹⁴

A. Korea

The bankruptcy of the Korean conglomerate firm Daewoo has demonstrated the risks that a bond market poses when investors lack the information with which to price bonds correctly.²¹⁵ Investors in the bonds of Daewoo assumed that the firm would never go bankrupt and therefore charged interest rates that reflected no possibility of default.²¹⁶ After Daewoo defaulted, investors stopped investing in the Korean bond market.²¹⁷

Originally, the Korean government encouraged the growth of a domestic bond market to fund long-term investments by enacting a ceiling on the amount of bank credit that Korean firms could use.²¹⁸ Large Korean conglomerate firms known as chaebols responded by substituting bond finance for bank lending.²¹⁹

206. Juneja, *supra* note 183, at 723.

207. OECD, *supra* note 10, at 256, 269, 300 (2001).

208. *See infra* Section III(A).

209. *Id.*

210. *Id.*

211. *See infra* Section III(B).

212. Bertrand M. Renaud, *Real Estate Bubble and Financial Crisis in Dubai*, 20 J. Real Estate Literature 51, 64, 65 (2012).

213. *See infra*.

214. *See infra* Section III(C).

215. *Id.*

216. Gormley et al., *Ending "Too Big To Fail": Government Promises versus Investor Perceptions*, ADB Econ. Working Paper Series, 3 (Oct. 2012).

217. Kim & Park, *Structural Change in the Corporate Bond Market in Korea after the Currency Crisis*, BIS Paper No. 11, at 140, <http://www.bis.org/publ/bppdf/bispap11.pdf>.

218. *Republic of Korea*, IMF Staff Country Report No. 98/74, at 12 (Aug. 1998).

219. *Id.*

Investors perceived the bonds that the chaebols issued as risk-free investments and extended to the chaebols artificially cheap bond finance.²²⁰ The investors assumed that the large size of the chaebols would cause the government to bail out the chaebols if they failed.²²¹ The investors set low interest rates on the bonds not because of the stability of the chaebols but because of the expectation that the government would not allow the chaebols to default.²²²

Bonds therefore offered inexpensive finance, and the chaebols issued numerous bonds. By the end of 1997, leverage ratios among the chaebols had increased to more than 500% of equity.²²³ The investors did not monitor the firms closely, and the accounting and auditing of the chaebols did not conform to international standards.²²⁴ The lack of transparency masked the risks increasing within the chaebols.²²⁵ Despite their weak fundamentals, however, the chaebols continued to raise bond finance at rates reflecting zero risk of default.²²⁶

The access to cheap capital enabled the chaebols to forego restructuring long after restructuring became necessary.²²⁷ The chaebols eased any pressure to restructure that developed by issuing new bonds.²²⁸ Daewoo, for example, attained a leverage ratio of roughly 2,000%.²²⁹ The firm had issued 1 trillion won of bonds during each month of 1998.²³⁰ At current exchange rates 1 trillion won amounts to roughly \$900,990,000.

In spite of the expectations of the investors, Daewoo entered bankruptcy in 1999, and the investors suffered losses.²³¹ At the time it went bankrupt, Daewoo owed 60 trillion won, or roughly \$50 billion.²³² The bankruptcy procedures in Korea remained untested and did not appear capable of handling such a large bankruptcy.²³³ The government therefore entered into settlements with the

220. See Gormley et al., *supra* note 45, at 12.

221. Lim, *Restructuring of Corporate Sector and Conglomerates in Post-Crisis Korea*, Int'l Forum on Econ. Reforms in Korea & Implications for Japanese Econ., 16 (Aug. 2003); *The Death of Daewoo*, Economist (Aug. 19, 1999), <http://www.economist.com/node/233562>.

222. See Gormley et al., *supra* note 45.

223. *The Death of Daewoo*, *supra* note 221.

224. See *Id.* at 4.

225. *Id.*

226. See Gormley et al., *supra* note 45, at 3.

227. See Kim & Park, *supra* note 217, at 113

228. *Id.*

229. Kim, *A Forensic Study of Daewoo's Corporate Governance*, 28 NW J. INT'L L. & BUS. 273, 284 (2008).

230. Coe & Kim, *Korean Crisis & Recovery*, 233 (2002).

231. See Lim, *supra* note 221, at 16.

232. Sohn, *Korea's Corporate Restructuring Since the Financial Crisis*, Seminar on Promoting Growth and Welfare jointly hosted by Economic Commission for Latin America and the Caribbean – United Nations, Institute of Developing Economies – Japan External Trade Organization, and Instituto de Economia – Universidade Federal do Rio de Janeiro, Apr. 2002, at 15.

233. See Gormley et al., *supra* note 45, at 3.

investors in Daewoo, and paid them little more than market rate on the bonds that they held.²³⁴

In the wake of the Daewoo settlements, the Korean bond market collapsed.²³⁵ As investors gained awareness of the true risks of default among the chaebols, investors withdrew from the bond market.²³⁶ In addition, pooled investment vehicles known as investment trusts had realized significant losses on Daewoo bonds that the trusts had purchased, and investors in the trusts withdrew from the trusts, afraid that the trusts would also fail.²³⁷ To regain liquidity, the trusts began to sell their remaining bond holdings.²³⁸ As the bonds flooded the market, their value fell, and the trusts had to sell additional bonds to recoup the money.²³⁹ The decreasing value of bonds also caused other investors to sell their bonds, and with more bonds for sale, market prices decreased more rapidly.²⁴⁰

B. Dubai

The Dubai investment firm Dubai World sold more bonds than the firm earned revenues to service, but the government created a legal framework that stabilized the risks, and the bond market in Dubai rebounded.²⁴¹ Dubai World had issued bonds to finance real estate development projects, but the bonds matured before the projects had generated profits.²⁴² In response, the Dubai government passed new bankruptcy laws to facilitate the resolution of the claims of investors in the bonds.²⁴³ The new bankruptcy regime seemed to restore confidence in the Dubai bond market.²⁴⁴

Dubai World sought long-term finance for real estate development in Dubai, and the influx of foreign bond finance that resulted contributed to a bubble in the

234. Done He, *The Role of KAMCO in Resolving Nonperforming Loans in the Republic of Korea*, IMF Working Paper, Sep. 2004.

235. U.S. DEPT. OF STATE, DIPLOMACY IN ACTION, 14, <http://www.state.gov/documents/organization/229185.pdf>.

236. See Coe & Kim, *supra* note 230.

237. Kim & Park, *supra* note 217.

238. See, e.g., *Asian Economy and Finance* 134-35 (2005).

239. See Kim & Park, *supra* note 217.

240. *Id.*

241. See *infra* Section III(B).

242. See, e.g., IMF, *United Arab Emirates*, Staff Report for the 2009 Article IV Consultation, Jan. 22, 2010, at 8.

243. DUBAI GOVERNMENT STATEMENT OF 14 DECEMBER 2009, (Dec. 2009), <http://www.nortonrosefulbright.com/knowledge/publications/25604/dubai-world-restructuring-the-legislation-and-how-it-may-work>; see also DUBAI DECREE NO. 57 OF 2009 ESTABLISHING A TRIBUNAL TO DECIDE THE DISPUTES RELATED TO THE SETTLEMENT OF THE FINANCIAL POSITION OF DUBAI WORLD AND ITS SUBSIDIARIES, <http://dubaiworldtribunal.ae/decreo-no-57-for-2009-establishing-a-tribunal-to-decide-the-disputes-related-to-the-settlement-of-the-financial-position-of-dubai-world-and-its-subsidiaries/>.

244. Renaud, *Real Estate Bubble and Financial Crisis in Dubai*, 20 J. REAL ESTATE LIT. 51, 74 (2012).

Dubai real estate market.²⁴⁵ After the government allowed foreign investors to participate in the Dubai bond market, speculative investors purchased bonds issued by Dubai World.²⁴⁶ During 2006, the price of office rentals increased by 55%, and during 2007, prices increased an additional 86%.²⁴⁷ Housing prices also rose 65% during the first half of 2008.²⁴⁸

Initial investors in real estate projects traded their bonds with downstream investors in response to the increasing real estate prices, which left the secondary investors vulnerable when real estate prices suddenly decreased.²⁴⁹ While the bonds matured within an average of seven years, typically the underlying real estate projects remained unbuilt.²⁵⁰ The secondary investors gambled on the projects yielding revenues before Dubai World had to make payments on the bonds.²⁵¹ When the global financial services firm Lehman Brothers entered bankruptcy, however, the Dubai real estate market collapsed.²⁵² Between September 2008 and September 2009, residential prices fell by more than 50%.²⁵³ Dubai World could not service its bonds, and the firm announced a standstill on \$26 billion in liabilities on November 25, 2009.²⁵⁴

The Dubai legal system appeared incapable of resolving such a large default.²⁵⁵ To begin with, Dubai World occupied an ambiguous status within the Dubai legal system.²⁵⁶ Because Dubai World had formed under the decree of the ruler of Dubai, rather than under the federal commercial laws of Dubai,²⁵⁷ questions arose regarding whether the firm had access to Dubai bankruptcy law.²⁵⁸ Moreover, even if Dubai law applied to the firm, the law seemed incapable of resolving the firm and stabilizing the bond market.²⁵⁹ The size and global importance of Dubai World necessitated a speedy resolution, but the number of international investors with claims against the firm threatened a contentious,

245. *Id.*

246. *Id.* at 55.

247. Hassler, *Housing and Real Estate Finance in Middle East and North African Countries*, WORLD BANK, 17 (June 2011).

248. *Id.*

249. *See, e.g.*, Renaud, *supra* note 244, at 51, 55-56.

250. *See id.*

251. *See id.* at 56.

252. YOUNG, *THE POLITICAL ECONOMY OF ENERGY, FINANCE AND SECURITY IN THE UNITED ARAB EMIRATES*, 69 (2014).

253. Renaud, *supra* note 244, at 61.

254. Young, *supra* note 252, at 70.

255. Latham & Watkins, *First Test Case for Dubai's Innovative Decree 57 Restructuring Regime*, 1 (July 2, 2012).

256. MOSTROUS ET AL., *THE RISE OF THE STATE*, 33 (2010); T. HAJJIRI & A. COHEN, *GLOBAL INSOLVENCY PRACTICE FOR SUSTAINABLE ECONOMIC DEVELOPMENT*, 228 (2015).

257. Young, *supra* note 252.

258. Smith & Saher, *United Arab Emirates: Commentary Upon the Dubai World Insolvency Code*, MONDAQ (Mar. 11, 2010).

259. *Id.*

costly, and protracted process.²⁶⁰ When creditors met in 2009 to discuss a potential restructuring, ninety-five different banks participated.²⁶¹ The banks commenced negotiations with seventy other lenders.²⁶²

To manage the default of Dubai World with more efficiency, the Dubai government created a new bankruptcy law.²⁶³ The new law allocated losses in a way that seemed transparent and fair to investors,²⁶⁴ and investors regained confidence in the Dubai bond market.²⁶⁵ Known as Decree No. 57, the new bankruptcy legislation blended best practices from the English and American bankruptcy systems.²⁶⁶ Within a year, investors unanimously approved a settlement that imposed on them losses of only 16%.²⁶⁷ By the end of 2010, investors resumed purchasing bonds that Dubai World issued.²⁶⁸

C. Argentina

Argentina issued bonds without a legal foundation to support the risks that the bonds introduced to the economy, and the country eventually entered a cycle of persistent default.²⁶⁹ As investors demanded high interest rates to account for the risks in the Argentinean economy, the country had to issue additional bonds to raise finance with which to service the existing bonds. The additional borrowing triggered additional increases in interest rates, which in turn made it necessary for the country to raise additional finance.

Argentina has defaulted eight times in its history,²⁷⁰ and it has defaulted most recently in 2001 and 2014.²⁷¹ In the lead-up to the 2001 default, bond issues increased substantially the debt that the country held.²⁷² The debt to GDP ratio in Argentina had risen from 35% in 1995 to nearly 65% in 2001.²⁷³

260. Renaud, *supra* note 244, at 64.

261. *Id.* at 67.

262. *Id.* at 68.

263. IMF, *United Arab Emirates*, Staff Report for the 2009 Article IV Consultation, Jan. 22, 2010, at 14.

264. Smith & Saher, *supra* note 258.

265. Renaud, *supra* note 244, at 74.

266. KUWAIT FIN. CENTRE MARKAZ RESEARCH, *DEALING WITH BANKRUPTCY IN THE GCC* 19, http://www.gulfbase.com/ScheduleReports/33f7047f_BankruptcyintheGCC-MarkazResearch.pdf.

267. Renaud, *supra* note 244, at 74.

268. *Id.*

269. *See infra* Section III(C).

270. Rosenheck, *Argentina's Rational Default*, NEW YORKER, Aug. 7, 2014.

271. Roming, *Argentina's Long History of Economic Booms and Busts*, WALL ST. J., Jul. 30, 2014.

272. *See, e.g., A decline without parallel*, ECONOMIST, Feb. 28, 2002; SHAPIRO & PHAM, *DISCREDITED – THE IMPACT OF ARGENTINA'S SOVEREIGN DEBT DEFAULT AND DEBT RESTRUCTURING ON U.S. TAXPAYERS AND INVESTORS*, 8-9 (Oct. 2006).

273. Federal Reserve Bank San Francisco, *Learning from Argentina's Crisis*, Economic Letter No. 2002-31, Oct. 18, 2002, at 2.

Argentina lacked the legal foundation to manage the risks of such extensive borrowing.²⁷⁴ The law in Argentina did not provide mechanisms to ensure transparency, disclosure, and information sharing in the financial market.²⁷⁵ The bankruptcy system also did not maximize returns to investors and instead seemed to insulate bond issuers from the claims of investors.²⁷⁶ In addition, the economy depended on commodities and agricultural products with volatile prices²⁷⁷ and remained vulnerable to inflation.²⁷⁸ The government, moreover, did not impose macroeconomic policies in a stable way.²⁷⁹

Consequently, investors could not easily predict the risks of the bonds with accuracy, and the high interest rates that the investors charged in response to the uncertainty made default almost inevitable.²⁸⁰ As investors grew unsure of their returns,²⁸¹ they raised interest rates on bonds²⁸² to protect themselves against losses.²⁸³ Interest rates rose 20% during 2001.²⁸⁴ The increasing interest rates caused debts levels in Argentina to grow, as more borrowing raised interest rates higher.²⁸⁵ Eventually, Argentina reached a point when it could not repay the debt.²⁸⁶

274. See, e.g., Center for Economic and Policy Research, *Argentina Since Default: The IMF and the Depression*, September 3, 2002 (discussing IMF objections to Argentine Bankruptcy Code).

275. See, e.g., IMF, *The Role of the IMF in Argentina, 1991-2002*, July 2003 (discussing the “poor transparency of fiscal operations”); see also IMF, *Transcript of a Press Conference on the Global Financial Stability Report*, March 14, 2002 (discussing inadequacy of disclosure regime in Argentina to enable retail investors to discriminate in lending decisions);

276. See, e.g., Weisbrot & Sandoval, Center for Economy and Policy Research, *Argentina’s Economic Recovery Policy Choices and Implications*, October 2007, at 12.

