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Investment viewpoint

Appraising Swiss bonds: what does the price tell us?

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Unlike equity prices, bond prices usually depend much more on systematic factors rather than company-specific figures. In other words, they generally rely on elements beyond the fundamental valuation of the underlying entity. This article offers a simplified explanation of the characteristics affecting bond prices.

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Need to know

- We consider five different Swiss bonds to show how to assess potential returns and explain why initial conclusions can often fall short
- Bond prospects are determined by many different factors; the price on its own does not say much
- We use examples to illustrate how elements such as the coupon size and the remaining time to maturity come into play

Finding the best returns

As a starting point, we will consider five CHF bonds. For each, we list the ISIN number, the name of the issuer and the price as at 31 May 2023. We also assume that all bonds will redeem 100 at maturity. The question now is, which one promises the greatest return?

FIVE CHF BONDS FOR ANALYSIS[1]

Bonds	ISIN	Name of the issuer	Price
Bond 1	CH0579132918	CITY OF LUGANO	48.18
Bond 2	CH0224397007	SWITZERLAND	141.87
Bond 3	CH0009755197	SWITZERLAND	169.87
Bond 4	CH0184249990	SWITZERLAND	102.34
Bond 5	CH0553695088	ANDERMATT SWISS ALPS AG	102.88

Source: Bloomberg as of 31 May 2023. For illustrative purposes only.

[1] Any reference to a specific company or security does not constitute a recommendation to buy, sell, hold or directly invest in the company or securities. It should not be assumed that the recommendations made in the future will be profitable or will equal the performance of the securities discussed in this document.

From a pragmatic standpoint, one might conclude that the first bond issued by the city of Lugano looks the best (because it appears to have the most upside potential). The second and third bonds (issued by the Swiss Confederation) seem unfavorable because they will lose value until maturity. The last two bonds do not appear to have either big upside or downside potential, given that their prices are already close to 100.

In the following, we will show how these conclusions fall short and are generally invalid. The return prospects for a bond depend on many different factors and cannot be derived directly from the current price.

Ingredients for the price

The theory is that the price of a bond is derived from the sum of all discounted future cash flows, thus corresponding in general to the present value of the underlying cash flow stream. Consequently, the derivation of the price is dependent on two ingredients: the knowledge of the structure of the cash flow stream (size and timing of the cash flows) and the determination of the discounting curve.

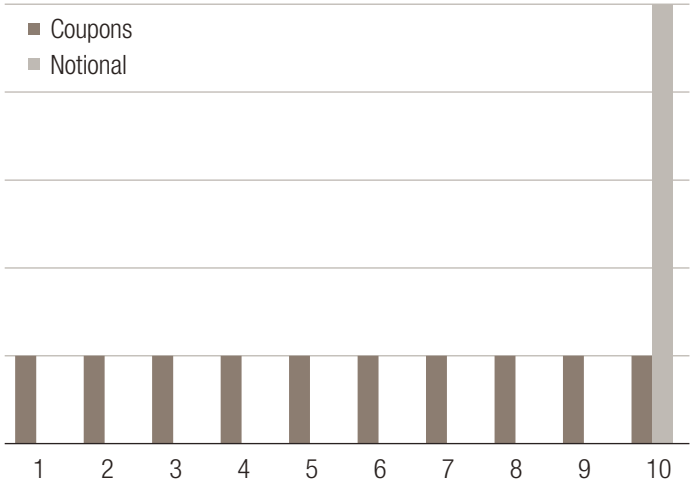
For a straight fixed coupon bond, the cash flow stream is usually fixed when the bond is issued and is therefore known at any point in time. However, the discounting curve depends first on the respective market conditions and then on the characteristics of the underlying debtor. The discounting curve thus constantly adapts and changes dynamically.

Yield to maturity

In practice, the comparison of bonds is often based on the yield to maturity concept. The yield to maturity of a bond corresponds to the level of a flat discounting curve, which, when used in the present value formula, leads exactly to the observed market price of the bond. To put it the other way around: if all future coupon payments of a bond are put into a bank account as soon as they are paid out, with a guaranteed interest rate equal to the yield to maturity of the bond, the yield to maturity of the bond is equal to its realised annualised return (a potential default is thus excluded).

For example, a yield to maturity of 4.03% for the Andermatt Swiss Alps[2] bond means that the remaining cash flow stream must be discounted with a flat yield curve at a level of 4.03% to obtain a present value of 102.88. Or the other way around: if the bond does not default until maturity and the two remaining coupons are paid into a bank account with an interest rate of 4.03%, the expected annualised return from holding this bond until maturity is 4.03%.

