Commissioner's Decision No. 1453
Décision du commissaire n^{o} 1453

TOPICS: B–00 Indefiniteness
J–00 Meaning of Art
J–50 Mere Plan
O–00 Obviousness

SUJETS: B–00 Caractère indéfini
J–00 Signification de la technique
J–50 Simple plan
O–00 Évidence

Application No. 2,612,950
Demande n^{o} 2 612 950

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,612,950, having been rejected under subsection 30(3) of the *Patent Rules*, has subsequently been reviewed in accordance with paragraph 30(6)(*c*) of the *Patent Rules*. The recommendation of the Patent Appeal Board and the decision of the Commissioner are to refuse the application.

Agent for the Applicant:

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INTRODUCTION

[1] This recommendation concerns the review of rejected patent application number 2,612,950, which is entitled "System and method for generating real-time indicators in a trading list or portfolio". The patent application is owned by ITG Software Solutions, Inc. The outstanding defects indicated by the Final Action (FA) are that the claims do not define statutory subject matter, contrary to section 2 of the *Patent Act*, and are indefinite, contrary to subsection 27(4) of the *Patent Act*. The Patent Appeal Board (the Board) has reviewed the rejected application pursuant to paragraph 30(6)(*c*) of the *Patent Rules* and has further assessed whether the claimed subject matter is obvious, contrary to paragraph 28.3(*b*) of the *Patent Act*. As explained below, our recommendation is to refuse the application.

BACKGROUND

The application

[2] Canadian patent application 2,612,950, based on a previously filed Patent Cooperation Treaty application, is considered to have a filing date of June 29, 2006 and became open to public inspection on January 4, 2007.

[3] The application relates to computerized investment portfolio management systems, particularly to their ability to recognize abnormal trading conditions for a security and communicate this information to traders.

Prosecution history

[4] On September 23, 2015, an FA was written pursuant to subsection 30(4) of the *Patent Rules*. The FA stated that the application is defective on two grounds: the claims on file (i.e. claims 1 to 96) do not comply with section 2 of the *Patent Act* and claims 33, 64, 65 and 96 do not comply with subsection 27(4) of the *Patent Act*.

[5] In a March 23, 2016 response to the FA (RFA), the Applicant proposed an amended set of 89 claims (the first proposed claim set) and submitted arguments for allowance. In particular, the Applicant contended that the first proposed claim set include essential computer elements and are thus directed to statutory subject matter. The Applicant also contended that the same claims are not indefinite.

[6] As the Examiner considered the application not to comply with the *Patent Act*, the application was forwarded to the Board for review on June 13, 2016, pursuant to subsection 30(6) of the *Patent Rules*, along with a Summary of Reasons (SOR) maintaining the rejection of the application based on the defects in the claims on file indicated by the FA. The Examiner considered the first proposed claims to remedy the indefiniteness defect but not the lack of statutory subject matter.

[7] With a letter dated July 13, 2016, the Board sent the Applicant a copy of the SOR and offered the Applicant the opportunity to make further written submissions and to attend an oral hearing. With its response on October 12, 2016, the Applicant requested an oral hearing and stated that no further written submissions would be made prior to that.

[8] A Panel was formed to review the rejected application under paragraph 30(6)(*c*) of the *Patent Rules* and to make a recommendation to the Commissioner as to its disposition. Following our preliminary review, we sent a letter on October 12, 2017 (the PR letter) presenting our analysis and rationale as to why, based on the record before us, the subject matter of the claims on file (as well as of the first proposed claim set) complies with neither section 2 nor paragraph 28.3(*b*) of the *Patent Act*. We also considered claims 33, 64, 65 and 96 on file to comply with neither subsection 27(4) of the *Patent Act* nor section 84 of the *Patent Rules*, but considered the first proposed claim set to remedy this indefiniteness defect. We also identified a typographical error in the description causing it not to comply with subsection 81(3) of the *Patent Rules*.

[9] The Applicant responded to the PR letter on March 8, 2018 indicating that it no longer wished to participate in a hearing. It also responded to the PR letter on March 14, 2018 (RPR) with a new proposed set of 107 claims (the second proposed claim set), a proposed amendment to the description and written submissions providing supporting arguments for the allowance of the proposed amended application.

