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Unscathed securitisation: emerging market CDOs after the US sub-prime mortgage crisis

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Since Summer 2007 the collateralised debt obligation (CDO) market has come into sharp focus on account of its complexity and its role in propagating the economic fallout from the US sub-prime crisis, causing a global realignment of risk premia, a widespread retrenchment of mortgage exposures and substantial liquidity injections by central banks to support inter-bank money markets on the heels of rising funding shortfalls of structured credit. Unfortunately, the popular rhetoric about insufficient transparency and inadequate asset valuation in structured finance tends to displace a genuine understanding of the dynamics of CDO management and the extent to which market intervention can end up with the wrong incentive structure involving socialising losses while privatising profits. In fact, much of the financial damage of the sub-prime fallout seems to have resulted from both market failure and asset substitution, which allowed ample funding and mispricing to sustain lower risk aversion, resulting in excessive speculative demand through leveraged bids on marginal asset price movements.

Regrettably, the sheer scale of the sub-prime crisis has overshadowed the very positive role of CDOs in funding alternative assets classes, such as emerging market (EM) credits and bonds and, more recently, microfinance loans. This chapter reviews some of the most pertinent aspects of recent developments in EM CDOs and assesses the prospects of hard-to-value assets as CDO collateral in light of buoyant capital inflows to EMs.

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CDOs and asset substitution

Before the sub-prime mortgage crisis, the CDO market accommodated a large public stock of leveraged investments, which carried the vestiges of times when lax monetary policy, poor returns on conventional products, and default rates below the historical experience had encouraged more risk taking for yield. The coincidence of an increasing global cash surplus and a limited supply of financial and real sector investments diminished asset returns and lowered risk premia despite first (but overlooked) signs of deteriorating underwriting standards and rising default risk. In addition, liquidity-induced demand from CDO managers for now scarce reference assets continued to tighten further spreads of investible securities and precluded the knee-jerk adjustment of debt prices to reflect economic conditions adequately. At the same time, pervasive credit risk transfer spurred by a flurry of derivative structures caused lower risk aversion and delayed a timely rebound of risk premia, while valuation difficulties associated with the complexity of these structures perpetuated investor complacency. As markets remained stable, greater reliance was placed on the resilience of the financial system, inducing even greater aggregate moral hazard, which intensified the potential of systemic vulnerabilities to credit shocks.

The consensus of market practitioners in the CDO market centred on considerable scepticism about the plethora of new issues and deal structures, as well as the entry of new managers, which compounded concerns that credit quality seems to have been on a monotonously low trajectory with little promise of imminent recovery.

Against the backdrop of an environment of greater risk appetite and low risk-adjusted returns, the fervent search for yield became the undoing of a highly leveraged CDO market as deteriorating credit conditions challenged its inherent arbitrage proposition. When the credit cycle eventually began to turn and concerns about sub-prime mortgages increased, doubts also surfaced about the quality, security design, and

pricing of CDOs and other high-yield structured finance instruments. In response to a general re-pricing of CDO exposures over fears that ruptures in sub-prime mortgages would prove ruinous to other credit-sensitive assets, dwindling demand increased risk premia. Higher spreads lowered traditional arbitrage gains of CDO managers. The disproportionate increase of funding cost relative to liability pressures curtailed the capacity of CDO managers to meet increased investor repayments.

While defaults were mounting, CDO managers were compelled to either adjust their mean-variance return expectations or relinquish some of their own arbitrage gains. In efficient markets risk-neutral managers do not benefit from dynamic asset allocation (ignoring transaction costs) by substituting badly performing assets, because the ability to weed out certain reference assets comes at a premium. Under worsening credit conditions, better asset performance is generally harder to come by, making CDO managers no better off than before once they divert funds to safer but highly coveted and more costly territory (or accept higher hedging costs).

Without real buyers available, and faced with the prospect of less compensation, CDO managers opted for riskier positions and greater leverage in hybrid structures and single-tranche transactions. Issuing banks also created structured investment vehicles (SIVs) that borrowed short-term money by issuing asset-backed commercial paper (ABCP) to fund the purchase of long-dated credit-linked securities (at largely overstated transaction prices), thus creating an ill-fated maturity mismatch. As the ABCP market dried up, the fire sale of CDOs at distress prices forced SIVs and investors alike to mark-to-market their positions (and holdings of similar illiquid securities), causing huge losses to be booked. The subsequent decrease of asset values and its effect on market liquidity has led to tightened lending standards, elevated asset price volatility, and higher expected bond defaults among shaky corporate borrowers that depend strongly on consumer spending.

