

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 24 June 2020**

Case Number: T 0848/15 - 3.4.03

Application Number: 06700549.6

Publication Number: 1979870

IPC: G06Q40/00

Language of the proceedings: EN

Title of invention:

METHOD AND SYSTEM FOR DETERMINING A RISK OF LOSSES

Applicant:

Swiss Reinsurance Company Ltd.

Headword:

Relevant legal provisions:

EPC 1973 Art. 56, 111(1)

Keyword:

Remittal to the department of first instance - (no)
Inventive step - (no) - mixture of technical and non-technical
features

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0848/15 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 24 June 2020

Appellant: Swiss Reinsurance Company Ltd.
(Applicant) Mythenquai 50/60
8022 Zürich (CH)

Representative: Leimgruber, Fabian Alfred Rupert
ThomannFischer
Elisabethenstrasse 30
4010 Basel (CH)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 4 December 2014
refusing European patent application No.
06700549.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman T. Häusser
Members: M. Stenger
W. Van der Eijk

Summary of Facts and Submissions

- I. The appeal concerns the decision of the Examining Division to refuse European patent application no. 06700549 for lack of inventive step over a notoriously known computer system used to implement a business idea in a straightforward manner (contested decision, page 4, paragraphs 6 to 9).
- II. At the end of the oral proceedings before the Board, the appellant requested that the contested decision be set aside. As main request, the appellant requested that the case be remitted to the first instance on the basis of the claims filed as annex A with letter dated 11. Mai 2020 with the order to perform a search on these claims. As auxiliary requests 1 and 2, the appellant requested that a patent be granted on the basis of the claims filed as annexes A and B, respectively, with letter dated 11. Mai 2020.
- III. Claim 1 of annex A has the following wording (labelling a), b), c) etc. added by the Board; underlining of terms, indications as to the basis of features in the original application documents and struck-through terms removed by the Board):
- a) *A computer-implemented method of determining for an institution a risk of losses associated with a line of business, where as [sic] historical loss data of lines of business are stored in a database (15), characterized in:*
- b) *that different distribution functions with different tail characteristics are stored by means of a table of the database (15) associated to different*

lines of business of one or more institutions/ industries and the tail characteristics of the different distribution functions comprise Parento [sic] tail characteristics and exponential tail characteristics associated with the line of business or the type of risk or the type of random event, wherein these different tail characteristics are each determined from historical losses from the database (15);

c) that a control module (14) controlling the process flow activates a data preparation module (11) and the data preparation module (11) selects historical loss data of the database (15) associated with a selected line of business, selected type of risk or selected type of random event impacting the entity;

d) that the control module (14) activates a distribution selection module (12), wherein the distribution selection module (12) selects a loss distribution function having a cumulative distribution function (COF) [sic] with a strictly negative second derivative, and a tail characteristic associated with the line of business, the type of risk, or the type of random event, and wherein the distribution selection module (12) selects a tail characteristic from the table comprising the different tail characteristics and determines one of the stored distribution functions of the database (15) based on the respective historical data stored in the database (15)) [sic], wherein the loss distribution function is a convex beta distribution function having the three free Pareto parameters (α_{Pareto} , ρ , ω) with α_{Pareto} being the Pareto α , $\rho=1$, and ω is a scale parameter merging with a start excess point;

- e) *that if a predefined compromise maker [sic] is set by the user and determined by the distribution selection module (12), the distribution module (12) performs a interpolation between a Parento [sic] tail characteristic and an exponential tail characteristics [sic];*

- f) *that the distribution selection module (12) retrieves from the database (15) a Parento [sic] tail threshold or an exponential tail threshold associated with the selected line of business or type of risk or type of random event;*

- g) *that the control module (14) activates a fitting module (13) and the fitting module (13) selects a starting excess point in a range of known historical losses of the institution;*

- h) *that the fitting module (13) activated by the control module (14) fixes the selected loss distribution function to the starting excess point selected in a range of known historical random event occurrences associated [sic];*

- i) *that the fitting module (13) activated by the control module (14) determines whether the retrieved tail threshold exceeds the known historical losses by a defined margin, and if the threshold does not exceed the fitting module fits the selected loss distribution function to the historical losses; and*

- j) *that the fitting module (13) and/or the control module (14) produces an output comprising alert messages or a report to other functional modules or a user interface with display (16), indicating for an entity, impacted by a certain type of random event, an*

estimated distribution of random event occurrence or for an institution the risk of losses associated with the selected line of business.

IV. Claim 1 of annex B differs from claim 1 of annex A in that features a), b) and j) are replaced by features a'), b') and j') as follows (labelling a'), b'), j') added by the Board; underlining of terms, indications as to the basis of features in the original application documents and struck-through terms removed by the Board):

a') *A computer-implemented method of determining and quantifying for an entity a risk of losses associated with a certain type of risk, the entity impacted by a certain type of random events occurrence, characterized in:*

b') *that different distribution functions with different tail characteristics are stored by means of a table of the [sic] database (15) associated to different lines of business of one or more entities and the tail characteristics of the different distribution functions comprise Parento [sic] tail characteristics and exponential tail characteristics associated with the line of business or the type of risk or the type of random event, wherein these different tail characteristics are each determined from historical losses from the database (15);*

j') *that the fitting module (13) and/or the control module (14) produces an output comprising alert messages or a report to other functional modules or a user interface with display (16), indicating for the entity, impacted by a certain type of random event, an estimated distribution of random event occurrence or*

the risk of losses associated with the selected line of business of the entity.

