

**CAN LESSONS FROM THE DEVELOPMENT OF THE DERIVATIVES MARKETS
BE USED TO IMPROVE THE EFFICIENCY OF THE TECHNOLOGY PATENT MARKET?**

*David S. Ruder II*¹

As technology businesses continue to evolve, it is clear that patent strategy is among the most important challenges faced by executives. Large corporations are engaging in multi-pronged patent infringement lawsuits for various reasons, and non-practicing entities and other companies have launched large scale patent enforcement campaigns in an effort to generate financial returns. A key driver of this activity is the availability of patents for sale on the open market. Whether from individual inventors, research institutions, universities, small companies, large companies, or companies in distress, patent sales are becoming more common and it is fair to say most observers would agree that a “patent market” exists. The development of the patent market has been met with many reactions as companies continue to try to understand the best ways to participate or deal with its impact. Rather than focus on the impacts of the patent market, however, this paper explores how the patent market might become more efficient and actually benefit the technology industry. Efficient markets should have low transaction costs and it is argued that the patent market could benefit by adopting features that are similar to those of other financial markets.

I. Background on Costs Associated with the Patent System

The development of the patent market has created concern among technology industry participants, commentators, and regulators. There are many articles and blogs that discuss the challenges associated with software patents and argue that software patents should be seriously

¹ David Ruder is Vice President, Corporate Development with RPX Corporation. The views and opinions presented are solely those of the author and do not necessarily reflect the views of RPX Corporation and its management.

modified or abolished.² A Google search on “software patents” finds the following organizations that are set out to do just that:

- GNU: “Fighting Software Patents – Singly and Together”³
- Public Patent Foundation: “Representing the Public’s Interest in the Patent System”⁴
- Endsoftpatents.org with a link to Wiki called “Why Abolish Software Patents”⁵

Beyond software patents, other commentators believe there are too many patents out there, resulting in too much litigation overall, severe costs to innovation, and costs to the public at large. Seventh Circuit Judge Richard Posner appears to agree—consider his article of last year titled “Why there are Too Many Patents in America”.⁶ Boston University School of Law Professors James Bessen and Michael Meurer released a working paper in June 2012 entitled “The Direct Costs from NPE Disputes”⁷ based on data collected by RPX Corporation. The abstract of this paper reads:

In the past, “non-practicing entities” (NPEs), popularly known as “patent trolls,” have helped small inventors profit from their inventions. Is this true today or, given the unprecedented levels of NPE litigation, do NPEs reduce innovation incentives? Using a survey of defendants and a database of litigation, this paper estimates the direct costs to defendants arising from NPE patent assertions. We estimate that firms accrued \$29 billion of direct costs in 2011. Moreover, although large firms accrued over half of direct costs, most of the defendants were small or medium-sized firms, indicating that NPEs are not just a problem for large firms.

With direct patent litigation costs estimated at \$29 billion in 2011, it is clear why so many commentators and observers think the costs of patents are just too high.

² See for example, Goldman, Eric, “The Problems with Software Patents,” *Forbes.com*, November 28, 2012, <http://www.forbes.com/sites/ericgoldman/2012/11/28/the-problems-with-software-patents/>; Ferenstein, Gregory, “Mark Cuban’s Awesome Justification For Endowing a Chair To ‘Eliminate Stupid Patents’,” *Techcrunch.com*, January 31, 2013; Anthony Wing Kosner, “The Big Fix #3: How to Untangle The Mess With Software Patents,” *Forbes.com*, October 21, 2012.

³ <http://www.gnu.org/philosophy/fighting-software-patents.html>

⁴ <http://www.pubpat.org/>

⁵ http://en.swpat.org/wiki/Why_abolish_software_patents

⁶ Richard Posner, “Why There are too Many Patents in America,” *The Atlantic*, July 12, 2012.

⁷ James Bessen and Michael Meurer, “The Direct Costs from NPE Disputes,” Boston University School of Law, Working Paper No. 12-34, Revised June 28, 2012.

There have also been regulatory efforts designed to address these excessive costs, including the Leahy-Smith America Invents Act of 2011⁸, which provided a meaningful update to the US patent laws. One report suggests that Congress is going to scrutinize non-practicing entities (“NPEs”)⁹ and come up with ways that will make it more difficult for NPEs to make money through patent litigation.¹⁰ The only major regulator that has looked at the patent system from a market perspective is the FTC. In a 2011 report entitled “The Evolving IP Marketplace”, the FTC discussed its interviews with many market participants in an effort to understand how the buying and selling of patents and the resulting litigation can co-exist with the antitrust regime.¹¹ Most of the report focuses on patent quality, as well as issues related to damages and patent notice.

II. Addressing Costs of the Patent System with a Market-Based Approach

RPX Corporation has pioneered an alternative approach to dealing with the costs of the patent market. Instead of concentrating on problems associated with the legal aspects of patents and then trying to change the patent system, RPX focuses on the patent market itself and implements a market-based solution:

The real problem, then, is not the assets themselves. It is the need for a broad-based, transparent and orderly market for the exchange of value between the owners and users of intellectual property. And that is precisely the problem that RPX is focused on solving.¹²

RPX’s market-based solution involves reducing the costs associated with patent transactions by harnessing the purchasing power of more than 145 companies. Traditionally, patent licensing

⁸ <http://www.govtrack.us/congress/bills/112/hr1249/text>

⁹ Non-practicing entities are generally known as business entities that are in the business of using patents to generate revenue through licensing and litigation activities. These entities generally do not have operating businesses but often have nominal revenue from small product or software businesses. Companies that have material operating businesses are generally not considered NPEs.

