

Booking MBS in ePOCA

1. What is an MBS?

A mortgage-backed security (MBS) is a bond-like investment consisting of a series of real estate loans purchased by the banks that issued them. Investors in MBS receive regular payments similar to coupon payments on bonds. The main difference from a standard bond is that repayment is not made in a lump sum at the end of the security's term, but in partial repayments of variable amounts. These partial repayments do not change the value of the nominal amount invested. To better understand this mechanism, let's analyse a concrete example of an MBS.

Example

Let's consider the security "3% MBS Fannie Mae 2013 - 01.07.2043" with ISIN US3138W9AS94. This security pays monthly interest at an annual interest rate of 3% and an interest accrual period of 30/360, as well as partial repayments, also on a monthly basis. This interest and these repayments are calculated for each calendar month but are paid on the 25th of the following month or on the next business day. We will see that this can have consequences for the accounting of transactions involving this security.

On 11 February 2021, we purchase a nominal value of USD 300,000 of this security. At this point in time, the cumulative partial repayments already paid amount to 64.395848%. We are therefore purchasing a debt of $(100\% - 64.395848\%) \times 300,000 = \text{USD } 106,812.46$ and not USD 300,000. We have to raise USD 110,377.15 for this purchase, i.e. USD 110,066.59 for the bond itself, USD 89.01 for accrued interest and USD 221.55 for fees.

2. ePOCA terminology

With MBS, there are two figures that play a role in accounting: the nominal amount and the outstanding repayment amount, i.e. the actual investment. In ePOCA, we have introduced the following terminology: the nominal amount is referred to as the "unadjusted amount", the outstanding amount as the "adjusted amount" and the ratio of the two amounts as the "factor".

Example

In our example above, the unadjusted amount is 300,000, the adjusted amount is 106,812.46 and the factor is 0.35604152.

3. Booking in ePOCA

Parameters

The MBS accounting described in this document requires the following ePOCA setting to be activated: "Processing quantity adjustment factors after transactions".

