June, 2014

SWORD OR SHIELD - PATENTS IN DERIVATIVE MARKET?

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There has been discussion about the emergence of patents and patent litigation in the derivative industry. With all the talk, and hype, it is useful to consider the background against which this development arose, reasons for particular challenges presented by patents and patent litigation in the futures (derivative) industry, and ways of dealing with such challenges.

A. What is derivative?

Definitions:

The International Accounting Standard (IAS) 39 defines “derivatives” as follows: A derivative is a financial instrument:

(a) whose value changes in response to the change in a specified interest rate, security price, commodity price, foreign exchange rate, index of prices or rates, a credit rating or credit index, or similar variable (sometimes called the ‘underlying’);

(b) that requires no initial net investment or little initial net investment relative to other types of contracts that have a similar response to changes in market conditions; and

(c) that is settled at a future date.

In the Indian context the Securities Contract (Regulation) Act, 1956 [SC(R) A] and the RBI act has defined the term 'derivative'.

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1 In the Indian context the Securities Contract (Regulation) Act, 1956 [SC(R) A] defines derivative to include-A security derived from the debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.

A contract which derives its value from the prices of underlying securities. Derivatives are securities under the SC(R) A and hence the trading of derivatives is governed by the regulatory framework under the SC(R) A. The term derivative is also defined in section 45U (a) of the RBI act as follows: “An instrument, to be settled at a future date, whose value is derived from changes in the interest rate, foreign exchange rate, credit rating or credit index, price of securities (also called “underlying”), or a combination of more than one of them and includes interest rate swaps, forward rate agreement, foreign currency swaps, foreign currency rupee swaps, foreign currency options, foreign currency-rupee options or such other instruments as may be specified by the Bank from time to time”.

Actually, derivatives are assets, whose values are derived from values of underlying assets. These underlying assets can be commodities, metals, energy resources, and financial assets such as shares, bonds, and foreign currencies.²

B. Why patent them?

In the world of automated trading, fortunes are made in less than the blink of an eye. That wealth is generated on computer system that can handle greater trading volumes at ever increasing speeds.

These platforms often rely on algorithms, a sequence of instructions used for calculation and data processing that can spot unseen opportunities in the market and give their users a huge advantage measured in milliseconds.

For banks such as Goldman Sachs Group Inc, the codes are worth a fortune and this value also makes them a tempting target for thieves, as appears to have happened with Sergey Aleynikov, a former computer programmer at Goldman arrested by the US Federal Bureau of Investigation.

“The risks of trying to steal a trading model are very high,” said David Easthope, a senior analyst at Celent, which is part of the Oliver Wyman Group. “But the potential reward is very, very high because when you look at investment banks, they've made higher and higher profits” from automated trading.

“If you happen to have built a model that makes you even 200 milliseconds faster than me, you are in a much better position,” said Sang Lee, managing director of research and advisory firm Alite Group. “You may be able to trade a thousand times before I even I see what’s going on and act on it”.

It takes 300 to 400 milliseconds for human eyes to blink and it’s that advantage that encourages thievery, such as allegedly committed by Aleynikov. “These systems have a huge value and, if they get out, then you lose your edge,” said Michael Gorham, director of the center for financial markets at the Illinois Institute of Technology.

² Rajshree Sugar and Chemicals Limited v. AXIS Bank Limited, formerly known as UTI Bank Limited, MANU/IN/0893/2008
The Goldman Sachs case is unusual because it is far more common for algorithm experts to design a system, walk away with the information in their head and build an identical system elsewhere, which can lead to civil lawsuits over intellectual property rights, but not charges of theft.

“If anyone has an algorithm that’s working well, it’s very valuable,” said Iqbal Brainch, chief marketing officer at futures brokerage firm Advantage Futures, whose website touts that it is “milliseconds to none.”

“This case speaks to the importance of security, the importance not letting any of that information out, and the importance of putting steps in place to protect our algorithms.”

What is patent (one of intellectual property rights)?

Patent defined: the word patent originated from the Latin word ‘patene’ which means ‘to open’. The English Crown had the practise of addressing open letters to all its subjects notifying them of the grant of monopoly rights or privileges to individuals in respect of inventions.

The report on the Revision of the Patent Law in India describes a patent as a statutory grant of monopoly for working an invention and vending in resulting product.

Patent is an exclusive right to use or exercise an invention, granted to a person for a limited period in consideration of disclosure of invention.

