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Datasheet for the decision of 11 July 2013

Case Number: T 0907/09 - 3.5.01

Application Number: 03026605.0

Publication Number: 1533725

IPC: G06F 17/60

Language of the proceedings: EN

Title of invention:
Valuation of a futures contract

Applicant:
DEUTSCHE BÖRSE AG

Headword:
Contract valuation/DEUTSCHE BÖRSE (I)

Relevant legal provisions:
EPC Art. 52(2)(3)

Relevant legal provisions (EPC 1973):
EPC Art. 56

Keyword:
"Technical character of method claims - no"
"Inventive step of system claims - no"

Decisions cited:
T 0641/00, T 0388/04

Catchword:
-

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Case Number: T 0907/09 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 11 July 2013

Appellant: (Applicant)
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 20 November 2008 refusing European patent application No. 03026605.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: S. Wibergh
Members: K. Bumes
A. Pignatelli

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse European patent application No. 03026605.0 entitled "*Valuation of a futures contract*", published as

A1: EP-A1-1 533 725.

II. The examining division refused the application in particular for lack of inventive step (Article 56 EPC 1973). Valuing a futures contract based on a basket of credit default swaps was not regarded as a technical aim. Most features of claim 1 pertained to methods of doing business and administration. Technical aspects (automatic storage and processing of data) were intrinsic to well-known general-purpose computers. As the subject-matter of claim 1 did not solve any objective technical problem, the examining division did not identify any inventive technical contribution to the art.

III. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of one of three claim sets (main request, first and second auxiliary requests) filed with the statement of grounds of appeal.

(a) System claim 1 according to the **main request** reads (the final paragraph differing slightly from the wording refused by the examining division):

"1. A data processing system (100) for repetitively determining a resource amount for counterbalancing the transfer of a failure risk pertaining to a bundle of

constructs that may individually fail, the system comprising:

a data storage (110, 120, 130) for storing continuously updated spread values for each construct in the bundle for each distinct individual time instance during said resource amount determination, said spread values indicating a difference between a continuously updated value of the respective construct and a continuously updated value of a respective reference construct or reference bundle of constructs; and

a calculation unit (140) connected to said data storage for calculating a value of said resource amount for an individual time instance based on said spread values,

wherein said data storage is further arranged for storing event data for individual constructs in the bundle, said event data indicating whether a failure event has occurred for the respective construct,

wherein said calculation unit is further arranged for disregarding the spread values of constructs having experienced a failure event, when calculating said value of said resource amount, and

wherein the constructs are credit default swaps, the bundle of constructs is a basket of credit default swaps, the failure risk is a credit risk, and the calculated value of said resource amount is a value of a futures contract that is based on the basket of credit default swaps as underlyings."

(b) Independent method claim 19 according to the **main request** reads:

"19. A data processing method of repetitively

determining a resource amount for counterbalancing the transfer of a failure risk pertaining to a bundle of constructs that may individually fail, the method comprising:

storing continuously updated spread values for each construct in the bundle for each distinct individual time instance during said resource amount determination, said spread values indicating a difference between a continuously updated value of the respective construct and a continuously updated value of a respective reference construct or reference bundle of constructs, and storing event data for individual constructs in the bundle, said event data indicating whether a failure event has occurred for the respective construct; and

calculating a value of said resource amount for an individual time instance based on said spread values but disregarding the spread values of constructs having experienced a failure event,

wherein the constructs are credit default swaps, the bundle of constructs is a basket of credit default swaps, the failure risk is a credit risk, and the calculated value of said resource amount is a value of a futures contract that is based on the basket of credit default swaps as underlyings."

(c) System claim 1 according to the **first auxiliary request** reads (*Italics* added by the Board to point out paragraphs that have been added with respect to claim 1 of the main request):

"1. A data processing system (100) for repetitively determining a resource amount for counterbalancing the transfer of a failure risk pertaining to a bundle of

constructs that may individually fail, the system comprising:

a data storage (110, 120, 130) for storing continuously updated spread values for each construct in the bundle for each distinct individual time instance during said resource amount determination, said spread values indicating a difference between a continuously updated value of the respective construct and a continuously updated value of a respective reference construct or reference bundle of constructs; and

a calculation unit (140) connected to said data storage for calculating a value of said resource amount for an individual time instance based on said spread values,

wherein said data storage is further arranged for storing event data for individual constructs in the bundle, said event data indicating whether a failure event has occurred for the respective construct,

wherein said calculation unit is further arranged for disregarding the spread values of constructs having experienced a failure event, when calculating said value of said resource amount,

wherein said calculation unit is arranged for calculating a first spread average by averaging all spread values relating to a given time instance and not having experienced a failure event, and calculating said value of said resource amount based on said first spread average,