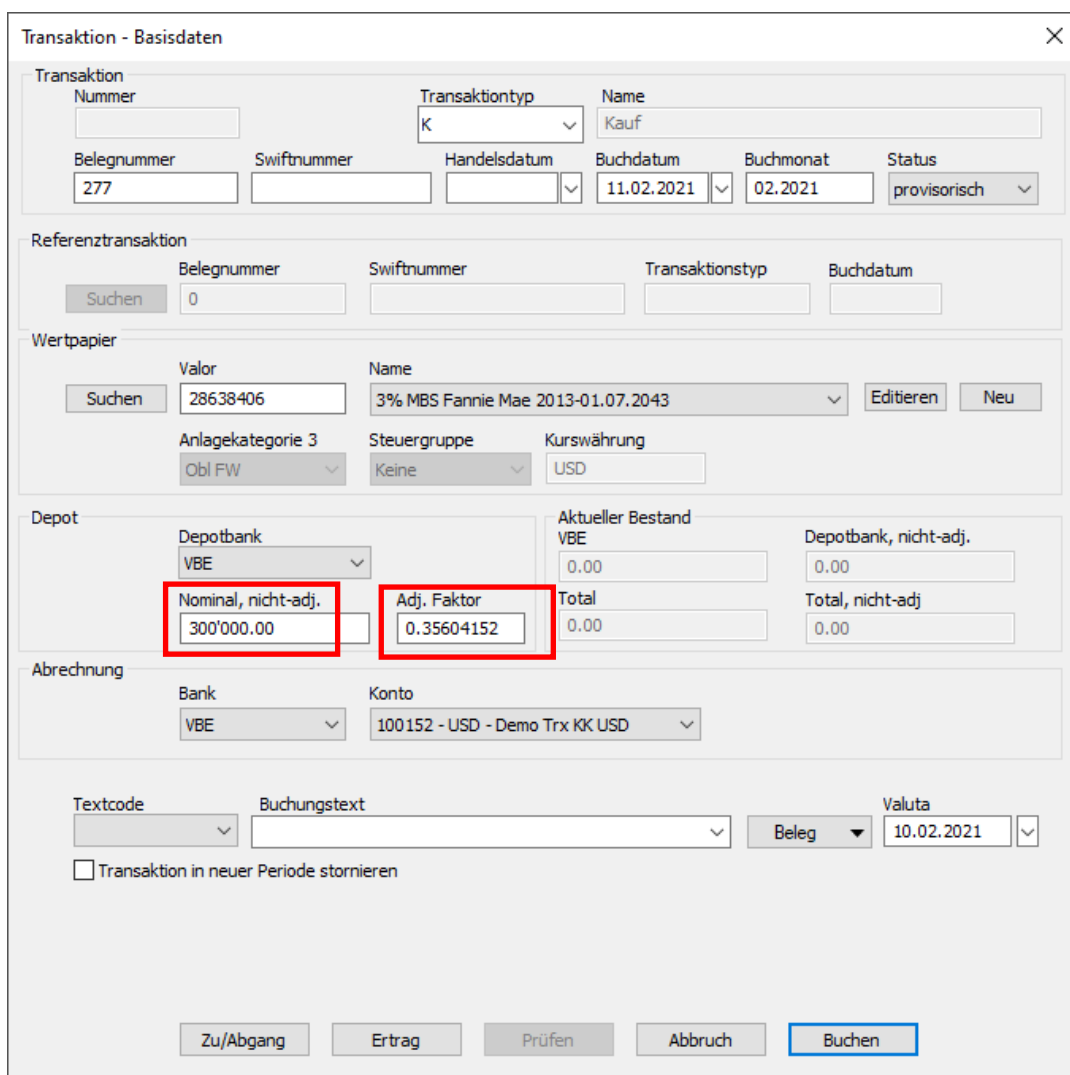
Securities definition

To post MBS securities in ePOCA, you must first specify that they are securities with a "factor". In the case of a fixed interest rate, the basic type of the security must be "Bond with quantity adjustment factor".

Transactions

Purchase

A transaction for the purchase of MBS is entered using the normal purchase transaction "P". It must contain the unadjusted quantity and the adjusted quantity or factor. The quantity fields are labelled in ePOCA terminology and are therefore easily recognisable. The accrued interest is calculated on the adjusted quantity. This results in the following input masks for the above example:



Transaktion - Basisdaten			
Transaktion		Transaktionstyp	Name
Nummer		K	Kauf
Belegnummer	277	Swiftnummer	
Handelsdatum		Buchdatum	11.02.2021
		Buchmonat	02.2021
		Status	provisorisch
Referenztransaktion			
Belegnummer	0	Swiftnummer	
Transaktionstyp		Buchdatum	
Wertpapier			
Valor	28638406	Name	3% MBS Fannie Mae 2013-01.07.2043
Anlagekategorie 3	Obl FW	Steuergruppe	Keine
		Kurswährung	USD
Depot		Aktueller Bestand	Depotbank, nicht-adj.
Depotbank	VBE	VBE	0.00
Nominal, nicht-adj.	300'000.00	Adj. Faktor	0.35604152
Total	0.00	Total, nicht-adj.	0.00
Abrechnung			
Bank	VBE	Konto	100152 - USD - Demo Trx KK USD
Textcode		Buchungstext	
Beleg		Valuta	10.02.2021
<input type="checkbox"/> Transaktion in neuer Periode stornieren			
Zu/Abgang	Ertrag	Prüfen	Abbruch
Buchen			

The unadjusted and adjusted quantities are required to post an MBS purchase. The latter is calculated by ePOCA using the factor entered. The unadjusted quantity of USD 300,000.00 and the adjustment factor of 0.35604152 are entered.

Transaktion - Zugang
✕

Börsenkurs

Währung

Rendite

Zugang / Abgang

 USD

Devisenkurs

CHF

Zinsen

B G

 USD

CHF

Transaktionsspesen

	USD	USD	CHF
Fremde Courtage Ausland			
Fremde Spesen Ausland			
Kommission		56.32	50.01
Umsatzsteuer/Stempel		165.23	146.71
Diverse			
Total		221.55	196.71

Abrechnung

 USD

Devisenkurs

CHF

Ergänzen

Prüfen

Abbruch

OK

The market rate displayed is the unadjusted rate calculated by ePOCA. It can be broken down into an adjusted rate of 103.0466% and a factor of 0.3118345.