277. See, e.g., Reinhart & Rogoff, *Serial Default and Its Remedies*, at 5, 11, available at http://mpira.ub.uni-muenchen.de/7423/1/MPRA_paper_7423.pdf.

278. See, e.g., Nash, *Turmoil, Then Hope in Argentina*, N.Y. TIMES, January 31, 1991 (As a response to inflation, the peso was linked to the U.S. dollar but continued to appreciate against numerous currencies as the dollar gained strength).

279. See, e.g., *Argentina’s Debt Crisis*, TREASURY TODAY, February 2014.

280. See, e.g., Akkerman & Teunissen, *FONDAD, The Crisis That Was Not Prevented*, at 4 (2003).

281. See, e.g., Pouzo & Presno, *Sovereign Default Risk and Uncertainty Premia*, Federal Reserve Bank of Boston Working Paper No. 12-11, 2012, at 2.

282. See, e.g., IMF, *The Role of the IMF in Argentina, 1991-2002*, July 2003, at Figure 2 (showing sharp rise in Argentine bond spreads and discussing “rising country risk premia”).

283. See, e.g., Rambarran, *Argentina’s Sovereign Debt Default and the IMF*, 5-6 (Mar. 12, 2004).

284. See, e.g., Moreno, *Learning from Argentina’s Crisis*, FRBSF Economic Letter, October 18, 2002.

285. See, e.g., Ctr. Econ. & Pol’y. Res., *Argentina Since Default: The IMF and the Depression*, Sept. 3, 2002 (“Argentina got stuck in a debt spiral in which high interest rates increased the debt and the country’s risk premium, which lead to even high interest rates and debt service until its default”).

286. See *id.*

The cycle of default became inescapable.²⁸⁷ The government broke investment contracts,²⁸⁸ and raising finance became even more difficult.²⁸⁹ As investors transitioned from offering bond finance at higher interest rates²⁹⁰ to exiting the bond market entirely, Argentina could not obtain new capital with which to repay its existing debts.²⁹¹

IV.

OTHER MODELS OF INFRASTRUCTURE FINANCE

For economies that lack the legal backstops necessary for maintaining stability in domestic bond markets, what interim financing models exist to facilitate the provision of capital to infrastructure development at a low risk? Can bank finance of infrastructure projects become safer and less expensive, despite the currency and maturity risks and information asymmetries that long-term bank loans introduce? How might nascent bond markets avoid risks that domestic legal systems currently may lack the capacity to manage? This section discusses intermediate financing models that include bank consortia, securitization, covered bonds, government participation in bond markets, and credit default swaps on corporate bonds.²⁹² The section evaluates the level of legal support that each model requires, highlighting the tradeoff between economic stability and the provision of long-term finance.²⁹³ The section draws on India as an example in order to observe the ability of legal systems in emerging economies to support the risks of each financing technique and concludes that, among the techniques analyzed, covered bonds offer the most suitable means for emerging economies to raise capital for infrastructure investment.²⁹⁴

A. Bank-Based Alternative Models

Although intermediate financing models based on bank loans do not eliminate the maturity risk inherent to aggregating short-term deposits into long-term loans, the models contribute various approaches to managing the risk.²⁹⁵ The models also circumvent shortcomings in specific areas of domestic law; however, they continue to require improvements in other areas of law.²⁹⁶ Bank consortia,

287. IMF, *Lessons from the Crisis in Argentina*, October 8, 2003, at 59.

288. See, e.g., Saxton, *Argentina's Economic Crisis: Causes and Cures*, Joint Economic Committee, United States Congress, June 2003.

289. See, e.g., Ctr. Econ. & Pol'y. Res., *supra* note 285 (describing inability of exporters to access credit).

290. See Rambarran, *supra* note 283.

291. See, e.g., Torre et al., *Argentina's Financial Crisis: Floating Money, Sinking Banking*, WORLD BANK, 10 (2002).

292. See *infra* Section IV.

293. *Id.*

294. *Id.*

295. See *infra* Section IV(A).

296. *Id.*

for example, distribute maturity risk among several banks, thereby enabling each bank in the consortium to diversify the maturity risk that it holds.²⁹⁷ Contracts among the banks and other participants in the arrangements can stipulate any national law for enforcement of the contracts supporting the arrangements, but domestic property rights continue to govern enforcement claims against loan collateral.²⁹⁸ Second, securitization enables banks to transfer maturity risk to downstream investors.²⁹⁹ Securitization purports to sidestep domestic bankruptcy law but may introduce moral hazard risks at banks and,³⁰⁰ if problems develop, maintaining economic stability may depend on the availability of a robust resolution mechanism.³⁰¹ Finally, covered bonds retain the maturity risk within banks but ensures liquidity at the banks to manage the risk.³⁰² Like securitization, covered bonds purport to avoid domestic bankruptcy processes; however, they also diminish the moral hazard that securitization may generate.³⁰³ Nevertheless, covered bonds also necessitate legal implementation and management.³⁰⁴ While the models mitigate maturity risk connected to bank loans and may reduce pressure on certain legal backstops, each model poses risks that legal systems must accommodate.³⁰⁵ In addition, because maturity risk continues to constrain the duration of the underlying bank loans, none of the models attracts greater investment from institutional investors, including pension funds, insurance funds, and mutual funds, that could contribute long-term capital to long-term investments.³⁰⁶ In light of the tradeoffs, covered bonds appear to offer emerging economies, such as India, that have deficits in their legal systems, the most benefits relative to their risks.

1. *Bank Consortia*

Pooling arrangements among banks diversify maturity risks³⁰⁷ through contracts among the banks and their borrowers.³⁰⁸ Because the banks can draft the

297. See Comer, *supra* note 84, at 4.

298. See *infra* Section IV(A).

299. *Id.*

300. Segoviano et. al, *Securitization: Lessons Learned and the Road Ahead*, IMF Working Paper WP/13/255, Nov 2013, at 16.

301. See *infra* Section IV(A).

302. *Id.*

303. *Id.*

304. *Id.*

305. *Id.*

306. *Id.*

307. See, e.g., Francis N. Twinamatsiko, *What is the Role of Loan Syndication in Project Financing* at 7 (discussing risk diversification of bank consortia).

308. See, e.g., C. Groobey, John Pierce, M. Faber & G. Broome, *Project Finance Primer for Renewable Energy and Clean Tech Projects*, Wilson Sonsini Goodrich at 4-6; B. Esty & W. Megginson, *Creditor Rights, Enforcement, and Debt Ownership Structure: Evidence from the Global Syndicated Loan Market*, Tuck-JQFA Contemporary Corporate Governance Issues II Conference, June 24, 2002 at 5, available on SSRN (id 320226)

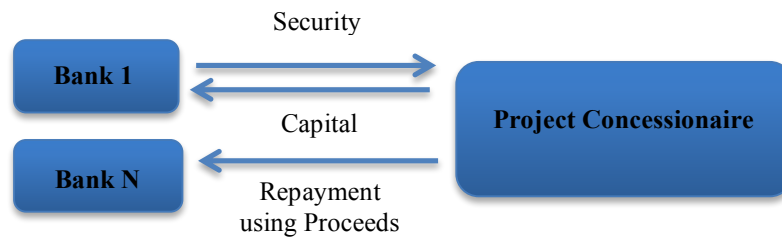
contracts under foreign law, the pooling arrangements can avoid shortfalls in domestic law related to contract enforcement.³⁰⁹ The banks, however, continue to depend on the domestic law of the project to enforce their security rights.³¹⁰ Bank finance through a consortium of banks therefore may require legal reforms to domestic law related to secured credit, and high transaction costs also may negate any reductions in the cost of capital that diversifying risks otherwise could attain.

i. Structure

In bank consortia, groups of banks jointly finance borrowers.³¹¹ The collective arrangements enable the banks to extend larger loans than each participating bank individually could extend.³¹² The banks base the loans on the project revenues they predict.³¹³ Dividing the loans among more than one bank allows each bank to diversify the risks it undertakes and tailor its compliance with lending regulations.³¹⁴

Banks that join consortia cooperate on loans.³¹⁵ The banks share due diligence, drafting, and monitoring tasks.³¹⁶ Each bank retains a portion of each loan on its balance sheet (Figure 5).³¹⁷

Figure 5: Bank Consortia



309. See, e.g., Esty & Megginson, *supra* note 308, at 5.

310. *Id.*

311. See Groobey, *supra* note 308, at 8 (discussing groups of banks taking a portion of a loan and coordinating among themselves).

312. See, e.g., G. Nayak & D. Rajkumar, *Banks Take Syndicated Loan Route to Fund Large Projects*, *Economic Times*, Sept 8, 2010; G. Caporale, S. Lodh & M. Nandy, *How Has the Global Financial Crisis Affected Syndicated Loan Terms in Emerging Markets?*, CESIFO Working Paper No. 5353, May 2015, at 4.

313. See Twinamatsiko, *supra* note 307.

314. See, e.g., Central American Bank for Economic Integration, *Syndicated Loans*, available at <http://www.bcie.org/?cat=1139&title=Syndicated%20Loans&lang=en>.

315. Groobey, *supra* note 308, at 8.

316. See, e.g., Esty & Megginson, *supra* note 308, at 4.

317. See, e.g., BANCO DE ESPAÑA EUROSISTEMA, *THE CRISIS AS A WAKE-UP CALL. DO BANKS TIGHTEN LENDING STANDARDS DURING A FINANCIAL CRISIS?*, 4 (July 2009), <http://www.bde.es/f/webpi/SES/seminars/2009/files/sie0925.pdf>.

Typically, bank consortia offer non-recourse loans, which depend on the revenues of the infrastructure projects rather than the financial position of the companies developing the projects.³¹⁸ When borrowers default, the banks seize their collateral³¹⁹ but do not have access to the borrower's other assets to make up deficiencies.³²⁰ The structuring may be helpful in encouraging relatively new companies, prevalent in less-developed economies, to contribute to infrastructure development.³²¹

The collaboration among the banks also facilitates compliance with concentration and sector limits on banks that regulators including those in India impose.³²² In India, banks may extend only fifteen to twenty percent of their capital to a single borrower,³²³ and they must lend forty percent of their credit to priority sectors, which principally include agriculture, education, housing, and underprivileged groups.³²⁴ Banks in India also must hold a quarter of their deposits in government bonds.³²⁵ By aggregating their unrestricted assets, bank finance through consortia of banks enables each bank to comply with the regulations and also extend a large loan.

ii. Implementation

Some aspects of consortium-based bank lending sidestep common shortcomings in the domestic law of emerging economies while others do not, and overall, the implementation of the consortium structure may be very expensive.³²⁶ Complexities make the contracts supporting the arrangements difficult to draft, and though the contracts may specify foreign contract law and a foreign jurisdiction for enforcement, the banks still must enforce their rights to collateral under domestic law.³²⁷ Nevertheless, the banks retain the ability to monitor borrowers.³²⁸

318. See, e.g., Twinamatsiko, *supra* note 307.

319. See, e.g., Groobey, *supra* note 308, at 10.

320. See, e.g., Christopher L. Culp & J. Paul Forrester, *Structured Financing Techniques in Oil and Gas Project Finance*, in ENERGY AND ENVIRONMENTAL PROJECT FINANCE LAW AND TAXATION 521 (Andrea S. Kramer & Peter C. Fusaro, eds., 2010), <http://www.rmcsinc.com/articles/CLCJPF.pdf>.

321. *Id.*

322. See Twinamatsiko, *supra* note 307, at 8.

323. Lending to a single borrower is limited to 15% of the bank's capital funds (tier 1 and tier 2 capital), which may be extended to 20% in the case of infrastructure projects.

324. The lending target of 40% of adjusted net bank credit (outstanding bank credit minus certain bills and non-SLR bonds) – or the credit equivalent of off-balance sheet exposure (sum of current credit exposure + potential future credit exposure that is calculated using a credit conversion factor), whichever is higher – has been set for domestic commercial banks and foreign banks with greater than 20 branches, while a target of 32% exists for foreign banks with less than 20 branches.

325. *Into Another Country*, ECONOMIST (Sept. 1, 2012), <http://www.economist.com/node/21561953>.

326. Groobey, *supra* note 308, at 3.

327. Esty & Megginson, *supra* note 308, at 5 (acknowledging that typically contracts are written under New York or English law).

328. See, e.g., Twinamatsiko, *supra* note 307 (discussing practice of syndicate agents to organize

Implementing lending by bank consortia carries high transaction costs.³²⁹ The banks must negotiate with individual borrowers and among themselves, and they document the numerous agreements that they make.³³⁰ In some instances, the closing costs of the arrangements nearly have equaled the size of the loans.³³¹

The banks and borrowers, however, may draft the contracts under any law that they choose, which benefits economies with persistent deficiencies in domestic contract law and contract enforcement (Figure 6).³³² India, for example, ranks 186th out of 183 countries in “enforcing contracts,” according to the annual Doing Business Reports issued by the World Bank.³³³ Enforcing a contract in India entails forty-six separate procedures, takes roughly 1,420 days, and costs 39.6 percent of the value of the disputed contract on average.³³⁴

Figure 6: Contract Enforcement by Country

Country	Rank	Time (days)	Cost (percent of claim)	Procedures
India	182	1,420.0	39.6	46
Brazil	Depends on city	731.0	16.5	43
China	35	452.8	16.2	37
Germany	13	394.0	14.4	31
Singapore	1	150	25.8	21
U.S.	Depends on city	370	22.9	32

In addition to diversifying the risks of bank loans and allowing a flexible choice of law, financing infrastructure through bank consortia preserves the monitoring capabilities of banks and the ability of banks to intervene relatively quickly when defaults seem likely.³³⁵ The banks in a consortium have direct relationships with borrowers³³⁶ and may contract for provisions that enable them

site visits for the syndicate).

329. *See id.* at 10.

330. *See, e.g.*, Esty & Megginson, *supra* note 308, at 4-5.

331. Groobey, *supra* note 308, at 3.

332. Esty & Megginson, *supra* note 308, at 5 (acknowledging that typically contracts are written under New York or English law).

333. WORLD BANK GROUP, DOING BUSINESS 2015, at 192 (2014), [http://www.doingbusiness.org/reports/global-reports/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB15-Chapters/DB15-Report-Overview.pdf](http://www.doingbusiness.org/reports/global-reports/~/media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB15-Chapters/DB15-Report-Overview.pdf).

