



CC&G

London Stock Exchange Group

**Cassa as Central Counterparty for
Equity Cash Markets**

The Method for Calculating Initial Margins

RM Office

Version 2.1

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Foreword

a) Scope

This document describes the method that will be used by Cassa to calculate Initial Margins for equities¹ traded on the Italian Stock Exchange (Borsa) and/or on the «New Market» (Nuovo Mercato). Such trades are currently guaranteed by the Contract Guarantee Fund established in accordance with article 68 of the Italian Consolidated Financial Act (TUF)².

The document states the basic principles of the proposed methodology for calculating Initial Margins (section 1) and proceeds to describe the method for defining the parameters necessary for using TIMS (section 2). Various examples are provided in the subsequent sections, beginning with the application of the model to a portfolio comprising a single type of shares (section 3) and proceeding to examine a portfolio of shares and options on the same share (section 4) and ending with (section 5) the case of a portfolio comprising well correlated shares.

The document describes also the application of the method to the other financial instruments currently traded on the MTA circuit and guaranteed by the Contract Guarantee Fund (sections 6).

b) Objectives

The described methodology aims at the following objectives:

- a) *Consistency and congruency of the outcoming figures;*
- b) *Absence of impacts on clearing members operating only on IDEM;*
- c) *Least possible impact on clearing members operating on the Cash Markets;*
- d) *Ability to identify and evaluate possible correlations between different instruments;*
- e) *Ability to calculate Initial Margins both on the overall cash-derivative portfolio (cross-margining) and separately for cash and derivatives;*
- f) *Control of costs for clearing members.*

1 Barring the cases of residual or total Takeover Bid.

2 Cf. Regulations of Borsa Italiana e Nuovo Mercato, Article 5.2.1, paragraph 2.

1. *Method for calculating Initial Margins for shares*

Initial Margins for cash equity transactions will be calculated adapting the TIMS methodology currently used to margin exercised/assigned equity options in between Exercise/Assignment Day and Settlement Day.

The rationale is that cash equity transactions and exercised/assigned options both commit a member to deliver (collect) a certain number of shares against simultaneous receipt (payment) of a predetermined cash amount, equal to the trade price for cash equity trades and to the strike price for exercised/assigned options.

a) *Basic Principles*

- a) All financial instruments that are considered by Cassa as being significantly correlated to each other in terms of price trend are included in a single **Integrated Portfolio** which is evaluated unitarily and hence subjected to Initial Margins that are also unitarily calculated. In fact TIMS is able to determine the overall exposure to risk both for cash and derivatives portfolios relating to the same share (so-called «Class Group»), and for Integrated Portfolios referring to different shares though significantly correlated (so-called «Product Group»).
- b) The risk associated with an Integrated Portfolio is assessed by hypothesizing that the shares prices change daily by a maximum percentage amount, defined as the **Margin Interval**, in a way that is adverse to the clearing member's position. and Cassa – in case the clearing member is insolvent – must liquidate the positions in the most unfavorable reasonably conjecturable market conditions within the Margin Interval.

b) *Types of Initial Margins*

- a) **Mark-To-Market Margin**; re-evaluates the theoretical liquidation gains/losses to current market prices (*Mark-To-Market*). It represents a *theoretical* credit for the clearing member that has bought/ sold shares below/above current market prices, assumed equal to the *reference price*³. On the other side it represents a theoretical debit for the clearing

³ The Reference Price is equal to the weighted average of the last 10% of the trades executed on the market for each security, independently from the time of trading. It is calculated daily by Borsa Italiana SpA.

member that has bought (sold) shares above (below) current market prices.

- b) **Ordinary Margins;** evaluates the largest theoretical loss in case the share price moves, within the Margin Interval, adversely to the clearing member's position.

