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Credit Derivatives In Emerging Markets With Respect To Ghana's Oil and Gas Sector.

By

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Presentation Plan

- Overview of Derivatives and Credit Derivatives
- Credit Default Swap(CDS)
- Application of Credit Derivatives
- Derivatives and Credit Derivatives in the Ghanaian oil and Gas sector

Derivatives

- Derivative contracts have been important innovation in the financial market
- They are so called because their values are determined by or derived from the value of some underlying asset.
- Derivatives can be traded on OTC markets or an Exchange

- Underlying assets(Cash Instruments) may include Stocks, Bonds, Currencies, Interest Rate Movements and Commodities
- **Examples of Derivative Contracts**
 - ❖ **Forward Contracts**
 - ❖ **Futures Contract**
 - ❖ **Options**
 - ❖ **Swaps**

Characteristics of Exchange traded and OTC Derivatives

Exchange Traded	OTC
Standardised contracts	Less standardised
Restricted market entry & high protection	Unrestricted market entry & less protection
Relatively short maturities	Short to medium term maturities
High liquidity	Low liquidity

Exchange Traded	OTC
Options and futures contracts	Forward , swaps, options
Large number of traders	Small number of traders
Relatively low asset prices	High asset prices(this drives away small investors)
Volume of trade higher	Value of trade higher

Some Derivative Exchanges

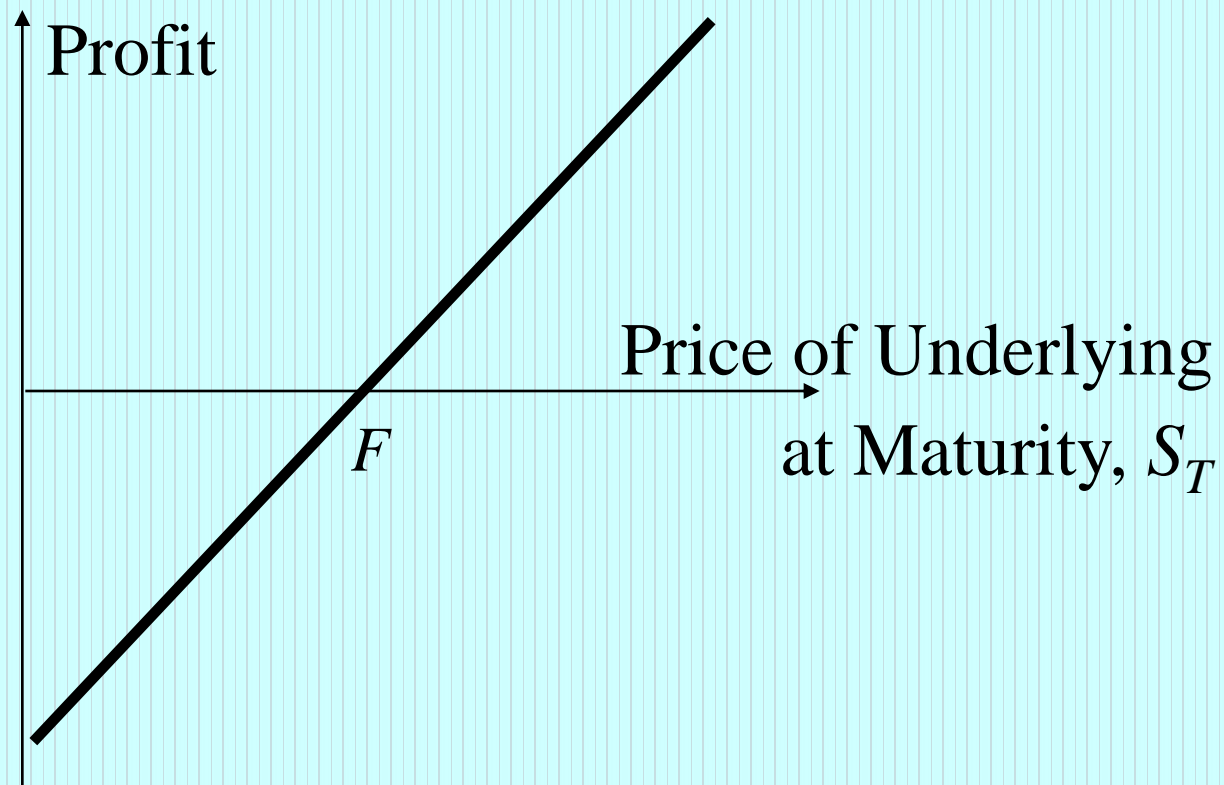
Name	Contracts
Chicago Board of Trade (CBOT)	Corn, Oats, Soyabeans, Wheat etc
Chicago Merchantile Exchange (CME)	Cattle feeder, Pork bellies, T-Bills, Nasdaq, S&P 500
New York Board of Trade (NYBOT)	Cocoa, Coffee, Sugar, Cotton , Orange Juice

