

作業七

2023年5月30日 星期二 下午9:16

到期日 (年)	Bid (%)	Offer (%)	Swap rate (%)
1	2.25	2.27	2.26
2	2.26	2.29	2.275
3	2.27	2.30	2.285
5	2.33	2.38	2.355
7	2.41	2.47	2.44

內插:

$$\text{year 4: Bid} = 2.27 + (4-3) \times (2.33 - 2.27) / (5-3) = 2.3\%$$

$$\text{Offer} = 2.29 + (4-3) \times (2.38 - 2.29) / (5-3) = 2.315\%$$

$$\text{Swap} = 2.285 + (4-3) \times (2.355 - 2.285) / (5-3) = 2.32\%$$

$$\text{year 6: Bid} = 2.33 + (6-5) \times (2.41 - 2.33) / (7-5) = 2.37\%$$

$$\text{Offer} = 2.38 + (6-5) \times (2.47 - 2.38) / (7-5) = 2.405\%$$

$$\text{swap} = 2.355 + (6-5) \times (2.44 - 2.355) / (7-5) = 2.398\%$$

4	2.3	2.315	2.32
6	2.37	2.405	2.398

- 使用拔靴法和 IRS 計算 zero coupon rate:

1. 創一個空的利率曲線.

2. 將最短期報價加進去後將 swap rate 作為該期限之 zero coupon rate

3. 使用 bootstrap:

a. 從 2 年開始

- 利用 2 年的 Swap rate 與前一年的 zero coupon rate 計算

$$\bullet \text{ 2 年 zero coupon rate} = ((1 + \text{swap rate}) \times (1 + \text{1 年 zero coupon rate}))^{\frac{1}{2}} - 1$$

b. 依此類推之後的

0811253_HW7.c - Code::Blocks 20.03

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

Start here x 0811253_HW7.c x

1#include <stdio.h>

2#include <math.h>

3

4// 定義最大期限

5#define MAX_TERM

6

7// 定義利率交換 (

8typedef struct {

9int term;

10double bid;

11double offer;

12double swapRa

13} IRSQuote;

14

15// 定義利率曲線結

16typedef struct {

17int term;

18double zeroRa

19} ZeroCouponCurve

20

21// 拔靴法計算零息

22void bootstrap(IR

23// 將最短期限

24curve[0].term

25curve[0].zero

選取 D:\OneDrive\桌面\財務工程導論\HW7\0811253_HW7.exe

TermZero Rate

1226.000000%

2226.749139%

3120.588707%

464.505469%

540.726074%

629.797499%

723.831778%

Process returned 0 (0x0) execution time : 0.061 s

Press any key to continue.

Logs & others

Code::Blocks x Search results x Cccc x Build log x Build messages x CppCheck/Vera++ x CppCheck/Vera++ messages x Cscope x Debugger x DoxyBlocks x Fortran info x Closed files list x Th

FileLineMessage

=== Build file: "no target" in "no project" (compiler: unknown) ===

=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 2 second(s)) ===

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C/C++Windows (CR+LF)WINDOWS-950Line 6, Col 1, Pos 84InsertRead/Writedefault

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28°C 晴時多雲

下午 09:41 2023/5/30