



USAID | **UGANDA**
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REVIEW OF COLLAR OPTIONS FOR COTTON INDUSTRY

FINAL REPORT



January 2007

This publication was produced for review by the United States Agency for International Development. It was prepared by Bill Griffin, Consultant for Chemonics International Inc.



Rural SPEED

Rural Savings Promotion & Enhancement of Enterprise Development

REVIEW OF COLLAR OPTIONS FOR COTTON INDUSTRY

FINAL REPORT

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Rural SPEED

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EXECUTIVE SUMMARY

From November 27 to December 10, 2006 Bill Griffin, the author of this report and president of William B. Griffin Cotton, was engaged by USAID/Rural SPEED to review an offer from Standard Chartered Bank to hedge the price of cotton for Uganda's ginneries and advise the ginneries on the wisdom of moving forward with this offer.

The consultancy itself built on existing efforts at improving financing to the cotton sector which were already executed by USAID/Rural SPEED. These included, mapping the value chain to establish the value added at each transaction point in the cotton supply to ensure the crop was bankable; and, investigating in broad terms the feasibility of hedging cotton on the NYBOT and other exchanges. It was in fact this earlier effort that generated the interest on the part of Standard Chartered to pursue the ginneries with an offer to hedge their price.

In executing this consultancy and after reviewing USAID/Rural SPEED's earlier work, the author met with Mark Bitarabeho and Chris Haden of Standard Chartered bank in Kampala to better understand what they were proposing. The offer at hand was to sell the ginneries an "off exchange" collar option. The collar is simply a combination of put and call options where the price paid for the put would be offset by the premium received for the call resulting in a zero premium to the ginneries. The price spread proposed with \$0.53/lb and \$0.688/lb. for the floor and ceiling. This option seems sound except for the upside risk that the price may exceed \$0.688 and result in the ginneries needing to pay the bank the difference. This risk can be handled by the ginneries purchasing exchange traded call options if and as the price approaches \$0.68 in order to hedge the collar and potentially gain some additional profit. This should be done on their behalf by an experienced trader.

The collar option and hedging the collar option were discussed with the four lead ginneries (Plexus, Olam, Dunnavant and Rheinhart) as well as being discussed with the senior management of the Cotton Development Organization. All parties found the bank's offer and the hedging strategy for the collar to be good and prudent and expressed interest in pursuing these. Because the future and options contracts are not being sold for December 2008 delivery, and will not be until March 2007, the actual deal will not be pursued before March.

Two questions need to be addressed in March, these are:

1. Will the four lead ginneries form a counter party consortium for the bank and hedging the collar; or will they develop an alternative structure;
2. Who will the ginneries work with in pursuing the hedge strategy for the collar itself.

SECTION I

BACKGROUND

Since 1987, when the Government of Uganda (GOU) instituted major economic policy reforms, the financial sector has become increasingly efficient, productive, and competitive. Uganda is well on its way to a vibrant financial services sector, with 15 commercial banks, seven commercial credit institutions, four micro-deposit taking institutions (MDIs) (one additional license in process), and numerous microfinance institutions (MFIs) and member-owned organizations. However, despite recent growth and liberalized economic policies, only 10 percent of the rural population has access to basic financial services and the formal and informal financial sectors still require some structural changes to provide the range of financial services that individuals and businesses require. Commercial lending and the majority of microfinance activities remain confined to urban and peri-urban areas due to the high cost and low return of rural outreach. In addition, interest rates remain high, adequate forms of collateral do not exist due to continuing disorganization within the land registry system, and there is little accountability of Tier 4 institutions such as savings and credit cooperative organizations (SACCOs) and savings and loan associations. To stay true to goals set in the GOU's Poverty Eradication Action Plan (PEAP) to achieve an economic growth rate of seven percent to eight percent and reduce poverty to 10 percent by 2017, all citizens, especially the poorest, must benefit from economic growth and have access to financial services.

The USAID/Uganda's 2002-2008 Strategy calls for expanded sustainable economic opportunities for rural sector growth, promoting a connection between productive strategies by the private sector in rural areas and expansion of financial services sector. Rural Savings Promotion & Enhancement of Enterprise Development (Rural SPEED) was designed to help meet this goal.