Besides CDOs on mortgage portfolios, other CDO transaction types, such as overlay structures that bring in other sources of risk (eg, foreign exchange, inflation and commodity price linkages), have also been affected by the credit crisis triggered by the sub-prime mortgage crisis. Nonetheless, one segment of the CDO market has miraculously escaped the controversy surrounding the use of structured finance – CDOs referencing EM exposures, and in particular microfinance CDOs. That said, structured investments in EM collateral are not without pitfalls and could involve serious incentive problems that are not too dissimilar from what caused consequential speculative pressures prior to the sub-prime crisis.

EM CDOs and structured microfinance

The landscape of EM securitisation is changing dramatically and financial innovation no longer seems beholden to traditional asset exposures – diversified payment rights from hard-currency financial flows of banks and exporter or future receivables from divestments and tax revenues by governments. Since local capital markets in many EM countries are too small to absorb large foreign investments, EM CDOs sponsored by foreign investment banks offer a new and convenient route to refinance EM exposures while sidestepping infrastructural impediments to local issuance.

Issuance of EM CDOs has long remained sluggish due to a limited supply of suitable reference assets and valuation difficulties. Despite a solid macroeconomic situation, greater fiscal consolidation and significant structural reforms in many EM countries, EM reference assets are scarce (they are also viewed as relatively more highly correlated among themselves and thus provide less effective underlying pool diversity). Moreover, the comparative paucity of historical data on EM defaults has hindered reliable estimates for recovery rates used in pricing and rating tranching products. In the recent past, EM CDOs were completed mostly for either hedging EM credit or refinancing lending to mid-cap firms and private individuals in EM countries. These EM obligations were usually sovereign or quasi-

sovereign bonds (or some highly illiquid asset or reference credits that are thought to have public, non-domestic debt outstanding), given the high proportions of debt accounted for by sovereign borrowers and the paucity of CDS contracts on EM corporates.

Only recently, synthetic risk transfer techniques in CDOs have widened the range of securitisable EM assets. CDOs with credit-linked notes (or another form of partially or unfunded contingent asset claims) referenced to portfolios of EM corporate bonds and loans seem to have removed previous limits on availability and liquidity. This was also facilitated by the availability of underlying EM reference obligations that are denominated in hard currencies and (possibly more importantly) originated under non-local law. Illustrious EM CDOs in the recent past include:

- Citigroup's Global EM CDO on hard-currency EM sovereign debt in October 2006 (only to be followed soon thereafter by the Evolution EM CDO on the back of a diverse global pool of local currency-denominated debt of EM sovereign obligors); and
- the Sphaera EM CDO in December 2005, which was designed as a balance-sheet exercise to transfer some of the credit risk associated with Citigroup's own EM loan portfolio.

The commercialisation of microfinance represents the latest stepping stone in the evolution of EM structured finance to embrace development policy. The potential economic gains from expanding EM securitisation to include development finance have so far primarily been with external rather than domestic issuers. Small local capital markets in many emerging economies tend to lack the critical mass to sponsor home-grown issuance. Local securitisation is often rendered inefficient by poorly developed market practices, the lack of uniform transaction structures and insufficient transparency of asset quality due to weak rating agencies and a nascent institutional investor base.

The involvement of international investment banks as external sponsors of securitised issuance has become a notable feature of structured microfinance. Since 2005 large investment banks have teamed up with specialised asset managers to fund microfinance institutions (MFIs) as a form of indirect securitisation. The preferred financing vehicle has been the CDO, which has ranked high on the agendas of issuers as an expedient mode of securitisation that sidesteps many administrative and legal uncertainties of local issuance. The development of structured microfinance is remarkable, not least because it underscores that CDOs can successfully transform even very illiquid collateral into commoditised securities, while reining in the inherent uncertainty of emerging market debt through a combination of active portfolio management and diversification requirements.

Microfinance specialises in the origination of small loans for productive activities and the provision of other financial services to poor individuals who are barred from conventional finance and credit channels for lack of a credit history, collateral or a steady income. The concept of microfinance defies the traditional assumption of most mainstream banks, which consider poor borrowers in developing countries to be high risk mainly due to high administrative cost and collection risk associated with unsecured and relatively small credits. In order to spur growth in impoverished countries, microfinance represents the efforts of a handful of enlightened capitalists to unleash the distaff entrepreneurial spirits of a disenfranchised workforce in under-developed countries. Over the last three decades, microfinance has proliferated from its origins in a few of world's poorest nations to a global industry, with the total number of microfinance institutions (including public sector agencies and social investors, as well as microfinance credit unions and even public sector, development or private commercial banks) ranging anywhere from 300 to 25,000, depending on the definition, originating more than \$95 billion of microloans to more than 64 million clients (of which 96 per cent are women) worldwide at the end of 2007 (see box on next page).

Microfinance CDOs are structured in the same way as traditional synthetic EM CDOs with a view to making microloans self-financing at a fair market rate. The special purpose vehicle buys credit linked notes and assumes exposure to the securitised assets before issuing its own notes to fund the purchase. On the liability side, investors get paid their coupons at the specified rate and their notional investment is written down, in case of default, to the extent of the loss minus any credit enhancement through the notional value of subordinated claims or any other form.