ISSUES

[10] The four issues to be addressed by this review are:

- Whether the claims on file define subject matter falling within the definition of invention in section 2 of the *Patent Act*;

- Whether claims 33, 64, 65 and 96 on file distinctly and clearly define the invention and are fully supported by the description, thus complying with subsection 27(4) of the *Patent Act* and section 84 of the *Patent Rules*;
- Whether the claims on file define subject matter that would not have been obvious, thus complying with paragraph 28.3(*b*) of the *Patent Act*; and
- Whether the description complies with subsection 81(3) of the *Patent Rules*.

LEGAL PRINCIPLES AND PATENT OFFICE PRACTICE

Purposive construction

[11] In accordance with *Free World Trust v. Électro Santé*, 2000 SCC 66, essential elements are identified through a purposive construction of the claims done by considering the whole of the disclosure, including the specification and drawings (see also *Whirlpool v. Camco*, 2000 SCC 67 at paragraphs 49(f) and (g) and 52). In accordance with the *Manual of Patent Office Practice*, revised June 2015 (CIPO) at §13.05 [*MOPOP*], the first step of purposive claim construction is to identify the skilled person and his or her relevant common general knowledge (CGK). The next step is to identify the problem addressed by the inventors and the solution put forth in the application. Essential elements can then be identified as those required to achieve the disclosed solution as claimed.

[12] The Applicant appeared to disagree, contending in the RPR that "the first step of purposive construction is not to identify the person skilled in the art, rather it is to construe the claims in order to give them meaning and determine their scope." The RPR did go on, however, to recognize that this is done "through the eyes of the person skilled in the art as of the date of publication having regard to common general knowledge" and that to do so, one "must then define the person of ordinary skill in the art" and the relevant CGK.

Statutory subject matter

[13] The definition of invention is set out in section 2 of the *Patent Act*:

> "Invention" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter.

[14] "Examination Practice Respecting Computer-Implemented Inventions", PN2013–03 (CIPO, March 2013) [*PN2013–03*] clarifies the Patent Office's approach to determining if a computer-related invention is statutory subject matter.

[15] As explained in *PN2013–03*, where a computer is found to be an essential element of a construed claim, the claimed subject matter is not a disembodied invention (e.g. mere ideas, schemes, plans or sets of rules, etc.), which would be non-statutory.

Indefiniteness

[16] Subsection 27(4) of the *Patent Act* requires claims to distinctly and explicitly define subject matter:

> The specification must end with a claim or claims defining distinctly and in explicit terms the subject-matter of the invention for which an exclusive privilege or property is claimed.

[17] Subsection 84 of the *Patent Rules* requires claims to be clear:

> The claims shall be clear and concise and shall be fully supported by the description independently of any document referred to in the description.

[18] In *Minerals Separation North American Corp v Noranda Mines Ltd*, [1947] Ex. C.R. 306, 12 C.P.R. 99 at 146, the Court emphasized the obligation of an applicant to make clear in the claims the ambit of the monopoly sought, and the requirement that the terms used in the claims be clear and precise:

> By his claims the inventor puts fences around the fields of his monopoly and warns the public against trespassing on his property. His fences must be clearly placed in order to give the necessary warning and he must not fence in any property that is not his own. The terms of a claim must be free from avoidable ambiguity or obscurity and must not be flexible; they must be clear and precise so that the public will be able to know not only where it must not trespass but also where it may safely go.

Obviousness

[19] Section 28.3 of the *Patent Act* requires claimed subject matter to not be obvious:

> The subject-matter defined by a claim in an application for a patent in Canada must be subject-matter that would not have been obvious on the claim date to a person skilled in the art or science to which it pertains, having regard to

> (*a*) information disclosed more than one year before the filing date by the Applicant, or by a person who obtained knowledge, directly or indirectly, from the Applicant in such a manner that the information became available to the public in Canada or elsewhere; and
> (*b*) information disclosed before the claim date by a person not mentioned in paragraph (*a*) in such a manner that the information became available to the public in Canada or elsewhere.