2. *Defining the parameters*

The methods for defining the main parameters used by TIMS are described below.

a) *Margin Interval*

The Margin Interval applied for each financial instrument is determined at the end of a non-automated evaluation process based on complex statistical analyses. It is normally set at a value to supply a predetermined Coverage Level of the actual daily price variations that have been registered. This Coverage Level makes, among other things, the recourse to Intraday Margins residual.

b) *The Offset Factor*

The degree of the correlation's plausibility is measured for each pair of financial instruments by calculating the R^2 determination coefficient. In the case of a stable surmounting of significant values, usually a Product Group is set up; its Offset Factor is fixed in a basically complementary extent to the determination coefficient detected. Therefore the higher the correlation is, the lower the abatement applied to the theoretical revenues will be, thus making the cross-margining effect greater.

3. *Portfolio comprising a single type of shares*

a) *Determining the overall position*

The Initial Margin calculation will be applied for each type of shares on the Net Balances in Cash and in Securities, thus aggregating transactions executed at different market prices.

Table 3.1

	Trade price	Shares to deliver/receive	Cash to pay/collect
<i>Buy</i>	€ 40.30	100	-€ 4,030.00
	€ 40.15	400	-€ 16,060.00
<i>Sell</i>	€ 39.90	-100	€ 3,990.00
	€ 39.75	-200	€ 7,950.00
Net Balance in Securities		200	
Net Balance in Cash			-€ 8,150.00

b) *Calculating the Mark-To-Market Margin*

In order to calculate the Mark-To-Market Margin amount, it is necessary to determine the difference between the Net Balance in Cash and the countervalue of the Net Balance in Securities, calculated at the current market value (assumed equal to the reference price) of the security for each individual financial instrument.

The amount resulting from the difference is taken with a positive sign if it represents a theoretical gain, that is, in case the price at which the securities have been bought (sold) is below (above) the reference price. Conversely the mentioned amount is taken with a negative sign when it represents a theoretical loss, that is, in case the price at which the securities have been bought (sold) is above (below) the reference price.

Table 3.2

Net Balance in Securities	200
Net Balance in Cash	-€ 8,150.00
Countervalue of the Net Balance in Securities (200 shares) Reference Price (€ 40.00)	€ 8,000.00
Mark-To-Market Margin	- € 150.00

It is worth mentioning that the theoretical gains arising from the Mark-To-Market Margins are never paid out to the clearing member; they can only be utilized within the Initial Margin calculation procedure to offset Initial Margin requirements deriving from other Integrated Portfolios.

c) *Calculating the Ordinary Margin*

The Mark-To-Market Margin calculated in the preceding paragraph represents the theoretical loss/gain incurred in liquidating the position at its current market price without making any further hypothesis regarding the possible future market price of the security.

This second objective is reached hypothesizing that the price of the security will vary within a range smaller or equal to the Margin Interval, in such a manner to determine the largest liquidation cost in the most unfavorable hypothesis for the position (Initial Ordinary Margin). For long positions the largest liquidation cost will occur in case of the largest downside price movement within the Margin Interval; for short positions, conversely, the largest loss will occur at the largest upside price variation. The following table illustrates how Ordinary Margins are calculated for the position examined.

Table 3.3

	DOWNSIDE	Ref. Price	UPSIDE
Margin Interval	-10%		+10%
<i>Blue Star</i> Shares Theoretical Value	36.00		44.00
<i>Blue Star</i> Shares Reference Price	40.00	40.00	40.00
Theoretical Liquidation Gain/Loss per share (€)	-4.00		4.00
Number of Shares	200		200
Total Theoretical Liquidation Gain/Loss (€)	<u>-800.00</u>		800.00
Initial Ordinary Margin	€ 800.00		

The algebraic sum of the two amounts above calculated (The Mark-To-Market Margin and the Ordinary Margin) represents the Total Initial Margin for the position.

Table 3.4

Mark-To-Market Margin	- € 150.00
Ordinary Margin	- € 800.00
Total Initial Margin	- € 950.00

Should the amount so determined be positive, the Initial Margin would be assumed equal to zero.

d) *Following days*

The preceding paragraph has illustrated the calculation for the Initial Margin due the day after the trade has been executed (T+1). The following paragraph illustrates the calculation of the Initial Margins due in the two following days (T+2 and T+3), assuming that the position remains unchanged.

