

Forward Starting Equity

Structured Credit Strategy

March 29, 2007

Jeff Meli
jeff.meli@barcap.com
+1 212 412 2127

Madhur Duggar
madhur.duggar@barcap.com
+1 212 412 3693

Batur Bicer
batur.bicer@barcap.com
+1 212 412 3697

Shobhit Gupta
shobhit.gupta@barcap.com
+1 212 412 2056

www.barcap.com

A New Equity Payoff Structure

Forward starting equity pays a fixed percentage of the remaining notional of an equity tranche at the forward start date. For example, an investor selling 2 yr equity protection five years forward on the CDX.8 index can receive 48% of the remaining notional at year five¹. In other words, investors would receive 48% up front in year five for 2 yr equity. If losses exceed 3% before the start date, the trade knocks out. Although we focus on the 2x5 forward in this piece, investors can also trade 5 yr equity five years forward and 3 yr equity seven years forward.

Equity Flattener and Net Long Credit Position

Similar to standard forward equity (eg, selling protection on 7 yr equity and buying protection on 5 yr equity), forward starting equity is exposed to the steep equity term structure. However, standard forward equity is a net short credit position that benefits from defaults and experiences negative time decay if spreads roll down the curve. Forward starting equity generates approximately 2x the cash flow at year five if there are no defaults, leaving the position net long credit.

Risk and Return Profile

The key risk to this trade is defaults after the forward protection starts. The MTM of the position depends on spreads, losses, and the correlation skew. The trade makes money with low levels of losses and spreads. As losses increase, the remaining equity tranche is thinner and, thus, requires lower spreads to break even. Importantly, the notional of the trade steps down as defaults occur in the first five years, limiting the potential MTM losses of the position in those scenarios. In other words, in the scenarios in which we believe the trade is likely to make money (low losses), the notional remains high. In the scenarios in which we believe the trade is likely to lose money (high losses), the notional decreases.

¹ Indicative pricing as of March 28, 2007. Source: Barclays Capital.

Structure and Mechanics

Forward starting equity is a structure that allows investors to benefit from steep index and equity credit curves and have positive time decay as spreads roll down the curve. The trade can be executed using any of the standard maturities (5, 7, and 10 yr). For exposition purposes, we assume that investors sell 2 yr equity protection five years forward – which involves transactions in both 7 yr equity and 5 yr equity.

The structure of the cash flows is simple. The investor receives a fixed percentage of remaining notional at year five. The investor has no direct default exposure over the first five years. Instead, defaults during that time reduce the remaining notional of the trade, which affects both the up-front payment received at the end of year five and the remaining risk to the investor. For example, if losses reach or exceed 3%, the trade knocks out. After year five, the investor is exposed to 2 yr equity, where the tranche thickness has been adjusted for losses in the earlier period.

Figure 1 contains a summary of the cash flows and potential risk for different levels of losses over the first five years, assuming an investor sells protection on \$10mm of forward starting equity. The fixed payment in each scenario is equal to 48% of the remaining notional.² As losses increase, the remaining risk and the maximum downside (equal to the difference between the remaining notional and the up-front payment) decrease. The maximum downside is realized if losses eat through the entire remaining equity notional immediately after the end of year five.

Figure 1: Forward Starting Equity Mechanics

Payoff Mechanics of Forward Starting Equity, \$10mn Original Notional				
Losses in the first five years	0	1%	2%	3%
Remaining notional	\$10,000,000	\$6,666,667	\$3,333,333	\$0
Bonus payment (\$)	\$4,800,000	\$3,200,000	\$1,600,000	\$0
Max downside	\$5,200,000	\$3,466,667	\$1,733,333	\$0
Max downside as percentage of original trade	52%	35%	17%	0%

Note: Pricing is indicative as of March 28, 2007. Source: Barclays Capital.