[20] In *Apotex v. Sanofi-Synthelabo Canada*, 2008 SCC 61 at paragraph 67 [*Sanofi*], the Supreme Court of Canada stated that it is useful in an obviousness inquiry to follow the following four-step approach:

> (1)(*a*) Identify the notional "person skilled in the art";
> (*b*) Identify the relevant CGK of that person;
> (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
> (3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;
> (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Description

[21] Subsection 81(3) of the *Patent Rules* states:

> Any document referred to in the description shall be fully identified.

ANALYSIS

Purposive construction

The skilled person

[22] In the PR letter, we identified the notional skilled person as a team comprising a financial trader—specifically an investment portfolio management expert—and information technology experts with backgrounds in computerized financial data processing and trading systems. The Applicant has not disputed this identification and we adopt it here.

The CGK

[23] Based on the identification of the CGK in the FA and on the application's description of the state of the art (including its references), we identified the following concepts as CGK in the PR letter:

- Investment portfolio management, including optimization systems and analytics; and
- Design, implementation, operation and maintenance of computer systems, networks and software, including:
    - Computerized trading systems that allow traders to view real-time market data;
    - General purpose and special purpose computers, computing devices, processors and user interfaces;
    - Computer network and internetworking technologies and protocols;
    - Automated portfolio optimization programs; and
    - Databases storing historical securities data.

[24] The RPR disputed the assessment of the CGK, but not the results identified above:

> The Applicant respectfully submits that the assessment of what is considered to be CGK, provided by the PAB and the Examiner, is misconstrued. Although a POSITA would perhaps have the relevant knowledge identified by the PAB on pages 3 and 4 of the Preliminary Review, the Applicant respectfully submits that to understand or be able to provide the invention disclosed in and claimed in pending claims 1 to 96 (and claims 1 to 107 submitted herewith) would require much more than is taught in the prior art much less in D1, D2 and the CGK elements as provided by the PAB.

[25] Given that the RPR did not explain how the assessment misconstrued the relevant CGK, and that the Applicant's argument appeared centred more on the difference between the invention and the state of the art than on what is included in the CGK, we again consider the concepts identified above to be CGK.

The problem to be solved

[26] In the PR letter, we agreed with the FA's identification of the problem as being that despite the existence of computerized trading systems allowing traders to view real-time market data, no system identifies abnormal conditions to traders as they

occur in real time. This leaves a need to identify securities that could skew the performance of a portfolio.

[27] The Applicant disagreed with the analysis in the PR letter and the RPR characterized the problem differently:

> The present invention is concerned with addressing a technical problem in the field of order and execution management systems wherein information about a security, such as price and volume, may be displayed to a trader. The technical problem specifically relates to the need for a trading system to identify and communicate effectively to a trader abnormal conditions of a security as they occur in real-time.

[28] The RPR also submitted:

> More specifically, the application operates in the context of high-speed securities trading. To maximize returns and minimize losses, a trader needs to react quickly to changes in market conditions and to conditions of specific securities. For instance, the Specification discusses detecting abnormal conditions of a security to generate an indicator of abnormality "every few seconds". (Paragraph [0035].) Detecting abnormal conditions in this real-time manner allows a trader to "take the appropriate actions to minimize potential losses to the portfolio or trade list" in real-time. (Paragraph [0037].) In order to make this detection in a timely manner, it is advantageous to reduce the latency it takes to access the data used to make this detection. The data includes historical market data and empirical distributions of analytic metrics for peer groups of a security. [Emphasis in original.]

[29] As stated above, though, we had also noted in the PR letter that the CGK included computerized trading systems permitting traders to view real-time market data, including certain analytics and metrics, and to quickly react. The description also referred to the existence of such systems. Accordingly, the skilled person would not see the problem as lying in the real-time calculation and provision of market data by such a system but in the particular calculations performed and particular data provided.

The proposed solution

[30] As explained in the PR letter, we saw the solution as the algorithm used to produce information indicating abnormal conditions for a security.

