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# Use of Derivatives for Debt Management and Domestic Debt Market Development: Key Conclusions

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*The Ninth OECD/World Bank/IMF Annual Global Bond Market Forum held on 22-23 May 2007 in Paris, France, highlighted that there has been very sharp growth in the use of derivative instruments in both mature and emerging market countries. The use of derivative instruments is helping public debt managers in their portfolio management operations and in supporting market development. Several institutional and structural impediments, however, remain toward the more active use of derivative products. Most developed market debt managers use derivative instruments for debt management purposes, while this is the case for only a handful of emerging markets. Several emerging markets, though, are taking steps towards developing the legal environment necessary to support derivative markets, and are addressing the challenges posed by illiquidity of the underlying cash market, deficiencies in prudential regulation, and restrictions on market participation.*

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## I. Background

*The Ninth OECD/World Bank/IMF Annual Global Bond Market Forum was held on 22–23 May 2007 at the OECD headquarters in Paris.* The forum, which was jointly hosted by the OECD, World Bank, and IMF, was attended by nearly 120 delegates from OECD and non-OECD countries, including debt managers, central bankers, securities regulators, and representatives from the private sector. A key objective of this annual forum is to create awareness of the major issues in developing sound policies for managing public debt and developing government bond markets. It allows participants to get better acquainted with emerging international practices on specialised topics that benefit debt managers and debt market practitioners in both mature and emerging markets.

***Objective of the forum was to discuss policy, operational, and regulatory issues relating to the use of derivatives by public debt managers and market participants...***

*The theme of the forum was the use of derivatives by debt managers and their role in domestic debt market development.* The importance of the topic emanates from the rapid growth in derivatives in global markets, including interest rate and foreign exchange derivatives and credit default swaps. The objective of the forum, therefore, was to discuss policy, operational, and regulatory issues relating to the use of derivatives by public debt managers and market participants, and their relevance for domestic debt market development.

***...and their relevance for domestic debt market development***

*Within that, three principal topics were addressed.* First, there was an overview of recent trends in fixed income derivative markets, how the markets have been evolving, and developments relating to instruments, infrastructure, transparency, and the investor base. Second, technical aspects of the use of derivatives by public debt managers, ranging from objectives to operational modalities to risk management, valuation, and other operational challenges, were discussed. Third, the role of derivatives in developing government securities markets, from the perspective of market participants, was considered.

*This report documents the key conclusions from the forum.* Section II presents the recent trends in fixed income derivatives. The use of derivatives in public debt management is discussed in Section III. Section IV presents the importance of derivatives for government bond market participants. In Section V, the challenges facing emerging markets in developing derivative markets are discussed.

## II. Recent trends in fixed income derivatives

***Sharp growth in derivatives in both mature and emerging markets...***

*There has been a sharp growth in derivatives in both mature and emerging markets.* This includes transaction volumes, types, and users. Public debt managers in most mature markets already use derivatives to some extent, and many emerging market debt managers have begun to use them as well. They use primarily interest rate and currency swaps, futures, and forward transactions to achieve strategic objectives.

***...in particular credit derivatives***

*The use of credit derivatives, in particular, is increasing rapidly.* This is leading to a transformation of debt markets in the same way that the use of derivatives transformed interest rate markets in the 1980s. The availability of credit derivatives is facilitating the broadening of the investor base for public debt managers, especially in emerging market countries.

*Growth has been robust in both exchange-traded and over-the-counter (OTC) derivatives.* The two markets have their respective benefits. Exchange-traded derivatives reduce counterparty and operational risk through centralised clearing mechanisms, and are considered more transparent, liquid, and accessible to a broader range of market participants. OTC derivatives, which are easier to develop, grow organically, do not require underlying cash markets, and are more customised.

*There may be a stronger symbiotic relationship today between exchange-traded and OTC derivatives.* Exchange-traded markets face pressure from their OTC counterparts, where important investments in new electronic platforms are developing rapidly and can now provide a legal confirmation of the deals within minutes of their execution. Similarly, there are now several models of exchanges offering clearing services to OTC participants. It is the operational aspects of clearing, trade matching, and confirmation that make clearing by exchanges attractive. Risk mitigation resulting from centralised and multilateral clearing is secondary. These two markets, however, are not pure substitutes from the perspective of institutional funds, where investment guidelines may dictate that products be exchange-listed. Similarly, OTC derivatives can offer public debt managers greater flexibility to customise risk-reduction transactions to the specific risks in their portfolios. Thus, debt managers that use derivatives are likely to benefit from having both OTC and exchange-traded products available for their portfolio management operations.

*Emerging market countries may benefit from the strengthening of OTC markets.* Providing the enabling environment, including an adequate legal and regulatory framework, helps protect against counterparty risk in OTC trades and improves transparency and disclosure. Such efforts could enable emerging market countries to introduce derivatives at an earlier stage in their development, as they would not have to wait until cash markets are liquid enough to support an exchange-traded derivatives market.