334. *Id.*

335. FIN. STABILITY BD., *supra* note 68, at 3.

336. *See, e.g.*, Jim Armstrong, *The Syndicated Loan Market: Developments in the North American Context*, 5 (Bank of Can., Working Paper 2003-15, June 2003).

to assess the on-going position of the borrowers.³³⁷ The banks share information within the consortium and exercise contractual rights to terminate loans or force early repayments.³³⁸ The relatively small number of banks that participate in individual consortia helps facilitate restructuring of the loans.³³⁹

Banks in consortia, however, typically claim security from borrowers to protect themselves against losses, and weaknesses in domestic law related to the enforcement of security therefore may reduce the relevance of consortium-based bank lending in some countries.³⁴⁰ The banks generally demand project assets as collateral so that the banks can assume control of a project if a borrower defaults on a loan.³⁴¹ Domestic law normally governs the enforcement of security, and in some countries, including India,³⁴² security enforcement remains time-consuming and costly (Figure 7).³⁴³ Although the Indian Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act(2002) made the enforcement of security interests easier for banks in India by allowing banks, public financing institutions, and housing financing companies to bypass court enforcement processes by seizing and selling assets themselves,³⁴⁴ appeals of the creditor actions still cause significant delays.³⁴⁵

Figure 7: Out-of-Court Enforcement of Security³⁴⁶

Country	Allowed?
India	Yes
Brazil	Yes
China	No
Germany	Yes
Singapore	Yes
U.S.	Yes

337. See, e.g., Esty & Megginson, *supra* note 308, at 4.

338. See Groobey, *supra* note 308, at 8.

339. See, e.g., Yener Altunbas, Blaise Gadanez & Alper Kara, *The Evolution of Syndicated Loan Markets*, 26 SERV. INDUSTRIES J. 689, 689-690 (2006).

340. Groobey, *supra* note 308, at 10.

341. ASS'N. FOR FIN. MARKETS IN EUR., GUIDE TO INFRASTRUCTURE FINANCING, (16 June, 2015), <https://www.afme.eu/en/reports/publications/guide-to-infrastructure-financing/>.

342. Esty & Megginson, *supra* note 308, at 5 (acknowledging that typically contracts are written under New York or English law).

343. See *id.*

344. These creditors can take over, without court participation, the assets of any debtor that has defaulted on payments for more than six months by giving a notice of 60 days. The debtors can appeal only if they deposit 75% of the defaulted amount.

345. See The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act § 17 (54 of 2002) (Indian Sarfeasi Act).

346. See generally Esty & Megginson, *supra* note 308.

iii. Risks

While financing infrastructure through consortia of banks introduces few new risks not already present in plain bank finance of infrastructure, the financing model also eliminates few of the risks of lending by individual banks, including maturity and liquidity risk.

Although joining a bank consortium reduces the exposure of an individual bank to the risks of a loan, the consortium structure does not eliminate the maturity risk inherent to bank lending.³⁴⁷ Loans made by bank consortia typically average five to ten years.³⁴⁸ The arrangements generally include revolvers to facilitate subsequent rounds of financing, but projects nevertheless may fail to attract additional capital.³⁴⁹

Because of the specificity of the consortium structure, banks in a consortium also must commit to funding projects for the duration of the loans.³⁵⁰ The lack of flexibility and liquidity causes the banks to charge high interest rates.³⁵¹

2. Originate to Distribute Model

Securitization enables banks to shift maturity risk to downstream investors by selling their loans to special purpose vehicles, which pool the loans and resell them. By sheltering assets in bankruptcy-remote structures, securitization may bypass the domestic bankruptcy system, which in some countries may lack a sufficient legal foundation. Most countries also can institute laws relatively easily that respect the formal separation of SPVs and regulations to ensure accurate ratings of the repackaged loans by credit rating agencies. Nevertheless, securitization introduces significant risks that demand bankruptcy and crisis resolution frameworks, as well as protections for depositors, which appear difficult quickly to establish.

i. Structure

When banks securitize infrastructure loans, the banks transfer the right to the payments due on the loans to separate legal entities.³⁵² The separate entities in turn package the payment streams and sell rights to the payments to downstream investors.³⁵³ The downstream investors assume exposure to the risks of the loans from the banks.³⁵⁴

347. Croce & Gatti, *supra* note 54, at 129-30.

348. TURNBULL, *supra* note 42, at 92.

349. *See, e.g.*, Culp & Forrester, *supra* note 325, at 527.

350. *See, e.g.*, Comer, *supra* note 83, at 5.

351. Croce & Gatti, *supra* note 54; Comer, *supra* note 83, at 5.

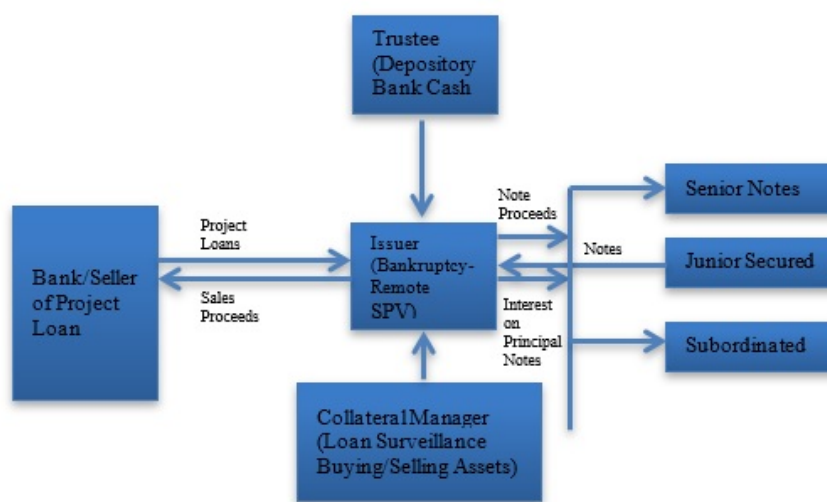
352. *See* Croce & Gatti, *supra* note 54, at 131.

353. Franklin R. Edwards & Edward R. Morrison, *Derivatives and the Bankruptcy Code: Why the Special Treatment?*, 22 YALE J. REG. 91, 113 (2005).

354. *See, e.g.*, JAN JOB DE VRIES ROBBÉ, *SECURITIZATION LAW AND PRACTICE: IN THE FACE OF THE CREDIT CRUNCH*, 334 (2008).

Through securitization, the rights to future loan repayments are separated from the risk that the borrowers might not pay, grouped together, and sold to other investors (Figure 8).³⁵⁵ The securitization of an infrastructure loan in its most basic form involves three principal steps. First, a bank that originates a loan to an infrastructure project transfers assets in the form of future payments on the loan to a separate legal entity, the SPV.³⁵⁶ Second, the SPV sells rights to the assets to outside investors in exchange for capital.³⁵⁷ Third, the bank that originated the loan takes the money that the SPV earned from the sales as compensation for the original transfer of the assets.³⁵⁸

Figure 8: Securitization Structure



Securitization of an infrastructure loan can occur at various stages of loan repayment.³⁵⁹ For example, after a project has been constructed and has begun to perform, an SPV can purchase the original loan from the bank and use it to issue

355. Steven L. Schwarcz, *The 2011 Diane Sanger Memorial Lecture: Protecting Investors in Securitization Transactions: Does Dodd-Brank Help, Or Hurt?*, 72 LA. L. REV. 591, 591 (2012).

356. See, e.g., Ryan Scharar, *The Limits of Securitization: Why Bankruptcy Courts Should Substantively Consolidate Predatory Sub-Prime Mortgage Originators and Their Special Purpose Entities*, 2008 MICH. ST. L. REV. 913, 909 (2008).

357. See, e.g., Gabriella Chiesa, *Bankruptcy Remoteness and Incentive-Compatible Securitization*, 2 (Univ. of Bologna Dep't of Econ. Quaderni Working Paper DSE No. 928, 2014).

358. Lynn LoPucki, *A Team Production Theory of Bankruptcy Reorganization*, 57 VAND. L. REV. 741, 756 (2004).

359. Sarita Bahl, *Emerging Risks in Securitization of Infrastructure and Other Project Financing*, 1 ASIA PACIFIC J. MARKETING & MGMT. REV. 211, 211 (2012).

securities.³⁶⁰ Alternatively, the SPV simply can use the future payments on the loan to refinance the project at a lower rate.³⁶¹ In this instance, the SPV acts as a new borrower and issues new securities.³⁶²

Securitization purports to eliminate dependence on the domestic bankruptcy system,³⁶³ which in many countries, including India, may not operate effectively (Figure 9).³⁶⁴ When a bank that extends a loan to an infrastructure project has securitized the loan and the borrower defaults on the loan, the bank no longer has a claim against the borrower.³⁶⁵ The SPV already has paid the bank, and the risk of the default has shifted to the investors in the securities derived from the loan.³⁶⁶ In India, where the bankruptcy process has appeared lengthy and complex, the ability of the bank to sidestep the bankruptcy process to recoup assets has significance:³⁶⁷ Bankruptcy in India lasts, on average, for more than four years and recovery rates average below thirty percent.³⁶⁸ Because of insufficient staffing, judges in India review only about forty bankruptcy cases per month.³⁶⁹ Managers and employees of bankrupt companies often withhold financial records, refuse to support concessions, and file appeals in order to postpone the loss of their jobs.³⁷⁰ While bankruptcy procedures pend, the costs of the bankruptcy process increase, and the value of assets held by the borrower falls. Currently, investors in India expect no recovery in bankruptcy because of the inefficiencies in the bankruptcy process, and their expectations have driven interest rates to very high levels.³⁷¹

360. *Id.*

361. *Id.*

362. *Id.*

363. Thomas J. Gordon, *Securitization of Executory Future Flows as Bankruptcy-Remote True Sales*, 67 UNIV. CHI. L. REV. 1317, 1317 (2000).

364. Radhika Pandey & Sumathi Chandrashekar, *India's Poor Crisis Resolution Regime*, BUSINESS STANDARD (Apr. 27 2013), http://www.business-standard.com/article/opinion/india-s-poor-crisis-resolution-regime-113042700526_1.html.

365. Gordon, *supra* note 363, at 1318.

366. *Id.*

367. The Companies Act 1956, The Sick Industrial Companies (Special Provisions) Act 1985, and the Recovery of Debts Due to Banks and Financial Institutions Act 1993, as modified by the SARFAESI Act, provide for three separate bankruptcy frameworks.

368. Pandey & Chandrashekar, *supra* note 364.

369. Nimit Kang & Nitin Nayar, *The Evolution of Corporate Bankruptcy Law in India*, ICRA BULLETIN MONEY & FIN. 42 (Oct. 2003).

370. *Id.*

371. Bibek Debroy, *Unshackling India's Manufacturing – The Ingredients of a Strategy*, in INDIA'S ECONOMY: A JOURNEY IN TIME AND SPACE, 263 286 (Raj Kapila & Uma Kapila eds., 2006) See Table 9 (bankruptcy recoveries are lower in India than in most other countries).

Figure 9: Bankruptcy by Country³⁷²

Country	Rank	Time (years)	Cost (percent of claim)	Recovery (claim per dollar)
India	121	4.3	9	25.6
Brazil	135	4.0	12	19.5
China	53	1.7	22	36.0
Germany	13	1.2	8	82.9
Singapore	4	0.8	3	89.4
U.S.	4	1.5	8.2	80.4

ii. Implementation

Though ostensibly avoiding domestic bankruptcy law,³⁷³ the introduction of securitization requires other legal supports. To implement securitization, an economy must have rules related to the transfer of assets from banks to separate legal entities and regulations on credit rating agencies that ensure the accurate assessment of the default risk of the original bank loans.

The law must recognize the separate legal status of the SPV and set out clear rules for when courts can reverse the separation.³⁷⁴ In the U.S., for example, court decisions and regulatory rules have supported the ability of banks to make “true sales” of assets to SPVs; if a bank does not meet the conditions of a “true sale,” then the bank retains the assets and their risks on its balance sheet.³⁷⁵ Recognition of the transfer of assets to the SPV requires a statutory or common law legal foundation that generally will be easy to implement, and in India, the Supreme Court ruled in 2010 that banks legally could transfer credit risk to separate entities.³⁷⁶

Because the risk of securities based on bank loans depends on the default risk of the loans, investors in securities rely on credit rating agencies to evaluate the ability of the borrowers to repay the loans.³⁷⁷ The investors base the interest

372. Pandey & Chandrashekar, *supra* note 364.

373. Gordon, *supra* note 363, at 1317.

374. See, e.g., Gary Gorton & Nicholas S. Soules, *Special Purpose Vehicles and Securitization*, in *THE RISKS OF FINANCIAL INSTITUTIONS* 549, 557 (Mark Carey & René M. Stulz eds., 2007).

375. Lois R. Lupica, *Circumvention of the Bankruptcy Process: The Statutory Institutionalization of Securitization*, 33 *CONN. L. REV.* 199, 200, 210 (2000); Kenneth Ayotte & Stav Gaon, *Asset-Backed Securities: The Costs and Benefits of ‘Bankruptcy Remoteness’*, 24 *REV. FIN. STUD.* 1299, 1302, 1304 (2010); See, e.g., Kenneth Kettering, *Securitization and its Discontents*, 29 *CARDOZO L. REV.* 1553, 1581 (2007) (Courts can decide not to recognize the transfer of assets to the special purpose vehicle).

376. K. Gada & R. Agarwal, *ICRA, Update on Indian Securitisation Market*, 7 (May 2012), <http://www.icra.in/Files/Articles/Indian%20Securitisation.pdf>.

377. Segoviano et al., *supra* note 300, at 3.

rates that they charge on the ratings;³⁷⁸ however, in the wake of the recent financial crisis, evidence of inaccurate ratings of mortgage-backed securities emerged.³⁷⁹ Many commentators have faulted the practice of the rating agencies to charge the issuers of the securities for the ratings when the securities sell,³⁸⁰ a practice that Indian rating agencies share.³⁸¹ To discourage domestic rating agencies from increasing the marketability of securities by inflating their ratings, the U.S. Securities and Exchange Commission, the European Commission, and the U.K. House of Lords have considered changes to regulation of the agencies.³⁸² In other economies, however, rating agencies already may operate with greater integrity. In India, for example, regulators have supervised rating agencies aggressively.³⁸³ The Securities and Exchange Board of India has overseen the evaluations by the agencies of most financial products since 1999.³⁸⁴ In the U.S., by comparison, the SEC actively began monitoring the agencies in 2007,³⁸⁵ and the EU recently drafted its first mandatory provisions.³⁸⁶ The Indian agencies must renew their licenses every three years,³⁸⁷ unlike in the U.S., where the SEC grants permanent recognition of the agencies.³⁸⁸ The Indian central bank also supervises ratings of securitized products³⁸⁹ and must consent before agencies can evaluate bank loans.³⁹⁰ In addition, the Indian rating agencies have broadened their sources of revenue, potentially blunting some of the conflicts of interest that

378. Stephane Rousseau, *Enhancing the Accountability of Credit Rating Agencies: the Case for a Disclosure-Based Approach*, 51 MCGILL L. J. 617, 624 (2006).

