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Investment Portfolio Risk Handbook DEGIRO

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1. Introduction

This handbook provides information on the calculation of portfolio risk at DEGIRO.

The different components of portfolio risk are discussed. You will also find information on the structure of the margin and the free scope. With the aid of some practical examples, it is possible to gain a step-by-step understanding of the structure of portfolio risk on the basis of different portfolio compositions. The main differences in the calculation of portfolio risks between a Trader account and an Active account at DEGIRO will also be explained.

This handbook is a supplement to the guide '**Further Information on Investment Services**'.

2. Portfolio overview

On the website, you can request a real time portfolio overview showing both the available margin and credit facilities available of your investment portfolio by clicking on 'Available to trade'. The outline below presents an example of a portfolio overview:

Available to trade Calculation		
MARGIN STATEMENT		
Value of portfolio	€	10.191,96
Account balance	€	-1.516,26
Net liquidity value	€	8.675,69
Risk portfolio	€	7.143,33
Margin (deficit/surplus)	€	1.532,36
CREDIT FACILITIES		
Collateral value	€	7.134,37
Account balance	€	-1.516,26
Deficit/available	€	5.618,10

You can see from the above portfolio overview that there is a margin surplus of €1,532.36 and an available credit facility of €5,618.10. DEGIRO only accepts orders from its clients if this does not lead to a deficit in the margin or the credit facility. In other words, clients are able to trade within their available margin or credit scope. The above overview shows you that it is therefore possible to withdraw a sum of up to €1,532.36 from the investment account or to buy securities for **at least** this amount.

2.1 Margin review

The margin review section shows the margin (i.e., the portfolio value and the cash balance) in relation to the portfolio risk.

2.1.1 Value of portfolio

DEGIRO determines the value of the investment portfolio on the basis of the latest known prices on the stock exchange. Generally, the last price is used in determining the value of the position, unless the bid price is higher than the last price or the ask price is lower than the last price. The value of the portfolio is the net sum of all positions in the client's account.

2.1.2 Account balance

The account balance shows the sum of cash and Money Market Fund in the account in the respective base currency, e.g., in Euro for Netherlands, in GBP for The United Kingdom, in Swedish krona for Sweden. If you hold a cash balance in a foreign currency, this will be expressed in base currency within your account balance and settled with the other cash balances. If you hold a personal flatexDEGIRO bank account, then your money will be held at flatexDEGIRO Bank AG instead of a Money Market Fund. Furthermore, the value of open buy orders will be subtracted from the account balance.

2.1.3 Net liquidity value

The net liquidity value is obtained by adding the value of the portfolio to your account balance. It is of importance to keep the net liquidity value higher than the risk of the portfolio. In case the net liquidity value is lower than the portfolio risk, a margin deficit arises and the deficit procedure comes into effect.

2.1.4 Portfolio Risk

The risk of an investment portfolio depends on the composition of the portfolio. The risk will usually diminish by diversifying it over more financial instruments. The risk portfolio will also change due to price fluctuations within your investment portfolio. DEGIRO is recalculating the risk of a portfolio on a regular basis by reflecting the changes of the market circumstances, which leads to an increase or decrease of the risk value.

2.1.5 Margin (deficit/surplus)

A deficit in the margin means that the value of the portfolio, including the account balance, is lower than the portfolio risk. You are expected to clear this deficit immediately by making a transfer to DEGIRO and/or by closing positions. If DEGIRO observes a deficit, you will be informed of this in an e-mail message to the e-mail address available to us.

A margin surplus means that you could still make use of the possibilities to expand your portfolio. It is advisable to keep some scope available, due to fluctuations in the value of your investment portfolio and the portfolio risk.

2.2 Credit facilities

If you can make use of securities credit, you receive a credit facility at DEGIRO for collateral on securities. The amount of this credit facility depends on the value of the collateral and the accompanying credit percentages.

2.2.1 Collateral value

The value of the collateral serves as cover for the securities credit taken up or still to be taken up. For a Trader account, the collateral value is fixed at 70% of the value of the shares and investment funds and 80% of the value of the bonds. These percentages depend on the profile of the client. More on this is explained in chapter 4. This credit facility is in accordance with the guidelines laid down in the Financial Transactions Act (WFT).

2.2.2 Account Balance

The account balance shows the sum of cash and Money Market Fund in the account in the respective base currency, e.g., in Euro for Netherlands, in GBP for The United Kingdom, in Swedish krona for Sweden. If you hold a cash balance in a foreign currency, this will be expressed in base currency within your account balance and settled with the other cash balances. If you hold a personal flatexDEGIRO bank account, then your money will be held at flatexDEGIRO Bank AG instead of a Money Market Fund. Furthermore, the value of open buy orders will be subtracted from the account balance.

2.2.3 Deficit/available

A deficit in the credit facility means that the amount of the securities credit exceeds the collateral value. This can be caused by a drop in the value of the shares, investment funds and/or bonds in your portfolio. Other reasons might include an alteration in the cash balance, settlement of option positions or debit interest charges.

An available credit facility means that the total collateral value exceeds the utilized credit. You can use the available balance to expand your investment portfolio. This is only possible if it does not lead to a margin deficit.