New York Merchantile Exchange	Copper, Gold, Silver, Crude Oil, Heating Oil, Gasoline, Natural gas etc
London International Financial Futures Exchange (LIFFE)	FT-SE 100 Index, Short sterling etc
Johannesburg Securities Exchange (JSE)	JSE Top 40 Index
Tokyo International Financial Futures (TIFFE)	Euroyen etc

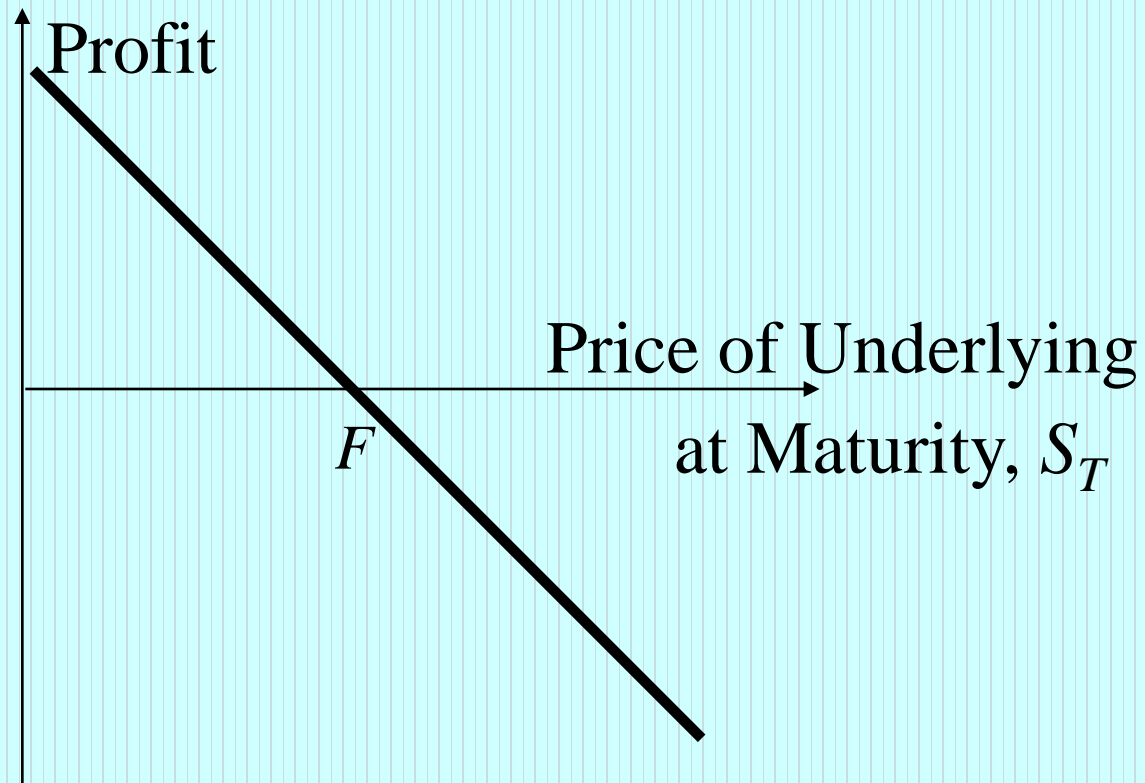
Trading Positions

- A buyer in a derivative transaction takes Long Position (Profitable when price at maturity increases)