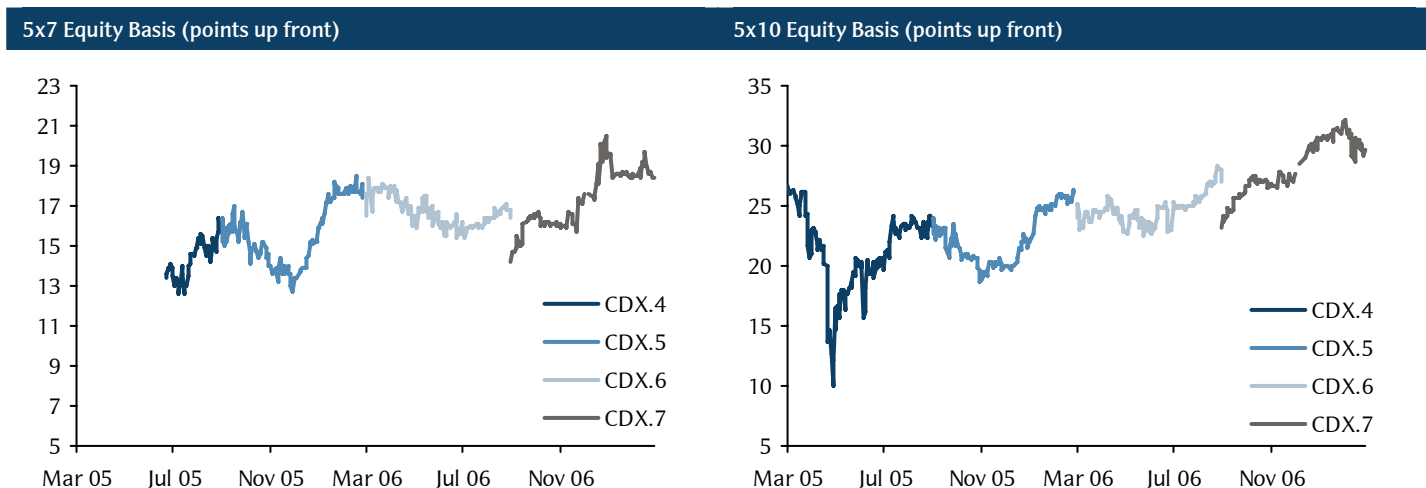
Why Consider Forward Starting Equity?

Forward starting equity is potentially appealing to investors because it provides exposure to the steep equity term structure while maintaining a credit long position with positive roll down the curve. In contrast, a standard forward equity trade (eg, short 7 yr equity protection, long 5 yr equity protection) is a net short position with negative roll down the curve.

Steep equity term structures: Over the past 18 months, the equity term structure has consistently steepened (Figure 2). One contributing factor has been steeper index curves – obviously, tranche term structures are affected by the index term structure. Another factor is flows in the bespoke CDO market. Most, if not all, of the bespoke mezzanine risk placed in the market has a 7 or 10 yr maturity. This creates long-dated equity risk on dealer's books, which results in an increase in equity spreads. Although the demand for equity risk has increased as well, in part due to new products such as zero-coupon equity, equity demand is more spread out across tenors, resulting in a net steepening of the equity term structure.

² Indicative pricing as of March 28, 2007. Source: Barclays Capital.

Figure 2: Equity Term Structures Have Consistently Steepened



Source: Barclays Capital.

Net long credit and positive time decay: The key comparable for this structure is forward equity structured using all up-front tranches. For example, consider a trade in which an investor sells 7 yr equity protection and buys 5 yr equity protection, both all up front. This generates approximately 18.5 points up front today, which has a future value of about 24 points in year five based on current interest rates. We refer to this structure as standard forward equity through the rest of the piece.

The key difference between this structure and forward starting equity is the format of the up-front payment. Forward starting equity pays a fixed *percentage* of the remaining notional after year five. The largest dollar payment is made when there are no defaults and the fixed percentage is received on the full notional. Because the percentage (48%) is high, the dollar payment is 2x the future value of the *fixed dollar payment* received in the standard case.

If there are 3% losses in the first five years, forward starting equity knocks out, and the investor neither makes nor loses money. However, this is actually the best case for standard forward equity. The investor keeps the up-front payment and has no further risk.

The two structures breakeven when enough losses occur in the first five years such that the dollar payment made by forward starting equity equals the future value of the up-front payment of the standard structure (ie, 24 points). This breakeven is 50% losses to the equity, or 1.5% losses in the index. If losses in the first five years are below 50%, forward starting equity outperforms the standard structure, and vice versa (Figure 3). In fact, the up-front payment on forward starting equity is determined by the expected losses (based on spreads) to the equity tranche over the first five years. If these losses occur, the two structures generate the same payments.