The objective of Rural SPEED is to deepen and strengthen Uganda's financial sector in response to this rural sector demand for financial services. Increased provision of financial services should leverage economic activity to complement other Mission's programs in rural areas. The resulting increase in economic activity should help Uganda achieve the economic growth rates proposed in Uganda's Poverty Eradication Action Plan (PEAP). The project is supporting and executing activities in the key areas of:

1. Institutional Capacity Building, including:
 - a. Savings Mobilization;
 - b. Agriculture Finance;
 - c. Non-agriculture Finance;
 - d. Bank/MDI/MFI/SACCO Linkages; and,
2. New Product Development and Service Delivery.

Agricultural finance is both a key area for Rural SPEED and a key priority for the government of Uganda. Agricultural finance is constrained, both inside and outside of Uganda, by both actual risks and by manageable risks that are poorly understood by lenders. Rural SPEED has worked consistently to demystify agricultural finance risks and identify opportunities to encourage greater financing of Uganda's agriculture.

During the previous project year, Rural SPEED mapped all transactions along the value chains for cotton, sunflower, tea and maize in an effort to identify low risk financing opportunities for lenders to become involved with these crops. Rural SPEED has made remarkable headway in increasing finance to maize and sunflower. Being that cotton is a small, emerging sector, plagued by price volatility, Rural SPEED sponsored research to identify price risk mitigating strategies in the cotton sector. The result of this activity was a broad interest on the part of ginners to pursue hedging and more importantly an offer from Standard Chartered Bank to offer a *collar option* to the industry for locking in a range of forward prices.

Collar Option

In general terms a collar option has to do with a combination of put options and call options based on cotton futures traded on the New York Board of Trade Cotton Exchange (NYBOT).

Commodity future contracts are traded on several established and regulated exchanges throughout the world. A future contract is an agreement between a buyer and a seller of a particular commodity to be settled at some future date. The buyer agrees to take delivery of a specified amount of a commodity at some future date while the seller agrees to deliver said amount of the commodity on that future date.

- The buyer of a future contract is said to be “long” if he doesn’t have an offsetting sale to balance his position.
- The seller of a future is said to be “short” unless he has an offsetting purchase that would balance his position.
- Options are derivatives of futures and are called “put options” and “call options”.
- The buyer of a put option gives the buyer the “the right, but not the obligation, to take on a short future”.
- The seller of a put option gives the seller” the obligation to deliver a short future” should the buyer elect to take on a short future.
- The buyer of a call option gives the buyer “the right, but not the obligation, to take on a long future”.
- The seller of a call option gives the seller “the obligation to deliver a long future” should the buyer elect to take on a long future.
- A put option rises in value when future prices go down and decreases in value when future prices go up.
- A call option rises in value when future prices go up and decreases in value when future prices go down.

The collar options offered by Standard Chartered Bank (SCB) are “off exchange” options which means they are not traded on any exchange and the transaction will be settled in U. S. Dollars in cash at the end of the settlement period. It is a “no cost” option meaning that no money is paid up front.

SECTION II

ACTIVITY SUMMARY

USAID/Rural SPEED, in close collaboration with USAID's Agricultural Productivity Enhancement Program (APEP) and Uganda's Cotton Ginners sponsored the author, Bill Griffin, President of William B. Griffin Cotton (a cotton trading and merchandising firm) and the Program Director for the American Cotton Shippers Association International Cotton Institute at the University of Memphis to analyze the offer from Standard Chartered Bank from a buyer's perspective; explain the offer one-on-one with Uganda's major ginners; help them come to an informed decision to accept or reject this offer and develop with them a negotiating strategy to enable them to secure the best deal with the bank.

1. Standard Chartered Bank's Collar Offer

The actual contents of the offer from Standard Chartered Bank are annexed. However, it is best at this point to describe how the collar functions and illustrate this with a few examples. These examples were presented to the individual ginners and to the Cotton Development Organization during the course of the consultancy.

2. Details Of The Collar Option

It should be understood that this transaction has nothing to do with hedging the market value of the lint cotton. It has only to do with providing the ginnery with a floor under prices while allowing the ginnery to participate in any rise in market prices up to the cap price of the collar option.

