Risk Management Framework Implemented in Borsa Istanbul SWAP Market within the Scope of CCP Service

Central Counterparty Department
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Introduction

Based on the legal framework provided by the new Capital Market Law No.6362 which came into force on 30.12.2012, Takasbank initiated central counterparty service on 02.07.2018, for BİAŞ SWAP Market. Risk and collateral management regarding the transactions to be performed in the market within the scope of CCP service is carried out by Takasbank. Transactions conducted in the market by the member on its behalf are monitored under the "Member" account, whereas the transactions conducted by them on behalf of their customers are monitored under the customer omnibus account. Risk management for the trade margins is carried out over these 2 accounts/risk groups. The margin requirement of each account is calculated in a separate manner and the collateral adequacy of each position account is controlled separately.

Initial Margin, at-Trade and Post-Trade Risk Management

A three phased risk management system is used in the market. The Exchange system checks the nominal limit adequacy for each order sent. Accounts with insufficient limits are prevented from transmitting orders.

Pre-trade risk management (BİST-Takasbank) → at-.trade risk management (Takasbank) → Post-trade risk management (Takasbank)
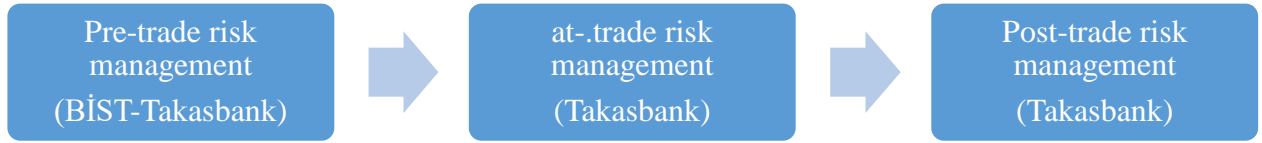
At-trade and post-trade risk management system consists of two components: initial and variation margin.

Initial Margin + Variation Margin = Margin Requirement

Portfolio-based margining is used in the calculation of the margin requirement, that is, the risk-reducing effect of reverse positions is taken into account. USDTRY, EURTRY, XAUTRY, XAUUSD and XAUEUR contracts are traded in the market. Valuations are made 4 times in a day in the market (11:00-13:00-15:00-18:00). By the conducted intraday valuation operation, the deficit/surplus amount demonstrating the difference between the margin requirement for the accounts and the valued collateral amount shall be identified. The last 10 minutes average of the Interbank spot market buy/sell average exchange rate shall be used at the valuation time. For the precious metal price, the average of the spot market buying/selling average price in the last 10 minutes shall be used.

In the Market, the first risk calculation on the value date of the transaction shall be made at the end of the day. The initial margin shall be collected to remove the impact of any change occurred in the exchange rates and the precious metal price during the period to be elapsed until the resolution of the default arising in the event the member fails to fulfill its obligations within the time periods set forth in the procedure. Initial margin is currently calculated using a 10-year data set and a minimum 99.00% confidence level, and is reviewed monthly, taking into account market conditions. The parameters designated for the initial margin shall be

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announced via a general letter. The initial margin could be differentiated on the basis of the maturity of the transaction, counterparties to trade, precious metal and the currency.

EK-3: BİAŞ SWAP Piyasası Vade Bazlı Marjin Yöntemi Risk Parametre Tablosu

BİAŞ SWAP PİYASASI RİSK PARAMETRE TABLOSU		
(TABLE OF RISK PARAMETERS)		
Sözleşmeler (Contracts)	Alış Marjin Oranı (%) (Buy Side Initial Margin Ratio)(%)	Satış Başlangıç Marjin Oranı (%) (Sell Side Initial Margin Ratio)(%)
XAUUSD	3.80%	4.10%
XAUEUR	3.80%	3.80%
XAUTRY	5.10%	4.80%
USDTRY	3.90%	3.40%
EURTRY	3.90%	3.50%

For the buy-side transactions, the initial margin amount is calculated by multiplying the buy maturity amount with the risk parameter of the relevant contract. Offsetting positions to be taken in different gold or currency swap transactions can be subjected to correlation within themselves.In calculating the margin requirement, no netting shall be made between the positions of the different risk groups, currency/currency and precious metal/currency pairs.