379. See SEC. EXCHANGE COMMISSION, SUMMARY REPORT OF ISSUES IDENTIFIED IN THE COMMISSION STAFF'S EXAMINATIONS OF SELECT CREDIT RATING AGENCIES, 25 (July 2008), <http://www.sec.gov/news/studies/2008/craexamination070808.pdf> ("Rating agencies do not appear to take steps to prevent considerations of market share and other business interests from the possibility that they could influence ratings or ratings criteria.").

380. See, e.g., Lynne L. Dallas, *Short-Termism, The Financial Crisis, and Corporate Governance*, 37 J. CORP. L. 265, 288 (2012) ("As for credit rating agencies, they had a conflict of interest because the issuers of securities paid their fees").

381. MINISTRY OF FINANCE - CAPITAL MARKETS DIVISION, REPORT OF THE COMMITTEE ON COMPREHENSIVE REGULATION FOR CREDIT RATING AGENCIES, 13 (Dec. 2009), http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/CCRA030310_R2.pdf

382. Jodie A. Kirshner, *The Indian Anomaly: Rethinking Credit Rating Agency Regulation from the Economic Perspective of Hyman Minsky*, 27 COLUM. J. ASIAN. L. 1, 12–15 (2013).

383. *Id.* at 34–36.

384. Anuradha Guru, *Concerns on the Role of Credit Rating Agencies in the Evolving Financial Regime*, NSE NEWS, 7 (Sept. 2008), <http://ssrn.com/abstract=1439659>; MINISTRY OF FINANCE, *supra* note 381, at 12, 24.

385. Himanshu Bhushan, *Credit Rating Agencies in India*, 11 (Jan. 31, 2012), <http://ssrn.com/abstract=1999886>.

386. Ministry of Finance, *supra* note 381, at 24.

387. T. Jain & R. Sharma, *Credit Rating Agencies in India*, 3 Company L. J. 89, 104 (2008), available at <http://ssrn.com/abstract=1111553>.

388. MINISTRY OF FINANCE, *supra* note 381, at 24.

389. Bhushan, *supra* note 385, at 10.

390. MINISTRY OF FINANCE, *supra* note 381, at 27.

charging the issuers of securities for ratings introduce.³⁹¹ The managing director of the Indian rating agency ICRA, for example, has estimated that less than sixty percent of the revenues of the agency derive from its credit ratings.³⁹²

iii. Risks

The recent financial crisis highlighted the need for regulation surrounding securitization to ensure economic stability and the continuing need for effective bankruptcy law and frameworks for resolving failed banks that appear difficult for countries to implement. Though infrastructure loans in emerging economies differ from the mortgages that played a contributing role in the recent crisis, infrastructure loans may hold more risk than mortgages.³⁹³ Even if domestic financial institutions engaged with securitization differently from financial institutions in developed financial markets prior to the recent crisis, securitization could unleash risks difficult for emerging economies to contain. While current regulations in India, for example, would appear to prevent the exposure of domestic financial institutions to concentrated securities risk and to prevent harm to individual savings, changes to the regulations would leave banks vulnerable to more significant losses and depositors would have few protections.

Securitization seemed to increase economic instability in the lead up to the recent financial crisis in several ways. First, securitization appeared to cause banks to lower their lending standards.³⁹⁴ Banks typically decide to lend based on their evaluations of the likelihood that borrowers will default, but securitization transferred the risk of default from banks to investors in the securities based on the loans, and the banks had less reason for caution in lending.³⁹⁵³⁹⁶ Second, securitization appeared to lead investors in the securities to underestimate risks.³⁹⁷ Investors in the securities assumed the risk of default of the underlying loans, including maturity risk, but the investors had less information than the banks that extended the loans,³⁹⁸ particularly as the securitization structures grew more

391. See, e.g., *id.* at 18.

392. *India's Ratings Agencies Are Thriving—Without a CDO in Sight*, ECONOMIST, (Mar. 17, 2012), <http://www.economist.com/node/21550282>.

393. Segoviano, *supra* note 300, at 12.

394. Steven L. Schwarcz, *Disintermediating Avarice: A Legal Framework for Commercially Sustainable Microfinance*, 4 U. ILL. L. REV. 1165, 1178 (2011) (“Because lenders to subprime borrowers did not have to live with the credit consequences of their loans, the argument goes, their loan underwriting standards fell.”).

395. *Id.*

396. Willem H. Buiter, *Lessons from the Global Financial Crisis for Regulators and Supervisors* (June 13, 2009), http://eprints.lse.ac.uk/29048/1/Lessons_from_the_global_financial_crisis.pdf.

397. See, e.g., FINANCIAL STABILITY OVERSIGHT COUNCIL, MACROECONOMIC EFFECTS OF RISK RETENTION REQUIREMENTS, 9 (Jan. 2011), <http://www.treasury.gov/initiatives/wsr/Documents/Section%20946%20Risk%20Retention%20Study%20%20%28FINAL%29.pdf>.

398. *Id.*

complex.³⁹⁹ Third, securitization seemed to increase the challenges of market regulation.⁴⁰⁰ Attenuated links between banks and investors in the securities made financial markets increasingly opaque.⁴⁰¹ Financial institutions also bought the securities from each other, leaving the risk of the securities within banks and concentrating the vulnerability of the banks to losses in the securities markets.⁴⁰²

Securitization markets, however, entail diverse assets that may not carry the same risks revealed by the crisis.⁴⁰³ Securitized mortgages in Italy, for example, have demonstrated a lower rate of default than non-securitized mortgages in Italy, and asset-backed securities based on American auto loans, credit cards, student loans, and equipment leases performed well during the recent crisis.⁴⁰⁴ In some instances, securitized loans to American companies have performed better than non-securitized loans of equal credit quality.⁴⁰⁵

Regulation also can inhibit some of the practices that contributed to the crisis, but only for as long as the regulation remains in effect. India, for example, strictly regulates its financial markets; however, relaxation of the regulations could allow the practices that contributed to the crisis to begin. Banks in India must comply with the lending rules discussed above in subsection 1, which could reduce the number of loans to infrastructure projects available to securitize.⁴⁰⁶ The Indian central bank also has acted to restrict exposures to concentrated risk.⁴⁰⁷ The central bank, for example, recently imposed limits on the exposure of banks to gold because the central bank had witnessed a “concentration risk” in gold loans.⁴⁰⁸ Other Indian regulations also potentially limit the concentration of investments in securitized assets. Central bank guidelines have restricted banks in India from investing in asset-backed and mortgage-backed securities with low ratings.⁴⁰⁹ And when they have invested in securities with high ratings, they have had to account for the risk by amortizing their profits over the life of the security, rather than recognizing potential profits upfront, when the actual risk remains unknown.⁴¹⁰ U.S. General Accounting Accepted Principles, by contrast,

399. *Id.*

400. *See, e.g.,* Anastasia Nesvetailova, *The Crisis of Invested Money: Liquidity Illusion and the Global Credit Meltdown*, 11 THEORETICAL INQUIRIES L. 125, 133 (2010).

401. *Id.*

402. *See, e.g.,* Hyun Song Shin, *Securitisation and Financial Stability*, ECON. J. 309 (2009).

403. Segoviano, *supra* note 300, at 9.

404. *Id.*

405. *Id.*

406. *See supra*, subsection 1.

407. A. Goyal, *Banks, Policy and Risks*, ICRIER POLICY SERIES, No. 12, Jan. 2012, at 2.

408. Sourav Majumdar, *Gold loan curbs are because of risk concentration: RBI*, FIRSTPOST (Apr. 17, 2012); *see also* Reserve Bank of India, *Financial Stability Report*, Issue No. 5, June 2012, at 31.

409. Shyamala Gopinath, Deputy Governor of the Bank of India, *Securitisations Markets in India – A Post-Crisis Perspective*, Inaugural address at the Nat'l Inst. of Sec. Markets India Securitisations Summit 2010, Mumbai, Aug. 10, 2010, at 4, <http://www.bis.org/review/r100812e.pdf>.

410. Abhijit Sen Gupta, *The current state of financial and regulatory frameworks in Asian economics: The case of India*, ADBI Working Paper Series, No. 303, Aug. 2011,

authorized the originators of securitized products to account for their projected future cash flows at the time of the sale of the securities, although this approach became illegal in response to the crisis.⁴¹¹ Indian institutional investors also face restrictions on the debt instruments in which they can invest⁴¹² and must devote a portion of their portfolios to investments in government debt.⁴¹³ Finally, in order to invest in securitized debt, foreign institutions have to register as “Qualified Institutional Buyers.”⁴¹⁴ As recently as 2009, foreign private equity funds and venture capital funds were ineligible.⁴¹⁵ The criteria for “Qualified Institutional Buyers” has since expanded to include them, although they still may purchase only listed securities.⁴¹⁶

Nevertheless, the loans that banks have extended to infrastructure projects in India have defaulted at a high rate and may carry greater risks than mortgages.⁴¹⁷ As discussed above in section II, banks in India have had to restructure large volumes of distressed infrastructure loans. In comparison with mortgage loans, infrastructure projects appear idiosyncratic, making the default risk of the projects more difficult to model and predict than the risk posed by individual homebuyers.⁴¹⁸ In some categories of infrastructure projects, such as water systems and electricity plants, lenders cannot foreclose on a project in the way that they can foreclose on a house.⁴¹⁹

If the use of securitization were to propagate large losses among Indian banks, individuals with savings accounts at the banks would have limited protection,⁴²⁰ and neither an effective bankruptcy system nor an effective resolution authority would exist to manage instability among banks. Deposit insurance in India only covers depositors up to 100,000 rupees, the equivalent of about \$2,000.⁴²¹ By comparison, the insured limit in the U.S. is US \$250,000 per person per bank and in Singapore S \$50,000, the equivalent of about US \$39,965 (Figure 10).⁴²² In 2013, the Deposit Insurance and Credit Guarantee Corporation

<http://hdl.handle.net/10419/53577>; Gopinath, *supra* note 409, at 4.

411. INT’L MONETARY FUND, GLOBAL FINANCIAL STABILITY REPORT: NAVIGATING THE FINANCIAL CHALLENGES AHEAD, 100 (Oct. 2009), <http://www.imf.org/external/pubs/ft/gfsr/2011/02/pdf/text.pdf>.

412. Kiatchai Sophastienphong, et al., *South Asian Bond Markets: Developing Long-Term Finance for Growth*, The Int’l Bank for Reconstruction and Dev./The World Bank, 2008, at 15.

413. Vinod Kothari & Abhishek Gupta, Indian Institute of Mgmt. Bangalore, *Development of Rmbs Market in India: Issues and Concerns*, at 32.

414. Nat’l Inst. of Sec. Markets, *White Paper - India Securitization Summit 2009: Improving Indian Securitization Markets*, Nov. 2009, at 18, <http://www.iperitus.com/docs/IndiaSecuritizationSummit2009-WhitePaper.PDF>.

415. *Id.*

416. Sophastienphong, *supra* note 412, at 85.

417. *See* Segoviano, *supra* note 300, at 12.

418. *Id.*

419. Bahl, *supra* note 359, at 219.

420. *See* Figure 10.

421. Reserve Bank of India, *Fin. Stability Report*, Issue No. 5, June 2012, at 49.

422. Fin. Stability Bd., *Thematic Review on Deposit Ins. - Peer Review Report*, at 19,

of India, which runs the deposit insurance program, held assets to compensate only about 1.7% of insured deposits.⁴²³ Moreover, while in the wake of the recent crisis, the U.S. has drawn upon its existing bankruptcy law as a model for a bank resolution authority,⁴²⁴ India does not have effective bankruptcy law,⁴²⁵ and the development of a resolution regime in India would require the creation of an entirely new and untested legal framework. India has proposed a new authority that, though ostensibly aligning the country with international standards, appears in fact to fall short of the standards.⁴²⁶ A report published by the Financial Stability Board, an international body that monitors and makes recommendations about the global financial system, concluded that the planned resolution regime would not have the capacity to resolve a failing bank.⁴²⁷ India, however, successfully drew upon state control of the domestic economy to resolve the Indian bank GTB in 2004.⁴²⁸ The central government issued an order staying actions against GTB and then merged GTB into a state-owned bank.⁴²⁹ The depositors recovered all of the money owed to them,⁴³⁰ and the failure of the bank did not destabilize the economy.⁴³¹

http://www.financialstabilityboard.org/wp-content/uploads/r_120208.pdf?page_moved=1.

423. *RBI Norms May Hit Co-operative Depositors*, ECONOMIC TIMES, Sept. 4, 2014.

424. *See, e.g.*, Jodie A. Kirshner, *The Bankruptcy Safe Harbor in Light of Govt. Bailouts*, 18 NYU J.L. PUB. POL. 795, 796–77 (2015).

425. *See, e.g.*, Karthikeyan Sundaram, *Kingfisher Woes Show Need for Bankruptcy Law: Corporate India*, BLOOMBERG, Nov. 1, 2012.

426. *See, e.g.*, Press Release 21/2016, Fin. Stability Bd., FSB Completes Peer Review of India, (Aug. 17, 2016), at 1-2.

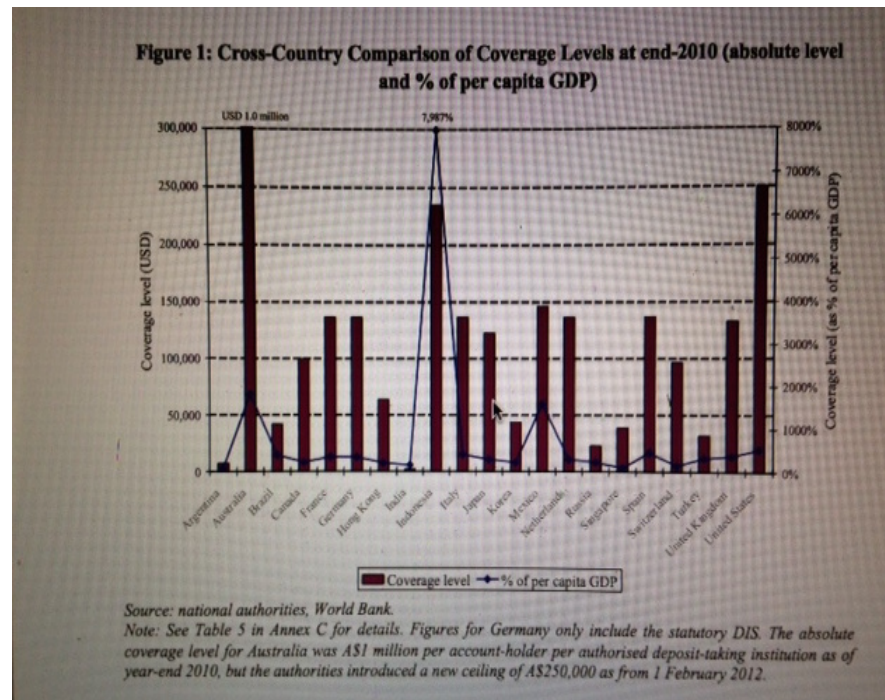
427. *Id.*

428. Vivek Gupta & K. Yamini Aparna, *The Rise and Fall of Global Trust Bank*, IBS Center for Mgmt. Res. (2005).

429. *Id.*

430. Malini Bhupta, *No Trust Bank*, INDIA TODAY, Aug. 9, 2004.

431. *See, e.g.*, *Global Trust Bank is Now Oriental Bank of Com.*, BANKNET INDIA, 2004.