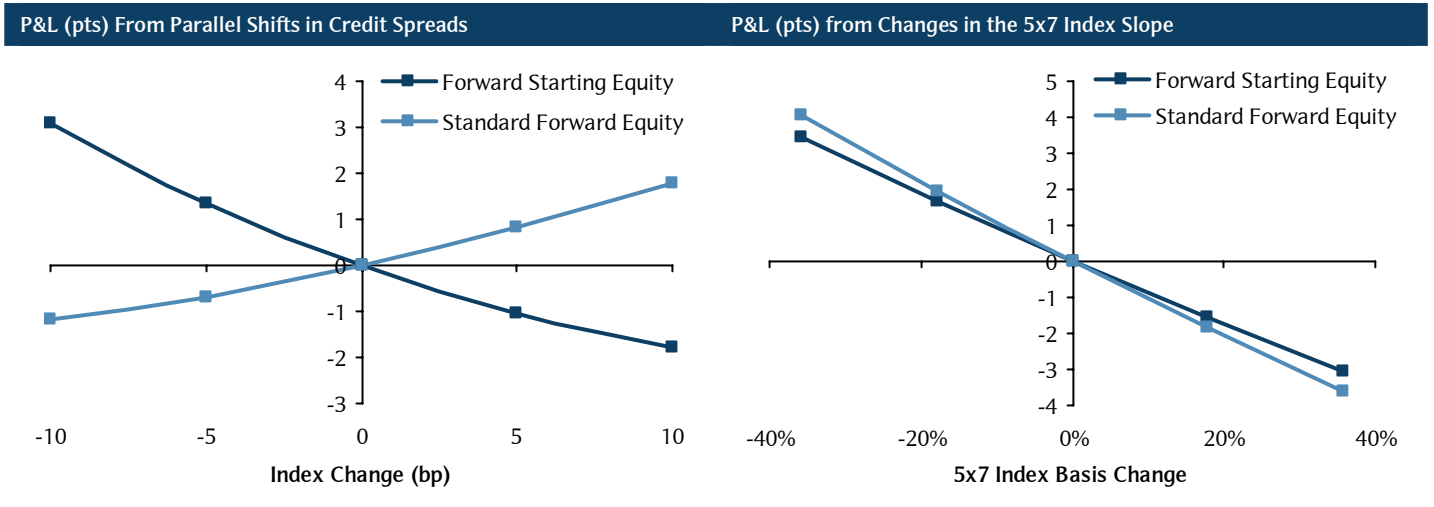
Figure 3: Comparison of Payoffs across Forward Equity Structures

Payment at Year Five for a \$10mn Forward Equity Trade			
Structure	Losses in the First Five Years		
	0%	1.5%	3%
Forward starting	\$4,800,000	\$2,400,000	0
Standard	\$2,400,000	\$2,400,000	\$2,400,000

Source: Barclays Capital.

Therefore, the best-case scenario for forward starting equity is that no defaults occur in the first five years, and the best case scenario for the standard structure is that the entire equity tranche is wiped out in the first five years. These best-case scenarios translate into both the delta and the time decay of the two trades. In terms of delta, forward starting equity is long credit risk, and the standard structure is short credit risk (Figure 4). Interestingly, the exposures to credit spreads are reversed, even though both structures have the same exposure to the slope of the equity term structure. In other words, forward starting equity facilitates exposure to an equity flattener while maintaining a net long credit position.

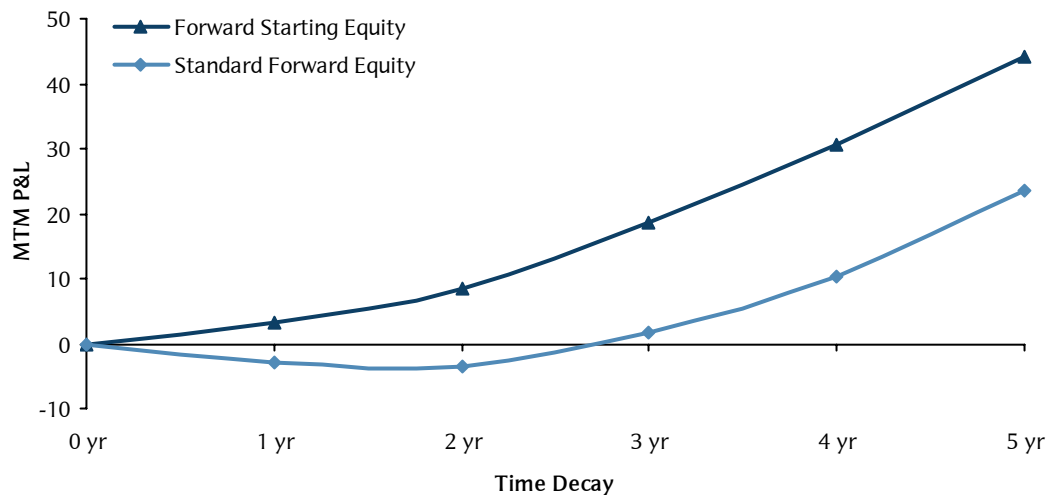
Figure 4: Exposures to the Level and Slope of Credit Spreads