3. Portfolio risk in practice

(N.B.: to be read in conjunction with **Further Information on Investment Services: Net Liquidation Value, Risk, Cash Margin and Securities Margin**)

In order to outline the different aspects of the DEGIRO portfolio risk, we will examine the different possibilities that might arise in building an investment portfolio. The aim of this is to provide you with an insight into both the structure and the possibilities that the risk model offers you when constructing a portfolio. The following examples are based on sample portfolios that make use of the Trader profile. Please be aware that the margin requirements can change and examples below reflect one set of outcomes. Below shows an overview of all categories a financial instrument can have and their corresponding margin requirements for both a Trader and Active profile.

Trader

	A	B	C	D	E	F	G	H	I	J	No category
Long	62,50%	81,25%	99,00%	100%	6,25%	12,50%	18,75%	25,00%	31,25%	100%	100%
Short	62,50%	125,00%	250,00%	375,00%	6,25%	12,50%	18,75%	25,00%	31,25%	375,00%	375,00%

Note: Category J is similar to D, the main difference is that the position value of the category J product is added to the largest event risk.

Active

	A	B	C	D	E	F	G	H	I	J	No category
Long	83,75%	83,75%	99,00%	100%	83,75%	83,75%	83,75%	83,75%	83,75%	100%	100%
Short	83,75%	125,00%	250,00%	375,00%	83,75%	83,75%	83,75%	83,75%	83,75%	375,00%	375,00%

Note: Category J is similar to D, the main difference is that the position value of the category J product is added to the largest event risk.

3.1 Undiversified portfolio

A client holds 2 shares in ASML Holding at a price of €500. Currently, ASML Holding is labelled as a category A stock, with an event risk of 62.5%. Due to the lack of diversification of the investments, the event risk will be the determining factor in this type of investment portfolio, as shown by the table below:

Table 1: Risk calculation for an undiversified portfolio

Portfolio	€1,000	ASML Holding (2 * €500.00)
Event risk	€625	62.5% event risk of €1,000
Net investment risk	€250	25% net risk of €1,000
Sector risk	€400	40% sector risk of €1,000
Gross investment risk	€100	10% gross risk of €1,000
Portfolio risk	€625	Risk based on event risk

The composition of the portfolio has determined that the event risk exceeds the other risks within the portfolio. By increasing the diversification of the portfolio, the risk could remain unchanged or rise to only a limited extent. In this example, liquidity risk and currency risk play no role in the calculation of the portfolio risk.

3.2 Investment portfolio with sector risk

A client holds a portfolio spread which includes ASML Holding and ASM International shares, where the values of the two positions are equal to €1,000 and €800 respectively. Assume that ASM International is a category B stock with a corresponding event risk of 81.25%. This example shows that with an investment of €800 in ASM International, the risk increases only by €95. This is because the sector risk lies higher than the highest event risk within the portfolio. Nevertheless, this remains an undiversified portfolio, for which a risk premium of 40% applies. A brief explanation of the calculation of the risk for this investment portfolio is presented below.

Table 2: calculation of risk sector for a portfolio

ASML Holding	€1,000	Sector Technology
ASM International	€800	Sector Technology
Value of Portfolio	€1,800	

Event risk	€650	81,25% event risk of €800 (ASMI)
Net investment risk	€450	25% net risk of €1,800
Sector risk	€720	40% sector risk of €1,800
Gross investment risk	€180	10% gross risk of €1,800
Portfolio risk	€720	Risk based on sector risk

The total risk of €720 is the result of a sector risk in technology, for which a risk weighting of 40% applies. The risk of the position in this sector exceeds the highest event risk, which is set at €650 for the position in ASM International. In this example, liquidity risk and currency risk play no role in the calculation of the portfolio risk.

3.3 Investment portfolio with net investment risk

A client's investment portfolio is divided among ASML Holding, ASM International, RDSA and Heineken shares with a value of €1,000, €1,100, €1,200 and €1,000 respectively. Assume here that RDSA and Heineken are labelled a category B and A stock respectively. All these shares are listed in euro, as a result of which there is no additional surcharge to the Risk calculation for currency risk. As a result of the high liquidity of these shares, there is no liquidity risk and therefore no requirement for extra security. Due to the composition of the portfolio, there is a risk relating to the net position of the investment portfolio. The table below shows the outcomes of the calculation of the risk for the investment portfolio.

Table 3: Risk calculation based on net investment category position

ASML Holding	€1,000	Technology Sector
ASM International	€1,100	Technology Sector
Royal Dutch Shell A	€1,200	Oil & Gas Sector
Heineken	€1,000	Foods and Beverages Sector
Value of Portfolio	€4,300	

Event risk	€975	81,25% event risk of €1,200.00 (RDSA)
Net investment risk	€1,075	25% net risk of €4,300.00
Sector risk	€840	40% sector risk of €2,100
Gross investment risk	€430	10% gross risk of €4,300
Portfolio risk	€1,075	Risk based on net investment category

The net investment risk is calculated by applying a factor of 25% on the net sum of all positions which constitute the investment portfolio, while the gross position is weighted with 10% of the absolute sum of the assets. In this example the total risk of €1075 now arises from the net investment, which exceeds the sector risk, the event risk and the gross investment risk.