Figure 10: Deposit Insurance by Country⁴³²

3. Originate-to-Hold Model

The originate-to-hold financing model retains the maturity risks inherent to bank loans to infrastructure projects but ring fences assets on bank balance sheets to preserve liquidity within banks to manage the risks.⁴³³ Similar to securitization, the banks sell assets in the form of future payments on loans called “covered bonds” to downstream investors, but unlike securitization, the banks retain a “cover pool” of assets, in which the investors have first priority in the event of default.⁴³⁴ So long as the cover pool provides adequate security to the investors upon a default, like securitization purported to do, the originate-to-hold model bypasses domestic bankruptcy law, but the model also eliminates the risks of securitization that relate to the off-balance sheet treatment of securitized loans.⁴³⁵ The cover pool requires a legal foundation more complicated than securitization

432. FIN. STABILITY BD., *supra* note 68.

433. See, e.g., Schwarcz, *supra* note 78, at 571.

434. See, e.g., M. Sandström, et al., *The Swedish Covered Bond Mkt. and Links to Fin. Stability*, 2013 SVERIGES RIKSBANK ECON. REV. 1, 2 (2013).

435. P. Agboyibor, et al., *Covered Bonds*, Orrick Herrington & Sutcliffe, at 7 (2008); See, e.g., Damerow, *supra* note 41, at 6.

demands, but the legal arrangements appear easy to implement, particularly in light of the overall low risk of the financing model.

i. Structure

The originate-to-hold model enables the pooling of small loans into larger, more liquid securities in order to attract investors, while avoiding some of the risks of securitization.⁴³⁶ Instead of transferring the projected payments on a loan to an SPV that pools the rights to the payments and resells them to investors, the bank retains the projected payments in a cover pool of assets on its balance sheet, and uses the cover pool to secure covered bonds based on the loans.⁴³⁷ The assets in the cover pool remain separate from the rest of the assets of the bank and must be updated continually to ensure that the cover pool will provide adequate collateral for investors in the bonds.⁴³⁸ If the bonds default, the investors have recourse to both the cover pool and the general assets of the bank.⁴³⁹

Maintaining the loans underlying the bonds on the balance sheet of the bank may discourage the bank from relaxing its lending standards in the way that securitization affected mortgage standards in the lead up to the recent crisis.⁴⁴⁰ Because in the originate-to-hold model the bank continues to bear some of the risks of its loans, the bank has greater incentives to extend loans with low probabilities of default.⁴⁴¹ The U.S. and Europe have begun to introduce requirements for banks that securitize loans to retain some of the loans on their balance sheets,⁴⁴² an approach that mimics the basic structure of the originate-to-hold model (Figure 11).⁴⁴³

436. See, e.g., H. Crebo-Rediker & D. Rediker, *Covered Bonds Can Rebuild America*, FORBES, July 28, 2008.

437. *Id.*

438. See, e.g., Schwarcz, *supra* note 78, at 566–67.

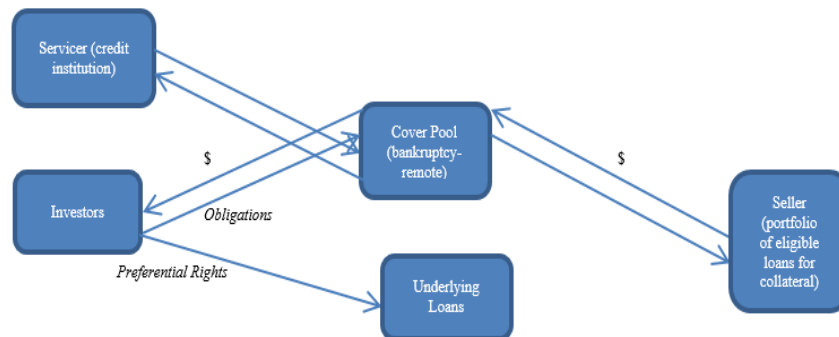
439. See, e.g., Crebo-Rediker, *supra* note 436.

440. See, e.g., Segoviano, *supra* note 300, at 16.

441. See, e.g., Damerow, *supra* note 41, at 6.

442. Jay Grushkin & Dan Bartfeld, *Securitizing Project Fin. Loans*, 19 J. STRUCTURED FIN. (2013), <http://www.milbank.com/images/content/1/4/14883.pdf>.

443. See Crebo-Rediker, *supra* note 436.

Figure 11: Originate-to-Manage Structure

The assets in the cover pool that secure the covered bonds protect investors from losses if the bonds default.⁴⁴⁴ The assets in the cover pool are insulated from claims by general creditors,⁴⁴⁵ and the bank must maintain the value of the cover pool to meet the claims of investors in the covered bonds.⁴⁴⁶ The bank consistently must update the assets in the cover pool to maintain the level of collateral that the bank provides to investors in the covered bonds.⁴⁴⁷

Because the investors have protection against most losses, the investors likely charge low interest rates for the bonds.⁴⁴⁸ If the bonds default, the investors have recourse to the cover pool assets, and, if the cover pool assets become deficient, the investors also have unsecured claims against the general assets of the bank.⁴⁴⁹ Because the assets in the cover pool provide collateral for investors, rather than providing cash flows to repay the investors, investors in covered bonds have no direct exposure to the loans underlying the covered bonds.⁴⁵⁰

ii. Implementation

The implementation of a covered bond program necessitates specific legal support, particularly surrounding the cover pool.⁴⁵¹ The program depends on timely enforcement, robust supervision and disclosure standards, and the insulation of the cover pool assets from bankruptcy.⁴⁵² While some economies

444. Rao, *supra* note 19, at 16.

445. Schwarcz, *supra* note 78, at 566.

446. See, e.g., Sandström, *supra* note 434, at 2.

447. See *id.*, at 3.

448. *Id.*

449. *Id.*

450. See, e.g., Robert Stammers, *Find Security in Covered Bonds*, INVESTOPEDIA, Sept. 19, 2014.

451. See, e.g., Damerow, *supra* note 41, at 1, 8.

452. See *infra*, this section.

may lack such legal foundations, implementing them does not appear likely to pose significant difficulties or to introduce significant delays.⁴⁵³

National legislation has implemented the originate-to-hold model in some countries, while in other countries originate-to-hold takes place through private contracting.⁴⁵⁴ Enforcing either the statutory or the contractual rights supporting the model requires efficient legal processes, and enforcement therefore, may prove challenging in countries like India where delays in the judicial system persist. A case in India may last fifteen years between filing and resolution,⁴⁵⁵ and approximately 38 million cases currently are pending in India.⁴⁵⁶ If every case currently filed in India received a fair trial, it would still take over 300 years to work through the backlog.⁴⁵⁷ India employs about eleven judges per million citizens, among the lowest ratios of judges to population of any country.⁴⁵⁸ The U.S., by comparison, employs more than 100 judges for every million people.⁴⁵⁹ The delays in India have bred corruption, as litigants have resorted to bribes and influence peddling to hasten the resolution of their cases.⁴⁶⁰ In a poll conducted by Transparency International, the non-governmental organization that monitors and publicizes corporate and political corruption, forty-five percent of respondents who had dealt with the judiciary between July 2009 and July 2010 reported that they had paid a bribe, and most commonly, they had paid the bribe to “speed things up.”⁴⁶¹

The establishment of the cover pool depends on regulation,⁴⁶² and also may challenge the legal systems of some countries. Specific regulations must define the assets eligible for the cover pool, how many assets the cover pool must include, the quality of assets required, and the status of the assets in bankruptcy.⁴⁶³ The cover pool also must be managed to ensure that it continues to meet the standards.⁴⁶⁴

In most jurisdictions that have introduced covered bonds, independent monitors supervise the cover pool. Sweden, for example, utilizes independent

453. See *infra*, this section.

454. PWC, *Uncovering Covered Bonds*, June 2012, at 6.

455. Qing-Yun Jiang, COURT DELAY AND LAW ENFORCEMENT IN CHINA, 12 (2008).

456. R Sedhuraman, *CJI blames Centre, states for pending cases*, THE TRIBUNE, Apr. 24, 2016.

457. Prabodh Malhotra, IMPACT OF TRIPS IN INDIA, 92 (2010).

458. Maneesh Chhibber, *Do we need more judges? CJI Thakur's plea to the Government Raises Key Questions*, THE INDIAN EXPRESS, May 1, 2016.

459. Balbir B. Bhasin, ASSESSING AND MITIGATING BUSINESS RISKS IN INDIA, 68 (2012).

460. TRANSPARENCY INTERNATIONAL, INDIA CORRUPTION REPORT - JUDICIAL SYSTEM, <http://www.business-anti-corruption.com/country-profiles/south-asia/india/corruption-levels/judicial-system.aspx>.

461. IMMIGRATION AND REFUGEE BOARD OF CANADA, INDIA: INDEPENDENCE OF AND CORRUPTION WITHIN THE JUDICIAL SYSTEM, INCLUDING THE SCALE OF CORRUPTION AT DIFFERENT LEVELS (2009-APRIL 2013), (Apr. 26, 2013), <http://www.refworld.org/docid/51ab45674.html>.

462. See, e.g., Damerow, *supra* note 41, at 1, 8.

463. See Damerow, *supra* note 41.

464. Schwarcz, *supra* note 78, at 563.

investigators.⁴⁶⁵ In other countries, existing supervisory structures may lack the capacity to manage the cover pool, but the deficiencies may easily be reformed. In India, for example, regulatory agencies with responsibility for different aspects of the financial markets have had difficulty coordinating among each other,⁴⁶⁶ and some government ministers have proposed unifying the regulation of the financial markets within one agency to reduce uncertainty surrounding the responsibilities of the different agencies and the standards for potential regulatory actions.⁴⁶⁷

To maintain collateralization, deteriorating loans in the cover pool must be realized and replaced with assets of greater value.⁴⁶⁸ To accomplish this, many jurisdictions have set out rules for disclosing the assets in the cover pool, and some jurisdictions have required registries of cover pool assets. New Zealand, for example, mandates cover pool registries that report the assets included in a pool.⁴⁶⁹ In Sweden, the independent inspector periodically samples the assets in cover pool registries to ensure the accuracy of reporting.⁴⁷⁰ Other countries, however, would have to institute a disclosure system, and India, for example, has demonstrated a poor record in creating equivalent registries. The Indian Companies Act established a system for registering security interests, but the system has proven complicated, and lenders have had to register security interests at multiple registries.⁴⁷¹ The process of registering a property interest also has consumed excessive time and investment. On average, registering a property interest in India takes sixty-two days and costs 7.7% of the value of the property.⁴⁷² In China, by comparison, registering a property interest in secured collateral takes an average of twenty-nine days and costs only 3.6% of the value of the property.⁴⁷³

To implement the originate-to-hold model, countries like India would have to establish and enforce rules to protect cover pool assets against the claims of general creditors in bankruptcy, but such rules also do not appear difficult to implement. The assets in the cover pool must remain separate from the general assets of the banks, available only to investors in covered bonds, for the assets to protect investors against potential losses and to disincentive banks from extending excessively-risky loans.⁴⁷⁴ Shielding the investors from the general bankruptcy

465. Sandström, *supra* note 434, at 4.

466. See, e.g., Basu, *supra* note 7, at 147.

467. *Id.* at 151.

468. See Sandström, *supra* note 434, at 15.

469. PWC, *Uncovering Covered Bonds*, June 2012, at 10.

470. Sandström, *supra* note 434, at 4.

471. For example, state registries collect information on immovable property, while the federal Registrar of Companies registers charges against equipment.

472. PLANNING COMM'N GOV'T OF INDIA, A HUNDRED SMALL STEPS: REPORT OF THE COMMITTEE ON FINANCIAL SECTOR REFORMS, 152 (2009).

473. *Id.*

474. See, e.g., Schwarcz, *supra* note 78, at 566–67.

process encourages the investors to buy the bonds at low interest rates even in countries with ineffective bankruptcy regimes such as India.⁴⁷⁵

iii. Risks

The treatment of covered bonds by regulators reflects the low overall risks of covered bonds.⁴⁷⁶ Nevertheless, covered bonds may inflict losses on unsecured creditors,⁴⁷⁷ and, if banks invest in the covered bonds of other banks in significant amounts, covered bonds may pose risks to the broader economy.⁴⁷⁸ The risks of using covered bonds, however, appear lower than the risks that other intermediate financing models introduce.

The disclosure requirements surrounding cover pool assets, as well as the supervision of the cover pool, increases transparency,⁴⁷⁹ and regulations have acknowledged the transparency in their treatment of covered bonds. The Solvency II regulations, for example, discourage European insurers from investing in long-term assets by requiring the insurers to back assets with long maturities with additional capital holdings.⁴⁸⁰ The regulations, however, require less capital to back covered bonds than regular bonds of the same issuer.⁴⁸¹ In addition, the Basel III regulations that govern banks incentivize banks to hold covered bonds by assigning covered bonds a higher status in the liquidity coverage ratio than the regulations require than the regulations assign to regular bonds.⁴⁸²

Nevertheless, the ring fencing of the cover pool assets also threatens losses among unsecured creditors of the banks that issue the bonds, in the absence of additional protections.⁴⁸³ Though the assets in the cover pool reduce risk exposures among investors in the covered bonds,⁴⁸⁴ the encumbrance of those assets decreases the assets available to unsecured creditors if the banks default.⁴⁸⁵ To the extent that deposit guarantees do not cover the claims of depositors, depositors fall within this category of creditors.⁴⁸⁶ Many countries that have implemented the originate-to-distribute model have done so to protect unsecured

475. See Rao, *supra* note 19, at 16; Sandström, *supra* note 434, at 3.

476. Crebo-Rediker, *supra* note 462.

477. See, e.g., Damerow, *supra* note 41, at 7.

478. Sandström, *supra* note 434, at 4.

479. Crebo-Rediker, *supra* note 439.

480. PwC, *Impact of other regulatory changes*, UNCOVERING COVERED BONDS, 13 (June 2012).

481. *Id.*

482. *Id.*

483. See, e.g., Damerow, *supra* note 41, at 7.

484. Investors in covered bonds have limited exposure to potential losses and therefore charge low interest rates on the bonds. The investors have recourse both to the assets in the cover pool, which must remain sufficiently collateralized, and they also have general deficiency claims against the bank that issued the bonds when the cover pool fails to secure the investors fully. In addition, the bank has incentives to maintain the quality of the loans underlying the bonds because the bank must keep the loans on its balance sheet.