[31] The Applicant disagreed and contended within the RPR:

> The Applicant respectfully submits that this is an improper characterization of the present invention. Given the context of high-speed securities trading, the solution is in the performance of real-time calculations and the real-time detection of abnormal condition in a security which would skew the performance of a portfolio.
> …
> To reduce the latency of accessing historical market data, real-time values of a variable associated with the security can be "stored in a database on the server … for later reference as historical data". (Paragraph [0025].) Further, "[a]t the beginning of the trading day, the historical data in the database can be uploaded into memory so that it can be accessed immediately by the system at any time during the trading day". (Paragraph [0026].)
>
> To reduce the latency of accessing the empirical distribution of analytics of a peer group, "at least some of the peer group data is maintained in a database on the server and updated at least quarterly". (Paragraph [0028].) "Like the historical data, at the beginning of the trading day, the peer group data in the database can be uploaded into server memory so that it can be accessed immediately by the system at any time during the trading day." (Paragraph [0028].) The process of placing the historical market data and the empirical distribution of analytic metrics in a database that is on the server computer itself, and of uploading them into memory at a predetermined time so that they can later be accessed immediately, are technical solutions that are an integral and essential part of providing fast access to data so that the detection of an abnormal condition of a security can be done in **real-time**.
> …
> The Applicant further respectfully submits that the claimed solution provides a technical infrastructure wherein the skilled person [is] informed of how to program the computer, and how to implement the computer environment as a tool for a trader to respond to an abnormal condition of a security quickly and more efficiently. [Emphasis in original.]

[32] Computerized trading systems permitting traders to view real-time market data, including certain analytics and metrics, and quickly react, are not only part of the CGK, they are acknowledged in the description as background to the invention. The description mentions some options that can be taken regarding saving data while carrying out the invention but does not set out to solve any latency problems as the invention. It refers to the use of commercially available spreadsheet and automated portfolio optimization software to display indicators to traders and provide means for them to react, but does not set out to teach how to program a computer to provide fast access to data or real-time computation. Generally, the description and drawings focus more on the involved calculations and data as

opposed to any challenges of real-time computation and communication. Accordingly, we view the algorithm as the proposed solution.

The essential elements

[33] For convenience, claim 1 is provided below as a representative of the claims:

> 1. A computer-implemented method performed by a processor executing instructions on a computer-readable medium to detect an abnormal condition of a security traded on an exchange, said computer-implemented method comprising the steps of:
>
> > receiving in real-time and over a computer network a value of a first variable related to a condition of the security;
> >
> > generating an estimated value of the first variable based on historical market data for the security;
> >
> > executing a real-time calculation of an analytic metric based on a relationship between the real-time value and the estimated value;
> >
> > retrieving an empirical distribution of analytic metrics for a peer group of the security, wherein the empirical distribution is based on a relationship of empirical values of the first variable for members of the peer group; and
> >
> > comparing the analytic metric for the security with the empirical distribution of analytic metrics for the peer group to detect whether the condition of the security is abnormal.

[34] Independent claims 34 and 66 are respectively directed to a computerized system for implementing the method and software for causing a computer to execute the method. As explained in the PR letter, we considered that the skilled person, based on the CGK, and on the problem and solution identified above, would understand claims 1 to 96 to share the same set of essential elements for detecting abnormal conditions in a security. That set of essential elements is:

A. receiving a value of a first variable related to a condition of the security;
B. generating an estimated value of the first variable based on historical market data for the security;
C. executing calculation of an analytic metric based on a relationship between the received value and the estimated value;

D. retrieving an empirical distribution of the analytic metrics for a peer group of the security, based on a relationship of empirical values of the first variable for members of the peer group; and
E. comparing the analytic metric for the security with the empirical distribution of analytic metrics for the peer group to detect whether the condition of the security is abnormal.

[35] The Applicant disagreed with this identification, arguing in the RPR that computers, real-time data and calculations, and displays or graphical interfaces showing indicators are also among the essential elements.

[36] As we explained in the PR letter, however:

> Despite the claims' references to computerized and real-time aspects, we believe, based on the CGK, and on the problem and solution identified above, that the skilled person would understand the essential elements to be those identified in the FA. As explained above, we see the solution relating to the algorithm itself, not to the real-time aspects. Thus, the use of computerized elements to provide the real-time aspects is outside the concern of the problem and solution. Such physical elements may be part of the context or working environment of the claimed invention, but are not essential elements of the claimed invention itself. As stated in *MOPOP* at § 13.05.02*c*, not every element that has a material effect on the operation of a given embodiment is necessarily essential to the solution.

[37] Accordingly, we consider claims 1 to 96 on file to share the above listed set of essential elements for detecting abnormal conditions in a security.