## III. Use of derivatives by public debt managers

***For public debt managers, the use of derivatives is largely strategic***

*For public debt managers, the use of derivatives is largely strategic, with clear objectives.* Debt managers should first consider whether the use of derivatives is in line with achieving their risk and cost objectives within a well-specified debt strategy, and with other goals, such as developing and maintaining an efficient market for government securities. Within this framework, the implementation of the debt strategy may include the use of derivatives to separate funding decisions from the optimal portfolio composition decision, reduce the cost of borrowing, and manage risks in the portfolio (in particular, interest rate refixing risk and refinancing risk). Debt managers should determine the purpose of transactions in order to select the appropriate instrument(s) and structure(s). For many debt managers in emerging market countries, the priority should remain on developing a credible and well-functioning issuance program, deepening the debt market, and building a diverse investor base.

***Well-developed derivative markets may benefit public debt managers...***

*Well-developed derivative markets may benefit public debt managers, even when they are not direct users of such instruments.* Derivative instruments contribute to overall market efficiency and liquidity. These benefits include the ability for market participants to hedge positions effectively, the ability to trade in and out of markets at any time, continuous price updates and market intelligence through trading in the derivative asset class and, last but not least, the maintenance of market liquidity. In turn, these factors can contribute directly to lower funding costs for the government, with more competitive participation in auctions (by investors and intermediaries) and better market-making in the secondary market.

***....but certain preconditions need to be in place...***

*Use of derivatives by public debt managers should be considered only after certain preconditions are satisfied.* Initially, priority must be given to establishing a credible debt issuance program, a diversified funding base, and adequate market infrastructure for the primary and secondary markets. Debt managers need to possess adequate internal capacity (including personnel and systems) for front-office execution, middle-office strategic analysis, and back-office settlement for managing derivative transactions and their associated risks. Capability is built over time, and in the meantime, if the case for using derivatives is strong, steps can be taken to facilitate their use, such as outsourcing or appointing agents for particular aspects of transaction execution, settlement, collateral management, and ongoing risk management.

***...in particular regarding risk management and reporting***

*In terms of risk management and reporting, several pre-requisites are needed by public debt managers.* Real-time market information is needed for evaluating potential new transactions, periodic rate resets, determining required collateral movements, and remunerating posted collateral. Independent calculation and bilateral confirmation of cash flows is essential. For debt managers, there are sometimes

inconsistencies in the accounting treatment of derivatives (often mark-to-market) and underlying bonds (often book value). This complicates communication and evaluation of the risk reduction that derivatives were intended to help achieve.

*Derivatives entail credit risk to the counterparty and operational challenges with valuation and day-to-day management.* Common controls include transacting only with counterparties with a minimum credit rating and applying exposure limits to individual counterparties. Collateralisation is increasingly common. This helps reduce credit risk, but raises further challenges with valuation, posting, and remuneration. Lower-rated sovereigns face additional complexity in that they themselves may have to pledge collateral, which also affects the cost-effectiveness of using derivatives in debt management.

***There is no clear consensus on the optimal degree of transparency***

*There is no clear consensus on the optimal degree of transparency for derivative transactions.* Fear of front-running or squeezes may limit *ex ante* transparency, while the reasons for limited *ex post* transparency around derivatives are less well articulated. For public debt managers, their policy regarding derivatives, however, should not undermine the benefits trying to be achieved through high transparency in respect of securities issuance and the cash market for government securities.

## IV. Importance of derivatives for market participants

***Derivatives help complete the market by increasing investment, trading, and asset management opportunities***

*Derivatives help complete the market by increasing investment, trading, and asset management opportunities.* An economically complete market supports the willingness of investors to hold assets or take positions in particular securities. Investors need to have certainty that they can finance, adjust, and liquidate their positions efficiently; reduce or smooth the risks of volatility through hedging or risk management strategies; or extract exceptional gains through speculative strategies to the extent possible, at the lowest transaction cost, continuously into the future.

***Derivatives are beneficial for dealers and investors***

*Derivatives are clearly needed by market participants, dealers, and investors in the government securities markets.* A liquid, reliable futures market supports the ability to hold assets. It provides a means for forward price discovery, enhancing the likelihood that risks can be transferred when and as desired, and permits market makers to hedge their net exposures. OTC and futures markets support hedging needs. Stock loans and repurchase transactions support financing of cash market activity.

*Market participants attribute significant value to futures market liquidity.* Liquidity is the primary driver of futures market success. It translates into low transaction costs and tight spreads, which are key to whether market participants are willing to use a futures market to lay off

risk. Market participants will prefer to use a standardised product (that is, an organised market), provided the basis risk (the risk that the price of a future will vary from the price of the underlying cash instrument as expiry approaches) is not high. There must also be sufficient two-way trading interest to assure that positions can be assumed and disposed of at the market's projected price with the least cost or price slippage. A more tailored product will be preferred if the basis risk is too high.