wherein said calculation unit is further arranged for calculating a second spread average by averaging all spread values relating to a time instance preceding said given time instance and not having experienced a failure event, and calculating said value of said

resource amount also based on said second spread average,

wherein said calculation unit is further arranged for calculating a third spread average by averaging all spread values relating to the first time instance of said resource amount determination and not having experienced a failure event, and calculating said value of said resource amount also based on said third spread average,

wherein said calculation unit is further arranged for calculating a first value based on said first and third spread averages, and a second value based on said second and third spread averages, and calculating said value of said resource amount based on said first and second values,

wherein said data storage is further arranged for storing weights for each construct in the bundle, and said calculation unit is arranged for calculating said value of said resource amount by multiplying said first value by the sum of all weights relating to constructs not having experienced a failure event at said given time instance, multiplying said second value by the sum of all weights relating to constructs not having experienced a failure event at said preceding time instance, and calculating the difference between both multiplication results,

wherein said calculation unit is further arranged for calculating said first to third spread averages by weighting the respective spread values and averaging the respectively weighted spread values,

wherein said calculation unit is further arranged for calculating said value of said resource amount by multiplying a defined resource amount with the difference between both weight sums, and adding this to

the calculated multiplication result difference,

wherein said calculation unit is further arranged for calculating said first and second values also based on a continuously updated time limit for the failure risk counterbalancing at the respective time instance, and

wherein the constructs are credit default swaps, the bundle of constructs is a basket of credit default swaps, the failure risk is a credit risk, and the calculated value of said resource amount is a value of a futures contract that is based on the basket of credit default swaps as underlyings."

(d) Independent method claim 11 according to the **first auxiliary request** reads:

"11. A data processing method of repetitively determining a resource amount for counterbalancing the transfer of a failure risk pertaining to a bundle of constructs that may individually fail, the method comprising:

storing continuously updated spread values for each construct in the bundle for each distinct individual time instance during said resource amount determination, said spread values indicating a difference between a continuously updated value of the respective construct and a continuously updated value of a respective reference construct or reference bundle of constructs, and storing event data for individual constructs in the bundle, said event data indicating whether a failure event has occurred for the respective construct; and

calculating a value of said resource amount for an individual time instance based on said spread values

but disregarding the spread values of constructs having experienced a failure event,

wherein the method further comprises:

calculating a first spread average by averaging all spread values relating to a given time instance and not having experienced a failure event, and calculating said value of said resource amount based on said first spread average,

calculating a second spread average by averaging all spread values relating to a time instance preceding said given time instance and not having experienced a failure event, and calculating said value of said resource amount also based on said second spread average,

calculating a third spread average by averaging all spread values relating to the first time instance of said resource amount determination and not having experienced a failure event, and calculating said value of said resource amount also based on said third spread average,

calculating a first value based on said first and third spread averages, and a second value based on said second and third spread averages, and calculating said value of said resource amount based on said first and second values,

storing weights for each construct in the bundle, and calculating said value of said resource amount by multiplying said first value by the sum of all weights relating to constructs not having experienced a failure event at said given time instance, multiplying said second value by the sum of all weights relating to constructs not having experienced a failure event at said preceding time instance, and calculating the difference between both multiplication results,

wherein said first to third spread averages are calculated by weighting the respective spread values and averaging the respectively weighted spread values,

wherein said value of said resource amount is calculated by multiplying a defined resource amount with the difference between both weight sums, and adding this to the calculated multiplication result difference,

wherein said first and second values are calculated also based on a continuously updated time limit for the failure risk counterbalancing at the respective time instance, and

wherein the constructs are credit default swaps, the bundle of constructs is a basket of credit default swaps, the failure risk is a credit risk, and the calculated value of said resource amount is a value of a futures contract that is based on the basket of credit default swaps as underlyings."

(e) System claim 1 according to the **second auxiliary request** reads (*Italics* added by the Board to point out paragraphs that have been added with respect to claim 1 of the main request):

"1. A data processing system (100) for repetitively determining a resource amount for counterbalancing the transfer of a failure risk pertaining to a bundle of constructs that may individually fail, the system comprising:

a data storage (110, 120, 130) for storing continuously updated spread values for each construct in the bundle for each distinct individual time instance during said resource amount determination, said spread values indicating a difference between a

continuously updated value of the respective construct and a continuously updated value of a respective reference construct or reference bundle of constructs; and

a calculation unit (140) connected to said data storage for calculating a value of said resource amount for an individual time instance based on said spread values,

wherein said data storage is further arranged for storing event data for individual constructs in the bundle, said event data indicating whether a failure event has occurred for the respective construct,

wherein said calculation unit is further arranged for disregarding the spread values of constructs having experienced a failure event, when calculating said value of said resource amount,

wherein said calculation unit is arranged for obtaining a first spread value for each construct relating to a given time instance and not having experienced a failure event,

