***Bond Pricing in between coupons***

To price a bond in between coupon periods at time *t*, grow the bond price forward by the yield to maturity:

where:

is the bond price at the current time *t* and 0<*t*<1;

is the next coupon payment at time one;

*T* is the number of coupons remaining to be paid;

is the yield to maturity as an effective rate per coupon period;

is the bond price one period before the next coupon ;

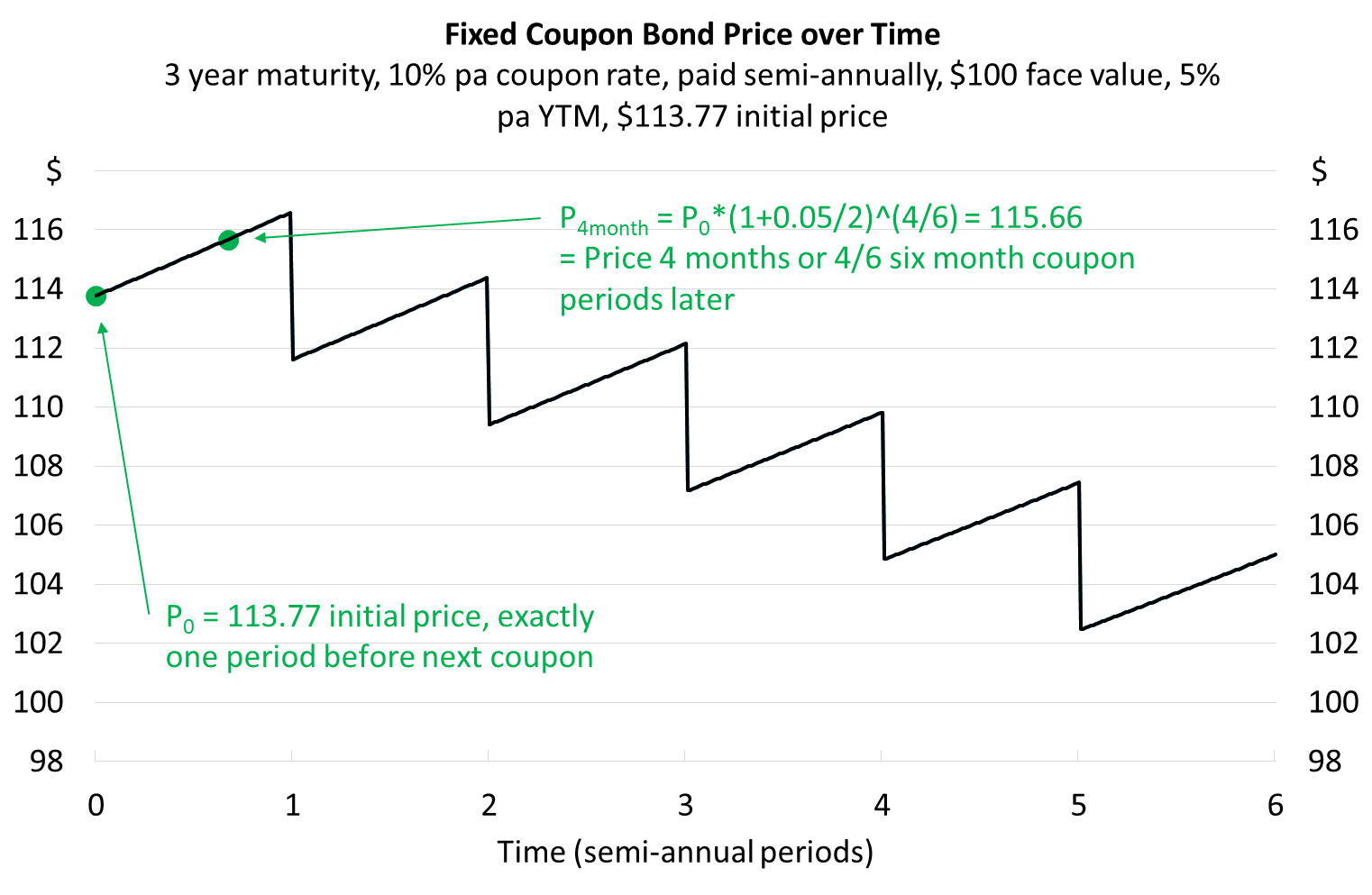
***Calculation Example: Bond pricing in between coupons***

**Question:** A **3** year government bond paying **10**% pa semi-annual coupons with a face value of $**100** was issued **4** months ago at a yield of **5**% pa. Find the current price of the bond.

Ignore the actual number of days in each month and assume that every month is 1/12 of a year.

**Answer:** Let the next coupon payment in 6 months be time 1. Let’s find the bond price one (semi-annual) coupon period before, which is time zero, with 6 semi-annual coupons left:

Now grow the bond price that extra 4 months forward, which is 4/6 (=0.66667) semi-annual periods, to get to the current time:

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***Calculation Example: Bond pricing in between coupons***

**Question:** A **10** year government bond paying **3**% pa semi-annual coupons with a face value of $**100** was issued 8 months ago on 15 December 2021 at a yield of **3**% pa.

Today is 15 August 2022 and yields are now **2.8**% pa. What is the current price of the bond?

Ignore the actual number of days in each month and assume that every month is 1/12 of a year, so the bond was issued 8 months ago from today, 15 August 2022.

**Answer**: Let the issue date 15 December 2021 be time zero.There are only 19 semi-annual coupons left, since the first was already paid on 15 June 2022. The bond’s next coupon () will be paid on 15 December 2022. The bond price one period before coupon is:

The subscripts are in coupon periods so they correspond to the graph and exponents shown in the formula. So for example:

* is the initial price when the bond was issued on 15 December 2021.
* is the price 1 semi-annual period (6 months) after the bond was issued and corresponds to 15 June 2022.
* is the price 1.3333 semi-annual period (8 months) after the bond was issued and corresponds to 15 August 2022. It’s the current time that we’re trying to price the bond.
* is the coupon 2 semi-annual periods (1 year) after the bond was issued and corresponds to 15 December 2022.

The graph helps visualize the problem.