Statutory subject matter

[38] As construed above, the essential elements of claims 1 to 96 on file are the steps of the algorithm for detecting abnormal conditions in a security. As stated in the PR letter, we consider such matter to be outside the categories of invention in section 2 of the *Patent Act*.

[39] The RPR submitted that there is no Canadian jurisprudence that determines conclusively that a business method cannot be patentable subject matter.

[40] Regardless of whether or not business methods can be patentable, the essential elements of the claims on file are limited to abstract matter, which results in the claims' failure to comply with section 2. As stated in *PN2013–03*, where "it is determined that the essential elements of a construed claim are limited to matter

excluded from the definition of invention [such as disembodied inventions], the claim is not compliant with section 2 of the *Patent Act*, and consequently, not patentable."

[41] The RPR disagreed that the invention was abstract:

> The presently claimed invention does not lie solely in the mere generation, presentation or arrangement of intellectual information. Rather, the presently claimed invention lies in a specific implementation of integers that causes the display or graphical user interface (GUI) to operate in an improved particular way, wherein important information is communicated to a trader on-the-fly such that the trader can quickly and efficiently react to abnormal conditions of a security.
>
> The Applicant respectfully submits that the present invention as defined by the pending and new claims does not lie in the information itself, but in the specific way the information is presented. The presently claimed invention provides a powerful, practical tool that can communicate important information quickly and efficiently to a trader in a simple way by way of the information is presented. Further, the claimed technical solution has the effect of providing the valuable material advantage that a trader is provided with the means to react to, and draw meaningful conclusions about, an abnormal condition of a security quickly and more efficiently.
>
> Accordingly, the Applicant submits that the presentation of information in the specific way claimed is not an abstract idea, but amounts to an artificially created state of affairs as there is a concrete, observable effect that provides a practical technical advantage. [Emphasis in original.]

[42] Referring to *Canada (A.G.) v. Amazon.com*, 2011 FCA 328 [*Amazon.com*], the RPR submitted that the present claims have at least an equivalent discernible change and physical existence as had those accepted as patentable in that case:

> Furthermore, it is respectfully submitted that the present claims on file and as amended herewith are directed to a patentable apparatus and a method that effects a discernible change. It is respectfully submitted that this is similar to the subject matter that was precisely before the *Federal Court of Appeal* in the *Amazon FCA* decision. [Emphasis in original.]

[43] Any physical components or steps involved in communicating information from the solution belong only to the working environment. As construed above, the essential elements are the steps and rules of the algorithm for detecting abnormal conditions in a security. Such matter does not manifest a discernible effect or

change of character or condition in a physical object. It merely involves the carrying out of a plan or theory of action without the production of any physical results proceeding directly from the operation of the theory or plan itself. Such matter is outside the categories of invention in section 2.

[44] The RPR also referred to a recent court case:

> The Applicant notes that in a recent Decision of the Federal Court in *Georgetown Rail Equipment Company v. Rail Radar Inc.* 2018 FC 70, Justice Fothergill held that Georgetown's Canadian Patent Nos. 2,572,082 and 2,766,249 were valid and infringed. The Decision, including the main validity attack, based on obviousness, turned entirely on the facts. The patents in suit related to an automated system and method for inspecting railroad track using a laser and camera, to collect information about the railroad track, plus a processor to analyze the information according to a specified algorithm [16], [31]. The individual components were known, and there was no suggestion of inventive ingenuity in adapting those components to implement the algorithm. However, the Judge accepted that the patents were inventive, "only in respect of their algorithms" [129]. Accordingly, despite the PAB and Examiner's view, many Canadian patents including Canadian Patent Nos. 2,572,082 and 2,766,249 recite patentable subject matter which include claims containing one or more algorithms. [Emphasis in original.]

[45] As noted in the RPR, that case, which turned entirely on its facts, was concerned with obviousness; the Federal Court did not consider subject matter. In *Amazon.com* (at paragraph 62), a case where the Federal Court of Appeal did consider issues of subject matter, the Court stated:

> *Schlumberger* exemplifies an unsuccessful attempt to patent a method of collecting, recording and analyzing seismic data using a computer programmed according to a mathematical formula. That use of the computer was a practical application, and the resulting information was useful. But the patent application failed for want of patentable subject matter because the Court concluded that the only novel aspect of the claimed invention was the mathematical formula which, as a "mere scientific principle or abstract theorem", cannot be the subject of a patent because of the prohibition in subsection 27(8).