Sözleşmeler Arası Risk Analizi	
(Spread Credit)	
SWAP Sözleşmeleri	
Sözleşmeler	Kredi Oranları (%)
(Contracts)	(Spread Credit)
* Öncelik aşağıdaki ikili sırasına göredir	
(Priority is applied as follows)	
XAUUSD - XAUEUR	50
XAUUSD - XAUTRY	50
XAUEUR - XAUTRY	50
USDTRY - EURTRY	50

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Example 1 – Buy Side Initial Margin:

Contract:	USDTRY
Contract Date:	10/06/2021
Settlement Date:	11/06/2021
Maturity Date:	06/06/2022
Trade Exchange Rate:	8.53 TL
Buy Nominal Amount:	5,000,000 USD
Sell Amount:	42,650,000 TL
Buy Maturity Amount:	50,900,000 TL

Initial Margin: (50,900,000 TL)x(%3.9)= -**1,985,100 TL**

As can be seen in the example, initial margin is calculated by multiplying the 50.9 million TL, which is the buy maturity amount, with the risk parameter of 3.9%, against the 5 million USD received at the end of the day of the settlement date of the transaction.

For sell-side transactions, the initial margin amount is calculated by multiplying the sell maturity amount by the risk parameter of the relevant contract and adding the amount, which is calculated by using swap point, to the found amount.

Example 2 – Sell Side Initial Margin :

Contract:	USDTRY
Today:	27/08/2021
Contract Date:	25/08/2021
Settlement Date:	25/08/2021
Maturity Date:	01/09/2021
Trade Exchange Rate:	8.40 TL
Maturity Exchange Rate:	8.43 TL (Sell Maturity Amount/ Sell Nominal Amount)
Sell Nominal Amount:	20,000,000 USD
Buy Amount:	168,000,000.00 TL
Sell Maturity Amount:	168,616,000 TL
SWAP Point:	0.03 TL (8.43-8.40)

SWAP Point Difference: (Maturity Exchange Rate – Trade Exchange Rate)x(Today–Contract Date)/(Maturity Date – Settlement Date)x(Sell Nominal Amount)
= (0.03)x(2/7)x(20,000,000) = 176,000 TL

Initial Margin: [(Sell Maturity Amount)x(Risk Parameter)] + SWAP Point Difference
= [(168,616,000)x(%3.40)] + 176,000 = -**5,908,944 TL**

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Variation Margin Process

The variation margin generated by the positions opened during the first value date shall be determined by taking account of the difference between the exchange rate/precious metal price at the transaction and the exchange rate at the end of the day. In calculating the variation margin of the positions opened before the calculation date, the end-of-day exchange rate/price of the previous day and the end-of-day exchange rate/price of the relevant day shall be compared. The variation margin amount being calculated on the basis of each contract shall be netted on a currency/precious metal basis. The funding cost, if any, and variation margin refund related to contacts at maturity, if any, shall be added to or deducted from such amount.

Example 3 – Variation Margin :

Contract:	USDTRY
Contract Date:	10/06/2021
Settlement Date:	11/06/2021
Maturity Date:	06/06/2022
Trade Exchange Rate:	8.53 TL
Buy Nominal Amount:	5,000,000 USD
Sell Amount:	42,650,000 TL
Buy Maturity Amount:	50,900,000 TL

Initial Margin: (50,900,000 TL)x(%3.9)= **-1,985,100 TL**

11/06/2021 11:00 variation margin:

10/06/2021 end of day USDTRY Exchange rate: 8.34148

11/06/2021 11:00 intraday USDTRY Exchange rate: 8.46759

Variation margin=
[(10/06/2021 end of day USDTRY Exchange rate)-(11/06/2021 11:00 intraday USDTRY Exchange rate)]*(Buy Nominal Amount)

= [(8.34148)-(8.46759)]*(5,000,000) = **-630,550 TL**

Total margin requirement = Initial Margin + Variation Margin

Total margin requirement = **-1,985,100 TL -630,550 TL = -2,615,650 TL**

The variation margin to be calculated for the counterparty of the transaction in the above example (on the sell side) will be +630.550 TL.

Funding Cost Process

The amount of funding cost shall be calculated over the weighted average overnight interest rate formed for the relevant day in BIAS Debt Securities Market, Normal Orders Market in Repo- Reverse Repo Market and calculated by using the following formula:

$$F = ((\text{Cumulative Net Variation Margin Balance} * \text{Overnight Interest})/360)$$

The counterparty's cumulative net positive balance from the variation margin amounts that have transferred throughout the term of each transaction shall be part of netting between daily variation margin and funding costs.

Example 4 – Funding Cost:

The 630,550 TL variation margin receiver specified in example 3 is obliged to pay the funding cost to be calculated below on the next business day for this amount received at the end of 11/06/2021.

Funding Cost = (630,550 TL*(%19))/360 = 332.79 TL