***A number of pre-requisites are essential for government securities market participants to benefit from derivative markets***

*A number of pre-requisites are essential for government securities market participants to benefit from derivative markets.* These include, notably, operational aspects such as a well-functioning clearing, trade matching, and confirmation infrastructure and an adequate legal and regulatory framework. Market participants, through government and self-regulation, should ensure transparency, product suitability, prevention of market abuse, and best execution. Risks associated with the use of derivatives, in particular operational risk, should be identified and managed adequately, notably through the use of appropriate stress-testing type methods.

*Investors need to be educated about the use of derivatives for hedging and more broadly for risk management.* The current positive and stable global environment can discourage market participants from buying the insurance that derivatives provide. Buying insurance typically entails some degree of opportunity cost, but ensures adequate risk management by limiting downside risks especially in times of sharp volatility or distress.

*At the same time, market participants would also benefit from understanding the risks of using certain types of derivatives.* The practice of separating origination from distribution risk by using credit derivatives raises some concerns. Regulators, and market participants, may not always understand where risks are hidden, or may lack the information to accurately assess credit risk. Operational risk is another key concern with using derivatives. Regulation, both self-regulation and by government, can help reduce the risks associated with using derivatives. New regulatory developments, such as Basel II Pillar 2, will help address these issues from a regulatory and supervisory perspective, but stress testing techniques are not uniform among banks, which puts pressure on supervisors to compare results across different banks.

## V. Developing derivative markets in emerging market countries

***Emerging market countries can benefit from derivative products...***

*Emerging market countries can benefit from derivative products*. Investors need to be able to translate their views on financial conditions into transactions in order to protect themselves from anticipated changes that might harm their positions. Derivatives can provide this protection and help prevent minor changes, such as in monetary policy,

from turning into systemic shocks. In addition, derivatives can reduce the cost of issuing bonds and help lengthen the yield curve. They can also be a way to address the lack of investible assets and provide more investment opportunities. In many emerging market countries, the growth of institutional investors, including pension funds and insurance companies, has outstripped issuance of investible domestic assets creating a supply/demand imbalance. Derivatives can help fill this gap.

### ...but they are facing important challenges in developing derivative markets

*Emerging market countries face several challenges in developing derivative markets.* These include relatively underdeveloped markets for the underlying assets; lack of adequate legal, regulatory, and market infrastructure; and restrictions on the use of derivatives by local and foreign entities. Low liquidity in bond and equity markets is a particular problem. Limited trading may reflect information asymmetries on account of insufficient disclosure standards, lack of transparency, poor corporate governance, and limited participation due to entry restrictions. Countries need to focus on addressing these challenges and creating the conditions to help build both cash and derivative markets.

*Statutory barriers and uncertainty surrounding legal and accounting requirements specific to the structure, trading, and enforcement of derivatives have inhibited development in many emerging markets.* Derivative contracts in mature markets are usually structured under broadly accepted norms of market practice and are governed by a developed legal regime. In many emerging market countries, legal codes and accounting rules are silent on all or certain types of derivatives, fail to identify the regulatory jurisdiction over derivatives, or make derivative contracts unenforceable.

*Regulators in emerging market countries should develop appropriate policies on the operational and credit risks of trading derivatives.* Regulators often fear that derivatives will increase, rather than reduce, risk and, as a result, they adopt a conservative stance. Several risks can be reduced and controlled; for example, counterparty risk can be reduced with exchange-traded derivatives through central counterparties with strong risk management systems, including margining and membership rules. In addition, price transparency can be increased through trading platforms, while disclosure provides additional information of importance to users. Many of these mechanisms are now being used in OTC derivative markets, most notably requiring collateral and allowing only highly rated entities to engage in OTC transactions, using OTC trading platforms to display price information, and copying disclosure practices used for futures markets. Regulations on the suitability of use can help ensure that derivatives are used appropriately.

*Liquidity in cash and derivative markets can be mutually reinforcing, but the lack of liquidity in underlying cash markets is a particular concern in emerging market countries.* The availability of reliable pricing benchmarks across the term structure helps avoid concentration of

***Lack of liquidity in underlying cash markets is a major obstacle in several emerging markets***

trading at certain maturities (usually short-term). In some emerging markets, only futures contracts on a limited range of maturities are liquid, while contracts on other (usually longer) tenors have been restricted by limited short-term benchmarks and sluggish secondary market trading. Derivative markets have also developed out of foreign exchange-driven interest in the absence of a developed bond market. In other emerging market countries, liquid and long-maturity swaps trading pre-dated a liquid bond market. There are also emerging markets where low levels of treasury bill liquidity have impeded development of interest rate derivative markets, making foreign exchange swaps the choice for investors to take liquid interest rate positions. Countries should take action to increase market liquidity (such as through making issues fungible and creating market benchmarks), by allowing their bonds to be traded OTC, as that typically results in higher liquidity than exchange-trading of bonds.