Under the hypothesis that at the end of trading of day T+1 the new reference price of the share is equal to € 39.00, the new Mark-To-Market Margin will be:

Table 3.5

Net Balance in Securities	200
Net Balance in Cash	-€ 8,150.00
Countervalue of the Net Balance in Securities (200 shares) Reference Price (€ 39.00)	€ 7,800.00
Mark-To-Market Margin	- € 350.00

The new Ordinary Margin will be:

Table 3.6

	DOWNSIDE	Reference Price	UPSIDE
Margin Interval	-10%		10%
<i>Blue Star</i> Shares Theoretical Value	35.10		42.90
<i>Blue Star</i> Shares Reference Price	39.00	39.00	39.00
Theoretical Liquidation Gain/Loss per share (€)	-3.90		3.90
Number of Shares	200		200
Total Theoretical Liquidation Gain/Loss (€)	<u>-780.00</u>		780.00
Initial Ordinary Margin	-€ 780.00		

The Initial Margin due is then compared with the guarantees (cash and collateral) previously deposited by the member with Cassa (in this example the guarantees are assumed equal to the previous day’s Initial Margin requirement)

Table 3.7

Mark-To-Market Margin	- € 350.00
Ordinary Margin	- € 780.00
Total Initial Margin	- € 1,130.00
Guarantees previously deposited	€ 950.00
Margin Cash Call	- € 180.00

The calculation described above will be repeated the following day (T+2) producing a new (and last) adjustment of Initial Margins, due at T+3.

If on day T+1 the members executes other trades, the Initial Margins due at T+2 will be determined on the Total Net Balance of trades executed at days T and T+1, according to the following schedule:

4. *Portfolio comprising shares and derivatives on the same shares («Class Group»)*

As previously mentioned, the present methodology allows evaluation of unitary risk on a portfolio comprising both cash and derivatives positions.

TIMS in fact determines Initial Margins for the Integrated Portfolio by algebraically summing the theoretical liquidation gains/loss of each position under the same hypothesis of underlying price variation within the Margin Interval. In such a way a *full* offset is obtained among positions that having opposite sensitivity to underlying price movements (*cross-margining*).

In the case of portfolios also comprising options⁴ TIMS not only take into consideration extreme price variations within the Margin Interval, but also considers eight intermediate price scenarios. This is in order to properly evaluate the risk for those trading strategies whose maximum losses occur on underlying price values comprised between the extremes of the Margin Interval. The Ordinary Margin is assumed equal to the largest liquidation cost calculated at each price scenario.

Attachment # 1 illustrates the case of a Cash-Derivatives Integrated Portfolio comprising the same cash position considered in the preceding paragraph and 2 short call options positions, both having a strike price of € 39.00 and expiry June 2001 and having as underlying 100 Blue Star shares each.

In order to evaluate the cross-margining effect, it has to be considered that:

- The Initial Margins due for the sole cash position would be equal to **€ 950.00** (€ 150.00 Mark-To-Market Margin and € 800.00 Ordinary Margin);
- The Initial Margins due for the sole options position would be equal to **€ 1,147.40** (€ 530.80 Premium Margin and € 616.60 Ordinary Margin);
- The Initial Margins due on the overall position are equal to **€ 1,104.20** (€ 150.00 Mark-To-Market Margin, € 530.80 Premium Margin and € 423.40 Ordinary Margin), instead of € 2,097.40 if separately calculated (€ 950.00 for *cash* and € 1,147.40 for derivatives). Cross margining thus halves the margin requirement.

⁴ Options evaluation in the different price scenarios is effected using a binomial price model (Cox-Ross-Rubinstein). Furthermore, for a conservative evaluation of short position in deep Out-of-The-Money options (both *calls and puts*) – whose value is near to zero and have low sensitivity to underlying price variations – Cassa set a minimum theoretical liquidation cost (*Short Option Adjustment*).

Attachment # 2 illustrates the case of an Integrated Portfolio comprising shares and options [two long calls, two long puts, same strike price (€ 43.00), same expiry (June 2001); long straddle strategy].