¹⁰ <http://info.articleonepartners.com/blog/bid/85906/Expected-Congressional-Actions-on-Non-Practicing-Entities>

¹¹ <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>

¹² RPX Corporation blog, “Jeff Bezos is Right; Well, Half Right,” December 13, 2012, <http://www.rpxcorp.com/index.cfm?pageid=14&tagid=73>.

has been a one-to-one, contentious environment with high transaction costs (generally associated with retaining attorneys to handle serious complex litigation should discussions break down). RPX's model is to execute large scale transactions on behalf of a large group, so patent owners feel they are getting good value for their patents or patent licenses, but do not have to engage in complex, time-consuming patent litigation. RPX clients obtain more certainty and market intelligence, and have overall lower legal costs than they would fighting patents in court.¹³

The key differentiator for RPX is its focus on patent transactions as a market, and its efforts to make the market more understandable and efficient. There are many examples of markets for other types of assets where transaction costs start out high, and then are reduced. Trading costs for stocks are well under \$10 per transaction for consumers – for years they were over \$50. For large banks and institutional traders, trading costs have been reduced to pennies. If the patent market were able to match the efficiencies of financial markets, then perhaps litigation would be a rare occurrence rather than the norm, and perhaps the costs associated with the patent market would be perceived as in line with the benefits of the system overall.

III. Defining the Patent Market

Before exploring ways to deliver efficiencies to the patent market, there are aspects of the patent market that need to be understood, such as the types of assets that are exchanged and the size and nature of the transactions.

A. Patent Sales

¹³ See <http://www.rpxcorp.com/index.cfm?pageid=9>.

The patent market is made up of a collection of buyers and sellers of many different types and the sizes of the transactions can be large. RPX Corporation, which is one of the largest buyers of patents in the patent market, identified fourteen recent transactions with a value range of \$36 million up to \$5.5 billion.¹⁴ Transactions include

- Google's purchase of Motorola Mobility (\$5.5 billion¹⁵ for 25,000+ patent assets);
- Rockstar's purchase of the Nortel patent portfolio out of bankruptcy (\$4.5 billion for 5,000+ assets);
- RPX/Intellectual Ventures Consortium's purchase of the Kodak patent portfolio out of bankruptcy (\$550 million for 2,500+ assets); and
- Intel's purchase of a patent portfolio from Interdigital (\$375 million for 1500+ assets).

Virtually all of these transactions involved relatively large patent portfolios of patents and applications, and several portfolios involved more than a thousand patents and applications. Motorola Mobility's portfolio purchased by Google had around 25,000 assets. Many industry participants believe that this slew of larger portfolios is not an aberration and many larger portfolios will find the market.

These large patent transactions have generated headlines and have been a direct result of patent infringement lawsuits that were already underway. However, most of the volume of activity in the patent market relates to the more frequent transactions involving much smaller deal sizes and dollar volumes. With an estimated 250,000 individual information technology patents granted by the United States Patent and Trademark office in 2012 alone,¹⁶ the number of potential transactions is quite large.

¹⁴ RPX Corporation.

¹⁵ \$5.5 billion of total \$12.5 billion purchase value was allocated to the patents by Google.

¹⁶ RPX Corporation.

Selling these patents in the market is not an easy or sure thing. One study suggests that one part of the market—the brokered patent market—is not efficient.¹⁷ In 2012, an analysis of 5,394 patents available through 186 patent portfolios shows that very few (about 15%) patents were actually sold, and the sales process was longer than six months for the ones that did sell. The average number of patents in the 186 portfolios was eight and the median four, suggesting that many portfolios had only one or two patents. That smaller portfolios do not sell makes sense because with one or two patents in a portfolio, the risk that those portfolios do not cover an available technology in use in the marketplace is high, and the impact of an invalidity finding is even higher. Put another way, with larger portfolios (say 100 or more), the impact of any individual patent found to be irrelevant or invalid is much lower. Potential buyers are more willing to take a probability bet on larger portfolios than smaller ones.

It is interesting to note that RPX estimates that patent sales transactions for its purchases are generally in the range of \$150,000 to \$200,000 per patent, while in large transactions, the price per patent can be much higher.¹⁸ One factor in this trend is the entrance of traditional financial intermediaries (i-banks, M&A advisors) that are interested in facilitating patent transactions—especially at high prices. For instance, Lazard, a long standing traditional financial advisory firm, advised Nortel Networks and Kodak in their bankruptcy transactions,¹⁹ and RPX has worked with several traditional financial advisory firms when advising patent owners.²⁰

RPX tracks the number of NPE lawsuits filed against technology businesses that may or may not be RPX clients. Currently there are thousands of NPE patent lawsuits in play against around 2,500

¹⁷ Kent Richardson and Erik Oliver, “Turning the Spotlight on the Brokered Patent Market,” *Intellectual Asset Management*, January/February 2013, p. 11.

¹⁸ RPX Corporation.

¹⁹ See: Ameet Sachdev, “Nortel Auction Highlights Rise of Patent Marketplace,” *Los Angeles Times*, June 2011; Aviva Gat, “Kodak Unloads Patent Portfolio, fulfilling DIP,” *The Deal Pipeline*, December 2012, <http://www.thedeal.com/content/restructuring/kodak-unloads-patent-portfolio-fulfilling-dip.php>.