3.4 Investment portfolio with a leveraged product

The risk for leveraged products such as turbos, speeders and sprinters is equal to 100% of the current value. When buying such a product, you should therefore have the full investment available as collateral. This also applies for other products for which DEGIRO has set the risk at 100%. In general, this concerns high risk financial instruments such as warrants, as well as shares with relatively limited liquidity and/or market value etc. To be precise, products having category D, J or no category assigned get a 100% margin requirement.

3.5 Investment portfolio with currency risk

The currency risk is expressed through investments in financial instruments listed in a currency other than euros. The value of this investment expressed in euros will rise or fall with every movement in the exchange rate. For that reason, DEGIRO requires you to hold surety for this risk. The same applies for credit or credit facilities in foreign currencies in the cash account. In this example Johnson & Johnson is added, which is a category A stock. In order to illustrate the effect of currency risk of an investment denominated in foreign currency, we assume the following investment portfolio (please see the table below).

Table 4: calculation of currency risk

ASML Holding	€900	Technology Sector
ASM International	€1,000	Technology Sector
Heineken	€1,000	Foods and Beverages Sector
Johnson & Johnson	\$1,000	Healthcare Sector (USD/EUR = 0.85)
Value of Portfolio	€3,750	

Event risk	€812.50	81,25% event risk of €1,000 (ASMI)
Net investment risk	€937.50	25% net risk of €3,750
Sector risk	€760	40% sector risk of €1,900
Gross investment risk	€375	10% gross risk of €3,750
Currency risk	€54.06	$\$1000 * 6.36\% * 0.85$
Portfolio risk	€991.56	Risk based partly on the currency risk

The currency risk is set at €54.06, assuming an asset value of USD 1000, a 6.36% risk weighting and a USD/EUR exchange rate of 0.85. If this had been a short Johnson & Johnson position, the currency risk outcome would also have been €54.06. It makes no difference here whether the net liquidation value is positive or negative.

3.6 Investment portfolio long – short strategy

A client holds a portfolio according to a long-short strategy. The purpose of this strategy is to make use of potential under or over-valuation of shares, for example within a particular sector. It is notable from the investment portfolio table below that the total value of the portfolio results in a zero figure. The long-short strategy has ensured that on balance no investment is needed, apart from collateral for the margin. Table 5 shows the structure of an investment portfolio with a long- short strategy with the corresponding categories in brackets.

Table 5: investment portfolio according to long-short strategy.

ASMI (B)	€1,000	€-1,000	ASML (A)
Heineken (A)	€1,200	€-1,200	AB InBev (A)
Royal Dutch Shell A (B)	€1,000	€-1,000	Total (A)
Allianz SE (A)	€1,200	€-1,200	NN Group (A)
Value long	€4,400	€-4,400	Value short

The risk of the above portfolio is based on the gross position, as this risk exceeds the sector risk and the net investment risk. In the risk calculations for a gross position in the 'shares' investment category, a 10% risk weighting is used. The total gross position of the above portfolio is €8,800, as a result of which the portfolio risk is €880. A further explanation of how this risk arises follows in Table 6.

Table 6: risk calculation of the long-short strategy

Value of Portfolio	€0
Net investment value	€0
Sector value	€0
Gross investment value	€8,800

Event risk	€812.50	81.25% event risk of €1,000 (ASMI)
Net investment risk	€0	25% net risk of €0
Net sector risk	€0	40% sector risk of €0
Gross investment risk	€880	10% gross risk of €8,800
Portfolio risk	€880	Risk based on gross investment category risk

3.7 Investment portfolio with category D stock

A client's investment portfolio is divided among ASML Holding, ASM International, RDSA and Riot Blockchain shares with a value of €1,000, €1,150, €1,200 and €1,000 respectively. In this example Riot Blockchain can be considered as a category D stock. For category D stocks a risk factor of 100% is applied and these products are added for their entire value to the net investment risk, sector risk and gross investment risk. As Riot Blockchain is denominated in USD, currency risk will be added as a risk factor as well. In order to see the effect of a category D stock in an investment portfolio we assume the following investment portfolio.

Table 7: Risk calculation with a category D stock

ASML Holding	€1,000	Technology Sector
ASM International	€1,150	Technology Sector
Royal Dutch Shell A	€1,200	Oil & Gas Sector
Riot Blockchain	\$1,000	Financial Services (USD/EUR = 0.85)
Value of Portfolio	€4,200	

Event risk	€975	81,25% event risk of €1,200 (RDSA)
Net investment risk	€1,687.50	25% net risk of €3,350 + 100%*\$1,000*0.85
Sector risk	€1,710	40% sector risk of €2,150 + 100%*\$1,000*0.85
Gross investment risk	€1,185	10% gross risk of €3,350 + 100%*\$1,000*0.85
Currency risk	€54.06	\$1000 * 6.36% * 0.85
Portfolio risk	€1,741.56	Net investment risk + currency risk

As can be seen from Table 7, the entire value of Riot Blockchain is added to the net investment risk, sector risk and the gross investment risk. In this example, the portfolio risk equals €1,741.56, which is derived by adding the currency risk to the net investment risk.