Source: Barclays Capital.

The benefit of long credit exposure is positive time decay. Forward starting equity generates significant P&L as spreads roll down the curve. In contrast, the standard structure has negative time decay initially and is difficult to hold over the first 2-3 year period unless spreads widen and/or defaults occur (Figure 5).

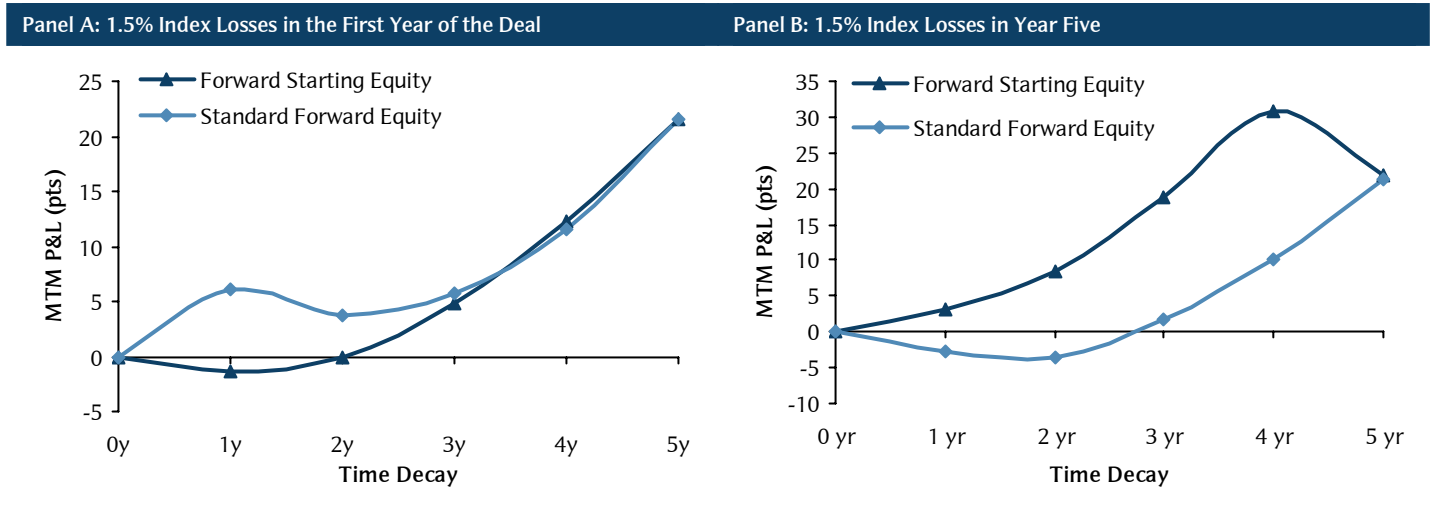
Figure 5: Time Decay (in points) of Different Forward Equity Structures



Note: Assumes no defaults and that spreads roll down the curve. Source: Barclays Capital.

We also examine the interplay between time decay and defaults, under the assumption that 1.5% losses occur during the first five years (Figure 6). At year five, forward starting equity and standard forward equity have the same P&L (because 1.5% losses to the index are the breakeven between the two structures). However, the timing of losses is important in determining the P&L up to that point. If losses are front loaded (Panel A), the standard structure outperforms in the interim. If they are back loaded (Panel B), forward starting equity outperforms. Given our current view that default rates are likely to stay low over the medium term, the forward starting profile is more appealing.³

Figure 6: Time Decay Depends on the Timing of any Defaults



Note: P&L calculations assume spreads roll down the curve and 1.5% losses occur in the index. Source: Barclays Capital.