Interest payment

An **interest payment transaction** is entered in the same way as for a bond using the "CP" transaction. The amount entered is the unadjusted amount available on the bank document. The adjusted amount, which is the basis for the interest calculation, is automatically calculated by ePOCA using the position factor. This gives us the following input masks for the above example:

Transaktion - Basisdaten ✕

Transaktion Nummer		Transaktionstyp	Name			
<input type="text"/>		CP	Coupon-Ertrag			
Belegnummer	Swiftnummer	Handelsdatum	Buchdatum	Buchmonat	Status	
278	<input type="text"/>	<input type="text"/>	25.02.2021	02.2021	provisorisch	

Referenztransaktion

Suchen	Belegnummer	Swiftnummer	Transaktionstyp	Buchdatum
<input type="button" value="Suchen"/>	0	<input type="text"/>	<input type="text"/>	<input type="text"/>

Wertpapier

Suchen	Valor	Name			<input type="button" value="Editieren"/>	<input type="button" value="Neu"/>
<input type="button" value="Suchen"/>	28638406	3% MBS Fannie Mae 2013-01.07.2043			<input type="button" value="Editieren"/>	<input type="button" value="Neu"/>
Anlagekategorie 3		Steuergruppe	Kurswährung			
Obl FW		Keine	USD			

Depot

Depotbank	Aktueller Bestand		Depotbank, nicht-adj.
VBE	Nominal, nicht-adj.	Adj. Faktor	VBE
<input type="text"/>	300'000.00	0.35604153	106'812.46
		Total	Total, nicht-adj.
		106'812.46	300'000.00

Abrechnung

Bank	Konto
VBE	100152 - USD - Demo Trx KK USD

Textcode Buchungstext Beleg Valuta

Transaktion in neuer Periode stornieren

This is the interest received on 25 February 2021 for the period 1-31 January 2021. The amount entered is the unadjusted amount of USD 300,000; the position factor is specified by ePOCA and does not need to be entered.

Transaktion - Ertrag

Ertragsdatum: 31.01.2021 | Prozent: 3.00000 | Währung: USD

Bruttoertrag: 267.03 USD | Devisenkurs: 0.90510000 | 241.69 CHF

Verrechnungssteuer: USD | Devisenkurs: 0.90510000 | CHF

Rückerstattung Quelle: USD | Devisenkurs: 0.90510000 | CHF

Rückerstattung Pauschal: USD | CHF

Nicht rückford.: USD | CHF

Pauschalspesen			
	USD	USD	CHF
Total			

Abrechnung: 267.03 USD | Devisenkurs: 0.90510000 | 241.69 CHF

Ergänzen | Prüfen | Abbruch | OK

The interest is calculated on the basis of the adjusted amount, which is $106,812.46 * 3 / 100 * 30 / 360 = 267.03$.

Partial repayment

A transaction for a **partial repayment** is entered using the repayment transaction "RB". The amount entered is the repayment amount. This results in the following input masks for the above example:

Transaktion - Basisdaten ✕

Transaktion

Transaktionsnummer	Transaktionstyp	Name			
<input type="text"/>	RZ	Rückzahlung			
Belegnummer	Swiftnummer	Handelsdatum	Buchdatum	Buchmonat	Status
279	<input type="text"/>	<input type="text"/>	25.02.2021	02.2021	provisorisch

Referenztransaktion

Suchen	Belegnummer	Swiftnummer	Transaktionstyp	Buchdatum
<input type="button" value="Suchen"/>	0	<input type="text"/>	<input type="text"/>	<input type="text"/>

Wertpapier

Suchen	Valor	Name			<input type="button" value="Editieren"/>	<input type="button" value="Neu"/>
<input type="button" value="Suchen"/>	28638406	3% MBS Fannie Mae 2013-01.07.2043			<input type="button" value="Editieren"/>	<input type="button" value="Neu"/>
Anlagekategorie 3	Steuergruppe	Kurswährung				
Obl FW	Keine	USD				