3.8 Investment portfolio including options

For determining the risk surcharge that applies to positions in options, DEGIRO uses an option valuation model. With this, it is possible to calculate the value movements of all individual positions in options on the basis of pre-selected scenarios. The option risk is calculated for each underlying value. For each underlying value, all positions in options and futures and the position in the underlying value itself are included in the calculation of the option risk.

A further explanation of the risk model is provided in the paragraph headed '3.8.1 Derivative Risk model'. As we see later in this chapter, the composition and size of an options portfolio also influences the option risk. In order to provide an insight into the operation of the risk model for different option portfolios, examples of a number of standard option strategies for a Trader account follow below.

3.8.1 Derivative Risk model

The derivative risk model can be applied for both equity and index options and will make an estimate of the risk regardless of the composition of the options portfolio. The risk model takes account of how an option is realized. Movements in the valuation of an option depend on:

- Value of the underlying share or index
- Level of implicit volatility
- Maturity
- Amount of the dividend
- Amount of the interest

To determine the risk of an option position, the risk model combines the different elements listed above. The influence of the different elements and how they are related is also referred to as a 'scenario'. A combination of a fall in the value of the share, an increase in the implicit volatility and a reduction in the maturity by one trading day, for example, is a scenario. For clients with a Trader profile the scenario's range from a 25% change in the underlying value to a -25% change in addition to a range of a 15% change in implicit volatility to a -15% change. For Active clients the same procedure is applied, but with up and down movements of 83.75% in the underlying value in the case of stocks. This way, Active clients cannot build too large short or leveraged positions. Additionally, for futures a 25% up and down movement in the underlying value is used regardless of the profile type. Table 8 gives an impression of the standard scenarios for an index. The example makes use of two option positions on the AEX index, with a price index of 710.

In addition to using the standard set of scenarios, DEGIRO also uses extreme scenarios that simulate variations in the underlying value of more than 25%. The derivative valuation model does this in order to measure the impact of deep out-of-the-money options within the portfolio in the calculation of the option risk. A deep out-of-the-money option is an option with an exercise price that differs sharply from the current price of the underlying value. For options of this kind, the risk according to the standard scenario is underestimated. By calculating an extreme scenario, it is possible to determine a risk weighting for options of this kind.

Sometimes a strategy may cover the whole risk on the options. In such a case, the derivatives risk does not drop to zero. This is where the short option risk comes into play. A risk factor of 0.2% is used for short-term short index options and a factor of 0.5% is used for long-term short index options and short stock options. An option with a maturity of more than one year is considered long-term. The derivative risk would then equal the number of contracts multiplied by the size of those, the current price of the underlying and the corresponding risk factor (0.2% or 0.5%).

All option positions and other positions in the underlying security are included in the determination of the portfolio risk. It therefore makes no difference which strategy or option positions are taken. The model only selects the scenario in which the loss is highest.

Table 8: Risk model

Risk model	Standard scenario*									Extreme scenario**	
	25%			0%			-25%			125%	-99%
Movements in index (710)											
Volatility	-15%	0%	15%	-15%	0%	15%	-15%	0%	15%	0%	0%
1 long AEX C650 17JUN22	16,402	16,424	16,475	-406	0	434	-7,150	-7,036	-6,873	13,431	-1,114
1 short AEX C700 17JUN22	-14,568	-14,658	-14,807	546	0	-547	4,140	4,104	4,033	-13,147	639
Portfolio risk	1,834	1,766	1,668	140	0	-113	-3,010	-2,932	-2,840	284	-475

* Standard scenario consists of 13 movements in the share (or index) with accompanying movements in the implied volatility

** Extreme scenario: factor 5 of movement in share (or index) in the standard scenario (including standard increases and decreases in volatility), outcome is scaled back by a factor of 6.5.

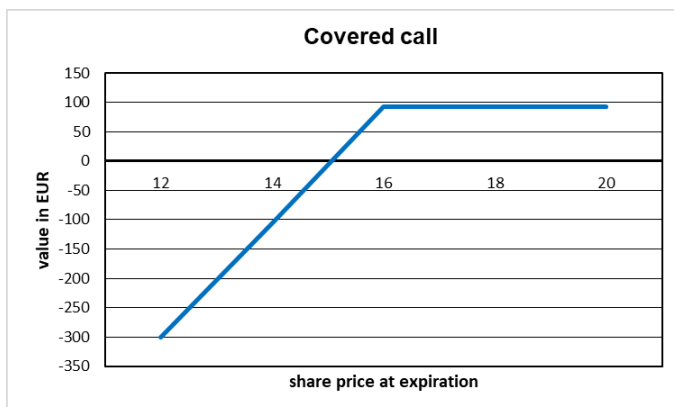
For the sake of convenience, the overview shows only a small part of the different scenarios. Thus, the standard scenario will not only calculate a movement of 25% in the index alone. It will also assess the scenario for movements of 2.5%, 5% etc. in the index. The risk of this portfolio equals €3,010, which means that for at least this amount of margin should be available in the account to set up this portfolio. Note that the maximum loss in this option portfolio equals the net premium paid. The long call has a value of €76.65 and the short call has a value of €44.35. This means that the maximum loss equals €3,230.