485. See, e.g., Damerow, *supra* note 41, at 7.

486. See *id.*

creditors by limiting the total issuance of covered bonds.⁴⁸⁷ For example, Canada restricts banks from issuing covered bonds in amounts greater than 4% of the assets of the banks.⁴⁸⁸ Italy, the Netherlands, and Germany tie the permissible amount of covered bonds to the equity held by banks.⁴⁸⁹ India and other countries easily could establish similar restrictions.

In addition, covered bonds still may introduce systemic risks into economies.⁴⁹⁰ If, for example, the value of the loans underlying the bonds falls, the value of the cover pool also will decrease and the cover pool will require additional assets.⁴⁹¹ Investors in the covered bonds, however, may become less certain that they will profit from the bonds, and the cost of the bonds will rise, making it harder for a bank to add assets to the cover pool.⁴⁹² When banks have bought covered bonds from each other, the bank will have to add more assets to its cover pool at the same time that other banks also require more assets.⁴⁹³ If the other banks try to sell additional covered bonds, the simultaneous sales will decrease the value of the bonds, and the banks eventually will need alternative sources of capital.⁴⁹⁴ This scenario occurred in Sweden during the recent financial crisis, but the Swedish government successfully contained the instability that it threatened.⁴⁹⁵ As the value of covered bonds fell, banks sought to sell more covered bonds to generate additional assets for their cover pools.⁴⁹⁶ Some banks served as market makers and had to buy covered bonds from other banks.⁴⁹⁷ The banks that bought the bonds in turn had difficulty selling them on and could not get back the money they spent. The Swedish National Debt Office responded by loaning capital to the banks and taking the covered bonds as collateral for the loans.⁴⁹⁸

B. Bond-Based Alternative Models

Government participation in bond markets and credit default swaps transfer the default risk of bonds onto the government or third parties, which may attract investors into the bond market. Whereas banks could use the previous financing models to manage maturity risk but not eliminate it, which increased the cost and constrained the duration of the finance that the models provided, modifications to funding mechanisms within the capital markets could facilitate the provision of

487. *See id.*

488. *See id.*

489. *See id.*

490. Sandström, *supra* note 434, at 4.

491. *Id.* at 20–22.

492. *Id.*

493. *Id.*

494. *Id.*

495. *Id.* at 22.

496. *Id.*

497. *Id.*

498. *Id.* at 20–22.

low-cost, long-term capital and also increase the amount of capital available by attracting long-term investors, such as pension funds, insurance funds, and mutual funds into the market.⁴⁹⁹ These investors have access to long-term funds⁵⁰⁰ and provide a stable source of investment in long-term projects.⁵⁰¹ Because they do not need immediate returns, these investors could sustain investment during economic downturns.⁵⁰² Many emerging markets including India, however, restrict the participation of institutional investors in the bond market.⁵⁰³ In addition, government bonds and guarantees rely on government fundamentals, difficult for countries quickly to improve,⁵⁰⁴ and may place governmental budgets at risk. Credit default swaps (“CDS”) allow hedging but attract participants only in transparent markets with relatively low risks of default, and their use by speculators can increase economic instability.

1. Government Interventions

Instead of directly financing infrastructure through budget allocations, governments can raise capital for infrastructure through government bonds or can offer guarantees to bolster nascent corporate bond markets. Bond finance offers the long-term finance discussed in Section I, and, when a government has few risks or assumes risks from private investors, the government interventions potentially facilitate low-cost, low-risk finance.⁵⁰⁵ The government interventions, however, depend on fundamentals of the government, which cannot quickly improve, just as developing a corporate bond market entails the gradual creation of a legal foundation for the market.⁵⁰⁶ Moreover, the government may become unable to carry out the obligations that it undertook or may decide to divert capital to other goals.⁵⁰⁷ Placing the faith and credit of a government at risk may sacrifice the future ability of the government to borrow.⁵⁰⁸

499. See, e.g., TURNBULL, *supra* note 42, at 29–30.

500. See, e.g., *Public and Private Financing of Infrastructure*, 15 EUR. INV. BANK PAPERS 2, 80 (2010), http://www.eib.org/attachments/efs/eibpapers/eibpapers_2010_v15_n02_en.pdf.

501. FIN. STABILITY BD., *Financial Regulatory Factors Affecting the Availability of Long-Term Investment Finance, Report to G20 Finance Ministers and Central Bank Governors*, at 9–10 (Feb. 2013).

502. See *id.*

503. See, e.g., Ila Patnaik et al., *Foreign investment in the Indian Government bond market* 8 (SEBI Working Paper No. 126, 2013).

504. C. ACHILLE, M. MEZUI & B. HUNDAL, *STRUCTURED FINANCE: CONDITIONS FOR INFRASTRUCTURE PROJECT BONDS IN AFRICAN MARKETS* 75 (2013).

505. See, e.g., P. Venkatachalam, *Innovative Approaches to Municipal Infrastructure Financing* 10 (LSE Dev. Stud. Inst. Working Paper Series No. 05-68, Nov. 2005).

506. See, e.g., del Valle, *supra* note 120, at 6.

507. See, e.g., Achille, *supra* note 44, at 20.

508. See, e.g., VENU PRASATH, *CREDIT ENHANCED INFRASTRUCTURE BONDS IN EMERGING MARKETS* 18 (2013) (discussing how the faith and trust of the government backs the instruments); See, e.g., Stephany Griffith-Jones & Ana Teresa Fuzzo de Lima, *Alternative Loan Guarantee Mechanisms and Project Finance for Infrastructure in Developing Countries*, INST. OF DEV. STUD. 9, 10 (2005) (discussing exposure of government to risk and expense)

i. Structure

Government bonds may offer long-term finance at a low cost because of the government backing of the bonds, and government guarantees can overcome limits to investment in corporate bonds by providing potential investors with assurances against risks. The development of a government bond market also may provide a foundation for expanding the corporate bond market into a source of long-term finance.⁵⁰⁹ The experience of East Asian countries in the wake of the Asian financial crisis has demonstrated that countries quickly can introduce government bond markets.⁵¹⁰ Alternatively, government guarantees can target specific risks, time periods, or classes of investors, and guarantees have attracted additional investment into less-developed corporate bond markets in several instances.

a. Government Bonds

A government can issue long-term government bonds to supplement existing government revenues. As the government claims to back the bonds, investors may perceive government bonds as low risk and offer capital at a low cost.⁵¹¹ If, however, a government faces a high likelihood of sovereign default, investors may not invest in the bonds, or they may raise the interest rates that they charge.⁵¹²

The bonds suit infrastructure finance⁵¹³ and provide additional benefits.⁵¹⁴ Government bonds raise capital in local currency, and the government can issue bonds of the same duration as a typical infrastructure project.⁵¹⁵ The development of the government bond market also may create a foundation for a corporate bond market by providing market infrastructure⁵¹⁶ and contributing to the establishment of a yield curve.⁵¹⁷

509. See, e.g., del Valle, *supra* note 120, at 4.

510. SORASART SUKCHAROENSIN, *Development of Bond Markets in ASEAN after Asian Financial Crisis*, in PROCEEDINGS OF THE NINTH ASIA-PACIFIC CONFERENCE ON GLOBAL BUSINESS, ECONOMICS, FINANCE AND BANKING 5 (Aug. 11–13, 2016).

511. See, e.g., USAID, FS SERIES NO. 12, DEVELOPMENT GOVERNMENT BONDS MARKETS 3 (Oct. 2010), <https://www.yumpu.com/en/document/view/29992363/fs-series-12-developing-government-bond-markets> (stating that domestic government bonds represent efficient finance because the “amounts are larger, the maturities are longer, the longer term cost is lower, and the government avoids exposure to currency risks”).

512. See, e.g., HELA CHEIKHROUHOU, STRUCTURE FINANCE IN LATIN AMERICA 63 (2007); see also Griffith-Jones, *supra* note 508, at 9.

513. See, e.g., USAID, *supra* note 511.

514. See, e.g., U.N. System Task Team (UNTT), Working Group on Sustainable Development Financing, Challenges in raising private sector resources for financing sustainable development, at 20 (2013) <https://sustainabledevelopment.un.org/content/documents/2106Chapter%203-challenges%20in%20raising%20private%20sector%20resources.pdf>.

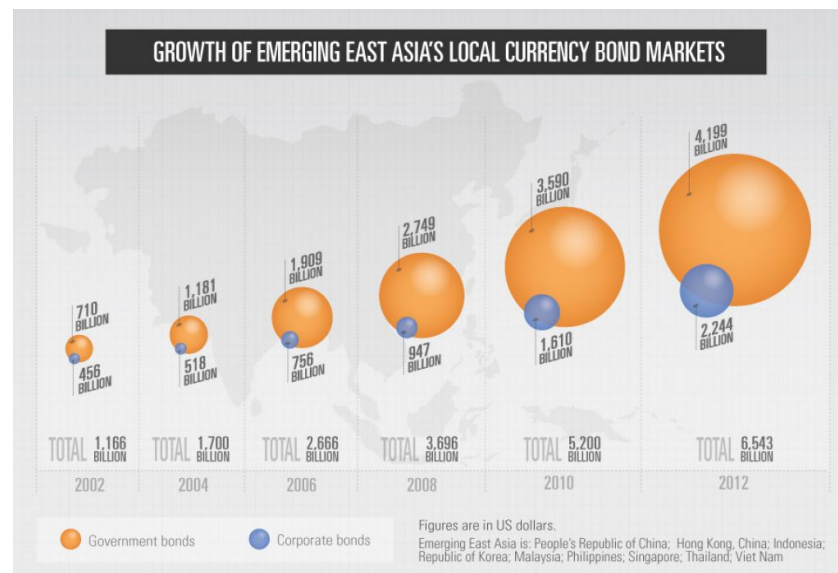
515. See, e.g., USAID, *supra* note 511.

516. See, e.g., del Valle, *supra* note 120, at 4.

517. See, e.g., WORLD BANK, DEVELOPING GOVERNMENT BOND MARKETS: A HANDBOOK 3 (2001), <https://openknowledge.worldbank.org/handle/10986/13865> (stating that government bonds “provide a benchmark yield curve and help establish the overall credit curve.”).

In the wake of the Asian financial crisis in the late 1990s, for example, several East Asian countries sought to develop local bond markets to reduce the reliance of their economies on bank finance and international financial markets.⁵¹⁸ The countries rapidly developed the bond markets. The size of local currency bond markets in East Asian economies excluding Japan, for example, rose to US \$3.88 trillion by June 2008 from \$491 billion in 1997, with growth in the government bond markets driving the increase (Figure 12).⁵¹⁹

Figure 12: Growth in East Asian Government Bond Markets⁵²⁰



b. Government Guarantees

Government guarantees of corporate bonds can help to attract investors into the corporate bond market.⁵²¹ In countries where creditors recover few assets in bankruptcy, including India,⁵²² investors protect themselves against losses by charging interest rates too high⁵²³ for a viable corporate bond market to

518. See, e.g., Kenneth Kang, Geena Kim, & Changyong Rhee, *Developing the Government Bond Market in South Korea: History, Challenges, and Implications for Asian Countries*, 4 ASIAN ECON. PAPERS 91, 91 (2005).

519. *Asian Bond Monitor*, ASIAN DEV. BANK (Mar. 2013), <http://www.adb.org/publications/asia-bond-monitor-march-2013>.

520. *Id.*

521. See T. Irwin, *Government Guarantees*, WORLD BANK, 2 (2007) (For example, Argentina used government guarantees to attract foreign investment in its railways).

522. Pandey & Chandrashekar, *supra* note 364.

523. See, e.g., ASIFMA, INDIA BOND MARKET ROADMAP, 1 (Oct. 2013).

develop.⁵²⁴ If the government, however, guarantees that the bonds will not default, the government may bypass the impediment to investment.⁵²⁵

Guarantees can eliminate a range of risks that discourage potential investors from participating in the bond market.⁵²⁶ Foreign investors in domestic infrastructure bonds, for example, must undertake currency risk because the projects earn revenues in domestic currency and pay bond coupons in domestic currency.⁵²⁷ The government, however, can offer guarantees against fluctuations in exchange rates.⁵²⁸ Guarantees also can protect investors against inflation and interest rate risks, liquidity risk caused by the absence of a secondary market for bonds, regulatory risks from potential changes to regulations that affect companies issuing bonds, and political risk.⁵²⁹

Governments can tailor the guarantees to the needs of investors. They can, for example, calibrate guarantees to periods of high risk, such as the construction period of infrastructure projects.⁵³⁰ To attract investors willing to invest only in high-rated projects, governments can act to increase the ratings of bond offerings.⁵³¹

Many examples exist of the successful use of government guarantees. In the early 1990s, the government of New South Wales extended revenue guarantees to bonds that financed construction of the Sydney Harbor Tunnel Project, a tunnel spanning the Sydney Harbor.⁵³² The cost of constructing the tunnel seemed likely to exceed the future toll revenues from the tunnel, and the government offered to supplement the toll revenues in order to ensure a minimum profit.⁵³³ The Chilean government also has extended revenue guarantees and exchange-rate guarantees to privately financed toll roads.⁵³⁴ A typical revenue guarantee has ensured that the developers of a road would receive revenues equal to seventy percent of the estimated present value of the cost of the road.⁵³⁵ Some of the guarantees have lasted for as long as twenty years, and many have provided a higher percentage

524. See, e.g., ASIA DEV. BANKS, EQUITY INVESTMENT AND LONG-TERM LOAN TO INFRASTRUCTURE DEVELOPMENT FINANCE COMPANY (INDIA), 14 (Dec. 2011).

525. See, e.g., Griffith-Jones, *supra* note 505, at Table 8 (showing guarantee reducing interest rates).

526. See *id.* at 3.

527. Irwin, *supra* note 521, at 71.

528. See *id.* at 73.

529. See Rao, *supra* note 19, at 15.

530. See, e.g., B20 AUSTL. 2014, B20 INFRASTRUCTURE & INVESTMENT TASKFORCE POLICY SUMMARY 6 (2014), <http://www.b20australia.info/Documents/B20%20Financing%20Growth%20Taskforce%20-%20Infrastructure%20Paper.pdf>.

531. See Rao, *supra* note 19, at 15.

532. Irwin, *supra* note 521, at 3.

533. *Id.*

534. *Id.* at 2.

535. *Id.*

of revenues in the early stages of a project and a lower percentage at later stages.⁵³⁶

ii. Implementation

Because economic stability and a sophisticated legal infrastructure underpin government bond markets and guarantees,⁵³⁷ a country cannot easily implement a government bond market or guarantee system before the conditions for them have developed. Government bond markets depend on the trust of investors in government policies and the transparency and predictability of the bond market.⁵³⁸ Government guarantees depend on government credibility⁵³⁹ and also necessitate complicated legal drafting.⁵⁴⁰

a. Government Bonds

Before it can develop a government bond market, a government must have achieved macroeconomic stability, including a sustainable fiscal policy, stable monetary conditions, and a credible and transparent exchange rate regime.⁵⁴¹ If investors perceive the government as unable to manage its debts and expenditures or unable to collect taxes, the investors will anticipate high risks of default on the bonds and raise the interest rates on the bonds or decide not to participate in the government bond market.⁵⁴²

Singapore, for example, has built a government bond market to finance infrastructure, but many other countries have not attained the market fundamentals that have made government finance successful in Singapore.⁵⁴³ The government in Singapore, for example, has maintained a balanced budget, with no external debt.⁵⁴⁴

The legal infrastructure to support a government bond market also takes time to develop. Bond markets rely on accurate financial reporting, a reliable long-term

536. *Id.*

537. *See, e.g.,* WORLD BANK, *supra* note 7 (stating that “government bonds typically are backed by the ‘faith and credit’ of the government”).