FIG. 1 CASH FLOW STREAM OF A FIXED COUPON BOND



Source: LOIM. For illustrative purposes only.

COMPARISON OF YIELD TO MATURITY[2]

Bonds	ISIN	Name of the issuer	Security description	Price	Yield to maturity
Bond 1	CH0579132918	CITY OF LUGANO	LUGANO 0.15 11/28/70	48.18	1.78
Bond 2	CH0224397007	SWITZERLAND	SWISS 2 06/25/64	141.87	0.84
Bond 3	CH0009755197	SWITZERLAND	SWISS 4 01/06/49	169.87	0.97
Bond 4	CH0184249990	SWITZERLAND	SWISS 1 1/2 07/24/25	102.34	1.00
Bond 5	CH0553695088	ANDERMATT SWISS ALPS AG	ANDSAL 4 3/8 12/11/25	102.88	4.03

Source: Bloomberg as of 31 May 2023.

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A look at the yield to maturity column shows that the three Swiss Confederation bonds yield roughly the same at around 1%, regardless of the remaining term to maturity. This can be explained by the currently very flat (to even inverted) Confederation curve. Bonds with longer maturities do not need to offer their usual additional term premium in the current market environment.

The yield to maturity of the first bond issued by the city of Lugano is quoted at 1.78%. Whereas it makes sense from a risk-reward perspective to get more premium relative to the Swiss Confederation bonds, at first sight it is difficult to reconcile these yields with observed prices.

This is where the size of the coupon and the remaining time to maturity – hidden in the Security Description column – come into play. In general, the longer the maturity, the more discounted coupons are contributing to the net present value formula. The higher the coupon, the higher the present value of each coupon and the higher the price of the bond. Another decisive factor is whether the coupon of the bond is above or below the current discounting curve.

Coupons and curves

Here is a simple example. The following table shows a hypothetical 10-year bond with a coupon of 2%. If we assume a flat interest rate structure at a level of 2% as the discounting curve, the result is a price of 100. If the level of the flat discounting curve rises above 2%, the price of the bond is below 100. The bond with a coupon of 2% is less attractive in an environment with higher interest rates and therefore has less value. However, if the level of the flat discount curve falls below 2%, the price rises above 100 because the bond with a coupon of 2% appears attractive in this low yield environment.

Because the coupons of the three Confederation bonds are all above the current Confederation curve, the prices are quoted above 100.

On the other hand, the coupon of the bond issued by the city of Lugano (0.15%) is clearly below its discounting curve. In addition, the redemption is in 2070, so the repayment of the notional is discounted heavily. That's why the price of the bond of the city of Lugano is currently trading below 50.

With the Lugano bond, it is mainly the pull-to-par effect over the next almost 50 years that leads to a yield to maturity of 1.78%. The contribution of the coupons, meanwhile, is very small. On the other hand, in the case of the Swiss Confederation bond maturing in 2049, for example, the pull-to-par effect leads to an expected loss of almost 70%. However, with annual coupon payments of 4% expected over the remaining 26 years, this results in an overall coupon income of more than 100%, which finally results in a positive yield to maturity of almost 1%.

The price of the last bond issued by Andermatt Swiss Alps AG[3] is currently trading slightly above 100 but yields roughly 4%. This is clearly higher than the yield to maturity of the Confederation bond that also matures in 2025. Given that the prices of the two bonds are roughly the same, it is obvious that the yield to maturity of the bond from Andermatt Swiss Alps has to be higher. The coupon is at 4.375% versus 1.5% for the Swiss Confederation bond. This requires a clearly higher discounting to end up at the same price level.

In summary, the price of a bond on its own does not say much about the expected return potential. At first glance, the yield to maturity seems to offer a better assessment. But as the name suggests, the yield to maturity refers to the maturity date, which varies significantly among the five bonds. The yield to maturity therefore says nothing about the return that can be expected over the next year. To see this, it is sufficient to look at the realised returns of bonds in 2022, which were clearly negative due to the sharp rise in interest rates.

To make meaningful statements about the expected returns of these bonds in the next year, a scenario analysis is required. This will be the topic of a future working paper.

HYPOTHETICAL 10-YEAR BOND FOR ANALYSIS

Maturity	1	2	3	4	5	6	7	8	9	10	Price
Cash flow	***2%***	***2%***	***2%***	***2%***	***2%***	***2%***	***2%***	***2%***	***2%***	***102%***	
YTM 2%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.84	**100%**
YTM 3%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.76	**91%**
YTM 1%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.92	**109%**

Source: LOIM.

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