[46] The inclusion of an algorithm in a claim does not automatically make it non-statutory. When a claim's essential elements are only the rules and steps of an abstract algorithm, however, that claim is non-statutory. This is the present situation for the claims on file. Therefore, we consider claims 1 to 96 on file not to

define statutory subject matter and thus not to comply with section 2 of the *Patent Act*.

Indefiniteness

[47] Claims 33, 64, 65 and 96 each recite the execution of trades "after the comparison of the real-time value and the estimated value of the first variable that is related to the condition of the security." As explained in the PR letter, however, the only comparison recited by the independent claims (upon which these claims depend) is the one made to detect an abnormal condition. This comparison is of the analytic metric (itself based on the relationship between the real-time and estimated values) with the empirical distribution of the analytics for the peer group. The description indicates that trades may be executed based on the detection of abnormal conditions, not on the comparison of the real-time and estimated values.

[48] Therefore, we consider claims 33, 64, 65 and 96 to comply with neither subsection 27(4) of the *Patent Act* nor section 84 of the *Patent Rules*.

Obviousness

Identify the notional person skilled in the art and the relevant CGK

[49] The above identifications of the notional skilled person and relevant CGK are considered to be applicable for the purpose of assessing obviousness.

Identify the inventive concept of the claim in question or if that cannot readily be done, construe it

[50] In the PR letter, we took the construction of the claims as also representing their inventive concept; we again adopt that approach here. Accordingly, the inventive concept is not considered to include any features or elements beyond those identified above as part of the purposively construed essential elements.

Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed

[51] We identified the following documents in the PR letter as relevant:

- D1: US 6,907,403 June 14, 2005 Klein et al.
- D2: William F. Sharpe & Gordon J. Alexander, 4th ed., *Investments* (Englewood Cliffs, NJ: Prentice–Hall, 1990).

[52] As explained in the PR letter, D1 (abstract; column 1) discloses a computerized system for using statistical clustering to identify business sectors and classify stocks among the sectors. D1 (columns 2 to 3 and 11) discloses the use of historical data to model an asset's tendency to change in response to exogenous variables; such a model is effectively a "price formula" for predicting or estimating the price of the asset based on the variables. The model or price formula can also be updated in response to new historical data. As D1 (columns 1, 2, 10, 18 and 19) explains, it is common practice to group companies and stocks together so that performances within a sector may be compared; such comparisons have important implications in portfolio management and financial planning. To identify these sectors (i.e. to identify the peer groups), D1 proposes to use the sensitivities and elasticities to variables as shown by the price formulas.

[53] D1 does not explicitly disclose the comparison of the relationship between the estimated price and a received value for the price for an asset with the corresponding relationships for other assets of the peer group.

[54] D2 (pages 419 to 423, 427 and 428) shows it is known to try to use historical data to predict future performance, and explains how a security's historical beta coefficient—a relative measure of the sensitivity of the security's return to changes in the return of the market portfolio—can be used to estimate its current beta coefficient. D2 (page 210) also provides a formula for determining, in turn, the equilibrium expected return for a security based on its beta and on the market portfolio's expected return. D2 (pages 221 to 223) further explains how many investors spend a great deal of time searching for securities that appear to be mispriced, that is, for securities with expected returns greater or lesser than the equilibrium expected return for securities with comparable betas.

[55] Thus, D2 does not explicitly disclose the detection of abnormal conditions by the comparison of an analytic metric for a security with the analytic metrics for its peer group, where an analytic metric reflects the relationship between a received value and an estimated value. It discloses the detection of abnormal conditions by the comparison of a received value (the equilibrium expected return for the security) with an estimated value (the expected return for the security), where the equilibrium expected return is based on both the historical performance of the security and the expected return of the market portfolio.

[56] Separately, D2 (pages 209 to 216 and 229) discloses the comparison of expected returns with actual returns to calculate values.