At current future market levels SCB would enter into a transaction with the ginnery whereby SCB would theoretically buy a 53.00 strike put option and sell a 68.80 strike call option for the ginnery. This spread between the put and the call is based on current future market levels and any future execution of the transaction would depend on NYBOT cotton future prices at the time.

The settlement of the transaction would be based on the March 2008 cotton future contract traded on the NYBOT. The final settlement price would be the result of averaging the daily settlement prices of the NYBOT March 2008 cotton future contract beginning 1 December, 2007, and ending through 31 January, 2008. That average would represent the final settlement on which funds, if any, would be exchanged between the ginneries and SCB. The final payment date would be 2 February, 2008. If the final settlement price is below 53.00 c/lb SCB would pay the ginneries the difference between that and 53.00 c/lb. If the final settlement price is above 68.80 c/lb the ginneries would pay SCB the difference between that and 68.80 c/lb. If the settlement price is between 53.00 c/lb and 68.80 c/lb there would be no exchange of funds by either party to the transaction.

3. Examples

Scenario One

If the floor price is	53.00 c/lb
And the final settlement price is	<u>50.75</u> c/lb
On 2 February 2008 SCB would pay the ginneries	2.25 c/lb

Scenario Two

If the cap price is	68.80 c/lb
And the final settlement price is	<u>72.30</u> c/lb
On 2 February the ginneries would pay SCB	3.50 c/lb

Scenario Three

If the floor price is	53.00 c/lb
And the cap price is	68.80 c/lb
And the final settlement price is	66.75 c/lb
The payment owed by each party would be	0.00 c/lb

The benefit for the ginneries would be a guaranteed minimum price of 53.00 c/lb cost for the lint cotton. The risk for the ginneries would be that the final settlement price would be above 68.80 c/lb obligating the ginneries to pay a sum of money to SCB. Should prices begin a steady rise the ginneries should have the benefit of being able to sell their lint cotton at higher world prices.

Caution

The number of bales represented by the collar option is finite while cotton production estimates are not. Therefore ginneries should use a conservative approach before entering into this transaction because any shortfall in this transaction would be very costly should the final settlement price be above 68.80 c/lb. Only the number of bales represented in the transaction would be affected. If the final volume of cotton handled by the ginnery is above that volume represented by the transaction the additional cotton would not have the benefit of the 53.00 c/lb floor price nor would it have the risk of the cap price being above 68.80 c/lb. The volume of cotton above that which is entered into the transaction would have a floating price in the usual manner.

4. Managing The Risk Of The Collar Option

The ginneries can hedge against the possibility that the final settlement price is above 68.80 c/lb by buying call options on the NYBOT cotton future market at some point in time. One

NYBOT cotton option represents 100 bales of U.S. cotton with each bale weighing 500 pounds or 50,000 pounds so Uganda bales would have to be converted to the U.S. scale in order to ascertain the appropriate number of Uganda bales to be entered into the transaction.

The timing of this purchase should be at the advice of a good market analyst that is familiar with the NYBOT cotton future market and the U.S. and global cotton markets.

NYBOT cotton futures represent U.S. cotton however many countries use the NYBOT cotton futures market for pricing and hedging. Therefore it is extremely important that any analyst fully understand the U.S. cotton futures and cash markets. The collar option is based on the NYBOT March '08 future cotton contract, not the Cotlook "A" index. Although there is a strong relationship between NYBOT cotton futures and the "A" index, the index is a running average of certain global prices and the NYBOT prices are finite each trading day.

Estimating long term future market prices requires a good analysis of both the basic fundamentals of global and regional supply/demand and the technical considerations used by speculators to enter and maintain a position in the NYBOT cotton future market.

If long term analysis indicates that NYBOT cotton future prices will rise substantially then this transaction probably should not be entered into. On the other hand if long term analysis indicates the probability of lower prices then this transaction is worth considering.

The Hedge

At this writing the NYBOT March cotton future contract is trading around the level of 61.00 c/lb. At the advised time the ginneries could buy NYBOT March calls at a level that would give them protection should the final settlement be above 68.80 c/lb. One cannot buy a 68.80 call on the NYBOT as only even money options are traded, i.e. 67.00, 68.00, 69.00 etc.

Approximate premiums for various NYBOT March '08 call options are:

65.00	2.09
66.00	1.88
67.00	1.66
68.00	1.46
69.00	1.28

The ginneries could choose any one or a combination of the call options depending on how much protection they wanted.