3.8.2 Practical examples of option strategies

The development of the risk for the different option portfolios is based on options for share RDSA, the price of which is equal to €16.30. Each option strategy has its own payoff function in the form of a graph and contains a table showing the risk of the option strategy under different scenario's. An example of such a scenario could be a 25% increase in the underlying and a 15% increase in implicit volatility.

3.8.2.1 Covered call

Hedged writing of a call option can take place through the purchase of the same number of underlying shares. On expiry, the investor must deliver the shares if the investor is called to do so. In all other cases, the call expires worthless and the investor retains the value of the written option received. The results on expiry are shown below.



Writing a call option for shares reduces the risk of the investment portfolio as shown by Table 9. Without the written call option, the risk would turn out at €407. The call option reduces the risk to €327. In the scenario with a 25% increase in RDSA and a 15% increase in the volatility, writing an 'at-the-money' option gives a loss of €357. This limits the profit on the long shares. On the other hand, a fall in RDSA has a positive impact on the value of the written call option and thus reduces the risk of the overall portfolio.

The value of the share portfolio is €1,630 and that of the option position €93, as a result of which there is sufficient security to be able to bear the risk in the portfolio. The credit facility for the shares remains unchanged, at 70% of the value of the share portfolio.

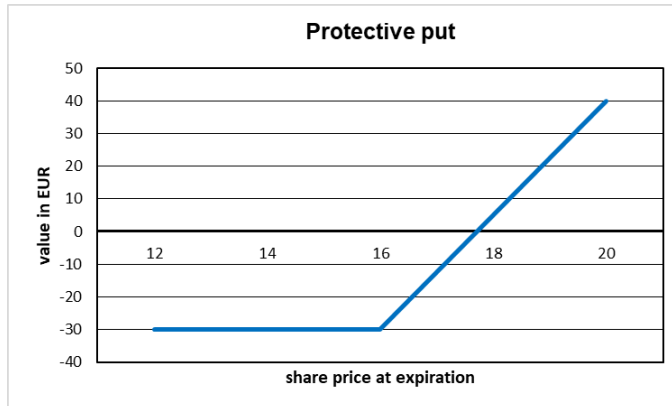
Table 9: portfolio risk of written call option with purchased shares

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 short RD C16.00 18JUN21	82	80	76	50	19	-19	-112	-134	-353	-357
100 long Royal Dutch Shell A	-407	-407	-163	-163	0	0	163	163	407	407
Portfolio risk	-325	-327	-87	-113	19	-19	51	29	54	50

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3.8.2.2 Protective put

In this strategy you are long in the underlying shares while simultaneously buying a put option.



The following option portfolio with shares highlights how adding a put option reduces the downside risk of the shares. Without the put option, the risk would equal €407. So, by adding this put option to the portfolio the risk is reduced to €96. This strategy gives you more control compared to using a stop order, but is more expensive due to the premium that must be paid to obtain the put position.

Table 10: portfolio risk of 'long' put with purchase of shares

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 long RD P16.00 18JUN21	311	315	78	113	-23	23	-60	-28	-67	-58
100 long Royal Dutch Shell A	-407	-407	-163	-163	0	0	163	163	407	407
Portfolio risk	-96	-92	-85	-50	-23	23	103	135	340	349

3.8.2.3 Written 'out-of-the-money' options

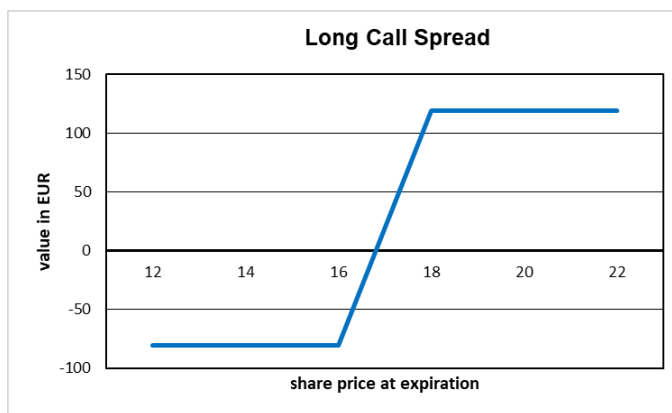
Writing OTM options leads to underestimating the risk in the standard impact scenario. With a 25% movement in the share, the implicit volatility of the below options will be higher under normal circumstances than an increase of 15%. DEGIRO uses an extreme scenario, also known as an OTM scenario, which generates a more probable risk value for options of this kind. This is because the use of the standard portfolio leads to a portfolio risk of €53. Through the use of the OTM scenario, the risk equates to €180.

Table 11: written 'out-of-the-money' options

Movements in share	-25%		-10%		0%		10%		25%		OTM scenario	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%	Fall	Rise
1 short RD C25.00 18JUN21	1	1	1	-1	1	-5	1	-15	-5	-52	1	-182
1 short RD P8.00 18JUN21	-1	-33	2	-14	2	-7	2	-4	2	-1	-120	2
Portfolio risk	0	-32	3	-15	3	-12	3	-19	-3	-53	-119	-180

3.8.2.4 Long call spread

A long call spread is a combination of a long call with a lower strike price than the written call. Both options have the same maturity. Overall, the investor in this long call spread will invest a sum on purchase, perhaps with the expectation that the share will have risen higher than the strike price of the written option at expiration. The result of this strategy on expiry is shown below.