*It is unclear whether exchange-traded or OTC derivatives are preferable for emerging market countries.* Exchange-traded derivatives reduce counterparty risk and make price and information transparency more accessible to a wider range of market participants, but they require cash market liquidity to develop. On the other hand, OTC derivatives are not so dependent on cash market liquidity, but entail more counterparty risk and are less accessible. As noted, counterparty risk can be reduced through the use of collateral, which is increasingly being done. Transparency can be helped by using electronic trading platforms that support OTC trades and by strengthening documentation.

***A broad investor base is essential for the sound development of derivative markets***

*While a diverse investor base is essential for the sound development of derivative markets and for efficient price discovery in underlying cash markets in many emerging market countries there are serious constraints.* Pension funds and insurance companies are subject to stringent investment guidelines, often requiring substantial holdings of government debt. At the same time, derivative market regulations and reporting requirements limit the participation of institutional investors and their ability to hedge cash market exposures to interest rate and exchange rate volatility.

*Policymakers need to allow two-sided markets to develop.* Two-sided derivative markets can be constrained because investors seek to buy and hold cash market assets when the supply of assets is limited relative to the demand for them. As a consequence, all investors hold long assets and want to hedge their holdings. Policymakers need to allow participants in the market to sell derivatives, educate them so as not to see that activity as undesirable speculation, and encourage foreign participation (since foreign participants often perform this function). Regulators should allow short sales and fails, and allow market participants to take positions without having the underlying security. Otherwise, a two-sided market cannot develop.


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***In some emerging markets, capital account restrictions have shifted derivatives trading to offshore markets***

*In some emerging markets, capital account restrictions have shifted derivatives trading by foreign investors to offshore markets.* This has several implications. It reduces the ability to monitor the transactions, and limits many smaller investors, such as small- and medium-sized companies, from hedging their risks, due to higher transaction costs and limited market access. In some countries, offshore non-deliverable forwards have provided an effective way to hedge foreign exchange exposures. As emerging market countries liberalise capital controls, activity can move onshore and to deliverable forward markets. It should be noted that the lack of a clear legal framework and restrictions on the use of derivatives by corporate and institutional investors have slowed the development of onshore derivative markets.

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# Index of Recent Features

| FMT No. | Title | Date |
|---|---|---|
| 93 | Structured products: Implications for Financial Markets | November 2007 |
| 93 | Selected Questions Regarding Hedge Funds | November 2007 |
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| 93 | Collective Pension Funds – International Evidence and Implications for China's Enterprise Annuities Reform | November 2007 |
| 93 | Indian Financial System Reform: Selected Issues | November 2007 |
| 93 | Public Debt Management and the Evolving Market for (Ultra-)Long Government Bonds | November 2007 |
| 92 | An Overview of Hedge Funds and Structured Products: Issues in Leverage and Risk | June 2007 |
| 92 | The Private Equity Boom: Causes and Policy Issues | June 2007 |

| | | |
|---|---|---|
| 92 | The Role of Private Pools of Capital in Corporate Governance: Summary and Main Findings about the Role of Private Equity Firms and "Activist" Hedge Funds | June 2007 |
| 92 | Longevity Risk and Private Pensions | June 2007 |
| 92 | Asset Allocation Challenges for Pension Funds: Implications for Bond Markets | June 2007 |
| 92 | Governments and the Market for Longevity-indexed Bonds | June 2007 |
| 92 | Retail Instruments in Public Funding Strategies | June 2007 |
| 92 | Housing Markets and Household Debt: Short-term and long-term risks | June 2007 |
| 92 | Government Debt Management and Bond Markets in Africa | June 2007 |
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| 91 | The SME Financing Gap: Theory and Evidence | November 2006 |
| 91 | Factors behind Low Long-Term Interest Rates | November 2006 |
| 91 | The Impact of Pension Funds on Financial Markets | November 2006 |
| 91 | OECD Guidelines on Pension Fund Asset Management | November 2006 |
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| | | |
|---|---|---|
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| 89 | Guidelines for Insurers' Governance | November 2005 |
| Supple-ment 1/2005 | Ageing and Pension System Reform: Implications for Financial Markets and Economic Policies | November 2005 |
| 88 | Corporate Pension Fund Liabilities and Funding Gaps | March 2005 |
| 88 | Overview of Advances in Risk Management of Government Debt | March 2005 |
| 88 | White Paper on Governance of Collective Investment Schemes (CIS) | March 2005 |




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