²⁰ RPX Corporation.

different defendants.²¹ Because NPEs generally acquire the patents they assert, the availability of a patent market with a supply of small portfolios in play is critical. NPEs can only file lawsuits with patents they have acquired, and they rely on patent sellers to provide inventory. This inventory has increased in recent years with patent sellers offering more patents to the market after seeing the potential for generating cash in the large-sale examples mentioned above.

B. Patent Licensing

Another aspect of the patent market is that patents are not always sold outright. Patent transactions are often conducted as a settlement to litigation, and that settlement might include a patent license (which may be broad or limited in scope) or a covenant not to sue that is in place for a period of time. Since patent license transactions may occur even before a patent sale has occurred (and may take place in lieu of a sale), patent licensing activities must be considered when thinking about the scope of the patent market. For instance, Acacia Research Corporation, a publicly-traded patent enforcement company, states that it has acquired 250 patent portfolios and has entered into 1,138 licensing agreements.²² The company's \$205.2 million trailing 12-month revenue is almost entirely generated by licensing activities that may or may not involve litigation. Industry-wide, with thousands of lawsuits currently pending, the potential licensing dollars flowing from the suits is in the billions of dollars. Whereas patent sales usually involve discussions between companies, and sometimes a patent broker, patent licensing discussions usually involve courts and negotiations between plaintiff and defense lawyers.

An exchange in Chicago called the Intellectual Property Exchange International ("IPXI") was recently formed to focus on trading patent licenses, as opposed to focusing on an exchange for patent

²¹ RPX Corporation.

²² Acacia Research Corporation (www.acaciaresearch.com)

sales.²³ Its aim is to develop a model for delivering patent license rights through “unit license rights” (or “ULRs”). At the end of 2011, IPXI announced a partnership with the CBOE, Philips, Northwestern, and University of Utah and has indicated that exchange trading of license rights will begin in the near future.²⁴

Essentially, a ULR enables an owner of the ULR to make, use, or sell a specified quantity of “technology units” with a license. For instance, if a ULR allows for the sale of 100 technology units, then the owner of the ULR would have a license to sell 100 units. In order to sell 200 technology units, the owner would have to buy another ULR. By selling license rights and not the patents themselves over the exchange, IPXI attempts to create a standardized way to sell patent licenses. The patent owner can essentially carve its patent into many small pieces and generate returns from individual licenses instead of from selling the entire patent. Sponsors (or “Issuers”) of ULRs assign or exclusively license patents to a special purpose vehicle (the “SPV”), that acts as Master Sub-Unit Licensor or Master Unit Licensor for purposes of offering ULR contracts (all ULR contracts are standardized, which as discussed later could be beneficial to the patent market if the ULR is met with broad acceptance). If the Enforcement Committee of IPXI chooses to enforce patents covered by a ULR, then that Committee will secure litigation funding and pursue infringers.²⁵

In theory this exchange (or another license-based exchange) could help large companies eliminate the need to enter into long and protracted cross-licensing discussions that cost millions of dollars. The idea of creating a mechanism that would prevent some of the epic patent battles of recent years is appealing to many constituencies. The key to making an exchange work is to understand what types of assets (and standardized contract features) are demanded from buyers and sellers, and what

²³ IPXI.com

²⁴ <http://www.ipxi.com/media/12-13-2011-Funding-Announcement>.

²⁵ <http://www.ipxi.com/products/ulr>

infrastructure is needed to support an efficient exchange, given many of the realities of patent transactions that are the norm today.

IV. Analogy: Financial Market Structures

There have been various efforts in recent years to identify the types of entities in the patent market, including buyers and sellers, intermediaries, NPEs, and financiers.²⁶ However, the definitions of companies that play differing roles in the patent market are not always clear because companies in the patent space have developed different strategies and business models for buying, selling, and licensing patents. Also, when compared to financial market structures, it is apparent that the patent market is missing some key components. This section attempts to look at traditional financial markets to categorize these companies into different sections and seeks to determine where the patent market is efficient and where it might be inefficient or have gaps.

A. A Brief History of Exchanges

Whereas today securities and futures exchanges are seen as highly efficient, automated electronic exchanges, they did not start out this way. Generally, exchanges emerged to allow (i) an issuer to receive cash by issuing a financial instrument (such as a stock or bond or commodity) to a buyer; and (ii) a buyer to resell that instrument to a third party. With enough buyers and third parties supplying capital, issuers could have a relatively efficient way to raise capital from a large supply of potential financial sources.

