

## CDS 사용 설명서

이 모델은 CDS Spread를 계산하거나 기존 계약한 CDS의 Value를 계산합니다.

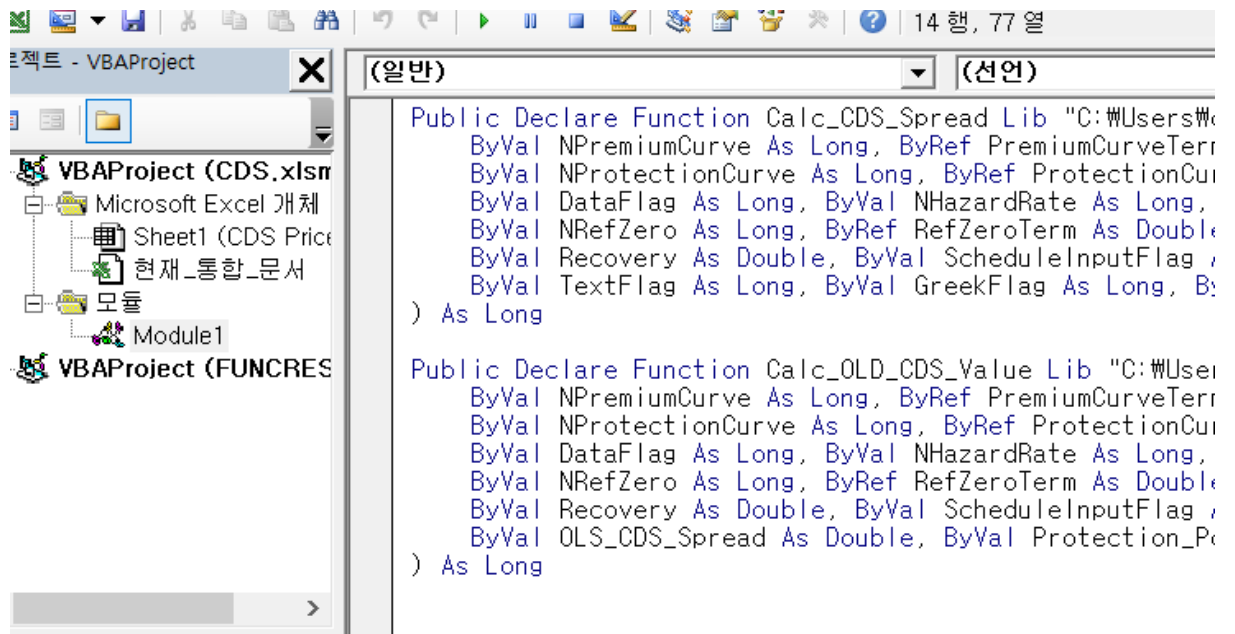
1. 자신의 엑셀 bit수 확인

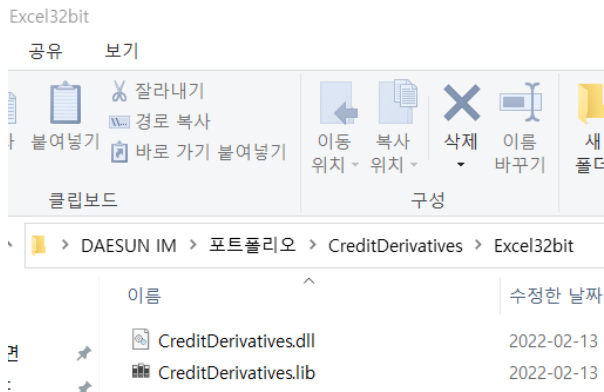
파일>계정>엑셀정보



2. Alt + F11로 VBA창 키기

3. 모듈 들어가서 dll의 디렉토리 바꾸기 (현재 dll이 설치되어있는 디렉토리로 바꾸기)





```
Public Declare Function Calc_CDS_Spread Lib "C:\Users\cjjad\포트폴리오\CreditDerivatives\Excel32bit\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 CalcCDS As Double, _
    ByVal NRefZero As Long, ByRef RefZeroTerm As Double, ByRef ZeroRiskFree As Double, ByRef ZeroRiskBond As Double, ByVal DeRecovery As Double, _
    ByVal Recovery As Double, ByVal ScheduleInputFlag As Long, ByVal NCPN_Ann As Long, ByVal Maturity As Double, ByVal NSchedule As Double, _
    ByVal TextFlag As Long, ByVal GreekFlag As Long, ByRef Result_Value As Double, ByRef ResultHazardRate As Double, ByRef ResultSpread As Double) _
    As Long

Public Declare Function Calc_OLD_CDS_Value Lib "C:\Users\cjjad\포트폴리오\CreditDerivatives\Excel32bit\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 CalcCDS As Double, _
    ByVal NRefZero As Long, ByRef RefZeroTerm As Double, ByRef ZeroRiskFree As Double, ByRef ZeroRiskBond As Double, ByVal DeRecovery As Double, _
    ByVal Recovery As Double, ByVal ScheduleInputFlag As Long, ByVal NCPN_Ann As Long, ByVal Maturity As Double, ByVal NSchedule As Double, _
    ByVal OLS_CDS_Spread As Double, ByVal Protection_Position As Long, ByVal TextFlag As Long, ByVal GreekFlag As Long, ByRef Result_Value As Double) _
    As Long
```