In order to evaluate the cross-margining effect, it has to be considered that:

- As already mentioned, the Initial Margins due for the sole cash position would be equal to **€ 950.00** (€ 150.00 *Mark-To-Market Margin* and € 800.00 Ordinary Margin);
- The Initial Margins due for the sole options positions would be equal to **zero** (being long positions only). A theoretical credit of **€ 811.00** would remain outstanding (€ 891.40 Premium Margin credit and € 8.40 Ordinary Margin debit) to be used, as mentioned, exclusively to cover other Initial Margins debits;
- The Initial Margins due on the overall positions are equal to **zero**. A theoretical credit of **€ 431.60** (€ 150.00 *Mark-To-Market Margin* debit, € 891.40 Premium Margin credit and € 309.80 Ordinary Margin debit) would remain furthermore outstanding, to be used, once more, to cover other Initial Margins debits.

5. *Portfolio comprising well correlated shares («Product Group»)*

As mentioned, the methodology is capable of evaluating unitarily the overall risk position also for portfolios comprising different shares (and their derivatives) taking into account the existence of correlations [“Product Group”; cf. section 2, paragraph b).]

In the hypothesis that a member has executed the following transactions:

Table 5.1

Transaction	Shares	Trade Price	Quantity
Buy	AAA	29.00	100
Sell	BBB	39.00	-80

And supposing furthermore that:

The two shares are well correlated (R^2 between daily price variations > 0.75);

The Margin Intervals applied to shares AAA and BBB are respectively equal to 12% and 10%;

The reference prices are respectively equal to € 3000 and € 40.00.

The Mark-To-Market Margin is then equal to:

Table 5.2

Trade Price	Reference Price	Unitary Theoretical Gain/loss	Number of shares	Mark-To-Market Margin
€ 29.00	€ 30.00	€ 1.00	100	€ 100.00
€ 39.00	€ 40.00	€ 1.00	-80	- € 80.00
Total Mark-to-Market Margin				€ 20.00

The Ordinary Margin for share AAA would be equal to:

Table 5.3

	DOWNSIDE	Reference Price	UPSIDE
Margin Interval	-12%		+12%
AAA Shares Theoretical Value	26.40		33.60
AAA Shares Reference Price	30.00	30.00	30.00
Theoretical Liquidation Gain/Loss per share (€)	-3.60		3.60
Number of Shares	100		100
Total Theoretical Liquidation Gain/Loss (€)	<u>-360.00</u>		360
Initial Ordinary Margin	€ 360.00		

Meanwhile the Ordinary Margin for share BBB would be equal to:

Table 5.4

	DOWNSIDE	Reference Price	UPSIDE
Margin Interval	-10%		+10%
AAA Shares Theoretical Value	36.00		44.00
AAA Shares Reference Price	40.00	40.00	40.00
Theoretical Liquidation Gain/Loss per share (€)	-4.00		4.00
Number of Shares	-80		-80
Total Theoretical Liquidation Gain/Loss (€)	320.00		<u>-320.00</u>
Initial Ordinary Margin	€ 320.00		

The Initial Margin so calculated, that is, *without considering the existing correlation* between share prices variations, would be equal to **€ 660.00**[€ 20.00 *Mark-To-Market Margin credit* (cf. Table 5.2), € 360.00 Ordinary Margin on share AAA (cf. Table 5.3) and € 320.00 Ordinary Margin on share BBB (cf. Table 5.4)].

In case a Product Group is established, the Initial Margins would be calculated according to the following table:

Table 5.5

	DOWNSIDE	Reference Price	UPSIDE
Total Theoretical Liquidation Gain/Loss (€) on share AAA	-360.00		360.00
Total Theoretical Liquidation Gain/Loss (€) on share AAA applying the Offset Factor (75%)	-360.00		270.00
Total Theoretical Liquidation Gain/Loss (€) on share BBB	320.00		-320.00
Total Theoretical Liquidation Gain/Loss (€) on share BBB applying the Offset Factor (75%)	240.00		-320.00
Total Theoretical Liquidation Gain/Loss (€) on shares AAA and BBB	-€ 120.00		-€ 50.00

The Initial Margins calculated taking into account the existing correlation are therefore equal to **€ 100.00** (€ 20.00 *Mark-To-Market* Margin credit; € 120.00 Ordinary Margin), instead of € 660.00 reducing the margin requirement by 83%.