²⁶ See Andrei Hagiu and David Yoffie, "Intermediaries for the IP Market," Working Paper, Harvard Business School, October 12, 2011; Ron Laurie, "Existing and Emerging Patent Monetization Business Models," IBF Corporate Venturing Conference February 23-25, 2010 - Newport Beach, CA

1. *Early European Exchanges.* The first meaningful exchanges were established in London and Amsterdam in the 16th century. The Dutch East India Company was the first joint-stock company where individual shares could be traded.²⁷
2. *New York Stock Exchange.* The NYSE was formed by 24 NYC stockbrokers in 1792. There were originally only five securities traded among the brokers, with the first listed security being stock in the Bank of New York.²⁸
3. *American Stock Exchange.* The AMEX was formed in NYC in the 1800s by brokers focused on companies that were smaller and more speculative. Growth of the AMEX surged in trading of mining company shares during the gold rush.²⁹
4. *NASDAQ Stock Market.* The NASDAQ was formed in 1971 by the National Association of Securities Dealers as an alternative to the NYSE, which had listing requirements difficult for most small-capitalization companies to achieve. The NASDAQ was the first electronic exchange, although it started as a bulletin board listing service with trades conducted mostly by phone.³⁰
5. *Chicago Board of Trade.* The CBOT was formed in 1848 by merchants in Chicago that wanted a more formal way to trade grains. The CBOT eventually pioneered the development of and became the worldwide leader in exchange-traded commodity and financial futures.³¹
6. *Chicago Mercantile Exchange.* The CME was formed in the late 1800s as a spin off from the CBOT to provide a mechanism for the trading of agricultural contracts (first butter and eggs, then pork bellies, cattle, etc.). The CME introduced and specialized in futures contracts on a

²⁷ https://en.wikipedia.org/wiki/Dutch_East_India_Company; <http://www.nyx.com/who-we-are/history>

²⁸ <http://www.nyx.com/who-we-are/history>

²⁹ http://en.wikipedia.org/wiki/American_Stock_Exchange

³⁰ <http://en.wikipedia.org/wiki/NASDAQ>

³¹ http://en.wikipedia.org/wiki/Chicago_Board_of_Trade

variety of agricultural products and eventually pioneered the development of financial futures (currencies, stock index futures) in the 1970s.³²

7. *Chicago Board Options Exchange*. The CBOE was formed in 1973 as a spin off from the CBOT to provide a platform for trading options on individual stocks and indices (such as the S&P 100 and 500). Today's top products are options on the volatility index (the VIX).³³

The first key lesson to be drawn here is that exchanges were created by groups of market participants that were trying to address a market need. The commodities markets were formed by merchants and stock exchanges were formed by brokers. These exchanges were designed by market participants to promote the efficiency of buying and selling assets. The exchanges were not originally designed to be for-profit enterprises in the way that some exchanges (such as IPXI) contemplate, but most prominent commodities, stock and options exchanges have become for-profit entities.

For the patent market, one problem is identifying the parties most likely to be in the forefront of promoting a centralized patent exchange. Patent owners would probably be excited to establish an easier way to monetize patents. But if only patent owners create the exchange, then the needs of the patent licensees or buyers might not be met, and the exchange will not be successful. Similarly, if the exchange does not meet the needs of established patent brokers, then perhaps there will not be enough meaningful buy-in from enough market participants. Patent licensees will likely support the idea of a centralized exchange only if they believe they must engage in patent licensing. Some companies understand that they need to license patents because they fear or know that some patents will affect their businesses. Companies such as RPX and Intellectual Ventures, due to their size, number of

³² http://en.wikipedia.org/wiki/Chicago_Mercantile_Exchange; The CBOT and CME (and CBOE) never competed in the same contracts. The CBOT and CME merged in July of 2007. The CBOT and CME exchanges now operate as designated contract markets of the CME Group.

³³ http://en.wikipedia.org/wiki/Chicago_Board_Options_Exchange; the CBOE is providing investment and operational support to IPXI.

relationships, and positioning in the market, have helped promote the idea that patent licensing is a positive solution. Companies such as RPX and Intellectual Ventures could be players in establishing a centralized exchange.

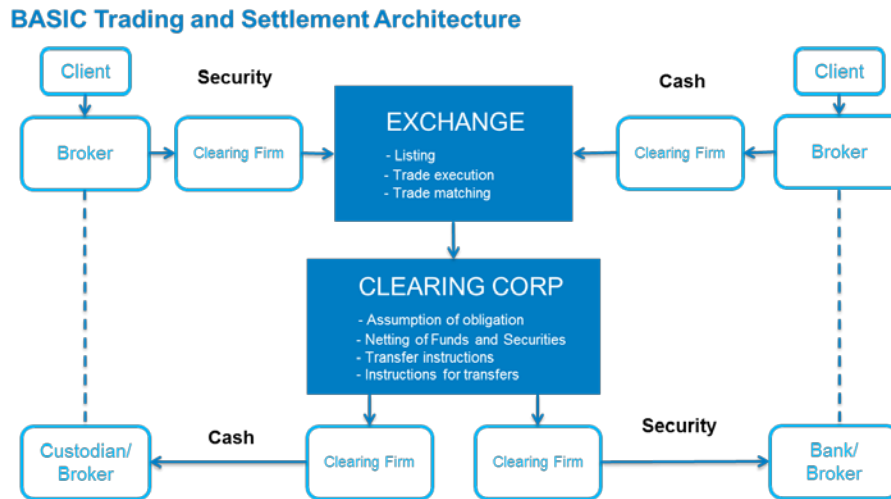
The second lesson here is that exchanges require standardized assets that have fungible characteristics. Patents are an attractive potential asset from this perspective, but many patent practitioners would argue that by definition each patent is a unique asset because it has to cover a novel invention that is not disclosed in another patent or practiced by a technology. If a company wants to acquire a patent, then the specific patent purchased is very important and a substitute patent in the same technology space may have no value. On the other hand, if a company is seeking to buy a patent for defensive value, then perhaps the specific patent is not as important.