wherein said calculation unit is arranged for obtaining a second spread value for each construct relating to a time instance preceding said given time instance and not having experienced a failure event,

wherein said calculation unit is arranged for obtaining a third spread value for each construct relating to the first time instance of said resource amount determination and not having experienced a failure event,

wherein said calculation unit is further arranged for calculating a first value for each construct not having experienced a failure event based on said first and third spread values, and a second value for each construct not having experienced a failure event based

on said second and third spread values, and calculating said value of said resource amount based on said first and second values,

wherein said data storage is further arranged for storing weights for each construct in the bundle, and said calculation unit is arranged for calculating said value of said resource amount by summing up the weighted first values, summing up the weighted second values, and calculating the difference between both sums,

wherein said calculation unit is further arranged for calculating said value of said resource amount by multiplying a defined resource amount with the difference between the sum of all weights relating to constructs not having experienced a failure event at said given time instance and the sum of all weights relating to constructs not having experienced a failure event at said preceding time instance, and adding this to the calculated difference between the sums of weighted first and second values,

wherein said calculation unit is further arranged for calculating said first and second values also based on a continuously updated time limit for the failure risk counterbalancing at the respective time instance, and

wherein the constructs are credit default swaps, the bundle of constructs is a basket of credit default swaps, the failure risk is a credit risk, and the calculated value of said resource amount is a value of a futures contract that is based on the basket of credit default swaps as underlyings."

(f) Independent method claim 12 according to the **second auxiliary request** reads:

"12. A data processing method of repetitively determining a resource amount for counterbalancing the transfer of a failure risk pertaining to a bundle of constructs that may individually fail, the method comprising:

storing continuously updated spread values for each construct in the bundle for each distinct individual time instance during said resource amount determination, said spread values indicating a difference between a continuously updated value of the respective construct and a continuously updated value of a respective reference construct or reference bundle of constructs, and storing event data for individual constructs in the bundle, said event data indicating whether a failure event has occurred for the respective construct; and

calculating a value of said resource amount for an individual time instance based on said spread values but disregarding the spread values of constructs having experienced a failure event,

wherein the method further comprises:

obtaining a first spread value for each construct relating to a given time instance and not having experienced a failure event,

obtaining a second spread value for each construct relating to a time instance preceding said given time instance and not having experienced a failure event,

obtaining a third spread value for each construct relating to the first time instance of said resource amount determination and not having experienced a failure event,

calculating a first value for each construct not having experienced a failure event based on said first and third spread values, and a second value for each construct not having experienced a failure event based on said second and third spread values, and calculating said value of said resource amount based on said first and second values,

storing weights for each construct in the bundle, and calculating said value of said resource amount by summing up the weighted first values, summing up the weighted second values, and calculating the difference between both sums,

wherein said value of said resource amount is calculated by multiplying a defined resource amount with the difference between the sum of all weights relating to constructs not having experienced a failure event at said given time instance and the sum of all weights relating to constructs not having experienced a failure event at said preceding time instance, and adding this to the calculated difference between the sums of weighted first and second values,

wherein said first and second values are calculated also based on a continuously updated time limit for the failure risk counterbalancing at the respective time instance,

wherein the constructs are credit default swaps, the bundle of constructs is a basket of credit default swaps, the failure risk is a credit risk, and the calculated value of said resource amount is a value of a futures contract that is based on the basket of credit default swaps as underlyings."

IV. According to the appellant, a feature which is not restricted to one of the fields defined in Article 52(2)

EPC, and which is not meaningless in other fields, is a technical feature.

The invention is said to be a combination of technical features that may be applied to a non-technical field but which can also be used in several technical fields, and which has no antecedent in the prior art.

The claimed solution allows the resource amount to be fine-tuned so that the transfer of the failure risk is neither overbalanced nor underbalanced. The invention therefore provides accurate and reliable valuation results. That advantage is enhanced by basing the calculation of the resource amount on continuously updated, i.e. real-time spread values.

The independent claims according to the first and second auxiliary requests are said to specify the calculation scheme in greater detail which cannot be considered obvious over common knowledge.

V. The Board summoned the appellant to oral proceedings (appointed for 18 July 2013), as requested on an auxiliary basis. In an annex to the summons, the Board voiced doubts about the presence of an inventive step in the system of claim 1 (all requests) and about the technical character of the methods defined in the independent method claims (claim 19 of the main request; claim 11 of the first auxiliary request; claim 12 of the second auxiliary request).

VI. In a letter received 4 June 2013, the appellant informed the Board that it did not intend to attend the

oral proceedings and withdrew its corresponding request. The oral proceedings were then cancelled.