6. *Other instruments traded on MTA and currently guaranteed by the Contract Guarantee Fund*

a) *Warrants*

- a) .Although not derivative instruments warrants have similarities to options., The differences are as follows: Warrants are settled at T+3 whereas Options premia are settled at T+1;
- b) Warrant are priced per quantity of underlying whereas Options are priced per unit of underlying⁵;
- c) Warrants are securities deposited with a Central Depository System (CDS) and their settlement takes place in the Security Settlement System (SSS) whereas options positions are derivatives settled and maintained with the Clearinghouse (CCP);
- d) Warrants – being securities – may not be shorted, whereas options may be shorted;
- e) The Warrant contract standard is set by the issuer and therefore has a lower degree of standardization;
- f) The delivery of the underlying upon exercise is a bilateral obligation between the Warrant buyer and the Warrant writer, beyond the scope of the contract guarantee system (be it a Mutual Guarantee Fund or a Central Counterparty). In fact the Central Counterparty novates – thus guaranteeing its fulfillment – *the obligation assumed by market counterparties and does not novate the obligations assumed by the issuer*. As a consequence – unlike with options – the guarantee is limited only to the exchange of the security against cash⁶.

The methodology described for shares can be also applied to warrants, offsetting their risk exposure with the underlying shares and with the relevant options.

⁵ As an example let's consider an option and a warrant both on 10 shares and having same contract terms. Assuming that the pricing of both instruments is homogenous, the option price would be expressed as € 1.90 per unit of underlying; the premium to be settled would then be determined by multiplying the quotation by the number of underlying shares (*multiplier*); that is: € 1.9 × 10 azioni = € 19.00. To be contrary the warrant quotation includes the so-called «multiple» (10) and is accordingly quoted on the market directly as € 19.00.

⁶ In other words, the central counterparty manages warrant positions exclusively for the three day between the trade day and the settlement day, whereas the central counterparty – being the issuer – manages option positions for the whole period between the trade day and the expiry/exercise settlement day.

It should however be considered that the reference price calculated for warrants (weighted average of the last 10% of the trades, independently from the time of trading) may not be used for margining purposes as it is not necessarily representative of the underlying value and of the implied volatility at the end of the trading day.

As a consequence of this, and considering the limited level of liquidity of warrants, it appears more adequate to manage warrants as shares.

Below is an example of the margin calculation applied to a long position in European call warrants, strike price € 42.00, expiry June 7th, 2002.

Table 6.1

Net Balance in Securities	10
Net Balance in Cash	-€ 5.50
Countervalue of the Net Balance in Securities (10 warrants) Reference Price (€ 0.58)	€ 5.80
Mark-To-Market Margin	€ 0.30

The *Mark-To-Market* Margin is assumed equal to the difference between the trade price and the «evaluation price» and represents in this example a theoretical credit for the member of € 0.30, being the latter committed to pay (at T+3) € 0.55 an instrument whose current market value (evaluation price) is equal to € 0.58.

Table 6.2

	DOWNSIDE	Prezzo Rif.	UPSIDE
Margin Interval	-12.5%		+12.5%
Warrant Theoretical Value	0.51		0.65
Warrant Reference Price	0.58	0.58	0.58
Theoretical Liquidation Gain/Loss per warrant (€)	-0.07		+0.07
Number of warrants	10		10
Total Theoretical Liquidation Gain/Loss (€)	<u>-0.70</u>		0.70
Initial Ordinary Margin	€ 0.70		

The Initial Ordinary Margin is assumed equal, as usual, to the largest theoretical liquidation loss for price variations of the instrument itself within its Margin Interval⁷, that is € 0.70.