- A seller in a derivative transaction takes Short Position (profitable when price at maturity falls)

Profit from a Long Position



Profit from a Short Position



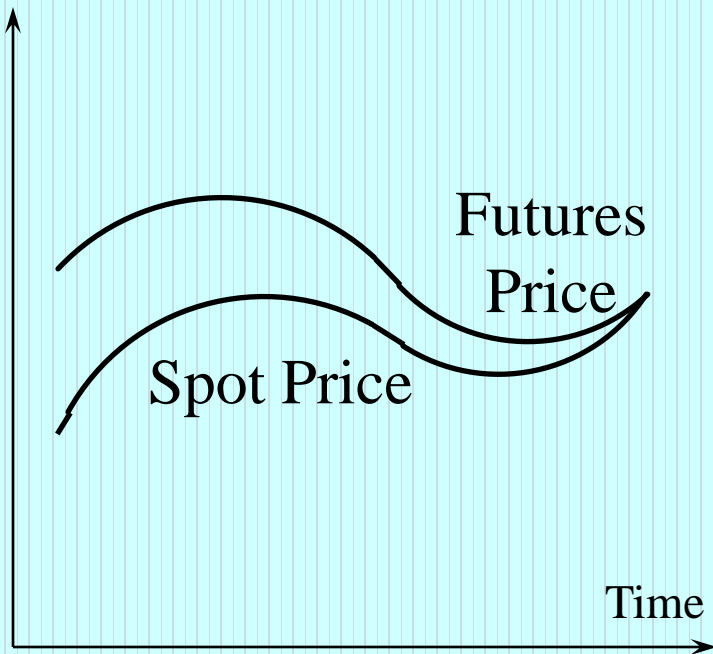
Futures prices

- ❖ That the Value of a long futures position is positively related to the market price of the underlying asset
- ❖ That the Value of a short futures position is inversely related to the market price of the underlying asset

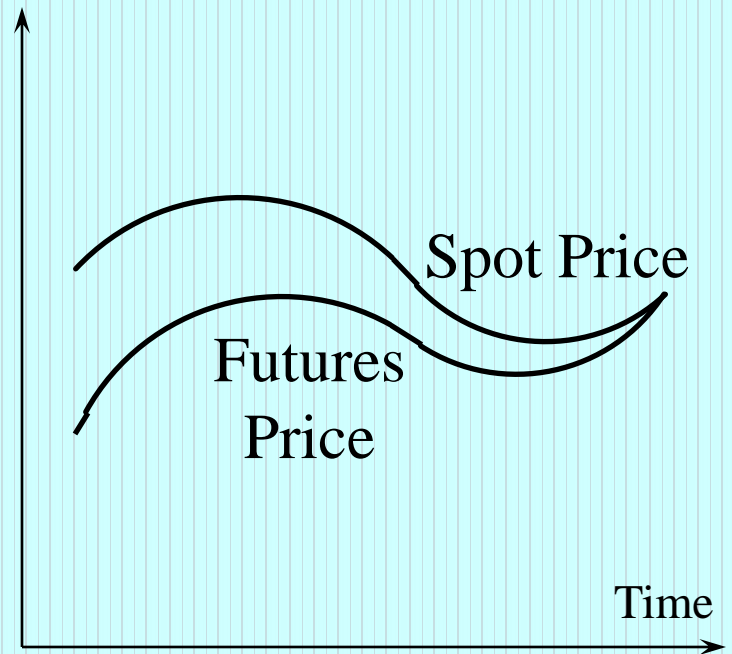
In the Money, Out of the Money and At the Money Transactions