The Indian Patent Act, 1970 reflects the concern of a developing country balanced with the interest and needs of the inventor.

Section 85 embodies the philosophy of the Act i.e.

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4 Justice N. Rajagopala Ayyangar Committee’s repost on "Revision of the patent in India (1957)". www.patentoffice.nic.in.
i) Patent are granted to encourage inventions and secure that the inventions are worked in India on a commercial scale and to the fullest extent reasonably practicable, without undue delay; and

ii) Patents are not granted merely to enable patentees to enjoy a monopoly for the importation of the patented article.

The objective of Patent Law is to encourage scientific research, new technology and industrial progress. Grant of exclusive privileges to own, use or sell the method or product patented for limited period, stimulate new invention of commercial utility. The price for grant of monopoly is disclosure of invention at the patent office, which after expiry of the fixed period of monopoly passes into the public domain.

C. Negative prescription of patentability:

Section 3 of the Indian Patent Act 1970 includes a detailed list of areas not patentable, such as, (a) inventions to be used causing injury to public health or morality or violation of law, (b) discovery of scientific formula, (c) new use for a known substance or more use of a known substance or use of a known process, (d) substance by admixture and aggregation, (e) mere rearrangement or duplication, (g) improvement or restoration of existing machine or equipment, (h) method of agriculture of horticulture, (i) medical, surgical or curative or treatment process, (j) invention relating to atomic energy. Besides the above negative prescription there is no positive prescription as to what can be patented. Of course, if one carefully scrutinises the provision relating to who can apply for the patent he can observe that an invention, if novel and true, can be patented. Section 6 and 7 of the Act uses only the word 'invention' for patenting.

*Can an innovation be patented?*

As a matter of fact, section 3 (g) of the Patent's Act 1970 answers in the negative. It stipulates that a method or process for improvement or restoration of the existing machine, apparatus or other equipment or for the improvement or control of manufacture is not patentable in India. But innovations are patentable in all advanced countries and so are the methods of business.

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6 Biswanath Prasad Radhe Shyam v. H.M. Industries, AIR 1982 SC 1444
patentable in USA. Method of business in its broad spectrum includes future trading which further includes derivative trading.

In *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, the Federal Circuit (the court with exclusive appellate jurisdiction for patent matters) held that a data processing system for a hub-and spoke financial services configuration may be patented. In so holding, the court announced for the first time that there was no exception to patentable subject matter for “business methods”.

The Federal Circuit’s State St. decision, coupled with the dramatic increase in electronic trading, spawned a rapid and exponential growth in the number of applications filed for patents in financial services industries, and quickly led to the emergence of litigation over such patents, including in the future industry.

D. Patent litigations:

The first case in the future industry was based on a patent grated to Susan Wagner, former executive director at the Commission.

Susan Wagner applied for a patent on an electronic exchange in 1983, obtaining patent 7 years later (United State Patent No. 4,903,201) and instituting suit against the Chicago Mercantile Exchange, (CME) Chicago Board of Trade (CBT), New York Mercantile Exchange, and eSpeed in 1999. Then there was a bet example of turning a sword into shield, eSpeed bought the patent for $2-3 million in settlement of the claims against it remaining defendants. The suit was ultimately settled several years later, after much litigation. CME and CBOT each agreed to pay $ 15 million, and it is reported that royalties paid to eSpeed on that patent have been approximately $ 50 million.

Howard Garber (June 2004):

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8 The earliest of patent litigation in the futures industry actually dates back to 1878, when a Reuben Jennings sued the Chicago Board to Trade for infringement of his patent on a trading pit (United States Patent No. 203, 837). Jennings’ patent was invalidated by the court.
A lawsuit was brought against CME, CBOT, Chicago Board Options Exchange, and OneChicago. Mr. Garber asserted his patent on a method for trading having a principal market maker computer (United States Patent No. 5,963,923); the case was dismissed within six months.\(^9\)

**Trading Technologies (TT):**

Separate lawsuits were filed against eSpeed, Rosenthal Collins, GL, FuturePath, CQG, and Refco in federal court in Chicago involving TT’s patents for “Click Based Trading With Intuition Grid Display of Market Depth” (United States Patent Nos. 6,766,304 and 6,772,132).