Table 6.3

<i>Mark-To-Market Margin</i>	€ 0.30
Initial Ordinary Margin	- € 0.70
Total Initial Margin	- € 0.40

The Total Initial Margin is then equal to € 0.40. The methodology foresees margins requirements also for *long warrant positions*, given the time gap between Margin payment (which occurs at T+1) and the premium payment (which occurs at T+3), the latter being the scope of the guarantee provided by the Central Counterparty.

b) *Convertible Bonds*

Given the very nature of this financial instrument and the various variables that concur in its price formation process (yield curve, coupon's rate and period, strike price, expiry, issuer credit rating, etc.), and the relative exiguity of the turnover, it does not seem viable to develop a sophisticated pricing methodology for the determination of the risk profile of convertible bonds listed.

It appears preferable to follow a simplified margining methodology for convertible bonds by fixing the Margin Interval as a percentage of their market values, as if they were shares. It also appears preferable not to consider the accrued coupon in the calculation of the Mark-to-Market Margin⁸.

It is worth mentioning that Convertible Bonds are traded in basis points while in margin calculations the Euro countervalue must be considered. Therefore the reference price (and the theoretical values) must be divided by 100 and multiplied by the quantity, which is expressed in Euros, in order to include the nominal value of the convertible bond.

⁷ The Margin Interval is applied to the warrant itself, and not to its underlying security.

⁸ The accrued coupon has no impact on Initial Ordinary Margins, as it is not exposed to market risk, and has no relevant impact on the Mark-to-Market Margin.

The following tables provide an example of margin calculation for a convertible bond.

Table 6.4

T	<i>a</i>	Security Balance (Face Value of Net Security Balance)	€ 650.00	
	<i>b</i>	Clean Trading Price (Basis Points)	95.5000	
	<i>c</i>	Clean Reference Price (Basis Points)	96.0000	
	<i>d</i>	Accrued Coupon	0.0010	
	<i>e</i>	Traded Countervalue (dirty price)	$[(b/100+d) \times a]$	-€ 620.76
T + 1	<i>f</i>	Security Balance (Face Value of Net Security Balance)	€ 1,300.00	
	<i>g</i>	Total Security Balance (Face Value of Net Security Balance)	$(a+f)$	€ 1,950.00
	<i>h</i>	Clean Trading Price (Basis Points)	95.0000	
	<i>i</i>	Clean Reference Price (Basis Points)	94.5000	
	<i>j</i>	Accrued Coupon	0.0012	
	<i>k</i>	Traded Countervalue (dirty price)	$[(h/100+i) \times f]$	- € 1,235.02

The Initial Margins applied to convertible bonds (face value € 650.00) traded on day T will therefore be:

Table 6.5

Security Balance (Face Value of Net Security Balance) of day T	(a)	€ 650.00
Cash Balance of day T (clean price)	$[(b/100) \times a]$	-€ 620.75
Security Balance Countervalue of day T (clean price)	$[(c/100) \times a]$	€ 624.00
Mark-To-Market Margin		- € 3.25

Table 6.6

	DOWNSIDE	Reference Price	UPSIDE
Margin Interval	-10%		+10%
C.B. Theoretical Value (Basis Points)	86.40		105.,60
C.B. Reference Price (Basis Points)	96.00	96.00	96.00
Theoretical Liquidation Gain/Loss per C.B. (Basis Points)	-9.60		9.60
Security Balance (Face Value of Net Security Balance) (b)	€ 650.00		€ 650.00
Total Theoretical Liquidation Gain/Loss (€) [(±9,60/100 x b)]	<u>-62.40</u>		62.40
Ordinary Initial Margin	-62.40		

Table 6.7

Mark-To-Market Margin	- € 3.25
Ordinary Initial Margin	- € 62.40
Total Initial Margins	- € 65.65

The margins calculated above are referred to a single trading day (T). Following the previous example, we may suppose that on T+1 some more convertible bonds are bought, namely € 1,300.00 (face value) at 95.00. The net security balance of trading days T and T+1 is then € 1,950.00.