- This is normally applied to Options.
- When the Option is profitable , we say it is in the money
- When it is not profitable then it is out of the money
- When the strike price is just equal to the underlying asset price then it is at the money

Convergence of Futures to Spot



(a)



(b)

The Role of the Clearinghouse in Derivative Transactions

- ❖ Trading platform for standardise futures and options contracts
- ❖ Receive trading data from Members
- ❖ Compare and match data from sellers and buyers
- ❖ Performance guarantor
- ❖ Counterpart to all traders
- ❖ Delivery

Clearinghouse and Commodities Exchange

- Clearinghouse is at the centre of a vibrant commodities market (Exchange)
- Requires good warehouse system
- Requires good transport system
- Requires appropriate regulatory and marketing platform
- Requires different types of professionals

Credit Derivatives

- Credit risk was introduced in the late 1980s and early 1990s
- basic credit derivatives such as credit default swaps (CDSs) have witnessed considerable growth, reaching a notional value of US\$45 trillion by the end of 2007, although notional amounts fell during 2008 to \$38.6 trillion. Collateralized debt obligations (CDOs), recorded a global issuance of \$157.8 billion in 2004, reaching \$481 billion in 2007, although in 2009 this has gone down to \$4.3 billion.

Credit Derivatives

- Credit derivative markets therefore emerge in the early 1990s to ensure proper credit risk management
- *Credit derivatives are financial instruments designed to transfer credit risk from one counterpart to another.*
- Credit derivatives are financial instruments, whose value is derived from the credit quality of an underlying obligation, which is usually a bond
- or a loan.

- **Credit Derivatives are securities that offer protection against credit or default risk of bonds or loans(Ranciere, 2002)**
- **This implies credit derivatives can be important risk management tool if the bond or debt market is vibrant. The Ghanaian Bond market is limited to the Government.**
- *Credit derivatives are generally short-term in nature, usually having a time to expiration of between one and three years initially.*

- The recent announcement in the 2012 Budget Statement to Parliament by the Finance Minister to issue 7yrs and 10yrs bonds should help deepen the bond market further
- This will also serve as benchmark pricing of other bonds to be issue in the country especially if the SADA considers the issuance of bond as a means of raising long term capital for its projects

Extract from the September 2011 Financial Stability Report of the Bank of Ghana

- The extracts give us some indications about credit risk situation in the banking sector.
- Credit to the Private Sector grew from GHS 1,678.6 M in June 2006 to GHS 7,252.4M in June 2011
- This implies Private sector credit grew from 69% in 2006 to 77% in 2011
- Off-balance sheet items (contingent liabilities) grew by 43.4 percent to GHS 2.57 billion as at June 2011 compared with a growth of 28.6% the same period in 2010

- Doubtful loans have increased from GHS73.8M in June 2006 to GHS409M in 2010 before declining to GHS290M in June 2011.
- Over the same period the record shows that Non Performing Loans (NPL) increased from GHS 251M in June 2006 to GHS1,269.6M in 2011
- It is alarming that private enterprises accounted for 83.1% of the NPL over the period while indigenous private enterprises accounted for over 79%
- **We must be concerned about credit risk**

Components of Credit Risk

- Credit risk is made up of :
 - a. Credit default risk-** that an obligor(debtor) does not repay part or entire financial obligation. Investor can only receive recovery rate
- *Credit deterioration risk - the risk that the credit quality of the debtor decreases.* This may reduce the assets value of the debtor and financial loss for the creditor. But investor can receive the notional amount

Credit Events That Encouraged Credit Derivative Market

- *The Latin American debt crisis in the early 1980s.*
- Mexico suspended coupon payments to its creditors.
- The crisis worsened within 7 years and spread to other Latin American countries
- Inflation grew and investors reallocate capital out of the debtor nations.

