

CCP Collateral Management Application Principles

The principles concerning application of the Central Counterparty (CCP) regulation by Takasbank, are regulated under 3 separate supplementing Regulations, approved by the Takasbank Board of Directors;

- Regulation on Takasbank Central Counterparty Risk Management Implementing Services
- Regulation on Takasbank Central Counterparty Collateral Management Implementing Services
- Regulation on Takasbank Central Counterparty Default Management Implementation Principles

In the Regulation on Takasbank Central Counterparty Collateral Management Implementing Services which aims to govern application principles with respect to collateral management in the markets where Istanbul Clearing, Settlement and Custody Inc. (Takasbank) serves as Central Counterparty (CCP), the matters concerning;

- The Designation of Assets as Eligible Collateral and Monitoring of Risks
- The Determination, Monitoring and Approval of Collateral Multiples
- The Composition of Assets Eligible as Collateral on the basis of Respective Markets,
- Valuation of Collateral
- Segregation, Deposit/ Withdrawal and Pre-Default Migration Processes Pertaining to the Collateral
- Monitoring collateral, Entrusting/ reposing out to other Banks and Protection

have been regulated. Procedures may be issued to guide the business, transaction and rules in application of the principles in the Regulation.

The regulations, where public disclosure is regarded as favorable, enacted by the Regulation are summarized in the following pages;

Designation of assets as eligible collateral and monitoring risk

In the markets where CCP service shall be offered, in designation of the financial assets as eligible collateral, liquidity, credit, concentration and market risk related to the respective financial asset should be taken into consideration. The assessment and review with regards to the financial assets that shall be accepted as eligible collateral is carried out once a year, in December.

With respect to liquidity, credit and concentration risk management and monitoring, the parameters below are monitored;

- i. That for the borrowing securities accepted as eligible collateral, the overall portfolio's date to maturity per member does not exceed 2 years,

- ii. The sum of guarantee provided against the capital markets instruments issued by the same issuer does not exceed 25% of total collateral, with the exception of those issued by the Treasury Directorate
- iii. To ensure monitoring the liquidity conditions of the assets accepted as eligible collateral; daily monitoring of the transaction volume related to the assets accepted as eligible collateral or the indices which represent them or data of indicative nature and these assets', indices' and indicative prices' -if available- bid/offer spreads.
- iv. To be able to follow Turkey's international credit worthiness, in addition to credit rating grades, following Republic of Turkey 5 year CDS premiums on a periodic basis.

Calculation of collateral multiples

To determine the valuation multiples for the assets that are received as collateral and guarantee fund contribution, reduction multiples which imply proportional value loss of the assets accepted as eligible collateral, are taken into account. The collateral valuation multiple is calculated by subtracting the reduction multiple from 1.

The reduction multiples are calculated through historical simulation based VAR method. The data set used in collateral calculation should include at the minimum the past 5-year period. The calculations are carried out under the consideration of minimum 2 business days holding period and 99.9% confidence level. The reduction multiple for bills and bonds is calculated by applying these interest rate shocks to the yield curves obtained through interpolation.

Until a new regulation or modification, the collateral valuation multiples in the CCP enabled markets are as below;

Financial Asset Type	Collateral Valuation Rate	
Turkish Lira (TRY)	1	
Convertible FX (EUR&USD)	0.94	
Gold	0.86	
Government Domestic Borrowing Security 0-1 year	0.98	0.91*
Government Domestic Borrowing Security 1-5 year	0.95	
Government Domestic Borrowing Security 5 year +	0.89	
Euro Bond 0-1 year	0.93	0.83*
Euro Bond 1-5 year	0.91	
Euro Bond 5 +year	0.80	
Sukuk (TRY)	0.85	
Equity Stock (BIST 30)	0.76	

Equity Stock (BIST 100-30)	0.70
Equity Stock (ex-BIST100)	0.60
Mutual Fund Participation Certificates (Equity concentrated)	0.82
Mutual Fund Participation Certificates (Other)	0.88

*The valuation rate to apply where the maturity is not taken into consideration

Collateral valuation multiple calibration

The assets accepted as collateral, before applying collateral valuation multiples, are calibrated through backtests which compare the observed proportional change in value of the reduction multiple of the eligible collateral assets included in the collateral valuation multiple calculation and indices related to such assets and the underlying or the related index, in light of the holding period.

i. In the back test, the observed proportional change in value of the reduction multiple of the eligible assets (collateral) included in the collateral valuation multiple calculation or indices related to them and the underlying or the related index are compared in light of the holding period.

ii. The back test may be carried out by using the index, maturity and indicators representing the asset groups in the collateral.

iii. If In the last one year period, the calculated proportional change in value considering the holding periods used in collateral valuation multiple calculation for the financial asset group, exceeds the calculated reduction multiple for more than two business days, the calculated valuation multiple is increased/ decreased through the use of multipliers which are determined in light of the number of days of such excess.

$$\text{Collateral Valuation Multiple (\%)} = 1 - (\text{Reduction Multiple \%} \times \text{Multiplier})$$

iv. The multipliers, which correspond to the number of excess and that, shall be used to determine the multiples are listed below.