Scenario One

The ginneries could choose to buy 67.00 calls for 1.66 c/lb. If the final settlement price is say 72.30 c/lb they will owe SCB 3.50 c/lb. The 67.00 call will be worth at least 5.30 c/lb. Deducting the 3.50 owed to SCB would leave 1.80 c/lb profit on the call option for which the ginneries paid 1.66 c/lb so the transaction would net the ginneries .14 c/lb profit.

Final settlement price	72.30 c/lb
Price cap	<u>68.80</u> c/lb
Ginnery would owe SCB	3.50 c/lb
Ginnery would sell the call option worth at least	5.30 c/lb
For which was paid	<u>1.66</u> c/lb
Profit on the call option	3.64 c/lb
Pay SCB	<u>3.50</u> c/lb
Net profit on the collar option	0.14 c/lb

Scenario Two

Under scenario two if the final settlement price is below 68.80 c/lb the call option could be sold for whatever it is worth at the time or it would expire worthless. If the option is sold the sales price would be deducted from the 1.66 c/lb to arrive at the net cost of the transaction plus broker commissions. Either way the maximum loss to the ginneries would be 1.66 c/lb plus broker commissions.

The scenarios presented here are naturally theoretical but should provide some understanding of the possibilities of the transaction. Once the transaction is entered into with SCB it can only be terminated with the consent of SCB and may be quite costly to the ginneries under certain circumstances. However if the transaction is hedged the possible loss should be minimal or nil.

5. Feed Back From The Industry

The author met with three ginneries in person, Dunavant, Plexus and Olam, and one ginnery over the telephone, Rheinhart, and explained the proposed cotton collar. Dunavant, Rheinhart and Plexus were very interested. The first meeting we had with Olam met with some confusion as the gentlemen did not quite understand the proposal. These gentlemen are not responsible for Olam's cotton operation in Uganda. The author ultimately did meet with the person who is responsible for the cotton operation and he responded positively when the collar option was explained.

We also met with the Managing Director; the Principal Market Information & Monitoring Officer of Cotton Development Organization and a gentleman from the Ginner's Association and explained the collar option to them. All listened with interest and asked many questions regarding the collar option. They all exhibited a keenness to improve the incomes of Uganda cotton growers. We had a second meeting with the Principal Market Information & Monitoring Officer of Cotton Development Organization and he continued to maintain a positive attitude toward the proposed collar option.

SECTION III

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Nobel Prize winner for Economics, Milton Friedman, once said, “There is no such thing as a free lunch”. While this collar option offers some benefit to the ginnery it also carries with it a degree of risk which should be fully understood before entering into any transaction with SCB. To reiterate, the benefit to the ginnery is an established floor under the price of the physical cotton while allowing the ginnery to participate in any rise in prices up to the cap price. The risk to the ginnery is that the final settlement price be above the cap price. The risk of a higher settlement price than the cap price can be hedged by buying NYBOT call options at a price, the price of the lunch.

An alternative strategy would be to ignore the collar option altogether and, outright, buy NYBOT put options for a cash price. This would establish a guaranteed minimum price while giving the ginneries the benefit of rising prices without the added risk inherent in the collar option.

Specific Recommendations

1. Long term analysis of the global and U. S. cotton markets should begin immediately so that some idea of cotton price direction may be possibly discovered.
2. The larger cotton ginneries are the most influential and a great effort should be undertaken in order to be sure they understand the proposal so that they may act together.
3. A more realistic price proposal should be established with SCB if, and when, a decision is made to enter into the transaction.
4. A formal organization should be formed to act as a counter party to the transaction if the decision is made to enter into the transaction.
5. If global cotton prices are high at the time CDO sets the price for the Ginneries, the proposal is worth considering if it is hedged as explained. The benefit to the ginneries is the establishment of a guaranteed minimum price for their cotton but also creating upside risk which would be costly if not hedged.
6. If global cotton prices are low at the price setting time an alternate strategy could be that the ginneries outright buy “Put Options”. This strategy would also provide a guaranteed minimum price but would not involve the upside risk they would be exposed to in the collar option.
7. Extra Long Staple (ELS) varieties of cotton should be researched for possible production in Uganda. The major investment in ELS, roller gins, is already in place. ELS varieties have a longer growing season however prices for ELS cotton are almost double the current varieties now grown in Uganda.