Table 6.8

Total Security Balance (Face Value of Net Security Balance)	(a + f)	€ 1,950.00
Cash Balance of day T (clean price)	[(b/100) x a]	-€ 620.75
Cash Balance of day T + 1 (clean price)	[(h/100) x f]	-€ 1,235.00
Total Security Balance Countervalue (clean price)	[(i/100) x (a + f)]	€ 1,842.75
Margine di Mark-To-Market		- € 13.00

Table 6.9

	DOWNSIDE	Reference Price	UPSIDE
Margin Interval	-10%		+10%
C.B. Theoretical Value (Basis Points)	85.50		104.50
C.B. Reference Price (Basis Points)	95.00	95.00	95.00
Theoretical Liquidation Gain/Loss per C.B. (Basis Points)	-9.50		9.50
Security Balance (Face Value of Net Security Balance) (b)	1,950		1,950
Total Theoretical Liquidation Gain/Loss (€) [(±9,50/100 x b)]	<u>-185.25</u>		185.25
Ordinary Initial Margin	-185.25		

Table 6.10

<i>Mark-To-Market Margin</i>	- € 13.00
Ordinary Initial Margin	- € 185.25
Total Initial Margins	- € 198.25

The same procedure shall be applied at T+2 for margins due at T+3.

c) *Shares of Closed-End Funds and ETFs*

The Initial Margins calculation methodology will be the same as that used for shares.

Attachments

Cassa as Central Counterparty for Equity Cash Markets - The method for calculating Initial Margins



Shares	Mark-to-Market Margin	
	(Reference Price - Trade Price) x No. of Shares	
	(40 - 40,18) x 500	-90,00 € Debit
	(40 - 39,8) x -300	-60,00 € Debit
TOTAL	-150,00 € Debit	

Options	Premium Margins	
	(Closing Price x No. of Lots x No. of Underlying Shares)	
	2,654 x -2 x 100	-530,80 € Debit
TOTAL	-530,80 € Debit	

		DOWNSIDE					Current Market Value	UPSIDE				
		-10,00%	-8,00%	-6,00%	-4,00%	-2,00%		2,00%	4,00%	6,00%	8,00%	10,00%
Margin Interval												
Theoretical Value		36,000	36,800	37,600	38,400	39,200	40,000	40,800	41,600	42,400	43,200	44,000
Shares	Reference Price	40,000	40,000	40,000	40,000	40,000		40,000	40,000	40,000	40,000	40,000
	Theoretical Liquidation Gain/Loss per Share (€)	-4,000	-3,200	-2,400	-1,600	-0,800		0,800	1,600	2,400	3,200	4,000
	No. of Shares	200	200	200	200	200		200	200	200	200	200
	Total Theoretical Liquidation Gain/Loss (€) for Shares	-800,00	-640,00	-480,00	-320,00	-160,00		160,00	320,00	480,00	640,00	800,00
Options	Theoretical Value of Option Call 39 Jun 01	0,771	1,038	1,359	1,736	2,168	2,654	3,189	3,771	4,393	5,050	5,737
	Closing Price	2,654	2,654	2,654	2,654	2,654		2,654	2,654	2,654	2,654	2,654
	Theoretical Liquidation Gain/Loss (€)	-1,883	-1,616	-1,295	-0,918	-0,486		0,535	1,117	1,739	2,396	3,083
	X -2 Short Positions	3,766	3,232	2,590	1,836	0,972		-1,070	-2,234	-3,478	-4,792	-6,166
	Total Theoretical Liquidation Gain/Loss (€) Call 39 Jun 01	376,60	323,20	259,00	183,60	97,20		-107,00	-223,40	-347,80	-479,20	-616,60
Integrated Portfolio	Total Theoretical Liquidation Gain/Loss (€) for Shares and Derivatives	-423,40	-316,80	-221,00	-136,40	-62,80		53,00	96,60	132,20	160,80	183,40
	Largest Theoretical Loss	-423,40										
	Ordinary Margins	-423,40										
	Mark-To-Market Margins for Shares	-150,00										
	Premium Margins Opzioni	-530,80										
	Total Initial Margins for the Class Group	-1.104,20										

	Ordinary Margin applied to the sole share position without cross-margining
Ordinary Margin applied to the sole option position without cross-margining	
Ordinary Margin applied to the Overall Position (Cross Margining)	

Cassa as Central Counterparty for Equity Cash Markets - The method for calculating Initial Margins