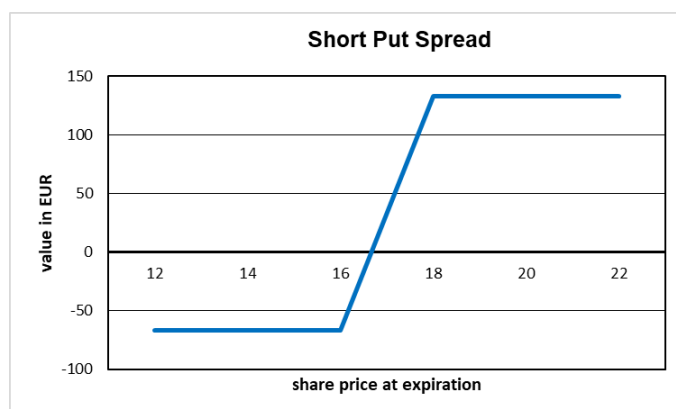
In the table below, the loss on the long call is higher than on the short call. The value of the long call is €1.13 and will fall if the price of RDSA falls. With a 25% fall in the share and a 15% fall in the implicit volatility, the loss rises by €84. With a sudden increase in the price of RDSA, the value of the strategy will increase. The risk in this long call spread arises on a fall in the price of RDSA and equates to €61. The value of the portfolio hedges the risk when the current position is taken. The value of the strategy is €81, with €113 for the long call and €32 for the short call.

Table 12: portfolio risk of a long call spread

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 long RD C16.00 18JUN21	-84	-83	-77	-52	-19	19	116	136	358	361
1 short RD C18.00 18JUN21	23	23	23	13	14	-18	-36	-84	-227	-254
Portfolio risk	-61	-60	-54	-39	-5	1	80	52	131	107

3.8.2.5 Short put spread

A short put spread is distinguished by a combination of a long put with a lower strike price than the short put. Both options have the same maturity. Both a short put spread and a long call spread show a similar pattern in their results. The graph below shows the development of the result for a short put spread on expiry.



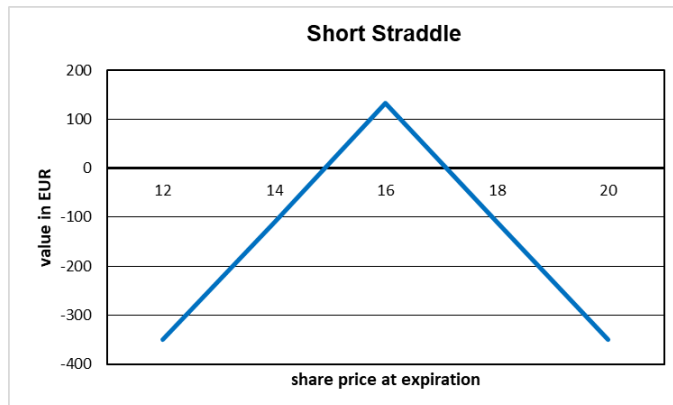
The portfolio risk on a short put spread is shown in the table below. It can be deduced from the table that the loss in this spread is €61 if the share and the implicit volatility fall simultaneously. On the one hand, the long put limits the loss if the share price falls sharply. The downside is that with a direct increase in the share, the profit diminishes through the long put. Setting up this short put spread generates an amount of €133 to cover the obligations arising from this strategy. After all, the value of the short put is €180 and that of the long put is €47.

Table 13: portfolio risk of a short put spread

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 long RD P16.00 18JUN21	311	315	78	111	-22	22	-56	-27	-62	-55
1 short RD P18.00 18JUN21	-372	-374	-128	-148	21	-24	128	69	191	149
Portfolio risk	-61	-59	-50	-37	-1	-2	72	42	129	94

3.8.2.6 Short straddle

A straddle is a combination of a put and a call with the same strike price and maturity. The investor in a short straddle expects the price of the underlying security to move towards the strike price on expiry. For writing a straddle, the investor receives the premium for the risk associated with this strategy. However, a sharp fall or rise in the price of the share will lead to a loss, since the premium received might not cover the extreme movement. The graph below shows the results of a straddle for different prices on expiry.



A development of the risk of a short straddle follows in Table 14. Once again, this shows that the loss on a short straddle arises with a fall or rise in the price of the underlying share. The portfolio risk equates to €338. On taking this position, the investor in a short straddle must therefore invest a margin of at least €338 to cover the risk. As the table below shows, the increase in the value of the short put of €43 only partially hedges the loss in the value of the short call of €381.

Table 14: portfolio risk of a short straddle

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 short RD P16.00 18JUN21	-295	-301	-64	-103	21	-22	45	20	48	43
1 short RD C16.00 18JUN21	110	107	97	65	18	-19	-129	-147	-378	-381
Portfolio risk	-185	-194	-2	-38	39	-41	-84	-127	-330	-338

3.8.2.7 Long strangle

A strangle is a combination of a put and a call with the same maturity, but where the long call has a higher strike price. The investor in a long strangle can never lose more than the premium paid. The value of the long strangle therefore hedges the risk throughout the life of the options. The graph below shows the result of a long strangle with a price of the share at expiry.