The standards issue is especially important if the traded assets are patent license rights. Although IPXI's ULRs may play a role for certain transactions, it is not clear that its structure will be feasible for customized patent market transactions. Standardization is the issue the financial industry currently is facing with OTC derivatives, which often involve customized transactions for specific situations between financial counterparties. If swaps and other OTC derivatives are to be traded and cleared through a centralized exchange, standardized instruments need to be developed. A key question is whether patents and patent licenses can be sufficiently standardized to facilitate exchange trading.

B. Traditional Financial Market Structure

Historically, exchanges focusing on different financial instruments have had similar organizational structures, except that futures exchanges clearing corporations have assumed counterparty risk, while securities exchange clearing corporations have not.

Figure 1. Traditional Financial Market Structure



1. *Non-profit.* The original exchanges were not originally conceived to generate shareholder value. Instead the exchanges were group efforts created by brokers and financial participants to create a centralized platform on which *standardized* securities could be bought and sold. This required agreement among the parties forming the exchange. Today, all of the exchanges have demutualized and operate on a for-profit basis. There has been a great deal of consolidation among the exchanges in the United States and abroad. Today,
 - NYSE is “NYSE Euronext”
 - NASDAQ is “NASDAQ OMX Group”
 - CBOT and CME are part of the “CME Group”
 - The largest owner of exchanges and clearing corps in the world is the Intercontinental Exchange (ICE)

2. *Standardized Contracts.* In order to have tradable assets, the exchange members had to agree on standardized contracts. Trading, settlement, and delivery of stocks, options

contracts, futures contracts, and the like are only possible with standardized terms.

3. *Move from “Open Outcry” to Electronic.* Initially, all trades were done in person (“open outcry” on floors) or on the phone. Today virtually 100% of trading is electronic with the emergence of ECNs (electronic communication networks) such as Archipelago (which eventually was acquired by the NYSE) and Island ECN.
4. *Emergence of “Clearing Firms”.* Securities clearing firms are broker-dealers that place trades, settle accounts, and match real time buyers and sellers of a stock. An online broker such as TD Ameritrade uses a clearing firm to conduct trades for clients. Clearing firms are regulated by the Financial Industry Regulatory Authority (“FINRA”), an independent broker-dealer regulator. Clearing firms are required to monitor the behavior of the brokers whose trades they clear.
5. *Development of Clearing Corporations.* As trading volumes increased on exchanges, they established separate specialized “clearing corporations” designed to provide settlement and clearing functions. The clearing corporations are responsible for matching trades and making sure the trades are settled. In the futures markets the clearing corporations also assume the obligations of the trading entities on the exchange. Clearing corporations seek to ensure that exchange participants have liquidity.
 - a. Example: the *Depository Trust and Clearing Corporation*.³⁴ This entity is owned by banks, hedge funds, and other market participants and provides clearance for millions of securities issues. Its website says DTCC has processed “more than \$1.8 quadrillion in

³⁴ www.dtcc.com

securities transactions”.³⁵ The DTCC clears and settles for NYSE, NASDAQ, and AMEX and generates over \$1.5 billion in revenue per year. Profits are redistributed back to members.

- b. Example: the *Options Clearing Corporation*.³⁶ The OCC is the world’s largest equity derivatives clearing organization, primarily in equity options. By acting as a guarantor for options exchange trades, it seeks to ensure that the obligations of the contracts it clears are fulfilled. Its participant exchanges include CBOE, ISE, BATS, NASDAQ and NYSE Arca.

Services as listed by the Options Clearing Corporation include:

- Clearing and reporting
- Communications on settlement process
- Maintenance of margin requirements and maintenance of relationships with banks for settlement
- Process for posting collateral (of various types) to meet margin requirements
- Cross-margin relief for participating firms with highly correlated positions
- Securities lending
- Data
- Risk management

- c. Example: *CME Clearing*.³⁷ CME Clearing, a division of CME Group, Inc., is one of the world’s largest central counterparty clearing services, serving as the counterparty to every trade. Each clearing member assumes performance and financial responsibility for all transactions it clears. CME clearing risk management and financial surveillance

³⁵ Emphasis added.

³⁶ www.theocc.com

³⁷ <http://www.cmegroup.com>

practice are designed to improve stringent capital, operational, and risk management standards of clearing members.

C. Standardization Efforts under Dodd-Frank

One important, relevant trend of clearing corporations under the Dodd-Frank Act is that they are being tasked by the SEC and CFTC to create centralized clearing of standard OTC derivatives contracts such as swaps and CMOs. The recent Dodd-Frank legislation seeks to create a centralized infrastructure so regulators can see all of the various positions parties have taken and avoid future financial crises (often described as “transparency”).³⁸ The approach to standardization of swaps contracts and trading is relevant to the patent market because, as detailed below, patent sales and patent licenses are not, and have not been, standardized.

Swaps contracts are defined by Investopedia as:

A swap is an agreement between two parties to exchange sequences of cash flows for a set period of time. Usually, at the time the contract is initiated, at least one of these series of cash flows is determined by a random or uncertain variable, such as an interest rate, foreign exchange rate, equity price or commodity price. Conceptually, one may view a swap as either a portfolio of forward contracts, or as a long position in one bond coupled with a short position in another bond.³⁹

In other words, swaps are much like today’s patent transactions. Two parties enter into a complex agreement relating to the “swapping” of future cash flows. Just like patent license agreements, swaps contracts are notoriously long and complicated. There was little standardization when these contracts first appeared.