538. *See id.* (stating in the context of government bonds that such trust “takes time to acquire, and must be built”).

539. *See, e.g.,* Griffith-Jones, *supra* note 508, at 9.

540. *See, e.g.,* Irwin, *supra* note 521, at 2–3 (discussing clever contracting).

541. *See, e.g.,* WORLD BANK, *supra* note 7 (stating the dependence on investor interest in a “macroeconomic policy framework with a credible commitment to prudent and sustainable fiscal policies, stable monetary conditions, and a credible exchange rate regime”).

542. *See, e.g.,* del Valle, *supra* note 120, at 6.

543. *See, e.g.,* *Is it fiscally sustainable for Singapore to have such a high level of debt?*, GOV'T OF SINGAPORE (Aug. 31, 2012), <https://www.gov.sg/factually/content/is-it-fiscally-sustainable-for-singapore-to-have-such-a-high-level-of-debt>.

544. *See id.*

yield curve,⁵⁴⁵ and liquidity.⁵⁴⁶ The law must protect the rights of investors and provide for the fair resolution of disputes.⁵⁴⁷ Investors in many countries, however, may lack confidence in disclosure standards,⁵⁴⁸ and, without greater liquidity, yields may be difficult to predict.⁵⁴⁹ In India, for example, bond trades often are not reported.⁵⁵⁰ Trading of government bonds also has concentrated in bonds with ten-year maturities, which has prevented the development of benchmarks for pricing government bonds at a full range of maturities.⁵⁵¹

b. Government Guarantees

Although the implementation of a government guarantee program does not seem to depend on significant legal supports, the law that the implementation does require also seems difficult quickly to establish. To issue guarantees, governments must achieve high sovereign ratings⁵⁵² and must have access to agents with the skills to draft suitable contracts.⁵⁵³

For investors to trust in government guarantees, governments must maintain a high national credit standing.⁵⁵⁴ Governments that appear to have low credit quality cannot share credibly in the credit risk of private projects.⁵⁵⁵ Many emerging economies, however, have sovereign ratings below BBB,⁵⁵⁶ and India currently has a rating of BBB-.⁵⁵⁷

The language of the guarantees also must be tailored to specific risks, and the guarantees must not introduce improper incentives.⁵⁵⁸ When Turkey, for example, offered revenue guarantees on some railroad lines but not others, railroad operators diverted traffic from guaranteed to unguaranteed lines.⁵⁵⁹ South

545. See, e.g., Irving, *supra* note 521, at 51 (describing shortfalls in these areas).

546. See, e.g., JORGE CASTELLANOS, DEVELOPING GOVERNMENT BOND MARKETS 4 (1998).

547. See *id.* at 7.

548. See, e.g., del Valle, *supra* note 120, at 7.

549. See, e.g., Kanad Chaudhari, Meenal Raje & Charan Singh, *Corporate Bond Markets in India* 22 (Indian Inst. of Mgmt. Bangalore Working Paper No. 450, Feb. 2014).

550. See, e.g., Sanjana Juneja, *Evaluation of various government policies in strengthening the secondary Money Market and Debt Market*, 5 INTL RES. J. MAN. SOC. & HUM., at 717 (2014).

551. See, e.g., Chaudhari, *supra* note 549.

552. See, e.g., Griffith-Jones, *supra* note 508, at 9 (stating that the credit standing of developing countries may render government guarantees impossible).

553. See, e.g., Irwin, *supra* note 521, at 2–3 (discussing clever contracting).

554. See, e.g., HELA CHEIKHROUHO ET AL., STRUCTURE FINANCE IN LATIN AMERICA: CHANNELING PENSION FUNDS TO HOUSING, INFRASTRUCTURE, AND SMALL BUSINESSES 63 (2007).

555. See, e.g., Griffith-Jones, *supra* note 508, at 9 (stating that the credit standing of developing countries may render government guarantees impossible).

556. See, e.g., VENU PRASATH, CREDIT ENHANCED INFRASTRUCTURE BONDS IN EMERGING MARKETS, 84 (2013).

557. See, e.g., INDIA RATING, TRADING ECON. (Nov. 8, 2017), <http://www.tradingeconomics.com/india/rating>.

558. See, e.g., Irwin, *supra* note 521, at 20–30.

559. *Id.* at 29.

Africa, by contrast, has constrained such actions by offering revenue guarantees that compensate only 50% of revenue shortfalls.⁵⁶⁰

iii. Risks

Both forms of government intervention threaten to place national budgets in jeopardy and may depend on governments following through on what they merely promised to do, or what they lack the ability to do.⁵⁶¹ Government intervention ultimately may sacrifice the ability of governments to borrow.⁵⁶²

a. Government Bonds

The involvement of the government in government bond markets carries potential risks both for the government and for investors. If participants in a government bond market perceive rising risks, the participants will increase interest rates.⁵⁶³ Eventually, it may become difficult for the government to borrow to service its debts.⁵⁶⁴ In addition, though government bonds may purport to raise money to fund investment in infrastructure, the government may spend bond revenues on other objectives.⁵⁶⁵ The assets underlying government bonds do not generate income streams, and the government pays investors in government bonds from its tax revenues.⁵⁶⁶ As a result, the government can channel the capital that it raises through the bonds to any activity that it chooses.⁵⁶⁷

b. Government Guarantees

Government guarantees may increase the availability of long-term capital at the expense of the stability and reputation of the government. Opening the government budget to payments on guarantees may lead to costly financial obligations, causing hardships for taxpayers and negatively affecting the national budget.⁵⁶⁸ Governments in developing countries may not have the financial capacity to meet their commitments. Argentina, for example, attracted investment to its railway system by guaranteeing returns of 6-7%.⁵⁶⁹ The government, however, did not budget accurately for claims on the guarantee.⁵⁷⁰ Because the

560. *Id.* at 26.

561. *See, e.g.,* Achille, *supra* note 44, at 20.

562. *See, e.g.,* Irwin, *supra* note 521, at 18.

563. *See, e.g.,* del Valle, *supra* note 120, at 6.

564. *See, e.g.,* Irwin, *supra* note 521, at 18.

565. *See, e.g.,* Achille, *supra* note 44, at 20.

566. *Id.*

567. *Id.*

568. *See, e.g.,* Griffith-Jones, *supra* note 508, at 9.

569. *See, e.g.,* Irwin, *supra* note 521, at 2.

570. *Id.*

government could not meet the claims, eventually the guarantee contributed to the sovereign default of Argentina.⁵⁷¹

Often guarantees become due when a government has less ability to pay for them.⁵⁷² If a government, for example, guarantees bonds to support the construction of a toll road, traffic on the road may decrease during an economic recession, triggering the guarantee at a time when tax revenues have fallen.⁵⁷³

Governments may have difficulty forecasting and planning for their liabilities under guarantees.⁵⁷⁴ In the 1990s, for example, the government of the Republic of Korea guaranteed up to 90% of the revenues of a privately-financed road linking Seoul to a new airport at Incheon for a period of twenty years.⁵⁷⁵ The government retained the right to keep any revenues that exceeded the volume of revenues forecast.⁵⁷⁶ In fact, however, the revenues amounted to less than half of the volume of revenues forecast, and the government has had to pay a substantial amount of money every year since the road opened.⁵⁷⁷ The government remains uncertain of the total amount of money it will become responsible for paying over the duration of the guarantee.⁵⁷⁸

Finally, guarantees may encourage investment in high-risk projects and also incentivize insufficient monitoring.⁵⁷⁹ When the burden of failed projects falls on the government, investors may support projects with possibilities for earning high profits but high probabilities of failure.⁵⁸⁰ The companies responsible for the projects also may undertake excessive debt, since the government will become responsible if the companies default.⁵⁸¹ In addition, the guarantees shift responsibility for monitoring projects from investors to the government.⁵⁸² The investors have certain returns, while government bureaucrats may have no personal stake in project outcomes, and therefore the bureaucrats may fail to influence, anticipate, or respond to risks.⁵⁸³

571. *Id.*

572. *Id.* at 3.

573. *Id.*

574. *See, e.g.*, INT'L MONETARY FUND, GOVERNMENT GUARANTEES AND FISCAL RISK, 3 (Apr. 1, 2005).

575. Irwin, *supra* note 521, at 1.

576. *Id.*

577. *Id.* at 1-2.

578. *Id.* at 2.

579. B. Eichengreen, *Financing Infrastructure in Developing Countries*, 10 WORLD BANK RES. OBSERVER 75, 78 (1995).

580. *See, e.g.*, Griffith-Jones, *supra* note 508, at 9.

581. *See, e.g.*, Eichengreen, *supra* note 579, at 78 (discussing firms that exhaust the resources available to them because the government, and in turn the taxpayers, will bear the ultimate burden in bankruptcy).

582. *Id.*

583. Irwin, *supra* note 521, at 69.

2. Credit Default Swap Market

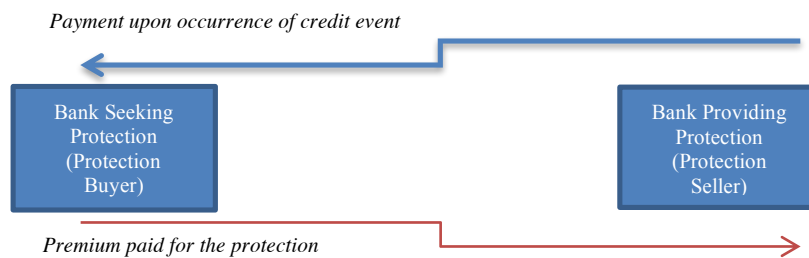
Credit default swaps transfer the default risks of bonds to third parties,⁵⁸⁴ but the CDS rely on efficient pricing in an active bond market,⁵⁸⁵ and do not eliminate risks from the financial system.⁵⁸⁶ While relatively easy to implement, CDS may threaten the stability of the financial system in ways that appear difficult to contain.⁵⁸⁷

i. Structure

Credit default swaps enable hedging of the default risks of bonds.⁵⁸⁸ The hedging facilitates increased liquidity and lower interest rates on bonds.⁵⁸⁹ CDS therefore may increase participation in corporate bond markets.⁵⁹⁰

CDS insure investors in bonds against the risk of the bonds defaulting.⁵⁹¹ In return for fees to protection sellers, investors in the underlying bonds receive payouts if the bonds default. (See Figure 13).⁵⁹²

Figure 13: Credit Default Swaps



CDS therefore redistribute the risk that bonds will default to third parties, which facilitates finance of infrastructure projects in two ways. First, transferring the risk of default allows investors in the bonds of infrastructure companies to

584. INT'L MONETARY FUND, SELECTED TOPIC: THE ROLE OF FINANCIAL DERIVATIVES IN EMERGING MARKETS, 63, <https://www.imf.org/External/Pubs/FT/GFSR/2002/04/pdf/chp4.pdf>.

585. See, e.g., B. Gerard Dages, Damon Palmer & Shad Turney, Federal Reserve Bank of New York, *An Overview of the Emerging Market Credit Derivatives Market*, (May 2005), <https://www.bis.org/publ/cgfs22fedny4.pdf> (discussing problem of insufficient data on risk to facilitate the pricing of derivatives).

586. See, e.g., INT'L MONETARY FUND, *supra* note 584, at 67.

587. See *infra* this section.

588. INT'L MONETARY FUND, *supra* note 584, at 63.

589. IOSCO, *Credit Default Swap Market*, FR05/12, at 31 (June 2012).

590. See, e.g., Iuliana Ismailescu & Blake Phillips, *Credit Default Swaps and the Market for Sovereign Debt*, 52 J. BANKING & FIN, 43, 45 (2015).

591. N. Narayan, *Credit Default Swaps*, 2010 CORP. L. CASES J. 295, 296 (2010).

592. *Id.*

hedge their exposure to the bonds.⁵⁹³ Because hedging reduces the risk of the bonds for investors in the bonds, hedging enables the investors to charge lower interest rates. Second, the ability to transfer the risk of default attracts investors and increases the liquidity of the bonds.⁵⁹⁴ More frequent trading of the bonds reduces information asymmetries and improves the price discovery process, and the increased liquidity of the bonds⁵⁹⁵ also enables investors to charge lower interest rates, because the investors have more ability to sell the bonds if the risk of the bonds fluctuates.⁵⁹⁶

The benefits of using CDS have particular significance in emerging economies such as India, where corporate bond markets have not attracted many investors⁵⁹⁷ and investors recover few assets when bonds default.⁵⁹⁸ As discussed above in section II, the secondary market for corporate bonds in India has a small investor base, due to restrictions on institutional investors and high taxes and stamp duties that hamper secondary trading.⁵⁹⁹ Section IV.A.2 set out the reasons that investor recoveries in bankruptcy in India remain low.⁶⁰⁰

ii. Implementation

The implementation of credit default swaps markets can occur quickly, though some economies may have difficulty attaining the transparency necessary in underlying bond markets to attract participants. If the risks to potential protection sellers appear too high, CDS markets may not develop.

CDS amount to contracts that establish the obligations of protection sellers and protection buyers.⁶⁰¹ The contractual arrangements increasingly have become standardized.⁶⁰² The International Swaps and Derivatives Association, for example, publishes master agreements that set out prevailing terms.⁶⁰³

CDS typically do not receive credit ratings,⁶⁰⁴ and consequently the assessment of default risks in CDS markets depends on disclosure and auditing

593. IOSCO, *supra* note 589, at 31.

594. *Id.*

595. See, e.g., *Why Would Anyone Want to Restart the Credit Default Swaps Market?*, BLOOMBERG, May 11, 2015.

596. IOSCO, *supra* note 589.

597. See, e.g., Anjali Sharma, *India's Corporate Bond Market Puzzle*, LIVEMINT, (Mar. 11, 2017); Vaibhav Anand & Rajeswari Sengupta, *The Corporate Debt Market in India*, IDEAS FOR INDIA (May 19, 2014).

598. See generally *id.*

599. See *supra* Section II.

600. See *supra* Section IV.A.2.

601. See, e.g., PATRICK AUGUSTIN, ET. AL., CREDIT DEFAULT SWAPS: A SURVEY, 7, <http://people.stern.nyu.edu/msubrahm/papers/CDS%20Survey.pdf>; see also Suresh Sundaresan, *Fixed Income Markets and Their Derivatives*, 377 (2009).