- ***The junk bond crisis in the 1980s.***
- *In the early 1980s, the investment bank Drexel Burnham Lambert engaged in high volume trading of junk bonds.*

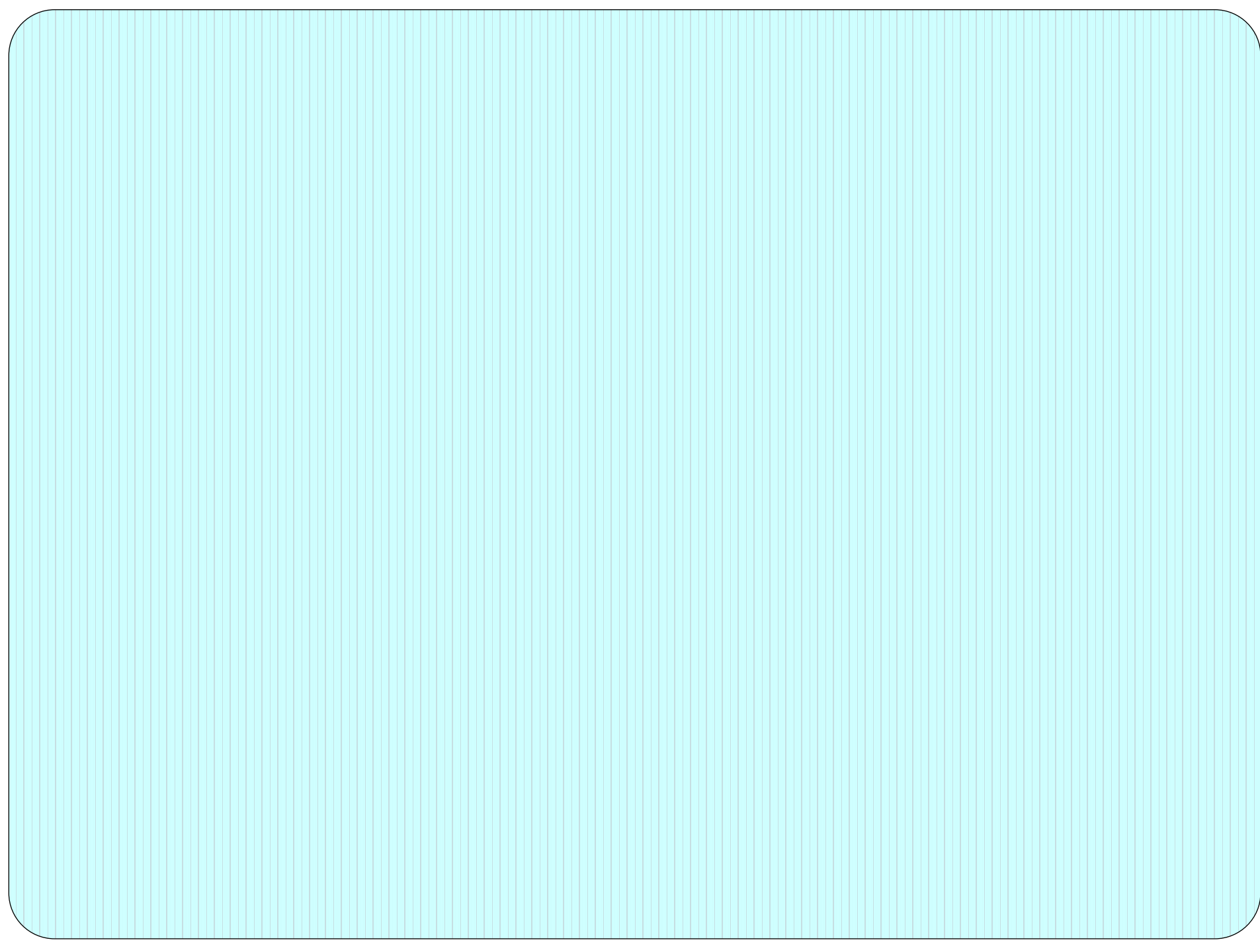
- ***The Asian financial crisis in 1997–1998.***
- *Falling interest rates in industrialized countries throughout the 1990s resulted in lower cost of capital*
- *Overconfidence in the growth of South-East Asian nations,*
- *Huge capital inflows(mostly “hot money” i.e. short-term with less than 1-year maturity.)*
- *Declining growth rates in the mid 1990s,*
- *Creditors did not renew their credits. Most of the funds were invested long term (or unprofitable)- maturity mismatches led to the Asian financial crisis.*

