CDS 사용 설명서

- 이 모델은 CDS Spread를 계산하거나 기존 계약한 CDS의 Value를 계산합니다.
 - 1. 자신의 엑셀 bit수 확인

파일>계정>엑셀정보



- 2. Alt + F11로 VBA창 키기
- 3. VBA 모듈 들어가서 다음 순서에 따라 dll의 디렉토리 바꾸기 (현재 dll이 설치되어있는 디렉토리로 바꾸기)

또한 엑셀이 64bit일 경우 Declare Function -> Declare PtrSafe Function으로 선언해야함

3-1. 엑셀 비트수에 따라 경로 복사



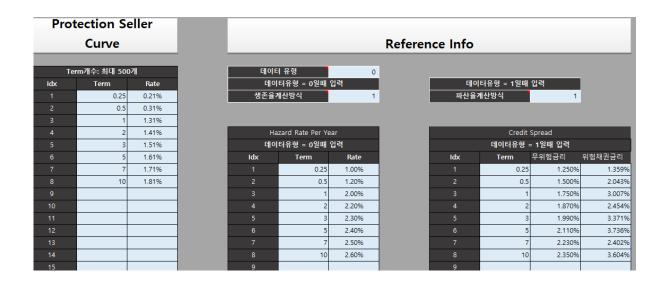
3-2. Ctrl + F로 복사된 위치로 한꺼번에 바꾸자

```
Public Declare PtrSafe Function Calc_CDS_Spread Lib "O:MUsersWlimds1557Wgit_daesun5WCreditDerivativesWDebug\"CreditDerivatives.dll" (
ByVal NPremiumCurve As Long, ByRef PremiumCurveTerm As Double, ByRef PremiumCurve As Double, _
ByVal NProtectionCurve As Long, ByRef ProtectionCurveTerm As Double, ByRef ProtectionCurve As Double, _
ByVal DataFlag As Long, ByVal NHazardRate As Long, ByRef HazardRateTerm As Double, ByRef HazardRate As Double, ByVal NRefZero As Long, ByRef RefZeroTerm As Double, ByRef ZeroRiskFree As Double, ByRef ZeroRiskSyBond As Double, ByVal DefaultRa
ByVal Recovery As Double, ByVal ScheduleInputFlag As Long, ByVal NCPN_Ann As Long, ByVal Maturity As Double, ByVal NSchedule As L
ByVal TextFlag As Long, ByVal GreekFlag As Long, ByRef Result_Value As Double, ByRef ResultHazardRate As Double, ByRef Premium_Sc
) As Long
Public Declare
                                                                                                                                                                                     557\git_daesun5\CreditDerivatives\Debug\CreditDerivatives.dll"
          ByVal NPrem 바꾸기
ByVal NProt
                                                                                                                                                                                         PremiumCurve As Double,
                                                                                                                                                                                         ByRef ProtectionCurve As Double,
                                                                                                                                                                                    , ByMef ProtectionCurve As Double, _
Term As Double, ByRef HazardRate As Double, ByVal CalcQMethod
Free As Double, ByRef ZeroRiskyBond As Double, ByVal DefaultRa
PN_Ann As Long, ByVal Maturity As Double, ByVal NSchedule As L
ByVal TextFlag As Long, ByVal GreekFlag As Long, ByRef Result_
                                        찾을 내용(F): C:₩Users₩limds1557₩git_daesur_▼
           ByVa I
                         DataF
                                                                                                                                                   다음 찾기(N)
          ByVa | NRef2
ByVa | Recov 바꿀 내용(W): thub5wCreditDerivatives₩Release ▼
                                                                                                                                                              취소
           ByVal OLS (
                                        급색
                                                                                           방향(D): 전부
                                            ○ 현재 프로시저(P)
                                                                                                                                                         바꾸기(R)
                                         ● 현재 모듈(M)
                                                                                                                                                   Public Declare
                                                                                            □ 단어 단위로(○)
          ByVal NPref C 현재 프로젝트(C)
ByVal NProf
ByVal NCDS( C 선택한 텍스트(T)
                                                                                           □ 대/소문자 구분(S)
          Public Declare PtrSafe Function Calc_RiskyCouponBond Lib "C:#Users#limds1557#git_daesun5#CreditDerivatives#Debug#CreditDerivatives.dl
ByVal EffectiveDate As Long, ByVal CPNInputFlag As Long, ByVal Recovery As Double, ByVal CalcMethod As Long, _
ByVal OPNRate_O As Double, ByVal NCPN_Ann_O As Long, ByVal NotionalAmount_O As Double, ByVal T_Mat_O As Double, _
ByVal NCoupon As Long, ByRef CouponDate As Long, ByRef CouponPayDate As Long, ByRef CouponRate As Double, ByVal PrincipalDate As
ByVal InputType As Long, ByVal NHazardCDS As Long, ByRef HazardCDSTerm As Double, ByRef HazardCDSRate As Double, ByVal NRiskFree
ByVal PricingDate As Long, ByVal TextFlag As Long, ByVal GreekFlag As Long, ByRef ResultPrice As Double, ByRef KeyRate_PV01_Conve
```