³⁸ <http://www.cftc.gov/LawRegulation/DoddFrankAct/index.htm>; <http://www.sec.gov/swaps-chart/swaps-chart.shtml>

³⁹ <http://www.investopedia.com/articles/optioninvestor/07/swaps.asp#axzz2K9lctuVh>

Regulators are quite concerned about swaps because of the dangers of financial contagion as seen in 2007 and 2008. The International Swaps and Derivatives Association (“ISDA”), comprises 800 member institutions from 60 companies. It states that the notional value of interest rate derivatives contracts was more than \$340 trillion as of June 30, 2012.⁴⁰ With that amount of value governed by thousands of non-standard contracts traded over-the-counter (meaning not on an exchange), regulators (and even swap participants themselves) have had a difficult time understanding what the risks of a meltdown are for the financial system.

Under the Dodd-Frank Act, parties engaging in swaps transactions must provide its transactions to a clearing organization, which has pre-approved a standardized form. Then the swap must then be traded on an authorized exchange or trading facility.⁴¹ The leading “standard” for over-the-counter derivatives contracts, the ISDA Master Agreement, was developed originally in 1987 and has had revisions over the years, with the last in 2002.⁴² The importance of having standardized agreements is that regulators and parties can more easily understand the overall risk positions of a large number of contracts in a shorter amount of time. If there are 100 contracts that have 100 different forms, then to understand all 100 contracts would require a thorough read of each contract. While not all of the terms in a swap contract can be standardized, standardized forms can substantially reduce the time spent in analyzing swap contracts.

Standardization of the swaps contract is not without difficulty, however. Consider a September 2007 agreement between Comerica Bank and Rackspace Inc. based on the 1992 ISDA Master Agreement available on the United States Securities and Exchange Commission’s EDGAR database.⁴³ The ISDA agreement is 17 pages long, has 14 paragraphs, and has 42 defined terms. The standardized contract is

⁴⁰ <http://www2.isda.org/about-isda/>

⁴¹ <http://blogs.law.harvard.edu/corpgov/2011/07/17/an-introduction-to-the-us-cleared-swap-infrastructure/>

⁴² http://en.wikipedia.org/wiki/ISDA_Master_Agreement

⁴³ “ISDA Master Agreement between Comerica Bank and Rackspace Inc., September 26, 2007” , <http://www.sec.gov/Archives/edgar/data/1107694/000119312508091225/dex1032.htm>

executed as a master agreement, and there is a 10-page schedule of terms customized to the particular transaction. These terms make adjustments such as:

- “The “**Cross Default**” provisions of Section 5(a)(vi) will apply not to Party A and will apply to Party B.”
- ““**Specified Entity**” means in relation to Party A - NOT APPLICABLE, and in relation to Party B – Affiliates.”
- “The “**Automatic Early Termination**” provision of Section 6(a) will only apply to Party A and to Party B if the laws of a jurisdiction other than the laws of the United States applies to this Master Agreement, the Credit Support Annex, or the collateral under the Credit Support Annex.”

Thus, these contracts, even with a standardized effort, are extremely complicated. However, the financial industry is working to be able to revise these complicated documents so they can be understood in a centralized way. The Depository Trust Corporation has been selected to be the Swap Data Repository,⁴⁴ and the Technical Committee of the International Organization of Securities Commissions issued its final “Report on OTC Derivatives Data Reporting and Aggregation Requirements” in January 2012.⁴⁵

V. Does the Patent Market have Participants that Can Drive Efficiency?

Whereas the patent market historically has been characterized by “cloak-and-dagger” secrecy and inefficiency, the financial markets are more open and efficient. Financial markets succeed largely because of the market participants, most of which have been around for decades. Asset managers, broker-dealers, exchanges, and clearing firms have had extensive experience as counterparties and have invested in the technologies and systems that make their markets work. Figure 2 below provides some examples of how components of the patent market match up to the financial market structure detailed

⁴⁴ http://www.dtcc.com/products/derivserv/suite/us_swap_data_repository.php

⁴⁵ Bank of International Settlements, <http://www.bis.org/publ/cpss100.pdf>

in Figure 1. What is clear is that there are some interesting natural developments in the patent market that match up fairly nicely, but there are gaps.

A. Patent Brokers and Other Intermediaries

In the patent market there is no entity that provides settlement activities in any centralized way, and there is no centralized exchange to allow for price discovery and standardized contracts. Brokers and lawyers in the patent market can help patent owners and licensees work out deals, but if securities are involved they would have to be broker-dealers to secure financing or extend credit to make a transaction happen.