Trading Technologies first issued “Open Letter to the Future Industry,” in December 2004 and updated in January 2006, in which TT sought from four exchanges (CBOT, CME, Eurex, and LIFFE) a payment of 2 cents per side—5 cents per trade—in perpetuity and for every futures and futures option transaction on these exchanges.\(^10\) In exchange for these payments, TT offered to not assert against industry participants any of its already issued on patents or the eighty patents that it claims will be issued on pending applications. None of the exchanges has accepted the offer. Perhaps ironically, TT’s letter is being used as a basis for the parties in litigation to claim that TT is misusing its patents by seeking to extend their scope beyond the 20-year statutory term and beyond the substantive subject matter they protect. This defence of patent misuse has survived TT’s motions to dismiss, although claims and counterclaims did not.\(^11\)

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\(^9\) There has a notable recent patent litigation in the securities industries as well, including lawsuit involving Mopex’s patent on exchange traded funds, which ultimately was invalidated by a court as being not novel in light of publications describing such inventions prior to Mopex’s applying for its patent, and eSpeed’s litigation against BrokerTec on its patent for an electronic trading platform, which was held to be unenforceable due to unenforceable conduct before the PTO when prosecuting the patent application. American Stock Exchange, LLC v. Mopex, Inc., 250 F.Supp. 2d 323 (S.D. N.Y. 2003) and eSpeed, Inc. v. BrokerTec USA, L.L.C., 41 F.Supp. 2d 580, 79 U.S.P.Q.2d 1258 (D. Del. 2006); see also Lava Trading, Inc. v. Sonic Trading Management, LLC, 445 F.3d 1348, 78 U.S.P.Q.2d 1624 (Fed. Cir. 2006) (reversing non-infringement judgment on account of flawed claim construction); Julie Creswell, A Wall Street Rush to Patent Profit Methods, N.Y. TIMES, Aug. 11, 2006, at C8 (noting the accumulation of patent by firms in financial services industries, such as Goldman Sachs and Citigroup).


TT won in the litigation when the court found a substantial likelihood that eSpeed’s products infringed the patents and that there was not a substantial question that TT’s patent were invalid.

Particular Challenges with Patents and Patent Litigation in the Futures Industry:

With the presence and importance of patent issues continuing to expand in the futures industry, what are the issues that predominate in this industry and what are some ways to deal with them?

Primary issue: validity of patents: To be sure, one of the main issues with patents in any field is validity; in patent infringement litigation, a defence by the accused infringer that the patent is invalid, and thus cannot be sued on, has become *de rigueur* as an affirmative defence or counterclaim.

Patent invalidity frequently is decided on the basis whether: (i) the invention was claimed in valid claim of earlier priority date\(^\text{12}\) , that the invention so far as claimed in any claim of the complete specification is not new, having regard to what was publicly known or publicly used in India before the priority date of the claim or to what was published in India\(^\text{13}\), that the invention so far as claimed in any claim of the complete specification is obvious or does not involve any inventive step, having regard to what was publicly known or used in India or what was published in India or elsewhere before the priority date of claim.

A patent is presumed to be valid when issued\(^\text{14}\). In a petition for revocation of a patent the onus lies heavily on the petitioner to show that the respondent is not the true and first inventor of the invention\(^\text{15}\)

Patents are the primary sources of prior art for determining whether the claimed invention is new and novel. Prior art patents are useful sources for a number of reasons: they are readily available, relatively easy to search for, inexpensive to obtain, and they provide explanations of the different aspects of prior inventions by a detailed written description and drawings, all with

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\(^\text{12}\) Section 64 (a) of Patent’s Act 1970.

\(^\text{13}\) S. 64 (e) of Patent’s Act 1970

\(^\text{14}\) 35 U.S.C.A. s.102.

\(^\text{15}\) AIR 1915 Lah 424 (425)
specific dates on which they were made public which readily can be compared against the date on which the application was filed.\textsuperscript{16}

On one hand USA\textsuperscript{17} is with most patents for methods of doing business, there are relatively few patents issued on inventions in electronic trading that could be used as prior art and on other hand negligible in case of India. The primary sources of prior electronic trading systems are the systems themselves, which are not housed anywhere in the patent offices or in any other single or easily accessible database that can be searched. The patent office, whose libraries are comprised primarily of patents have far fewer sources to review when attempting to determine whether the claimed inventive business methods is new and novel, or whether it is merely the same as or an obvious adaptation of what already exist in the particular field or art. As a consequence there may be false understanding that what an inventor has created is new and novel in the futures industry, when in fact it was invented previously by someone else.