After the first microfinance CDO in 2004 by the Geneva-based microfinance investment consultancy BlueOrchard Finance SA and the US investment advisory group Developing World Markets, and the first public microloan collateralised loan obligation (BlueOrchard Loans for Development 2006-1 or 'BOLD 2006-1') in 2006 by BlueOrchard Finance SA and Morgan Stanley, Symbiotics and Global Partnerships designed the first rated microfinance CDO in the same year. The BOLD 2006-1 issue provided fixed-rate, five-year notional funding of \$99.1 million to a diversified group of 21 microfinance institutions in 13 developing countries: Albania, Azerbaijan, Bolivia, Bosnia and Herzegovina, Cambodia, Colombia, Ecuador, Georgia, Mexico, Mongolia, Nicaragua, Peru and Russia. At the time, the transaction was the single largest commercial investment in the history of microfinance. After BOLD 2006-1, Morgan Stanley issued yet another synthetic collateralised loan obligation (BOLD 2007-1) in a three-tier structure to raise \$108 million for disbursement to microfinance institutions, which lend to more than 70,000 borrowers in 13 EM countries (Azerbaijan, Bosnia and Herzegovina, Cambodia, Colombia, Georgia, Ghana, Kenya, Mongolia, Montenegro, Nicaragua, Peru, Russia, and Serbia). Unlike the previous issues, this transaction was partially rated – a first in microfinance-based publicly placed structured finance, which widened the number of institutions that could assume exposure to small loans in emerging market countries. The senior and mezzanine tranches with notional amounts of \$48 million and \$12 million were rated AA

Different modes of microfinance

Basic microfinance lending relies on either collective guarantees (for group lending) or comprehensive borrower background checks (for individual lending) as a means of establishing repayment incentives in lieu of collateralisation. In the former case, individual borrowers are required to form groups and take responsibility for each other's obligations, limiting moral hazard through peer pressure especially with borrowers in small communities with strong family-based ties. Grameen Bank of Bangladesh, one of the pioneering microfinance institutions founded in 1976 by 2006 Nobel Peace Prize winner Muhammad Yunus, has successfully adopted the group lending model by targeting young female borrowers from remote villages, which has resulted in a stunning repayment rate of 98 per cent over the last three decades since the non-profit experiment had started operations in Bangladesh.

In individual microfinance lending, loans are usually somewhat larger (between \$100 and \$500) and have more flexible terms than loans provided based on the group lending model. Creditors substitute collective guarantees for business references. Since individual lending is predicated on financial services to self-employed, skilled businesspeople rather than poor entrepreneurs, creditors encourage repayment through the prospect of progressively increasing lines of credit and the opportunity of professional and vocational training.

and BBB respectively by Standard and Poor's, while \$50 million remained unrated. At the time of writing, the latest structured microfinance transaction was Deutsche Bank's Microfinance-Invest Nr 1 CDO in September 2007, with KfW as lead investor.

While EM CDOs, especially in the form of structured microfinance, offer a timely opportunity of indemnification for embattled managers of sub-prime CDO portfolios, they also attract weary investors that seek a more diversified footing in alternative asset classes of structured finance. However, the pitfalls of financial innovation that contributed to the US sub-

prime crisis also apply to EM CDOs by an even larger measure, such as sound risk assessment, adequate rating processes and the use of integrated risk mitigants. For instance, inflated asset prices of difficult-to-value EM collateral could obfuscate lower-than-expected asset performance and maintain artificial arbitrage gains. Overstated asset prices would lower the required performance of CDO managers and provide residual income if the repayment of investor return were subsidised by initial investment funds for overpaid CDO tranches. But help is already at hand to increase transparency. The revised Financial Accounting Standards Board Standard 157 on fair value accounting aims to discourage mark-to-model methods for non-traded assets in favour of an extrapolated valuation using prices of similar but traded securities.

Conclusion

The US sub-prime market crisis has demonstrated that the flexibility of CDO structures can also entail significant agency costs, especially in an environment of uncertain credit conditions and opaque pricing of credit risk. Investor confidence in CDOs and structured finance at large requires a high degree of transparency about changes of collateral composition and incentives of asset substitution when default rates rise.

While the economic fallout from the sub-prime crisis will affect market perception about CDOs for years to come, many positive developments in less explored asset classes, such as EM CDOs, must not be overlooked. Although structured microfinance is still a new phenomenon in securitisation, the persistent positive market response to microfinance CDOs is encouraging and speaks well of the compelling proposition of structured finance to deliver profitably even on broad development objectives, despite the recent credit crisis. Given the existing intensity of investor interest in (alternative) emerging market assets, the potential of securitisation in this area will hardly fail to impress.