Depot

Depotbank	Aktueller Bestand		Depotbank, nicht-adj.
VBE	Nominal, adj.	Adj. Faktor	VBE
<input type="text"/>	4'480.46	0.00000000	106'812.46
			300'000.00
			Total
			106'812.46
			Total, nicht-adj.
			300'000.00

Abrechnung

Bank	Konto
VBE	100152 - USD - Demo Trx KK USD

Textcode Buchungstext Beleg Valuta

Transaktion in neuer Periode stornieren

The quantity entered is the amount repaid, in our example USD 4,480.46. Please note that this repayment is calculated like the interest on the balance on 31 January 2021, even though the posting date for the repayment is 25 February 2021.

Transaktion - Abgang
✕

Börsenkurs

Währung

Rendite

Zugang / Abgang

USD

Devisenkurs

CHF

Zinsen

B

USD

CHF

Transaktionsspesen

	USD	USD	CHF
Fremde Courtage Ausland			
Fremde Spesen Ausland			
Kommission			
Umsatzsteuer/Stempel			
Diverse			
Total			

Abrechnung

USD

Devisenkurs

CHF

Ergänzen

Prüfen

Abbruch

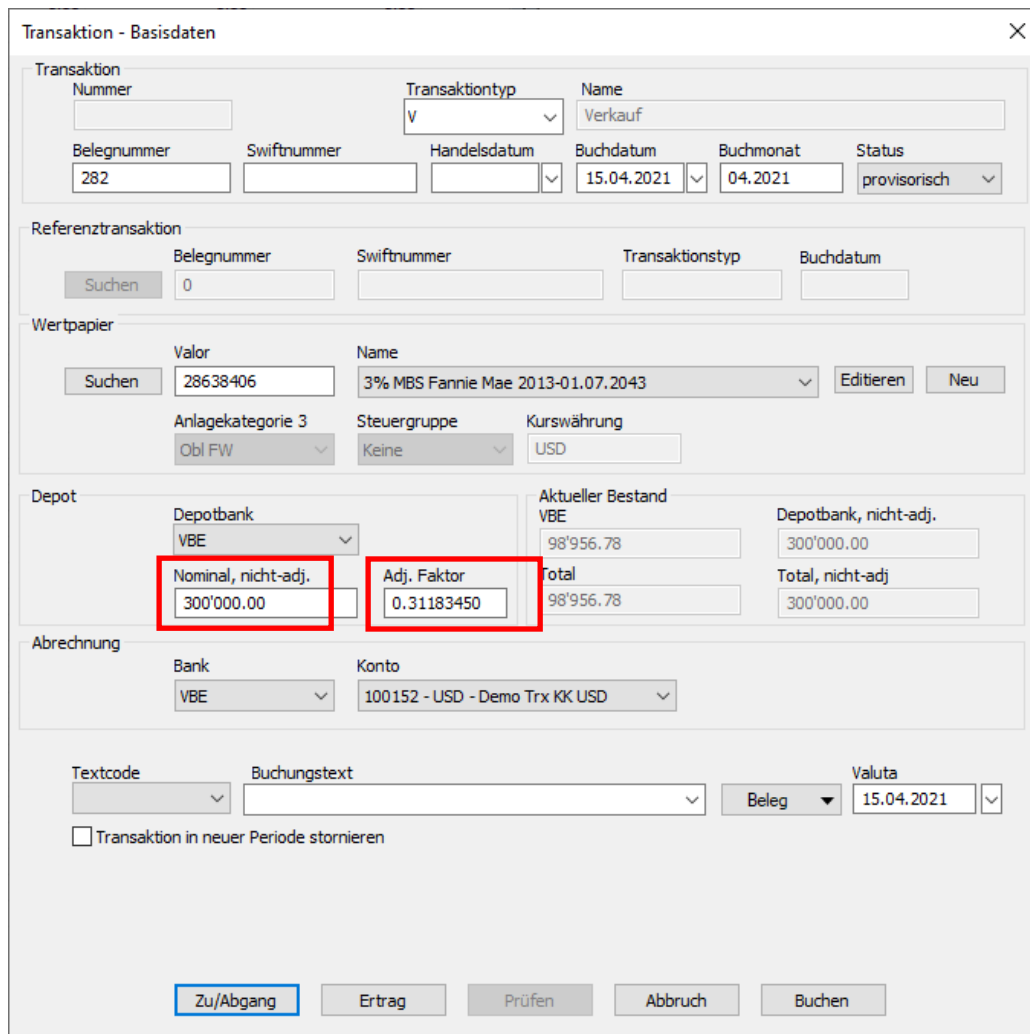
OK

The posting of the transaction usually has no effect on the unadjusted amount, but deducts the repayment from the adjusted amount and calculates the resulting factor. Only if the resulting adjusted amount is zero, i.e. it is the last repayment, does ePOCA also set the unadjusted amount to zero, thereby signalling that the position is now closed out.

In our example, the adjusted quantity becomes $103,332.00 = 106,812.46 - 4,480.46$ and the new factor becomes $103,332.00 / 300,000 = 0.34110667$.

Sales

A **sales transaction** is entered using the normal sales transaction "S". It must contain the unadjusted quantity and the adjusted quantity or factor, as this does not necessarily correspond to the factor for the item in ePOCA. The accrued interest is calculated on the adjusted quantity. We continue our example with the complete sale of the corresponding position on 15 April 2021. This gives us the following input screens:



Aktueller Bestand		Depotbank, nicht-adj.	
VBE	98'956.78	VBE	300'000.00
Total	98'956.78	Total, nicht-adj.	300'000.00

Please note that the adjustment factor entered, 0.31183450, does not correspond to the factor for the position in ePOCA on 15 April 2021, which is 0.32985594. This is because the partial repayment (and interest) from 31 March 2021 will not be posted until 26 April 2021. The sale will therefore result in a balance of zero for the unadjusted quantity, but a balance of 5,406.42 for the adjusted quantity, which corresponds exactly to the partial repayment on 31 March 2021, which will be posted on 26 April 2021. This partial repayment will then be the liquidation of the position.