A collateral but equally serious problem is the awareness of Controller, examiner and officers appointed under section 73 of The Patent Act, 1970 in the field of electronic trading or other business methods. Even if India is first country to dematerialise the transactions on the stock exchanges, the examiners as well as the market players are still very sceptic, under-trained and ill-equipped to effectively scrutinise the applications for the business method patents, particularly with respect to electronic trading systems.

\textbf{E. Patents as Swords, Shields, or Both!}

Patent litigation typically involves high stakes, due primarily to the remedies available if liability is found. Remedies for infringement include an injunction (subject to such terms as the court thinks fit) and at the option for the plaintiff, either damages or an account of profits.

Party to litigation who seeks an injunction, must satisfy the court that there is a serious question to be tried at the hearing of the suit and \textit{prima facie}

\textsuperscript{16} See presentation presented by Paul . Uhlenhop to the Futures Industry Association Law and Compliance Division Workshop, May 11, 2006.
\textsuperscript{17} See presentation presented by Paul . Uhlenhop to the Futures Industry Association Law and Compliance Division Workshop, May 11, 2006.
case is in his favour. The party has to satisfy the court that irreparable injury and comparative mischief which is likely to cause in the absence of injunction will be greater and not compensable, thus the balance of convenience also tilts in his favour.\textsuperscript{18}

Indian patent statute has not specifically defined the calculation of damages, but left it over to the discretion of judiciary and subsequently Indian judiciary has broadened the spectrum of damages by including actual damages i.e. loss of profits, reasonable royalty, extraordinary damages and attorney fees. Actual damages are awarded when both plaintiff and defendant are the market players.\textsuperscript{19}

To illustrate magnitude of patent damages, consider TT’s assertion in the Open Letter that has obtained license agreement calling for a royalty of 10 cents per side (TT says true value of its patent is 20 to 30 cents per side).\textsuperscript{20} Using the $130 million figure that TT contends it would have received for trades in 2005 under its proposal of 2 cents per side (or approximately 10\% of what it deems to be the value of its patents), the damages TT might seek from those whose trading volume comprises the 20\% that TT believes is making use of its “concept” could give rise to the claim of $ 260 million in damages for one year, before multiplying by the number of years of infringement or the trebling that TT says it deserves. Accused infringes undoubtedly will strongly contest any figure at such a level, but even a small fraction for any one firm’s share would be staggering.

**Development in Indian market:**

In the wake of growing patent phobia and advantages of using it either as a sword or a shield, Bombay Stock Exchange has already patented Sensex and its logo “BSE” in US and The National Stock Exchange has patented Nifty in the name of S&P CNX Nifty. The Sensex-based Exchange Traded Fund was recently launched in the Hong Kong Stock Exchange by Barclays and it has generated a reasonably good response. The Commodities and Futures Trading Commission recently gave permission to the BSE and the NSE to start or allow future or indices-based products to be launched in US exchanges. The success

\textsuperscript{19} Underwater Devices Inc v. Morrison-Knudson Co.
\textsuperscript{20} See note 8 supra.
of the Sensex-based Exchange Traded Fund in Hong Kong means the next target for the Sensex will be the US market but before that the BSE is concentrating on developing derivative trading in Sensex as well.21

F. Conclusion:

Given the high stakes of patent litigation, and the difficulty in the futures industry of developing invalidity defences, the potential for abuse of patent power exists and appears to be higher in the futures industry than in many others. This is particularly true where a powerful patent owner asserts its patent against smaller companies that do not have the resources and wherewithal to fight the litigation, who are forced to settle instead of paying expensive defense costs that do not include a guarantee of success in the litigation.

Thus it is prudent not only to proceed carefully with product development, often with the advice of a patent lawyer, but also to consider developing an early offence. To take a page from eSpeed’s playbook from Wagner litigation, there may be an opportunity to buy the patent being asserted, and thus convert from being a defendant to a plaintiff. But that is a rare and expensive opportunity and, even if it presents itself, the circumstances that might allow for such a transaction are even more unusual. A more feasible strategy is for an industry participant to seek patents for itself, to transform the type of sword wielded against it into a shield. The decision whether to enforce such patents can be made later; it may be that such patents are asserted only as a counterclaim. But seeking and obtaining a patent, and thus having at the ready the means to assert a claim for patent infringement, is the real advantage. As patents become more prevalent in the future industry, this strategy is even more likely to provide valuable returns.

After all it is very truly stated that, “the best defense is sometimes a good offence”.