- ***Argentinean crisis 2001.***
- In the late 1990s the Argentine peso was pegged to the US dollar.
- The dollar appreciating in the 1990s against nearly all currencies.
- Argentina's exports and foreign investment in Argentina had become increasingly less attractive. This led to severe recession in 2001.
- In order to reduce capital outflow, the interest rate on 3-month treasury bills was raised from 9% to 14% in July 2001 despite an ongoing deflation, which increased the real burden of high interest payments.

Credit Default Swap

Credit default swap (CDS)

the buyer makes a periodic or an upfront payment to the seller of the default swap. The default swap seller promises to make a payment in the event of default of a reference obligation, which is usually a bond or a loan.



CDS Transaction Diagram

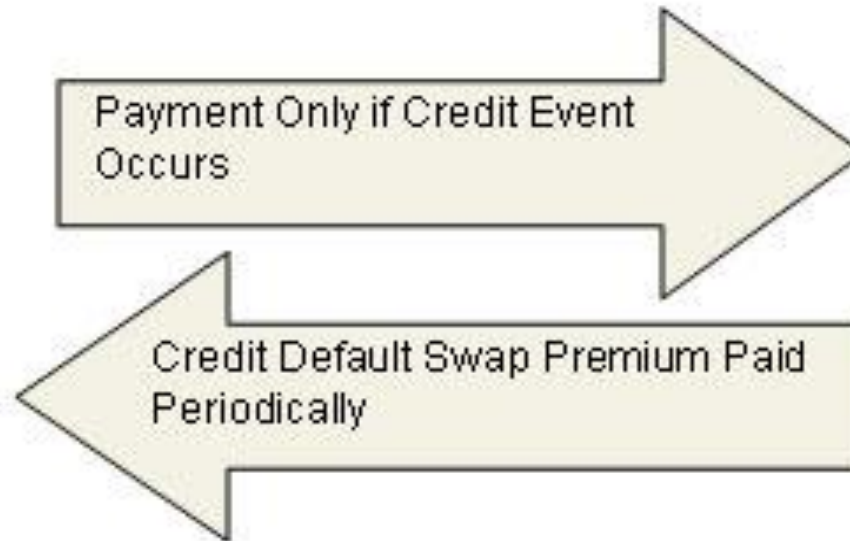
A Common Credit Default Swap Transaction

Risk Buyer or Protection Seller

Does not usually
own underlying credit
asset

Selling Credit
Protection

Long Credit
Exposure



Risk seller or Protection Buyer

Tends to own
underlying credit
asset

Purchasing Credit
Protection

Short Credit
Exposure

- The default swap can be seen as a put option on the reference obligation.
- The default buyer owns this put, and he sells the reference obligation to the default swap seller in case of default. This put option is usually far out-of-the-money, since the probability of default is usually low.

The default swap buyer has a short position in the credit quality of the reference obligation: If the credit quality and the price of the bond decrease,

- the present value (the premium, if paid upfront) of the default swap will increase. Thus the
- premium that the default swap buyer paid in the original contract is lower than the market premium after the bond price decrease. If desired, the default swap buyer can sell the default swap at the higher market premium with a profit.