Number of excess	Multiplier
2 or less	1,00
3	1,20
4	1,35
5	1,50

v. If in the last 1-year period the valuation multiples have been exceeded for more than 5 business day, the data set that is used, confidence level and the model are reviewed.

vi. The viability of the collateral valuation multiples in-use is reviewed at least once a year by the Internal Audit Team and the audit outcome is reported to Board of Directors.

Backtests

Whether the collateral valuation multiples represent the market volatility, is tested through back-tests. In the back-test the reduction multiple of the eligible collateral included in the calculation of the collateral valuation multiple and the indices related to these are compared with the observed proportional value change for the underlying or the related index, in light of the holding period. Back test may be conducted by using the indices, maturity and indicators, which represent the collateral asset.

Monitoring the adequacy of collateral valuation multiple

Across all the markets served as CCP, it is intended that, the expected cash proceeds from liquidation of eligible collateral (assets) should not be below such assets' estimated appraisal amounts. In this regard if the daily price change in a single day in one of the variables listed below, leads to fall in the collateral 's value over the corresponding amount below, the collateral valuation multiples' adequacy is tested through back tests and if required the multiples are revised:

- i. In BIST 30 and/or BIST 100 index 10%
- ii. In Benchmark Government Domestic Borrowing Security (DIBS) interest rate 300 bps
- iii. In the FX basket price consisting of 1 USD and 1 EUR, 5%
- iv. 10 Year Euro Bond interest 200 bps
- v. Gold's TRY price/gram 10%

Approval of collateral valuation multiples

Modification suggestions concerning the multiples are submitted to Takasbank's General Manager for approval. If approved, it is announced on the website and to the members.

The Composition of Eligible Assets (Collateral) based on Markets

In the CCP service enabled market, the minimum and maximum share of collateral type regarded as cash or non-cash in the total collateral is determined and the periodic assessments are carried out in December.

In the markets where Takasbank offers CCP service, the composition limits for eligible collateral (assets) are listed in the table below.

Assets Accepted As Eligible Transaction Collateral in the Derivatives Market		Collateral Composition		Guarantee Fund Composition	
		Min.	Max.	Min.	Max.
Cash	Turkish Lira	%50	%100	%30	%100
Currency	Convertible Currency (USD & EUR)	%0	%50	%0	%70
Non-Cash	Government Debt Securities	%0	%50	%0	%70
Non-Cash	Equity (BIST-30)	%0	%25*	Not Acceptable	
Non-Cash	Investment Fund Participation Certificates (Equity Intense)	%0	%25*	%0	%70
Non-Cash	Investment Fund Participation Certificates (Others)	%0	%50	%0	%70
Non-Cash	Gold	%0	%50	Not Acceptable	
Non-Cash	Sukuk	%0	%50	Not Acceptable	

**In the Derivatives Market, the ratio of equity intense investment fund participation certificates to total non-cash collaterals cannot be higher than 50%. Also, the ratio of any equity intense investment fund participation certificate to total equity intense investment fund participation certificates cannot be higher than 20%.*

Assets Accepted As Eligible Transaction Collateral in the Securities Lending Market		Collateral Composition		Guarantee Fund Composition	
		Min.	Max.	Min.	Max.
Cash	Turkish Lira	%60	%100	%0	%100
Currency	USD&EUR	%60	%100	%0	%100
Non-Cash	Government Debt Securities	%0	%40	%0	%100
Non-Cash	Gold	%0	%40	%0	%100
Non-Cash	Equity (BIST-30)	%0	%20	Not Acceptable	

End of Day and Intraday Valuation of Collateral

The non-cash eligible collateral (assets), are valued at the end of each trading day based on the prices below by Takasbank. It is essential to carry out the valuation at the end of the day. However if deemed necessary by Takasbank, intraday valuation is also possible. The valuation principles are listed below:

- i. During valuation, the values that reflect market conditions in the best way are considered,
- ii. For the financial assets where price according to the prescribed valuation rules, or theoretical price is not available, or it is concluded that the theoretical price deviates largely, unless an alternative valuation price is suggested, the values that are determined by the CCP department or previous day prices may be used.
- iii. The set of prices that shall be used in collateral valuation is verified by CCP Departments before valuation process,
- iv. If the security provided for collateral is closed for trading, the valuation principles are determined in the market procedures and in case of market turbulence collateral valuation is carried out immediately.