Reasons for the decision

1. *The application*

The application relates to data processing systems and methods for assessing the failure risk of a bundle of constructs that may individually fail. A resource amount is determined so as to counterbalance the failure risk when it is transferred. The risk assuming entity receives the resource amount (A1, paragraphs 0001, 0004, 0005; original claims 1, 21, 23, 24).

A construct may be a hardware or software arrangement in a computer system or, on an abstract level, a conditional relationship between physical or non-physical entities (A1, paragraph 0002). In particular, a bundle of constructs may be a **futures contract** based on a basket of credit default swaps (A1, paragraphs 0006 and 0158, for example).

For example, a hardware controller or a software program may assume the risk that one or more computer hardware or software constructs fail, by stepping into the functions of these constructs in case of a failure. In that example, a counterbalancing resource may be a processor access time, memory capacity, prioritization over other components in the handling of tasks, etc.

Where the bundle concerns credit default swaps, risk compensation is provided in the form of a **premium**.

The compensation is difficult to value due to the complexity and variation of input parameters. Prior art techniques are said to be cumbersome and unreliable (A1, paragraph 0007).

According to original claim 1, a data processing system for (repetitively) determining a resource amount expressing a failure risk of the bundle calculates a value of the resource amount (for an individual time instance) based on stored reference values.

The description relating to the drawings (Figures 1 and 2) deals exclusively with futures contracts (i.e. bundles of financial constructs) and provides an extensive "*Glossary of terms*" (A1, paragraphs 0172 to 0250) to explain the financial vocabulary used.

Main Request

2. *Article 56 EPC 1973 - Inventive step*

2.1 The system according to claim 1 is defined functionally in terms of means for storing and processing spread values and for continuously calculating a resource amount which reflects a value of a futures contract (which is based on a basket of credit default swaps). The claim is not limited to a technical field of application; on the contrary, its final paragraph emphasises a commercial goal.

The Board does not see any technical effect in knowing the resource amount or failure risk of a bundle of credit default swaps. The overall effect of the claimed

system is that a mental, mathematical, commercial or administrative result is provided: What premium does the owner of the bundle have to offer so that another market participant is willing to take over the failure risk of the bundle?

Therefore, calculating a resource amount for a bundle of constructs according to some mental, mathematical, commercial or administrative algorithm is a non-technical aspect that does not enter into the examination for an inventive step (T 641/00-*Two identities/COMVIK*, Headnote 1, OJ EPO 2003, 352).

2.2 The statement setting out the grounds of appeal argues that a broad feature which encompasses both technical and non-technical embodiments is not limited to a non-invention as such and, therefore, should be considered as a technical feature which has a bearing on the inventiveness discussion.

Firstly, the Board notes that claim 1 is explicitly limited to a non-technical field of application (see the final paragraph of the claim). Therefore, the appellant's argument does not fit the case.

Secondly, even if claim 1 covered both technical and non-technical fields of application, the mere *possibility* of a technical embodiment would not be sufficient to confer a technical character onto a general concept, cf T 388/04-*Undeliverable mail/PITNEY BOWES* (OJ EPO 2007, 016), Headnote 2:
"Subject-matter or activities that are excluded from patentability under Article 52(2) and (3) EPC remain so even where they imply the possibility of making use of

unspecified technical means."

2.3 On the implementation level, the application does not teach any inventive technical consideration, either. It rather leaves the implementation of the desired data processing system to the skilled reader. In fact, computers constitute notorious technical means for automatic data processing, and the algorithm claimed does not require any inventive programming (spreadsheet, see A1, paragraph 0103) or non-obvious hardware (which is not disclosed anyway).

2.4 The Board concludes that claim 1 (main request) does not involve an inventive step.

3. *Article 52(2)(3) EPC - Non-technical method as such*

Claim 19 relates to a data processing method without specifying any technical means for performing the steps required by the claim.

Therefore, the claim relates to a mental, mathematical or business method as such, i.e. to a non-invention according to Article 52(2)(3) EPC.

First and Second Auxiliary Requests

4. *Article 56 EPC 1973 - Inventive step*

4.1 The amended versions of claim 1 include additional details of the algorithm for calculating the resource amount (based on original claims 2 to 9 and claims 10 to 16, respectively).

4.2 However, the increased sophistication of the algorithm does not change the finding that the algorithm serves an economic or financial purpose without any technical relevance. Accordingly, the algorithm does not enter into the examination for an inventive step.

4.3 Again, the technical implementation (computer-based automation) has been left to the skilled reader and cannot be inventive at the same time.

5. *Article 52(2)(3) EPC - Non-technical methods as such*

The amended independent method claims (claims 11 and 12, respectively) relate to data processing methods without specifying any technical means for performing the steps required by the claims.

Therefore, the claims relate to mental, mathematical or business methods as such, i.e. to non-inventions according to Article 52(2)(3) EPC.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek S. Wibergh