ePOCA calculates the realised profit/loss on the basis of the adjusted quantity, as only this determines the actual disposal due to the sale. This method of calculating profit/loss ensures that the final partial repayment, which may be posted after the sale, also results in a correct calculation of the realised profit/loss.

In our example, two transactions still need to be posted after the sale: one transaction for the interest from 1 to 31 March 2021, which will be paid on 26 April 2021, and one transaction for a partial repayment, which will also be posted on 26 April 2021. The input screens are not shown here as they are similar to the screens described above.

Journal of the example

Below is a journal for the example posted above, which allows you to track the chronology of the posted transactions, in particular the unadjusted and adjusted amounts.

Date	Transaction	Unadjusted quantity	Factor	Adjusted quantity	Interest (accrued interest)
11 February 2021	Purchase	300,000	0.35604152	106,812.46	89.01
25 February 2021	Coupon interest	300,000		106,812.46	267.03
25 February 2021	Partial repayment			4,480.46	
	Balance	300,000	0.34110667	102,332.00	
25 March 2021	Coupon interest	300,000		102,332.00	255.83
25 March 2021	Partial repayment			3,375.22	
	Balance	300,000	0.32985594	98,956.78	
15 April 2021	Sale	300,000	0.31183450	93,550.35	
	Balance	0		5,406.42	
26 April 2021	Coupon interest	300,000		98,956.78	247.39
26 April 2021	Partial repayment			5,406.42	
	Balance	0		0	

Valuation

There are two types of prices for MBS: the unadjusted price, which is used to calculate the value of the position in relation to the unadjusted quantity, and the adjusted price, which is used to calculate the value of the position in relation to the adjusted quantity. The unadjusted price is therefore equal to the adjusted price multiplied by the factor. The adjusted price has the advantage of immediately showing the premium of the security, i.e. the difference between the market price and the par value of 100%.

However, the price used in ePOCA is the unadjusted price, as this is the price most commonly quoted by banks and financial data providers.

Note

This example has been posted in the "Demo Trx" portfolio in the ePODEMO database.