V. The arguments of the appellant may be summarised as follows:

- (a) A lorry transporting goods was serving ultimately a purely logistical purpose. Nevertheless, the lorry itself was a technical device. The same reasoning applied to the present invention which employed a computer system for automatically determining the risk of losses and was thus a mixed-type invention comprising technical features.
- (b) Further, the invention was no straightforward implementation of an abstract economic model on a generally known computer system.

Instead, the abstract economic model was modified by the technically skilled person. For instance, an abstract economic model for determining the risk of losses did not require a library of different tail characteristics.

Likewise, the step of fixing a distribution function to a starting excess point in order to calibrate the distribution function to the available data was not part of such an abstract model, either, but had to be devised by the person skilled in computer technology.

Without these modifications by the technically skilled person, the abstract economic model could not be implemented on a standard computer system which was nothing more than a finite Turing machine. The modified method steps thus made a

technical contribution and should be considered for defining the closest prior art and when assessing inventive step.

Such modifications went beyond the common general knowledge of the technically skilled person which comprised programming languages like C, but not the modification and adaptation of abstract models. Thereby, the invention went beyond a straightforward implementation of an abstract economic model for determining the risk of losses on a generally known computer system.

- (c) In addition, the losses defined in the claims were all caused by random physical events like accidents, fires or floodings. Thereby, the invention was similar to a weather forecast or the prediction of earthquakes and not a mere implementation of an abstract economic model.
- (d) The claims of annex A comprised more technical features than the claims as originally filed. A document representing the prior art was therefore needed at this stage of the proceedings to be able to determine which of these technical features were known from the prior art and which were not. This justified a remittal to the first instance with the order to search for prior art documents on the basis of the claims of annex A.
- (e) The claims of annex B emphasised the technical aspects of the invention even further in that they explicitly defined that an "entity" was impacted by the occurrence of a certain type of random "event" and that the method was for "quantifying" the risk of losses.

Reasons for the Decision

1. The appeal is admissible.
2. The application

The present application concerns the problem of determining the risk of losses (page 1, line 15 to page 2, line 4). Thereby, the determination of prices in a risk insurance is enabled (page 2, line 27 to page 3, line 6). *Per se*, these aims are to be considered as being of a purely economic nature.

To achieve these aims, loss distribution functions with particular properties are selected and then fixed and fitted to historical loss data associated with different lines of business (page 2, line 16 to page 3, line 6) by means of a computer.

3. Claim 1 of annex A

The Board concurs with the appellant (see section V. (a) above) that claim 1 of annex A is directed at a mixed-type invention. It is thus appropriate to determine the features which do achieve a technical effect and the ones which do not.

- 3.1 Clearly technical aspects of claim 1 of annex A

The aspects in features a) to j) which clearly achieve a technical effect are that

- 1) an (unspecified) computer is used,
- 2) data are stored in a database and

3) a user interface is used to enter data and to indicate data on a display.

The Board notes that these aspects were also identified by the Examining Division as having a technical effect (see page 3, paragraphs 4 and 5 of the contested decision).

3.2 Further aspects of claim 1 of annex A

As mentioned above, the application concerns the aspects of selecting loss distribution functions with particular properties as well as fixing and fitting these functions to historical loss data associated with different lines of business (page 2, line 16 to page 3, line 6).

In claim 1 of annex A, these aspects correspond to the method steps performed by the various modules and the compromise marker claimed in steps c) to j) as well as to the content of the data stored in the database (historical loss data associated with different lines of business, different distribution functions with different tail characteristics, e. g. Pareto and/or exponential distributions) as defined throughout features a) to j).

Per se, all these aspects relate to an abstract economic model for determining the risk of losses.

For example, the selection of a distribution function with tail characteristics according to a line of business (see features d) to f)) does not require technical, but only economic knowledge pertaining to which distribution function reflects best the probability of losses of a certain amount in a specific economic environment. This will be, e. g. different for

a car insurance than for a nuclear power plant insurance. Such a selection can thus not be performed by a technically skilled person. Instead, an economist has to decide which distribution is to be selected for which line of business.

Consequently, the selection of distribution functions (and thereby, a library of different tail characteristics) has to be considered as being part of an abstract economic model for determining the risk of losses, contrary to the submissions of the appellant (see section V. (b) above).

In a similar manner, the starting excess point is not chosen based on technical requirements. Instead, it is selected on the basis of known historical random events (see features g) and h)) and represents economic loss data. That is, selecting a starting excess point and fixing a (selected) distribution function thereto does not require technical, but economic knowledge and cannot be performed by the technically skilled person, either. Rather, this is the economist's task and thereby has to be considered as being part of an abstract economic model for determining the risk of losses, contrary to the arguments of the appellant (see section V. (b) above).