Spreads also affect forward starting equity. Figure 7 shows the P&L over the first two years as defaults occur in two different spread scenarios. Although the trade is exposed to initial defaults, time decay is strong enough to outweigh these losses as long as spreads remain fixed. If spreads have widened, it takes longer for time decay to outweigh the default exposure.

Figure 7: P&L (bp) of Forward Starting Equity

	Index Spreads Unchanged				+10 bp Index Change			
	Defaults				Defaults			
Years	0	1	2	3	0	1	2	3
0	0	-51	-112	-141	-383	-389	-340	-274
1	620	425	219	59	90	-55	-137	-180
2	1268	948	582	278	683	387	136	-49

Note: Results based on a 40% recovery rate. Source: Barclays Capital.

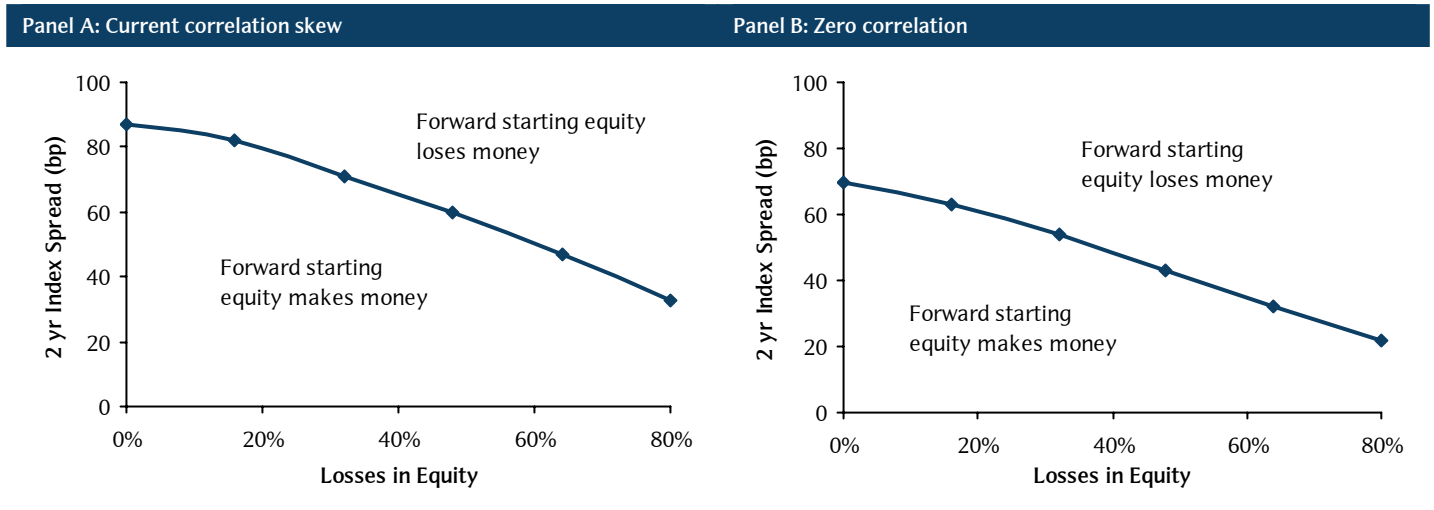
Risks

The main risk in forward starting equity is defaults in the final two years of the transaction, when the investment has become short protection on 2 yr equity. On a MTM basis, this position performs well over the first five years if spreads and defaults remain low. Figure 8

³ In all scenarios we default the widest names in the portfolio first.

plots the breakeven spread and loss combinations for two different correlation skews: the current 5y correlation skew and an implied equity correlation of 0, to be conservative for equity pricing. The breakeven line is a spread/loss pair at which the trade has a zero MTM at the end of year five. To the lower left of the line, the trade has positive P&L. To the upper right, it has negative P&L. For a point of reference, the current 2 yr index spread is 15 bp. At that level, forward starting equity is in the money at any loss level.

Figure 8: Breakeven Analysis of Forward Starting Equity after Year Five



Source: Barclays Capital.