[57] The Applicant submitted in the RPR:

> First, the Applicant notes that these references were not cited during prosecution of the Applicant's now issued U.S. Patent No. 7,680,718, therefore the Applicant respectfully requests that this objection be withdrawn on this basis alone.

[58] We do not consider the lack of citation of a reference during the prosecution of a related patent application in a foreign jurisdiction to indicate that subject matter is inventive.

Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention

[59] In the RPR, the Applicant contended that without hindsight analysis, D1, D2 and the CGK do not guide the skilled person to the claimed steps for detecting an abnormal condition of a security traded on an exchange in real time.

[60] As explained in the PR letter, both D1 and D2 show that it common to use historical market data to attempt to predict future values. Both D1 and D2 show it is common to compare a security's behaviour with that of other securities to assess it or identify abnormal conditions. D1 discusses the common practice of comparing a security's performance with that of its peers as a part of financial planning.

[61] Therefore, we are of the view that it would not have required any degree of invention to adapt the techniques of D1 to involve the calculation of a metric based on the difference between estimated and received values, and the comparison of such metrics with those of securities in the same peer group, in view of the teachings of D2 and in view of the CGK.

Conclusion on obviousness

[62] We consider that the subject matter of claims 1 to 96 on file would have been obvious to the skilled person in view of D1, D2 and the CGK. Therefore, these claims do not comply with paragraph 28.3(*b*) of the *Patent Act*.

Description

[63] As stated in the PR letter, we noted a typographical error in paragraph 37: the paragraph reads "U.S. Patent No. 7,794,906" instead of "U.S. Patent No.

7,974,906". As a result, the paragraph's reference fails to comply with subsection 81(3) of the *Patent Rules*.

[64] The RPR proposed an amendment to the description that would have remedied this defect, but the proposal cannot be accepted for the reasons given below.

Proposed claims

[65] As the PR letter explained, the amendments resulting in the first proposed claim set generally comprised adding the recitation to the independent claims of the receipt of certain values over a network, the storage of the values in a database on the computer and the uploading of the values into the computer memory at a predetermined time for later immediate access. They also involved amendments to remedy the indefiniteness defect.

[66] The second proposed claim set consists of the first proposed claim set plus 18 claims having greater emphasis on the displayed indication of abnormality.

[67] Given that these differences would not alter the above identifications of the skilled person, CGK, and problem and solution, we construe both of the sets of proposed claims as also having only the previously identified steps of the algorithm for detecting abnormal conditions in a security for their essential elements. Accordingly, our view concerning non-statutory subject matter and obvious subject matter also applies to the proposed claim sets.

[68] It follows that neither proposed claim set is considered a necessary specific amendment under subsection 30(6.3) of the *Patent Rules*, despite the fact that we agree the proposed amendments would remedy the indefiniteness defect and, in the case of the proposed description amendment submitted with the RPR, the defect in the description.

RECOMMENDATION OF THE BOARD

[69] In view of the above, the Panel recommends that the application be refused on the basis that:

- Claims 1 to 96 define non-statutory subject matter and thus do not comply with section 2 of the *Patent Act*;
- Claims 33, 64, 65 and 96 are indefinite and unclear, and thus comply with neither subsection 27(4) of the *Patent Act* nor section 84 of the *Patent Rules*;

- Claims 1 to 96 define subject matter that would have been obvious as of the claim date and thus do not comply with paragraph 28.3(*b*) of the *Patent Act*; and
- The description fails to correctly identify a referenced document and thus does not comply with subsection 81(3) of the *Patent Rules*.

Leigh Matheson	Marcel Brisebois	Andrew Strong
Member	Member	Member

DECISION OF THE COMMISSIONER

[70] I concur with the findings of the Board and its recommendation to refuse the application. The claims on file comply with neither section 2 nor paragraph 28.3(*b*) of the *Patent Act*, claims 33, 64, 65 and 96 comply with neither subsection 27(4) of the *Patent Act* nor section 84 of the *Patent Rules*, and the description does not comply with subsection 81(3) of the *Patent Rules*.

[71] Accordingly, I refuse to grant a patent for this application. Under section 41 of the *Patent Act*, the Applicant has six months to appeal my decision to the Federal Court of Canada.

Johanne Bélisle
Commissioner of Patents
Dated at Gatineau, Quebec,
this 3rd day of July, 2018