8. GMO varieties of cotton should also be researched in order to try to reduce the number of inputs needed by the current varieties.

APPENDICES

Appendix I: Summary of the Cotton Collar

Your need	You are a producer (seller) of cotton. It is important for you to have certainty for planning and budgetary purposes and you would therefore like to agree a fixed price now for when you sell your cotton on a future date.
Solution	A cotton swap allows you to receive a fixed commodity reference price for cotton.
How it works	After credit approval, you enter into a cotton swap with the Bank. The Bank will calculate the fixed price based on certain factors, such as the current commodity reference price, the pricing date/s, the transaction amount and transaction period.
Possible outcomes on the pricing date	<ul style="list-style-type: none"> ● Commodity reference price is lower than the fixed price - the Bank must pay you the difference between the fixed price and the commodity reference price. ● Commodity reference price is higher than the fixed price - you must pay the Bank the difference between the fixed price and the commodity reference price. ● Commodity reference price is equal to the fixed price - you and the Bank will have no further obligations to each other with respect to the cotton swap.
Benefits	<ul style="list-style-type: none"> ● You receive commodity price protection through the fixed price. ● Can be customised, so you can determine the transaction amount and pricing date/so ● Are cash settled so no need to physically deliver cotton to the Bank. ● There are no complex exchange traded brokerage and margin calls.
Points to consider	<ul style="list-style-type: none"> ● You cannot benefit if the commodity reference price moves above the fixed price. ● You are not covered for the basis risk, which is the risk arising from entering into a hedge transaction that is not identical with the risk being covered. ● You may have to pay an amount, if the cotton swap is terminated prior to its scheduled termination date, depending on its mark-to-market value.

Appendix II Standard Chartered Bank's Offer

Over-the-counter cotton collar

Indicative Termsheet

30 November 2006

The following over-to-counter zero-cost collar offers the Customer protection against falling cotton prices.

This structure gives the Customer protection from future US dollar cotton price weakness, by establishing a maximum Cap Strike Price and a minimum Floor Strike Price, Floating Price settlements below the Floor Strike Price will result in the Customer being compensated by SCB. The compensation will be in US Dollar cash if, however, the Floating Price should settle above the Cap Strike Price, the Customer will pay an offsetting US Dollar cash payment to SCB. If the Floating Price settles between the upper Cap Strike Price and the lower Floor Strike Price, this will not result in any cash payments to, or by, either party.

This transaction is based off the NYBOT price and you will be exposed to 'basis risk' between this transaction and the price that you will actually achieve via sales of your production.

This transaction settles off the "Front Month" NYBOT contract. For example, for the Pricing Dates of 01 Dec 07 – 31 Jan 08, the contract reference will be "March 08".

Purpose of Transaction

[Customer] has a requirement to sell US Dollar Cotton. This structure gives the Customer protection for zero premium cost, with the ability to benefit from future Floating Price settlements down to and including the minimum Floor Strike Price.

Risk Disclosure Statements

This is an off-exchange derivative product. As such, you may find it difficult to establish a fair price and to establish your exposure to risk. Upon entering into this transaction, you will be continually bound to SCB under the terms of the transaction. Unless otherwise expressly stated in the terms of the transactions, this transaction may not be terminated prior to the termination date without the consent of SCB and upon terms agreed between you and SCB. Such terms may include the cost of unwinding a hedging position taken by SCB that are to be payable by you. The cost of early termination of the transaction, inter alia, may be substantial. This transaction may be used for hedging purposes. If you are entering into the transaction for hedging purposes, this product may not match your exposure perfectly and will not track any changes to the underlying exposure potentially leaving you under or over hedged or with other exposures resulting from the transaction.