#### 4. 발행정보 및 파라미터 입력하기

Protection Seller

Curve

Term개수: 최대 500개

Idx	Term	Rate
1	0.25	0.21%
2	0.5	0.31%
3	1	1.31%
4	2	1.41%
5	3	1.51%
6	5	1.61%
7	7	1.71%
8	10	1.81%
9		
10		
11		
12		
13		
14		
15		

Reference Info

데이터 유형

0

데이터유형 = 0일때 입력

생존율계산방식

1

데이터유형 = 1일때 입력

파산율계산방식

1

Hazard Rate Per Year

데이터유형 = 0일때 입력

Idx	Term	Rate
1	0.25	1.00%
2	0.5	1.20%
3	1	2.00%
4	2	2.20%
5	3	2.30%
6	5	2.40%
7	7	2.50%
8	10	2.60%
9		

Credit Spread

데이터유형 = 1일때 입력

Idx	Term	무위험금리	위험채권금리
1	0.25	1.250%	1.359%
2	0.5	1.500%	2.043%
3	1	1.750%	3.007%
4	2	1.870%	2.454%
5	3	1.990%	3.371%
6	5	2.110%	3.736%
7	7	2.230%	2.402%
8	10	2.350%	3.604%
9			

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

기존 CDS Position의 Value를 계산하고 싶다면 입력하  
세요.

기존 CDS Spread	1.60%
기존 CDS 포지션	1
GreekFlag	1

현재Spread계산

OLD CDS Value계산

## 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

    double Recovery,              // Recovery Rate
    long HazardRateCalcFlag,      // Hazard Rate Calc 방법 0: Continuous 1: 단리
    long NCPN_Ann,                // 연 이자지급 수

    double* ResultHazardTerm,     // OutPut Hazard Term
    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

    long NProtectionCurve,        // Protection Leg 커브 Term 개수
    double* ProtectionCurveTerm,  // Protection Leg 커브 Term
    double* ProtectionCurve,      // Protection Leg 커브 Rate Array

    long DataFlag,                // Credit 인풋 유형 0: Hazard Rate, 1: 위험, 무위험금리
    long NHazardRate,             // Hazard Rate Term 개수
    double* HazardRateTerm,       // Hazard Rate Term Array
    double* HazardRate,           // Hazard Rate Array
    long CalcQMethod,             // 0: 생존율  $e^{-(H * t)}$  계산, 1: 생존률  $1 - H * t$  계산

    long NRefZero,                // CalcQMethod == 1일 때 제로금리개수
    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
double Maturity,          // ScheduleInputFlag0: 만기
long NSchedule,            // ScheduleInputFlag1: 스케줄개수
long* ResetDateExcelDate, // ScheduleInputFlag1: 리셋일 엑셀타입 Array
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
double NotionalAmount      // 액면가액
)

```

## Calc\_OLD\_CDS\_Spread

: 과거 계약된 CDS의 현재 Value를 산출합니다.

```

DLLEXPORT(long) Calc_OLD_CDS_Value(
    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 DataFlag,           // Credit 인풋 유형 0: Hazard Rate, 1: 위험, 무위험금리
    long NHazardRate,        // Hazard Rate Term 개수
    double* HazardRateTerm,  // Hazard Rate Term Array
    double* HazardRate,      // Hazard Rate Array
    long CalcQMethod,        // 0: 생존율  $e^{-(H * t)}$  계산, 1: 생존률  $1 - H * t$  계산

    long NRefZero,           // CalcQMethod == 1일 때 제로금리개수
    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
    double Maturity,         // ScheduleInputFlag0: 만기
    long NSchedule,          // ScheduleInputFlag1: 스케줄개수
    long* ResetDateExcelDate, // ScheduleInputFlag1: 리셋일 엑셀타입 Array
    long* PayDateExcelDate,   // ScheduleInputFlag1: 지급일 엑셀타입 Array
    long PricingDateExcelDate, // ScheduleInputFlag1: 가격계산일 엑셀타입

    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 엔진
double Calc_RiskyCouponBondCleanPrice: 위험 쿠폰채권 Pricing 엔진
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 엔진

```