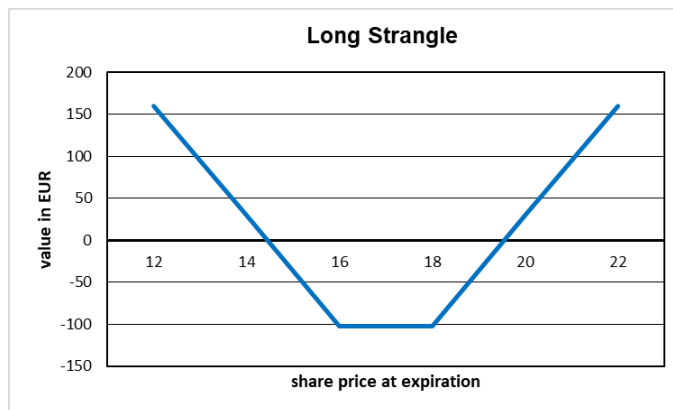


Table 15: portfolio risk of a long strangle

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 long RD P16.00 18JUN21	311	315	77	111	-22	23	-56	-27	-62	-55
1 long RD C18.00 18JUN21	-23	-23	-23	13	-14	17	36	84	227	254
Portfolio risk	288	292	54	124	-36	40	-20	57	165	199

The risk of the long strangle equates to €36. This loss arises from the fall in the implicit volatility and the unchanged price of the underlying share.

3.8.2.8 Calendar spread

A time spread is a combination of a long and a short option with the same strike price, but where the long option has a longer maturity than the short option. The long option hedges the risk of a short option, to a certain degree. With an option that can be exercised in the interim, the 'American-style option', there is a risk that, among other things, the investor may have to rely on the short call and has not exercised the long call itself. This may mean that the investor loses dividends as a result, when the share goes ex-dividend. In the case of a European-style option, which cannot be exercised before the maturity date, the risk arises from a difference between the interest, volatility and expected dividends of the two options. A difference therefore arises in the valuation of options and changes in their prices.

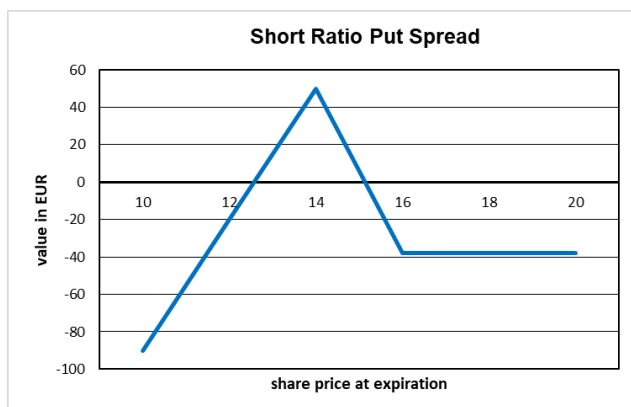
The results of this option strategy cannot be set up in a graph with the outcomes on expiry, since the maturities of the options differ. For that reason, only the portfolio risk of a time spread is explained in the table below. A time spread gives a maximum loss of €46 with a decline in the share price of RDSA and a fall in the implicit volatility. A short call does not, therefore, fully hedge the loss in the value of the long call in all cases, or vice versa.

Table 16: portfolio risk of a calendar spread

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 short RD C16.00 17DEC21	131	116	88	53	21	-21	-80	-120	-277	-305
1 long RD C16.00 16DEC22	-177	-141	-108	-52	-31	31	68	130	250	305
Portfolio risk	-46	-25	-20	1	-10	10	-12	10	-27	0

3.8.2.9 Short ratio put spread

An investor who sets up a short ratio put spread uses part of the premium received on the written puts to buy a long put to hedge part of the risk. This creates a situation on expiry in which, with this strategy, a loss occurs only if the price falls by more than 25%. With a virtually unchanged price, the yield is the difference between the costs of the put and the proceeds of the written puts. The profit increases as the price on expiry moves towards €14. The graph below shows the result of this strategy on the expiry date for different share prices.



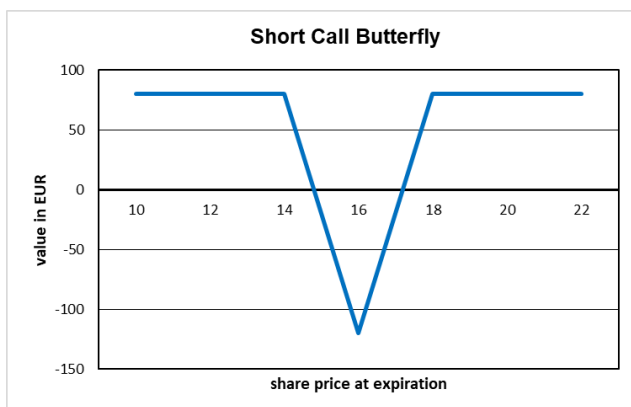
For the portfolio risk that DEGIRO uses, the loss will arise with a direct fall in the price and an increase in the implicit volatility. Table 17 shows the impact of this, developed for a short ratio put spread. The loss is limited to €66. Again, the impact of both positions is combined in order to determine the ultimate risk.