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This document is issued by Standard Chartered Bank (SCB) and contained indicative terms of a prospective transaction. It is for discussion purposes only and does not constitute any offer, recommendation or solicitation to any person to enter into any transaction or adopt any hedging, trading or investment strategy, nor does it constitute any prediction of likely future movement in rates or prices or any representation that any such future movements will not exceed those shown in any illustration. The indicative terms are neither complete nor final and are subject to further discussion and negotiation. The terms of any transaction entered into will be recorded in a written confirmation or other document. SCB has no fiduciary duty towards you, and assumes no responsibility to advise on, and makes no representation as to the appropriateness or possible consequences of the prospective transaction. SCB, and/or a connected company may have a position in any of the instruments or currencies mentioned in this document. You are advised to make your own independent judgment with respect to any matter contained herein. In the U.K., SCB conducts designated investment business only with Market Counterparties and Intermediate Customers and this document is directed only at such persons. Other persons should not rely on the document.

*Over-the-counter cotton collar***Indicative Transaction Details:**

Customer:	[Cotton Producer]
Bank:	Standard Chartered Bank, London Branch (SCB)
Trade Date:	[TBA]
Total National Quantity:	[XXX] pounds of cotton
Start Pricing Date:	[01 December, 2007]
End Pricing Date:	[31 January, 2008]
Settlement Date:	[02 February, 2008]
Cap Strike Price:	[US cents 68.80] per pound

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*Over-the-counter-cotton collar***Indicative Termsheet**

Floor Strike Price:	[US cents 53.00] per pound
Floating Price:	The [unweighted arithmetic mean] of the Commodity Reference Prices for each Commodity Business Day from and including the Start Pricing Date to and including the End Pricing Date.
Commodity Reference Price:	The price close of the front-month NYC Cotton No. 2 Contract defined as COTTON No. 2- NYBOT' means that the price for a Price Date will be that day's specified Price per pound of deliverable grade cotton No. 2 on the New York Board or Trade "NYBOT": of the Futures Contract stated in US cents, as made public by the NYBOT and displayed on Reuters Screen page '0#CT' on that Pricing Date.
Commodity Business Day:	A day on which NYBOT is (or but for market disruption would have been) open for regular trading.
Pricing Date:	Each Commodity Business Day from and including the Start Pricing Date to and including the End Pricing Date.
Specified Price:	[closing price]
Business Day Convention:	[Modified Following]
Premium:	Zero
Scenarios at Settlement:	<p><u>On Settlement Date</u></p> <p>If Floating Price is above the Cap Strike Price: [Customer] will pay [USD] [(Floating Price less Cap Strike Price) x Total Notional Quantity] from SCB on Settlement Date.</p> <p>If Floating Price is below the Floor Strike Price: [Customer] will receive [USD] [Floor Price less Floating Price) x Total Notional Quantity] to SCB on Settlement Date.</p> <p>If Floating Price is between the Cap Strike and the Floor Strike Price: No payment is made on the Settlement Date.</p>

Calculation Agent:	Standard Chartered Bank
Documentation:	A confirmation incorporating ISDA Definitions and the standard market disruption provisions that will supplement, form part of and be subject the ISDA Master Agreement.
Governing Law:	The governing law of the ISDA Master Agreement signed between the counterparties or if not signed, English Law.

Sensitivity Analysis Disclaimer:

This Section displays some (but not all) of the different outcomes which are possible for a transaction of this type. On the Settlement Date relating to the above referenced transaction as described in the indicative transaction details

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*Over-the-Counter cotton collar***Risk and Return Analysis**

- The above strategy is a zero-cost structure. No premium is payable by either party. This is because the Customer is selling a Cap which would have the same up front premium as the Floor it is purchasing.
- This strategy offers a hedge for the Total Notional Quantity at the Floor Strike Price.
- There is participation in favourable price moves up to but not above the Cap Strike Price.

Scenario Analysis 1

Between 01 December 2007 and 31 January 2008, the average over of the price close of the front-month NYC Cotton No. 2 Contract as quoted on NYBOT equals 40.00 US cents per Pound. On 31 January 2008, Customer makes a cash payment to SCB calculated as follows (53.00-40.00) * Total Notional Quantity = USD xxxxxxxxxxx

Scenario Analysis 2

Between 01 December 2007 and 31 January 2008, the average over of the price close of the front-month NYC Cotton No. 2 Contract as quoted on NYBOT equals 75.00 US cents per Pound. On 31 January 2008, Customer makes a cash payment to SCB calculated as follows (75.00-68.80) * Total Notional Quantity = USD xxxxxxxxxxx

*Please note that sensitivity analysis will have to be updated to reflect current market conditions at the time of transaction and terms of such transaction.

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