Shares	Mark-To-Market Margin	
	(Reference Price - Trade Price) x No. of Shares	
	(40 - 40,18) x 500	-90,00 € Debit
	(40 - 39,8) x -300	-60,00 € Debit
	TOTAL	-150,00 € Debit

Options	Premium Margins	
	(Closing Price x No. of Lots x No. of Underlying Shares)	
	0,946 x 2 x 100	189,20 € Credit
	3,511 x 2 x 100	702,20 € Credit
	TOTAL	891,40 € Credit

		DOWNSIDE					Current Market Value	UPSIDE				
Margin Interval		-10,00%	-8,00%	-6,00%	-4,00%	-2,00%		2,00%	4,00%	6,00%	8,00%	10,00%
Theoretical Value		36,000	36,800	37,600	38,400	39,200	40,000	40,800	41,600	42,400	43,200	44,000
Shares	Reference Price	40,000	40,000	40,000	40,000	40,000		40,000	40,000	40,000	40,000	40,000
	Theoretical Liquidation Gain/Loss per Share (€)	-4,000	-3,200	-2,400	-1,600	-0,800		0,800	1,600	2,400	3,200	4,000
	No. of Shares	200	200	200	200	200		200	200	200	200	200
	Total Theoretical Liquidation Gain/Loss (€) for Shares	-800,00	-640,00	-480,00	-320,00	-160,00		160,00	320,00	480,00	640,00	800,00
Options	Theoretical Value of Option Call 43 Jun 01	0,171	0,256	0,371	0,521	0,711	0,946	1,229	1,561	1,945	2,379	2,861
	Closing Price	0,9460	0,9460	0,9460	0,9460	0,9460		0,9460	0,9460	0,9460	0,9460	0,9460
	Theoretical Liquidation Gain/Loss (€)	-0,7750	-0,6900	-0,5750	-0,4250	-0,2350		0,2830	0,6150	0,9990	1,4330	1,9150
	X 10 Long Positions	-1,5500	-1,3800	-1,1500	-0,8500	-0,4700		0,5660	1,2300	1,9980	2,8660	3,8300
	Total Theoretical Liquidation Gain/Loss (€) Call 43 Jun 01	-155,00	-138,00	-115,00	-85,00	-47,00		56,60	123,00	199,80	286,60	383,00
	Theoretical Value of Option Put 43 Jun 01	6,7370	6,0220	5,3360	4,6860	4,0760	3,5110	2,9940	2,5270	2,1100	1,7440	1,4260
	Closing Price	3,5110	3,5110	3,5110	3,5110	3,5110		3,5110	3,5110	3,5110	3,5110	3,5110
	Theoretical Liquidation Gain/Loss (€)	3,2260	2,5110	1,8250	1,1750	0,5650		-0,5170	-0,9840	-1,4010	-1,7670	-2,0850
	X 10 Long Positions	6,4520	5,0220	3,6500	2,3500	1,1300		-1,0340	-1,9680	-2,8020	-3,5340	-4,1700
	Total Theoretical Liquidation Gain/Loss (€) Put 43 Jun 01	645,20	502,20	365,00	235,00	113,00		-103,40	-196,80	-280,20	-353,40	-417,00
Total Theoretical Liquidation Gain/Loss (€) for Options	490,20	364,20	250,00	150,00	66,00		-46,80	-73,80	-80,40	-66,80	-34,00	
Integrated Portfolio	Total Theoretical Liquidation Gain/Loss (€) for Cash and Derivatives	-309,80	-275,80	-230,00	-170,00	-94,00		113,20	246,20	399,60	573,20	766,00
	Largest Theoretical Loss	-309,80 € Debit										
	Ordinary Margins	-309,80 € Debit										
	Mark-To-Market Margins for Shares	-150,00 € Debit										
	Premium Margins for Options	891,40 € Credit										
	Total Initial Margins for the Class Group	0,00										
Outstanding Theoretical Credit	431,60 € Credit											

Ordinary Margin applied to the sole share position without cross-margining

Ordinary Margin applied to the sole option position without cross-margining

Ordinary Margin applied to the Overall Position (Cross Margining)