602. See, e.g., Hung-gay Fung & Yiuman Tse, *International Financial Markets*, 93 (2013).

603. Narayan, *supra* note 591, at 297.

604. See, e.g., Mary Watkins & Nicole Bullock, *Banks Face Swaps Threat After Ratings Cuts*, FINANCIAL TIMES, (July 11, 2012) (stating that swaps “themselves are not rated”).

practices that some emerging economies, including India, have not yet perfected.⁶⁰⁵ When public companies file complete financial reports that are well audited, CDS on corporate bonds reference a transparent underlying market.⁶⁰⁶ In India, however, the quality of the financial reports,⁶⁰⁷ as well as access to the reports, remains problematic.⁶⁰⁸ Indian companies have faced few sanctions for noncompliance with reporting requirements.⁶⁰⁹ A study by the World Bank also has exposed accounting problems that survived auditing undetected, and some have advocated for an independent entity to supervise the auditing industry, in order to improve standards and enhance the credibility of financial reports.⁶¹⁰ Although the Indian Department of Company Affairs and the Registrar of Companies collect company information, these agencies actively maintain the confidentiality of the information.⁶¹¹ The law in India also has prevented independent third parties from publishing company data in an organized way.⁶¹²

Moreover, potential protection sellers likely participate in CDS markets only if they perceive accurate bond pricing and some participate only if they perceive low risks of bond defaults.⁶¹³ Less developed bond markets may lack sufficient liquidity to allow for dynamic pricing of default risk into bonds.⁶¹⁴ In India, for example, as discussed in Section II, the bonds of only a handful of companies dominate secondary trading.⁶¹⁵ The Indian bond market also has not offered reliable benchmarks from which investors can estimate the value of the bonds.⁶¹⁶ Generally, a yield curve based on the government bond market provides a credible reference for the price of corporate bonds of different maturities,⁶¹⁷ but the yield curve in India remains incomplete.⁶¹⁸ As discussed earlier in this section, most

605. See, e.g., SANKATHA SINGH, *CORPORATE GOVERNANCE: GLOBAL CONCEPTS AND PRACTICES*, 1 (2005).

606. R. Anderson, *Credit Default Swaps: What are the Social Benefits and Costs?*, Banque de France, 14 FIN. STABILITY REV. 1, 5 (2010).

607. See, e.g., INDIA RATINGS & RESEARCH, *QUALITY OF FINANCIAL REPORTING OF LARGE CORPORATES*, 1 (July 23, 2014).

608. See, e.g., Sen, *supra* note 168, at 9.

609. See *id.*

610. See, e.g., World Bank, *Report on the Observance of Standards and Codes (ROSC) India*, 4, 10, 15, 17, 19-20 (Dec. 20, 2004).

611. See, e.g., Sen, *supra* note 168, at 9.

612. *Id.*

613. See, e.g., PAUL FERRARA & SEYED ALI NEZZAMODDINI, *INTEREST RATE SWAPS – AN EXPOSURE ANALYSIS*, SOCIETY OF ACTUARIES’ COMMITTEE ON FINANCE RESEARCH, 10 (July 2013).

614. See, e.g., B. Gerard Dages, Damon Palmer & Shad Turney, Federal Reserve Bank of New York, *An Overview of the Emerging Market Credit Derivatives Market*, (May 2005), <https://www.bis.org/publ/cgfs22fedny4.pdf> (discussing problem of insufficient data on risk to facilitate the pricing of derivatives).

615. See *supra* Section II.

616. Basu, *supra* note 7, at 147.

617. See, e.g., WORLD ECONOMIC FORUM, *ACCELERATING EMERGING CAPITAL MARKETS DEVELOPMENT CORPORATE BOND MARKETS*, 25 (Apr. 2015) at 25.

618. Basu, *supra* note 7, at 147.

investment in Indian government bonds has concentrated in bonds of ten-year maturities. The clustering around a single maturity has constrained the development of benchmarks for pricing corporate bonds at a full range of maturities.⁶¹⁹

Even when protection remains available at high levels of default risk, the protection may become very expensive.⁶²⁰ In many countries including India, infrastructure projects frequently have failed.⁶²¹ Some potential protection sellers therefore may have insufficient assurances of the stability of the bonds of the project development companies. In countries similar to India a viable CDS market may not develop.

iii. Risks

Although credit default swaps allow investors to unbundle and redistribute default risks, encouraging investment in corporate bonds, CDS also allow market participants to speculate, push companies into bankruptcy, and propagate economic vulnerabilities.⁶²²

Rather than using CDS to hedge default risks, investors can use CDS to speculate.⁶²³ While those that use CDS to hedge seek to limit the risk of the underlying bonds, those that use CDS to speculate seek to profit from fluctuations in the risk of the underlying bonds.⁶²⁴ Speculators bet against the credit quality of the bonds for which they buy protection and receive payments if the bonds default.

Such investors may profit from forcing distressed firms into bankruptcy even when debt restructuring would lead to better outcomes or cost less.⁶²⁵ The gains to investors that have bought CDS protection may outweigh the losses on the bonds for the investors.⁶²⁶

In addition to destroying value in companies,⁶²⁷ speculation using CDS can introduce vulnerabilities into the financial system.⁶²⁸ When banks invest in bonds

619. *Id.*

620. *See, e.g.,* M. Hünseler, *Credit Portfolio Management* (2013) (“high default risk borrowers tend to trade with a higher short end risk premium”).

621. *See, e.g.,* Ryan Orr & Barry Metzger, *The Legacy of Failed Global Projects*, Proceedings of the General Counsels’ Roundtable, Stanford University, California, Jan. 21-22, 2005 at 3–4, 12, 18 (discussing reasons for frequency of distressed infrastructure project in emerging markets); *see also* Anto Antony & Anoop Agrawal, *Macquarie Sees Ticking Bomb for India as Restructured Loans Fail*, BLOOMBERG, May 28, 2015.

622. *See, e.g.,* IOSCO, *supra* note 589.

623. Narayan, *supra* note 591, at 296.

624. *Id.*

625. IOSCO, *supra* note 589.

626. *Id.*

627. Forcing a company into bankruptcy rather than restructuring the company potentially destroys value in the company. It also may, however, produce some benefits: by raising the bargaining power of the investors in the bonds, CDS may prevent the companies that issued the bonds from renegotiating their payments to the investors, which may reduce the cost of credit for the companies.

628. INT’L MONETARY FUND, *supra* note 584, at 67.

and then buy CDS protection, the CDS can magnify maturity risk in ways that regulators may have difficulty detecting.⁶²⁹ Moreover, although the CDS protect investors in bonds against losses if the bonds default,⁶³⁰ CDS do not remove the underlying risk of default from the financial system.⁶³¹ Because buyers of CDS protection do not have to pay for the protection until a default occurs,⁶³² investors in bonds have the ability to establish leveraged positions that amplify volatility.⁶³³ If, for example, a bank invests in a bond and hedges its exposure to the bond by buying CDS protection from another bank, in cases where the seller of the CDS protection defaults and the bond also defaults, the bank that invested in the bond no longer has protection against the losses.⁶³⁴ When banks enter into chains of interlinked CDS transactions, the inability of the protection seller to pay the protection buyer upon the default of the underlying bond threatens to spread losses through the market.⁶³⁵

Regulatory changes in the wake of the crisis reflect the recognition of this risk, and other countries easily could implement similar reforms. Many countries, including the U.S., Denmark, and South Korea, have undertaken efforts to establish multilateral settlement of CDS through central counterparties (“CCPs”).⁶³⁶ When a CDS is agreed between a protection buyer and protection seller, the CCP clears the trade, becoming the counterparty to each leg of the trade.⁶³⁷ If the protection seller defaults, the CCP absorbs the loss and honors the obligation to the protection buyer.⁶³⁸ The CCP thus cushions the risk of defaults.⁶³⁹ Currently, India limits CDS trades to: 1) transactions that reference Indian entities; 2) Indian protection buyers and sellers; and 3) rated reference entities, and the CDS market remains very small.⁶⁴⁰ If, however, Indian

629. *Id.*

630. Pimco, *Bond Basics: What Are Credit Default Swaps and How Do They Work?*, 1 (June 2006), <http://www.econ.tcu.edu/quinn/econfinmkt/Credit%20Default%20Swaps%20US.pdf>.

631. *See, e.g.*, Matthew Philips, *How Credit Default Swaps Became a Time Bomb*, NEWSWEEK (Sept. 26, 2008) (describing how losses at Lehman Brothers spread to AIG through swaps transactions).

632. Pimco, *supra* note 630.

633. INT’L MONETARY FUND, GLOBAL FINANCIAL STABILITY REPORT—MARKET DEVELOPMENTS AND ISSUES, CHAPTER IV, 67 (Dec. 2002), <https://www.imf.org/External/Pubs/FT/GFSR/2002/04/pdf/chp4.pdf>.

634. Philips, *supra* note 631.

635. *Id.*

636. *See, e.g.*, Cyril Monnet, *Let’s Make it Clear*, Federal Reserve of Philadelphia, Business Review, Q1, at 1 (2010); INT’L MONETARY FUND, *Denmark: Financial Sector Assessment Program*, 20 (2014); BIS, *Payment, Clearing and Settlement Systems in Korea*, Red Book, 211 (2011), https://www.bis.org/cpmi/publ/d97_kr.pdf.

637. R. Anderson, *Credit Default Swaps: What are the Social Benefits and Costs?*, Banque de France, 14 FIN. STABILITY REV. 1, 6 (2010).

638. *Id.*

639. *Id.*

640. Reserve Bank of India, circular IDMD.PCD.No. 5053 /14.03.04/2010-11, (May 23, 2011), *as amended by* Reserve Bank of India, circular IDMD.PCD.No.10 /14.03.04/2012-13, (Jan. 7, 2013).

regulations and similar regulations in other countries liberalized and the markets grew, multilateral settlement immediately would become important.⁶⁴¹

Finally, current reforms are examining the contribution to the recent crisis of exemptions for derivatives including CDS from the bankruptcy code.⁶⁴² If domestic banks in other countries like India began to tether themselves to each other through CDS trades, such evaluations also would become necessary, along with the establishment of adequate resolution authorities. Most bankruptcy codes exempt CDS from the bankruptcy process,⁶⁴³ which led to unpredictable and rapid unwinding of CDS positions during the recent crisis.⁶⁴⁴ Unwinding of the positions destroyed value at companies and banks and propagated vulnerabilities through economies.⁶⁴⁵ In the U.S., for example, a statutory exemption has extended special treatment to investors in CDS and permitted the investors to terminate their CDS agreements, liquidate their positions, net their contracts, and seize their collateral, without participating in the traditional bankruptcy process.⁶⁴⁶ During the crisis, the unrestricted right that investors in CDS have to close out their trading positions weakened entities already approaching bankruptcy.⁶⁴⁷ As the CDS investors seized assets that might otherwise have supported restructuring,⁶⁴⁸ coordinated resolution in bankruptcy became impossible.⁶⁴⁹ When the same assets backed the CDS trades of other entities, the selling of those assets by one entity reduced the liquidity of the others holding them, creating conditions for other protection sellers also to begin calling on their protection buyers to post additional collateral.⁶⁵⁰ As the protection sellers jettisoned their CDS, the protection buyers had to sell more collateral to meet their obligations.⁶⁵¹ This, in turn, caused the protection sellers to rush to close out their trades, before the price of the collateral assets fell further.⁶⁵² Lehman Brothers,

641. See, e.g., Bank for Int'l Settlements, *The Macroeconomic Implications of Alternative Configurations for Access to Central Counterparties in OTC Derivatives Markets*, 1 (Committee on the Global Financial System, CGFS Papers No. 46, Nov. 2011) (discussing the importance of multilateral settlement).

642. See, e.g., Kirshner, *supra* note 424, at 827–832.

643. Morrison, *supra* note 353, at 113.

644. Kirshner, *supra* note 424, at 821–822.

645. See, e.g., *id.* at 821.

646. T. Sullivan, *Swapped Disincentives: Will Clearinghouses Mitigate the Unintended Effects of the Bankruptcy Code's Swap Exemptions?*, 80 *FORDHAM L. REV.* 1491, 1511 (2011).

647. See, e.g., Kirshner, *supra* note 424, at 821–822.

648. See, e.g., Lois R. Lupica, *Asset Securitization: The Unsecured Creditor's Perspective*, 76 *TEX. L. REV.* 595, 634 (1998); Dov Solomon, *The Rise of a Giant: Securitization and the Global Financial Crisis*, 49 *AM. BUS. L.J.* 859, 873 (2012); Lois R. Lupica, *Circumvention of the Bankruptcy Process: The Statutory Institutionalization of Securitization*, 33 *CONN. L. REV.* 199, 235 (2000).

649. See, e.g., Statement of Mark Roe before the Subcommittee on Regulatory Reform, Commercial and Antitrust Law, Dec. 3, 2013, *The Bankruptcy Code and Financial Institution Insolvencies*, 1 (2013).

650. See, e.g., Randall D. Guynn, *Are Bailouts Inevitable?*, 29 *YALE J. REG.* 121, 127 (2012).

651. See, e.g., Kenneth Ayotte & David A. Skeel, Jr., *Bankruptcy or Bailouts?*, 35 *J. CORP. L.* 469, 484, 495 (2010).

652. See, e.g., Testimony of Sheila Bair Before the S. Comm. on Banking, Hous. & Urban

for example, had to terminate nearly 800,000 of its 1.5 million derivatives trades within five weeks of filing for bankruptcy.⁶⁵³ Countries with nascent bond markets could legislate to force parties to CDS contracts to participate in bankruptcy.⁶⁵⁴ Otherwise, countries such as India might risk having to rely on crisis resolution authorities to maintain stability, which could threaten the problems discussed in section IV.A.2.

CONCLUSION

Transitioning to intermediate financing models can increase the availability of private finance for infrastructure projects in economies in which legal reforms remain ongoing. In light of the tradeoff between the provision of long-term capital and managing its risks, raising finance through covered bonds seems best suited to countries at the equivalent level of legal development as India. Covered bonds mitigate the maturity risk of plain bank finance, and legal systems have the capacity to introduce protections against many of the countervailing risks that covered bonds introduce.

Affairs 111th Cong., *Regulation and Resolving Institutions Considered "Too Big to Fail"* 51, at 53.

653. K. Summe, *Misconceptions About Lehman Brothers' Bankruptcy and the Role Derivatives Played*, 64 STAN. L. REV. 16, 18-19 (2011).

654. See, e.g., Bradford J. Sandler & Kari Coniglio, "Decoupling" Issues in Bankruptcy, AMERICAN BAR ASSOCIATION BUSINESS BANKRUPTCY NEWSLETTER, 3-5 (2008), www.abanet.org/buslaw/newsletter/0078/materials/pp4.pdf (discussing the implications of a system where the parties do not have to participate in bankruptcy); see also Kirshner, *supra* note 424, at 819.