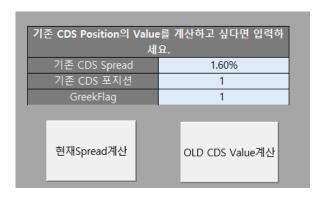
3-3. (64비트의 경우 CreditDerivatives₩x64₩Release₩CreditDerivatives.dll)

```
Public Declare PtrSafe Function Calc_OLD_CDS_Value Lib "C:\Users\citad\github5\CreditDerivatives\Release\CreditDerivatives.dll" ( _
     ByVal NProtection Calc_ULL_US_Value Lib "C-MuserswichladmgithubombredituerivativesMheleasembredituerivatives.dli" (_
ByVal NProtectionCurve As Long, ByRef ProtectionCurveTerm As Double, ByRef ProtectionCurve As Double, _
ByVal NProtectionCurve As Long, ByRef ProtectionCurveTerm As Double, ByRef ProtectionCurve As Double, _
ByVal DataFlag As Long, ByVal NHazardRate As Long, ByRef HazardRateTerm As Double, ByRef HazardRate As Double,
ByVal NRefZero As Long, ByRef RefZeroTerm As Double, ByRef ZeroRiskFree As Double, ByRef ZeroRiskyBond As Double, ByVal DefaultRa
ByVal Recovery As Double, ByVal ScheduleInputFlag As Long, ByVal NCPN_Ann As Long, ByVal Maturity As Double, ByVal NSchedule As I
ByVal OLS_CDS_Spread As Double, ByVal Protection_Position As Long, ByVal TextFlag As Long, ByVal GreekFlag As Long, ByRef Result.
) As Long
Public Decla
                                                                                          X C:\Users\ciiad\github5\CreditDerivatives\Release\CreditDerivative
                                                                              ByVal
ByVal
              NI
NI
NI
                 찾을 내용(F): C:₩Users₩limds1557₩git_daesur ▼
      ByVa I
                                                                                               Curve As Double
                 바꿀 내용(W): C:₩Users₩ciiad₩github5₩Credit[▼
      ByVal
ByRef
                                                                                  취소
                                                                                                  NCPN_Ann As Long, _
                 _검색
) As Long
                                             방향(D): 전부
                  ○ 현재 프로시저(P)
                                                                               바꾸기(R)
                                             □ 단어 단위로(O)
□ 대/소문자 구분(S)
                  ● 현재 모듈(M)
Public Decla
                                                                                               iiad\github5\CreditDerivatives\Release\CreditDerivatives.dll" ( .
                                                                            모두 바꾸기(A)
     ) As Long
```

4. 발행정보 및 파라미터 입력하기



5. 가격계산 매크로 실행(현재 CDS Spread계산, 과거 CDS의 현재 Value 계산)



함수 매핑 정의서

Calc_Hazard_Rate_From_CDSCurve

: CDS Curve를 기반으로 Hazard Rate을 산출합니다.

```
DLLEXPORT(long) Calc_Hazard_Rate_From_CDSCurve(
        long NPremiumCurve,
                                       // Premium Leg 커브 Term 개수
       double* PremiumCurveTerm.
                                       // Premium Leg 커브 Term Array
       double* PremiumCurve,
                                       // Premium Leg 커브 Rate Array
        long NProtectionCurve,
                                       // Protection Leg 커브 Term 개수
       double* ProtectionCurveTerm,
                                       // Protection Leg 커브 Term
       double* ProtectionCurve.
                                       // Protection Leg 커브 Rate Array
        long NCDSCurve,
                                       // CDS Term 개수
       double* CDSCurveTerm,
                                       // CDS Term Array
       double* CDSCurve,
                                       // CDS Spread Array
                                       // Recovery Rate
       double Recovery,
        long HazardRateCalcFlag.
                                       // Hazard Rate Calc 방법 0: Continuous 1: 단리
        long NCPN_Ann,
                                       // 연 이자지급 수
                                       // OutPut Hazard Term
       double* ResultHazardTerm,
       double* ResultHazard
                                       // OutPut Hazard Rate
)
```