Collateral Accounts and Segregation

Across all markets where central counterparty service is offered;

- i. Each member's transaction collateral and guarantee fund contribution is held in a separate account from the other members' collateral and guarantee fund contributions,
- ii. The transaction collateral is held in a separate account from guarantee fund contribution.
- iii. The collateral belonging to members' clients are held separately from the account where collateral belonging to member's portfolio is held.

Collateral deposit/withdrawal

In the withdrawal of the collateral the valid rule is; if the collateral level is over the required level, such collateral's appraisal is based on current prices.

Pre-default migration

The individual or joint collateral accounts opened on behalf of the member to hold client collateral and if exists, positions related to such account, are migrated to the accounts that shall be opened by the transferee member upon individual or joint request in writing of the clients who are users of the individual or joint accounts, to the member, and the transferor member's approval statement.

Monitoring and reporting of collateral

In Each market positioned as central counterparty, the respective collaterals are monitored in Takasbanks's financial and administrative record and reports, separately, on market basis.

Entrusting or reposing out cash collateral for remuneration purpose or other purposes

In the CCP enabled markets, whether the cash collateral allocated to the clients' account by the members shall be remunerated or not is determined in the relevant market directives and procedures.

Remuneration of the collateral however is possible only if it is entrusted in a manner to enable returns subject to daily market conditions and risk management principles. If the market conditions do not allow or due to risk management constraint sufficient return is not attainable, the collateral is not remunerated.

In entrusting the collateral to other banks on a term or call basis, or reposing out such collateral, for the purpose of remuneration or other reason, banks which are regarded to have zero or close to zero credit risk are preferred as counterparty to maintain credit and liquidity risk at low level .At least 95% of the cash collateral that cannot be entrusted in this manner, becomes the subject of repo transaction with large scale commercial banks or in organized markets.

In the CCP service enabled markets; the maturity for entrusting or repo of the collateral is maximum two business days.

Collateral entrusting/ repo transactions are executed within the risk limits allocated to banks by Takasbank.

Protection of Collateral

The primary application principles concerning protection of collateral, which are laid down in the relevant Regulation are stated below:

i. In the CCP service enabled markets, the cash and non-cash collateral entrusted by the members to Takasbank in accordance with the Law, No 6362, Article 73, Paragraph 2 may not be expended outside the entrusting purpose, even against the government's receivables they cannot be seized, pledged, or affected from administrative authorities' liquidation rulings and cannot be included into bankruptcy estate and injunction cannot be filed.

ii. In the CCP service enabled markets, the collateral entrusted to Takasbank may solely be expended to compensate for the risk and obligations arising from members' or clients' position. The collateral received for the central counterparty service, cannot be expended towards Takasbank's obligations arising from its activities including those arising from other capital market or banking activities, even for a temporary period.

iii. In the CCP service enabled market, collateral excess belonging to a member, may be expended towards the member's other obligations to Takasbank only if it is explicitly prescribed in the directive, procedure or contracts.

iv. Even if Takasbank, with respect to its other operations, is enforced to pay through legal pursuit and such enforcement is extended to the collateral, in accordance with the Law Article 73, Paragraph 2, such payment order is rejected.

v. As the collateral entrusted to Takasbank by the member, in accordance with the Law No 6362, Article 73, Paragraph 2, cannot be affected from legal and administrative pursuits and liquidation rulings, the seizure, bankruptcy and injunction rulings on the member's assets, cannot be exercised on the collateral entrusted to Takasbank.

vi. It is declared as a word of caution that, in entrusting or repoing out the collateral to other banks or depositing for remuneration purposes or other purposes, the transferred fund/ security is under the protection of 6362 No, the Law, Article 73, paragraph 2

vii. If the bank where the collateral is entrusted to or repoed out to or deposited, defaults on a payment, or taken over by the Savings Deposit Insurance Fund, or enforced into bankruptcy or liquidation process by cancellation of banking license or depository license, in accordance with the Law, No 6362, Article 73, Paragraph 2 the entrusted or repoed out or deposited collateral /or

security against repo, is immediately asked to return, the situation is urgently reported to Capital Markets Board, Banking Regulation and Supervision Agency and Savings Deposit Insurance Fund.

viii. In the CCP service enabled markets, to be able to deposit non cash collateral with offshore depositories, this collateral should have sufficient protection against the depository's bankruptcy or liquidation or the claims of its debtors, moreover limit should be established for the depository by the Board of Directors.