Under both correlation skews, the 2 yr breakeven index spread is high if the portfolio sustains low losses – close to 90 bp with the current skew and 70 bp assuming 0 correlation. It drops as losses occur because the resulting tranche is thinner (eg, if 50% of the equity is wiped out over the first five years, the tranche is 1.5% thick) and thinner equity tranches require higher spreads.

Therefore, the likelihood of a negative MTM after five years increases with defaults – particularly because we would expect spreads to widen in response to several defaults in the IG index. *However, the notional of the trade steps down as defaults occur.* In the scenarios in which we believe the trade is likely to have lost money, the remaining notional has decreased. In the scenarios in which we believe the trade is likely to have made money, the notional has remained high.

Global Credit Strategy Research Analysts

Barclays Capital
5 The North Colonnade
London E14 4BB

Phone: +44 (0)20 7773 9022
Fax: +44 (0)20 7773 2626

Robert McArdle
Global Head of Credit Strategy
+44 (0)20 7773 5222
robert.mcardle@barcap.com

Europe

Mahesh Bhimalingam
European High Yield Strategy
+44 (0)20 7773 5899
mahesh.bhimalingam@barcap.com

Søren Willemann
Structured Credit Strategy
+44 (0)20 7773 9983
soren.willemann@barcap.com

Matthew Leeming
Quantitative Credit Strategy
+44 (0)20 7773 9320
matthew.leeming@barcap.com

Magdalena Malinowska
European Investment Grade Strategy
+44 (0)20 777 35626
magdalena.malinowska@barcap.com

US

Jeff Meli
Head of US Credit Strategy
+1 212 412 2127
jeff.meli@barcap.com

Madhur Duggar
Structured Credit Strategy
+1 212 412 3693
madhur.duggar@barcap.com

Julie Schultz
US Credit Strategy
+1 212 412 3918
julie.schultz@barcap.com

Asia

Rob Gvozden
Head of Strategy, Non-Japan Asia
+852 2903 2653
rob.gvozden@barcap.com

Puneet Sharma
European High Grade Credit Strategy
+44 (0)20 7773 9072
puneet.sharma@barcap.com

Eugene Regis
European High Yield Strategy
+44 (0)20 7773 9169
eugene.regis@barcap.com

Arup Ghosh
Quantitative Credit Strategy
+44 (0)20 7773 6275
arup.ghosh@barcap.com

Lorenzo Isla
Structured Credit Strategy
+44 (0)20 7773 5724
lorenzo.isla@barcap.com

Graham Rennison
Quantitative Credit Strategy
+44 (0)20 7773 8544
graham.rennison@barcap.com

Vanshree Verma
European High Yield Strategy
+44 (0)20 7773 1179
vanshree.verma@barcap.com

Arne Soulier
Structured Credit Strategy
+44 (0)20 7773 9996
soulier@barcap.com

Ulf Erlandsson
Quantitative Credit Strategy
+44 (0)20 7773 8363
ulf.erlandsson@barcap.com

Aziz Sunderji
European Investment Grade Strategy
+44 (0)20 7773 7881
aziz.sunderji@barcap.com

Amit Bhattacharyya
Structured Credit Strategy
+1 212 412 2164
amit.bhattacharyya@barcap.com

Shobhit Gupta
Structured Credit Strategy
+1 212 412 2056
shobhit.gupta@barcap.com

Melody Vogelmann, CFA
US Credit Strategy
+1 212 4132 3506
melody.vogelmann@barcap.com

Batur Bicer
Structured Credit Strategy
+1 212 412 3697
batur.bicer@barcap.com

John Haugh
US Credit Strategy
+1 212 412 1321
john.haugh@barcap.com

Alexander Chan
US High Yield Strategy
+1 212 412 2310
alexander.chan@barcap.com

Matthew Mish, CFA
US Credit Strategy
+1 212 412 2183
matthew.mish@barcap.com

For disclosures on issuers in this report see: <https://ecommerce.barcap.com/research/cgi-bin/public/disclosuresSearch.pl>

The persons named as the authors of this report hereby certify that: (i) all of the views expressed in the research report accurately reflect the personal views of the authors about the subject securities and issuers; and (ii) no part of their compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in the research report.

Any reference to Barclays Capital includes its affiliates.