- the default swap seller has a long position in the credit quality of the reference obligation. If the credit quality and the price of the reference obligation increase, the present value of the default swap decreases. Thus, after a bond price increases, the premium that the default swap seller receives in the original default swap contract will be an above market premium. The default swap seller can buy back the default swap at the lower current market premium with a profit (Meissner, 2005)

Important to Note

- *A credit swap can be viewed as a put option whose payoff is tied to a particular credit event.*
- *A lender can use a credit swap to diversify its credit risk exposure*

Credit Derivatives in Ghana's Oil and Gas Sector

- Credit Derivative deals with credit risk related to debt instrument such as loan or bond
- Active debt market and volatility of interest rates
- There is probability of default and *deterioration* of credit
- Normally the providers of capital for oil and gas projects such as Banks have the option to use credit derivative tools to manage their risk

Why Credit Derivatives for the Oil and Gas Sector

- ❖ Section 5 of the Petroleum Revenue Management Act, 2011 (Act 815) has largely allow the government of Ghana to use the Petroleum Account as collateral for debts
- Section 28(1) **“The resources of the Ghana Petroleum Funds shall be invested in qualifying instruments prescribed in this Act.**
- (2) The range of instruments designated as qualifying instruments shall be reviewed every three years or sooner by the Minister on the advice of and in consultation with the Investment Advisory Committee.

Qualifying Instruments

- **Section 29(1) “Subject to other provisions of this section, a qualifying instrument is:**
- *(a) a debt instrument denominated in internationally convertible currency that bears interest or a fixed amount equivalent to interest,*
- (i) that is of an investment grade security, and
- (ii) that is issued by or guaranteed by the International Monetary Fund, World Bank or by a sovereign State, other than the Republic of Ghana, if the issuer or guarantor has investment grade rating; or

- *(b) an internationally convertible currency deposit with, or a debt instrument denominated in any internationally convertible currency that bears interest or a fixed amount equivalent to interest issued by:*
 - (i) the Bank for International Settlements;
 - (ii) the European Central Bank; or
 - (iii) the Central Bank of a sovereign State, other than the Republic of Ghana, with a long-term investment grade rating.

- *(c) a derivative instrument*
- (i) that is solely based on an instrument that satisfies the requirements of this subsection; and
- (ii) where its acquisition reduces the financial exposure to the risks associated with the underlying instrument or instruments.
- **Extract from 2012 Budget Statement**
- The call option is adopted to manage oil import prices whilst the put option is adopted to smoothen fluctuations in crude oil export receipts.

- The put option has been adopted under which Ghana has the option to sell crude oil at a price of US\$107.00 per barrel. Currently, 100 percent of anticipated receipts of crude oil sales have been hedged to the end of 2011.
- Use of Swap Arrangement to mitigate the risks of rising floating interest rates for debt servicing to allow for enhanced predictability of debt service planning and forecast.

- (2) A Manager of the Ghana Petroleum Funds shall dispose of any instrument that ceases to be a qualifying instrument because of a change in the rating of the instrument or the issuer of the instrument immediately or as soon as is practicable after the change in rating of the instrument or the issuer”.
- Note: This Act has recognised the possibility of deterioration in the debt quality through downgrading

Benefits

- Ensure proper debt management and fiscal planning
- Ensure steady flow of oil receipts
- Stability of the economy
- Downstream price stability
- Derivative contracts can serve as collateral for borrowing to finance infrastructure
- Proper foreign exchange inflow planning and its effects on exchange rate in the Country
- Smoothing effects in case of extreme price fluctuation

Conclusions

- That derivatives help in proper risk management
- The market for derivative is limited
- Government has adopted limited derivative contracts in the petroleum industry
- The petroleum Revenue Management Act provides basic steps to enhance participation in the debt market
- Poor credit risk management in the banking sector that needs holistic solution from the Banking sector, Private Enterprises and Government

Thanks