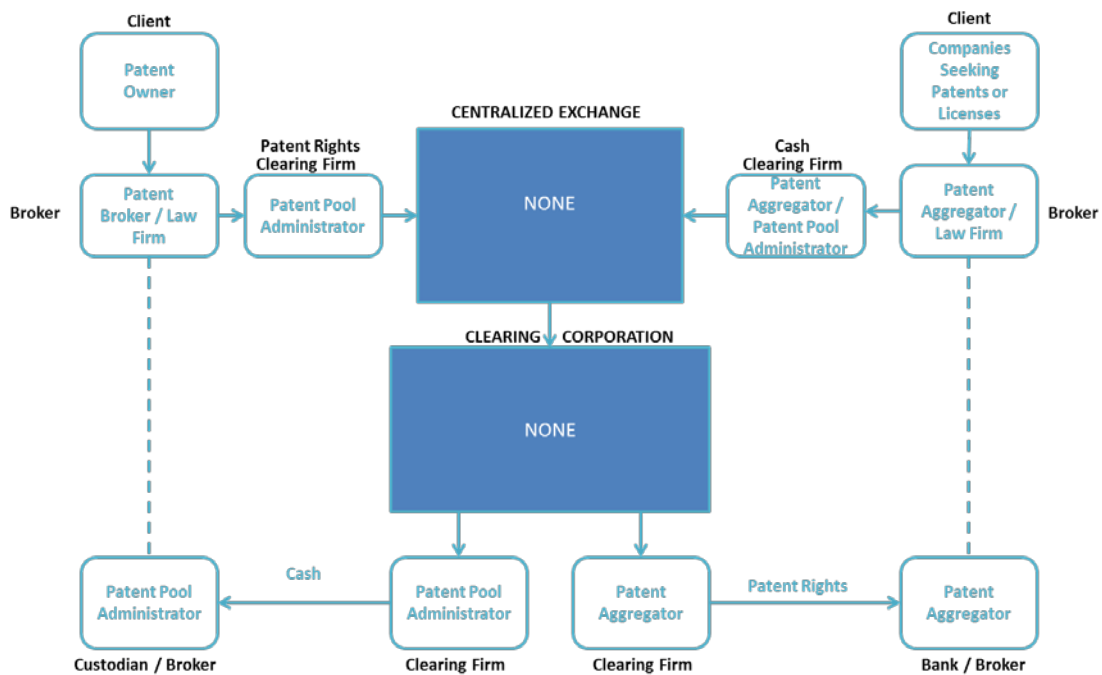
For instance, from 2003 to 2004, the earliest “patent brokers” emerged. Ocean Tomo, which was formed in 2003, developed an “M&A” group that focused on providing specialized advisory services to companies with patent portfolios.⁴⁶ Several other patent brokers emerged, and these small entities worked with inventors and other patent owners to help sell patents in the earliest attempts at patent “monetization”. The limitations of these brokers, however, are that they were developed primarily to broker patent sales and patent licenses. They were not set up to provide other financial advisory services that typically would require registering as broker-dealers or investment advisors. Lawyers and law firms have also played a role as quasi-brokers at times, even though their business models have typically incited them to pursue patent litigation rather than patent sales, since the fees for a drawn out litigation are much higher.

In the context of patents, “clearing” transactions would refer to the process of ensuring a patent license is properly structured and executed with appropriate rights and funds transferred. The two companies that have done the most from a patent clearance perspective are RPX Corporation and Acacia Corporation; although they have different tactics, both have worked to clear rights for a large

⁴⁶ One of the founders of RPX Corporation and the current CEO, John Amster, led this group with the author and two other current employees of RPX.

number of patent owners and patent licensees. RPX seeks to minimize the amounts paid by their patent licensee clients to defense lawyers and patent owners. Acacia seeks to maximize the amounts paid to patent owners from patent licensees. It is not clear whether Acacia prefers litigation to achieve its objectives, but RPX does not support litigation as an efficient route. One of RPX's most effective introductions to the market is that it has a standardized membership and license agreement that all of its clients sign. This agreement is then made available to NPEs and other patent owners who then understand the nature of the licenses involved. Market participants now understand the agreement and can efficiently execute the agreement when the next transaction comes along. Whether the transaction involves clearing rights in litigation or is a large transaction such as the Kodak bankruptcy, RPX's standardized approach has helped drive business and efficiency in its transactions.

Figure 2. Applying Components in the Patent Industry to the Financial Market Structure

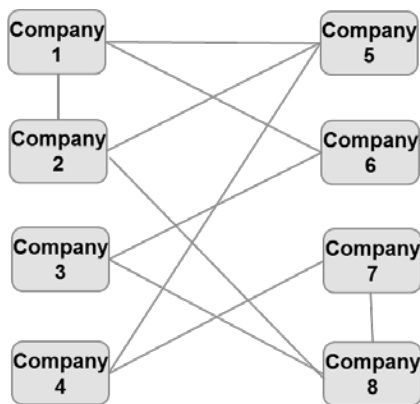


B. Buy-side and Sell-side in the Patent Market

The major market participants on the “buy-side” of the patent market are clearly the largest technology corporations (Apple, Samsung, Microsoft, HP, Google, etc.) that are targeted in lawsuits more than 50 times per year, and have licensing discussions around patents in multiples of their litigation numbers. The companies with the deepest pockets have the most to lose in patent litigation, and they are also the favorite targets of NPEs and other patent owners looking for financial return. Buy-side participants also include small and medium sized technology businesses, as well as non-technology businesses that use technology, such as a retailer with an E-commerce website.

The major players on the “sell-side” are the patent owners, who in many instances are also major players on the buy-side. In fact, the largest players in the technology industry have for years been cross-licensing. Only recently have they introduced ways to monetize patents in other ways through joint ventures with NPEs and patent pools.⁴⁷ These market-based solutions have been introduced to counterbalance the problems with traditional bilateral negotiations.