Investors should assume that Barclays Capital intends to seek investment banking or other business relationships for which it will receive compensation from the companies that are the subject of this report.

IRS Circular 230 Prepared Materials Disclaimer: Barclays Capital and its affiliates do not provide tax advice and nothing contained herein should be construed to be tax advice. Please be advised that any discussion of U.S. tax matters contained herein (including any attachments) (i) is not intended or written to be used, and cannot be used, by you for the purpose of avoiding U.S. tax-related penalties; and (ii) was written to support the promotion or marketing of the transactions or other matters addressed herein. Accordingly, you should seek advice based on your particular circumstances from an independent tax advisor.

This publication has been prepared by Barclays Capital ('Barclays Capital') - the investment banking division of Barclays Bank PLC. This publication is provided to you for information purposes only. Prices shown in this publication are indicative and Barclays Capital is not offering to buy or sell or soliciting offers to buy or sell any financial instrument. The information contained in this publication has been obtained from sources that Barclays Capital believes are reliable but we do not represent or warrant that it is accurate or complete. The views in this publication are those of Barclays Capital and are subject to change, and Barclays Capital has no obligation to update its opinions or the information in this publication. Barclays Capital and its affiliates and their respective officers, directors, partners and employees, including persons involved in the preparation or issuance of this document, may from time to time act as manager, co-manager or underwriter of a public offering or otherwise, in the capacity of principal or agent, deal in, hold or act as market-makers or advisors, brokers or commercial and/or investment bankers in relation to the securities or related derivatives which are the subject of this publication.

Neither Barclays Capital, nor any affiliate, nor any of their respective officers, directors, partners, or employees accepts any liability whatsoever for any direct or consequential loss arising from any use of this publication or its contents. The securities discussed in this publication may not be suitable for all investors. Barclays Capital recommends that investors independently evaluate each issuer, security or instrument discussed in this publication, and consult any independent advisors they believe necessary. The value of and income from any investment may fluctuate from day to day as a result of changes in relevant economic markets (including changes in market liquidity). The information in this publication is not intended to predict actual results, which may differ substantially from those reflected.

This communication is being made available in the UK and Europe to persons who are investment professionals as that term is defined in Article 19 of the Financial Services and Markets Act 2000 (Financial Promotion Order) 2005. It is directed at persons who have professional experience in matters relating to investments. The investments to which it relates are available only to such persons and will be entered into only with such persons. Barclays Capital - the investment banking division of Barclays Bank PLC, authorised and regulated by the Financial Services Authority ('FSA') and member of the London Stock Exchange.

BARCLAYS CAPITAL INC. IS DISTRIBUTING THIS MATERIAL IN THE UNITED STATES AND, IN CONNECTION THEREWITH, ACCEPTS RESPONSIBILITY FOR ITS CONTENTS. ANY U.S. PERSON WISHING TO EFFECT A TRANSACTION IN ANY SECURITY DISCUSSED HEREIN SHOULD DO SO ONLY BY CONTACTING A REPRESENTATIVE OF BARCLAYS CAPITAL INC. IN THE U.S., 200 Park Avenue, New York, New York 10166.

Subject to the conditions of this publication as set out above, ABSA CAPITAL, the Investment Banking Division of ABSA Bank Limited, an authorised financial services provider (Registration No.: 1986/004794/06), is distributing this material in South Africa. Any South African person or entity wishing to effect a transaction in any security discussed herein should do so only by contacting a representative of ABSA Capital in South Africa, ABSA TOWERS NORTH, 180 COMMISSIONER STREET, JOHANNESBURG, 2001. ABSA CAPITAL IS AN AFFILIATE OF BARCLAYS CAPITAL.

Non-U.S. persons should contact and execute transactions through a Barclays Bank PLC branch or affiliate in their home jurisdiction unless local regulations permit otherwise.

Barclays Bank PLC Frankfurt Branch is distributing this material in Germany under the supervision of Bundesanstalt fuer Finanzdienstleistungsaufsicht.

© Copyright Barclays Bank PLC (2007). All rights reserved. No part of this publication may be reproduced in any manner without the prior written permission of Barclays Capital or any of its affiliates. Barclays Bank PLC is registered in England No. 1026167. Registered office 1 Churchill Place, London, E14 5HP.

Additional information regarding this publication will be furnished upon request.

US8662