Table 17: portfolio risk of a short ratio put spread

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 long RD P16.00 18JUN21	312	315	78	112	-22	22	-56	-27	-62	-55
2 short RD P14.00 18JUN21	-331	-381	-27	-111	19	-28	26	7	26	23
Portfolio risk	-19	-66	51	1	-3	-6	-30	-20	-36	-32

3.8.2.10 Short call butterfly

A short call butterfly is an option strategy in which both a long and a short call spread are set up. The principle is that with a short call butterfly, both the long calls have the same strike price. A short butterfly gives the investor the possibility of limiting the risk by making a considered choice from among the available strike prices. The maximum loss with a short butterfly is the difference between the strike prices less the premium to be received. With a short call butterfly, this loss will occur if the price on expiry turns out at the strike price of the calls purchased, as is made clear in the graph below.



In the example in which a short call butterfly is set up as shown in the above graph, the maximum loss on expiry is €200 less the net proceeds to be received from the option strategy. The maximum loss will occur on expiry at a share price of €16. The portfolio risk of the short call butterfly is currently €18. This loss arises with a combination of an unchanged share price and a 15% fall in the implicit volatility.

Table 18: portfolio risk short call butterfly

Movements in share	-25%		-10%		0%		10%		25%	
Movements in volatility	-15%	15%	-15%	15%	-15%	15%	-15%	15%	-15%	15%
1 short RD C14.00 18JUN21	241	222	151	115	6	-11	-156	-160	-401	-402
2 long RD C16.00 18JUN21	-174	-171	-159	-106	-38	38	233	274	718	724
1 short RD C18.00 18JUN21	23	23	23	13	14	-17	-36	-85	-228	-255
Portfolio risk	90	74	15	22	-18	10	41	29	89	67

4. Risk with Active and Trader account

DEGIRO has decided to allow Trader account holders more access to securities credit and greater availability for going short in shares. Going short in shares means that shares are sold which the client does not possess. Both the use of securities credit and going short in shares are explained in more detail below for the different accounts.

4.1 Credit facilities

For a client with a Trader account, the credit facility is fixed at 70% of the value of the shares and investment funds and 80% of the value of the bonds. An Active client also has the possibility of using the credit facility to buy securities. For a client with an Active account, the credit facility is fixed at 33% of the value of the shares, investment funds and bonds. These credit facilities are in accordance with the guidelines laid down in the Financial Transactions Act (WFT).

As a result, there are differences in the possibility to buy securities with credit between Active and Trader clients. The portfolio risk of an investment portfolio for an 'active' account will always be the same as, or higher than, the risk of a Trader account. The table below shows a portfolio for which the risk of both an Active and a Trader account are explained.

Table 19: margin overview

ASML	€800	Technology Sector
ASM	€800	Technology Sector
Royal Dutch Shell A	€1,200	Oil & Gas Sector
Value of Portfolio	€2,800	

Account	Active	Trader	
Event risk	€1,005	€975	83.75%/81.25% event risk of €1,200(RDSA)
Net exposure risk	€700	€700	25% net risk of €2,800
Sector risk	€640	€640	40% sector risk of €1,600
Gross exposure risk	€280	€280	10% gross risk of €2,800
Portfolio risk	€1,005	€975	Risk based on event risk

The above table makes it clear that the portfolio risk is higher for an Active client than for a Trader client. The reason for this is that a higher event risk is applied for Active clients compared to Trader clients for category B stocks. To see the difference in collateral needed for the use of debit money between Active and Trader clients an example is shown below.

Margin review	Active Account	Trader Account
Value of portfolio	€2,800	€2,800
Cash balance	€0	€0
Net liquidity value	€2,800	€2,800
Risk portfolio	€1,005	€975
Margin (deficit/surplus)	€1,795	€1,825

Credit facilities	Active Account	Trader Account
Collateral value	€924.00	€1,960.00
Cash balance	€0.00	€0.00
Deficit/available	€924.00	€1,960.00

For an Active client, the credit line limits the trading possibilities. In this example, an Active client can take out a securities credit of €924, which is consistent with 33% of the portfolio value. The margin surplus is €1,795, which is derived from the highest risk, its event risk. This scenario restricts this Active client from making use of credit for more than €924. In the example of a 'trader' client, the credit line is not the limiting factor. In this case, the portfolio risk determines the trading possibilities for this portfolio. The 'trader' client has a maximum available to trade of €1,825.

4.2 Short shares

For an Active client, the possibility of going short in shares is limited by using a risk weighting of 95.81% of the gross value of the short positions. Other short positions in other financial instruments get a risk weighting of 67% of the gross value of the short positions. For long positions a risk weighting of 10% of the gross value is applied. For a Trader account, a 10% risk weighting of the gross value of both long and short positions applies. This therefore substantially limits the possibilities for setting up a long-short strategy for an Active client. In addition, it is not possible to short US securities or category D stocks, independent of the profile type.