Calc_CDS_Spread

: 현재 CDS Spread를 산출합니다.

```
DLLEXPORT(long) Calc_CDS_Spread(
   long NPremiumCurve,
                              // Premium Leg 커브 Term 개수
   double* PremiumCurveTerm, // Premium Leg 커브 Term Array
   double* PremiumCurve.
                              // Premium Leg 커브 Rate Array
                              // Protection Leg 커브 Term 개수
   long NProtectionCurve.
   double* ProtectionCurveTerm, // Protection Leg 커브 Term
   double* ProtectionCurve,
                              // Protection Leg 커브 Rate Array
                              // Credit 인풋 유형 0: Hazard Rate,1: 위험,무위험금리
   long DataFlag,
                              // Hazard Rate Term 개수
   long NHazardRate,
                              // Hazard Rate Term Array
   double* HazardRateTerm,
                              // Hazard Rate Array
   double* HazardRate.
                              // 0:생존율 e^(-H * t) 계산, 1:생존률 1 - H * t 계산
   long CalcQMethod,
                              // CalcQMethod == 1일 때 제로금리개수
   long NRefZero,
   double* RefZeroTerm,
                             // ZeroRate Term Array
   double* ZeroRiskFree.
                              // RiskFree ZeroRate Array
   double* ZeroRiskyBond,
                              // Risky ZeroRate Array
    long DefaultRateCalcMethod, // HazardRate 산출방식 0:RiskyBond Pricer 1: 간단산출
```

```
double Recovery,
                              // 회수율
   long ScheduleInputFlag,
                              // 스케줄입력방식 0: 간단입력, 1: 직접입력
   long NCPN_Ann,
                              // ScheduleInputFlag0: 연 이자지급 수
                              // ScheduleInputFlag0: 만기
   double Maturity.
                              // ScheduleInputFlag1: 스케줄개수
   long NSchedule,
                              // ScheduleInputFlag1: 리셋일 엑셀타입 Array
   long* ResetDateExcelDate,
    long* PayDateExcelDate,
                             // ScheduleInputFlag1: 지급일 엑셀타입 Array
   long PricingDateExcelDate,
                              // ScheduleInputFlag1: 가격계산일 엑셀타입
   long TextFlag,
                              // 텍스트DumpFlag (미완성)
   long GreekFlag,
                              // Greek산출Flag
   double* Result Value.
                             // 결과 [0]: Result Spread [1]:Premium Leg [2]:Protection Leg
   double* ResultHazardRate,
                             // 산출된 Hazard Rate Array
   double* Premium_Schedule,
                             // 프리미엄스케줄 Array
                              // 액면가액
   double NotionalAmount
)
```

Calc_OLD_CDS_Spread

: 과거 계약된 CDS의 현재 Value를 산출합니다.

```
DLLEXPORT(long) Calc_OLD_CDS_Value(
    long NPremiumCurve,
                              // Premium Leg 커브 Term 개수
                              // Premium Leg 커브 Term Array
   double* PremiumCurveTerm,
   double* PremiumCurve,
                               // Premium Leg 커브 Rate Array
   long NProtectionCurve,
                              // Protection Leg 커브 Term 개수
   double* ProtectionCurveTerm, // Protection Leg 커브 Term
                              // Protection Leg 커브 Rate Array
   double* ProtectionCurve,
                               // Credit 인풋 유형 0: Hazard Rate,1: 위험,무위험금리
   long DataFlag,
    long NHazardRate,
                              // Hazard Rate Term 개수
   double* HazardRateTerm,
                              // Hazard Rate Term Array
   double* HazardRate,
                               // Hazard Rate Array
                               // 0:생존율 e^(-H * t) 계산, 1:생존률 1 - H * t 계산
   long CalcQMethod.
    long NRefZero,
                               // CalcQMethod == 1일 때 제로금리개수
   double* RefZeroTerm,
                               // ZeroRate Term Array
                               // RiskFree ZeroRate Array
   double* ZeroRiskFree,
   double* ZeroRiskyBond,
                              // Risky ZeroRate Array
    long DefaultRateCalcMethod, // HazardRate 산출방식 0:RiskyBond Pricer 1: 간단산출
   double Recovery.
                               // 회수율
   long ScheduleInputFlag,
                               // 스케줄입력방식 0: 간단입력, 1: 직접입력
                               // ScheduleInputFlag0: 연 이자지급 수
   long NCPN Ann.
   double Maturity,
                               // ScheduleInputFlag0: 만기
    long NSchedule,
                               // ScheduleInputFlag1: 스케줄개수
    long* ResetDateExcelDate,
                               // ScheduleInputFlag1: 리셋일 엑셀타입 Array
                              // ScheduleInputFlag1: 지급일 엑셀타입 Array
    long* PayDateExcelDate.
                              // ScheduleInputFlag1: 가격계산일 엑셀타입
    long PricingDateExcelDate,
   double OLD_CDS_Spread,
                               // 예전 계약 CDS Spread
    long Protection_Position,
                              // 포지션1: 롱 -1: 숏
```

```
long TextFlag, // TextFlag (미완성)
long GreekFlag, // Greek산출Flag
double* Result_Value, // 결과 [0]: Result_Spread [1]:Premium_Leg [2]:Protection Leg
double* ResultHazardRate, // 산출된 Hazard Rate Array
double* ResultGreeks, // [0~2]IR PV01 Net, Pre, Pro [3~5]부도율 PV01 Net, Pre, Pro
double* Premium_Schedule, // 프리미엄스케줄 Array
double NotionalAmount // 액면가액
```

기타 함수설명

```
double Calc_RiskyZeroBond: 위험 제로쿠폰채 Pricing
double Calc_RiskyCouponBondCleanPrice: 위험 쿠폰채권 Pricing
double Calibrate_HazardRate_CreditSpread: 위험- 무위험 금리로 Hazard Rate계산
double Calibrate_HazardRate_CreditSpread2: 위험- 무위험 금리로 Hazard Rate 간단계산
double Calc_CDS_From_Hazard: CDS Spread 계산하는 Pricing
```