The Board accepts that in real life, losses to be paid for by insurances are usually caused by physical events. However, the application is not concerned therewith. Instead, a purely abstract, economic language is used throughout the application and no reference to any physical events or physical parameters can be found therein.

The determination of the risk of loss according to the present application is thus not to be equated with weather forecasts or the prediction of earthquakes

(which both would require the use of physical parameters), contrary to the submission of the appellant (see section V. (c) above).

The further aspects mentioned above thereby relate exclusively to economic considerations in the framework of purely economic models defined by an economist. The Board is not aware of any modification of the abstract economic model thus defined which the technically skilled person would have to make from a technical point of view in order to enable the model to be run on a computer or Turing machine, contrary to the submission of the appellant (see section V. (b) above).

The application does not mention any such technically required modification, either. Instead, the only problems mentioned in the application (page 1, line 15 to page 2, line 4) concern fitting and extrapolating historical economic data *per se* and are not related to any technical issue that would arise from the use of a computer or Turing machine.

The Board is thus not aware of any issue that would hinder a straightforward implementation of the further aspects on a computer system, contrary to the arguments of the appellant (see section V. (b) above).

The Board notes that the modules and the compromise marker used for performing the method steps and comprised in the further aspects mentioned above have to be considered as software/computer programs which *per se* do not contribute to the solution of a technical problem, either, as set out by the Examining Division (see contested decision, page 3, fourth paragraph from the bottom).

4. Main request

The only reason presented by the appellant when filing the main request requiring a search to be performed was that the claims according to annex A of the letter dated 11. Mai 2020 comprised more technical features than the originally filed claims and that written prior art was therefore needed.

The Board accepts that claim 1 of annex A comprises more technical features than claim 1 as originally filed (which comprised the single technical feature that the method was computer-implemented) as pointed out by the appellant (see section V. (d) above).

However, the only features of claim 1 of annex A that achieve a technical effect are the use of an unspecified, i. e. general purpose computer system comprising a database and a user interface for entry and display of data corresponding to features 1), 2) and 3) as defined above. These features were, in combination, notoriously known at the date of filing of the present application (23 January 2006), as already set out by the Examining Division (see contested decision, page 4, paragraph 6).

The Board does not believe that written evidence is required for this finding. A search for written prior art is thus not necessary in the present case and a remittal to the first instance for that purpose would be inexpedient and detrimental to procedural economy.

Therefore, the Board rejects the appellant's request that the case be remitted to the first instance on the basis of the claims filed as annex A with letter dated

11. Mai 2020 with the order to perform a search on these claims (Article 111(1) EPC 1973).

5. Auxiliary request 1

As mentioned above, all the technical features 1), 2) and 3) of claim 1 of annex A (see section 3.1) are considered to be notoriously known (see section 4.).

The subject-matter of claim 1 of annex A differs from such a notoriously known computer system only by aspects which do not produce a technical effect (see section 3.2 above). According to the jurisprudence of the Boards of Appeal, it is legitimate to include the non-technical aspects of an invention in the statement of the problem to which the skilled person seeks a solution as an aim to be achieved (see *Case Law of the Boards of Appeal*, 9th edition 2019, section I.D. 9.1.4)).

Starting from a notoriously known general purpose standard computer with a database and a user interface according to features 1), 2) and 3), the objective technical problem to be solved may then be formulated as "how to implement the non-technical aspects of the method of determining a risk of losses associated with a line of business".

Such an implementation does not go beyond straightforward programming on the standard computer of a purely economic concept not requiring the exercise of an inventive activity. Hence, the subject-matter of claim 1 of annex A and therefore according to auxiliary request 1 is not inventive within the meaning of Article 56 EPC 1973.

The Board notes that this conclusion corresponds to the argumentation set out by the Examining Division for independent claim 1 then on file (see in particular the last four paragraphs on page 4 of the contested decision).

6. Auxiliary request 2

"Quantifying" a risk as opposed to "determining" it only means that the risk is expressed by a number and not, e. g., by a term like "high", "medium" or "low". This difference, however, does not achieve any technical effect, since the risk involved is of a purely economic nature.

Further, neither the "events" nor the "institutions" nor the "entities" are clearly defined in the application. Determining the risk of the occurrence of an "event" for an "entity" instead of for an "institution" thus corresponds to a change in wording only and does not entail any technical effect, either. The Board is thus not aware how the modification of features a'), b') and j') would emphasise the technical aspects of the invention further, contrary to the arguments of the appellant (see section V. (e) above).

Consequently, the modifications of features a'), b') and j') as compared to features a), b) and j), respectively, do not relate to any technical effect. Therefore, the arguments set out above for claim 1 of annex A equally apply to annex B of the letter dated 11. Mai 2020.

Hence, the subject-matter of claim 1 of annex B and therefore according to auxiliary request 2 is not

inventive within the meaning of Article 56 EPC 1973,
either.

7. Conclusion

The main request is rejected and auxiliary requests 1
and 2 do not fulfill the requirements of the EPC.
Consequently, the appeal must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A.Voyé

T. Häusser

Decision electronically authenticated