Figure 3. Traditional Bilateral Patent Negotiations



Prior to the unilateral negotiation and litigation business model of NPEs, patent licensing was conducted (and usually still is conducted) on a bilateral basis without centralized coordination and efficiency. Just as the lack of information with bilateral swaps contracts created an inefficient market

⁴⁷ See Fiona Scott Morton, “Patent Portfolio Acquisitions: An Economic Analysis,” Department of Justice, Presented at Fifth Annual Searle Conference on Antitrust Economics and Competition Policy, Northwestern University, Chicago, IL, September 21, 2012.

that contributed to a global financial market collapse, the billions of dollars of transacting in the patent industry without centralization and coordination creates inefficiency and potential danger. Innovations such as patent pools and patent aggregation made by firms such as RPX and Intellectual Ventures have helped address transparency and efficiency issues, but these efforts have not addressed the entire market for patents.

One of the recent developments for the sell-side patent owners is the influx of financing available to patent owners (mostly NPEs) enabling them to buy patents and engage in patent monetization strategies through licensing and litigation. Intellectual Ventures, which has raised over \$5 billion from corporations and institutions is the far and away leader in this endeavor.⁴⁸ Another prominent firm in this sell-side patent arena is Altitude Capital Partners, which has raised millions of dollars to invest into patent litigation against many buy-side companies.⁴⁹ Beyond these two high-profile examples, there are dozens of firms (from funds focused only on patents to large multi-strategy hedge funds) that are willing to provide capital to finance sell-side litigation strategies. Publicly-traded Acacia Research uses the public markets in part for its financing as well.

Some large sell-side patent owners, such as Alcatel-Lucent, turn to RPX for its ability to form buying syndicates.⁵⁰ This type of activity is similar to the underwriting work of investment banks that seek to find groups of buyers for a company's securities prior to a public offering.

C. Standardized Licensing Contracts in the Patent Market

⁴⁸ See Jim Kerstetter and Josh Lowensohn, "Inside Intellectual Ventures, the Most Hated Company in Tech," *Cnet.com*, August 21, 2012, http://news.cnet.com/8301-13578_3-57496641-38/inside-intellectual-ventures-the-most-hated-company-in-tech/; Nathan Vardi, "Nathan Myhrvold's Patent Investing Returns are Still Lousy," *Forbes.com*, June 2012, <http://www.forbes.com/sites/nathanvardi/2012/06/19/nathan-myhrvolds-patent-investing-returns-are-still-lousy/>; "Transcript: Myhrvold of Intellectual Ventures," *WSJ.com*, September 2008, <http://online.wsj.com/article/SB122142717791833671.html>.

⁴⁹ See Nathan Vardi, "Patent Pirates," *Forbes.com*, May 2007, http://www.forbes.com/free_forbes/2007/0507/044.html, the author worked with ACP at this time; Nathan Vardi, "Big Companies Might Learn to Fear Digitude," *Forbes.com*, June 2011, <http://www.forbes.com/sites/nathanvardi/2011/06/13/big-tech-companies-might-learn-to-fear-digitude/>.

⁵⁰ See: "Alcatel-Lucent signs IP deal and pledges higher margins," *Reuters*, February 2010, <http://www.reuters.com/article/2012/02/10/us-alcatel-idUSTRE8190FA20120210>

Whereas the swaps market and other OTC derivatives markets are seeking out standardized agreements to promote efficiency, there are almost no standardized licensing contracts in the patent market and certainly there has been no clarion call to create them. There are standard agreements that individual buy-side companies will insist upon before they buy patents or enter into licensing agreements, and there are standard agreements that individual sell-side companies will insist upon before they sell or license patents. These standard agreements are used by companies that have the ability to say “take it or leave it”. There are also efforts to create standardized agreements around open-source software, whereby a patent owner will license its patents to the open source movement.⁵¹ Similarly, Twitter made news by promoting the idea of a “defensive patent license” whereby it pledges and encourages other companies to pledge not to assert its patents against other companies except in special circumstances.⁵²

The effectiveness of RPX’s standardization approach was described above. Another effective promotion of standard licenses in the patent market has been through patent pools. A patent pool generally describes the efforts of a group of patent owners to collectively license their “essential” patents around a technology standard. The standard can be set by a standard settings body such as the IEEE Standards Association⁵³ and others throughout the world.⁵⁴ Patent pools have challenges because they are generally comprised of large corporations engaged in the same types of technology, so when they offer patents as a group, there are antitrust concerns. The antitrust approach to date has been that if patents are “essential” to promoting a technology, then a patent pool may proceed without antitrust prohibitions.⁵⁵

⁵¹ See for example, Simon Philips, “A New Way to End the Patent Madness,” *InfoWorld*, June 2012, <http://www.infoworld.com/d/open-source-software/new-way-end-the-patent-madness-195611>.

⁵² See Jon Brodtkin, “Twitter’s no-lawsuit Pledge: ‘We will not Join the Patent Wars,’” *arstechnia.com*, April 2012, <http://arstechnica.com/tech-policy/2012/04/twitters-no-lawsuit-pledge-we-will-not-join-the-patent-wars/>.

⁵³ <https://standards.ieee.org/>

⁵⁴ http://en.wikipedia.org/wiki/Standards_organization

⁵⁵ See http://en.wikipedia.org/wiki/Essential_patent

While essentiality is usually in the eye of the beholder (most always an attorney), the one aspect of patent pools that promotes efficiency is the offering of standard licensing rates on standard terms. In other words, if a company is seeking patent clearance around a group of patents on a technology standard, there can be a single license offered by a pool administrator (such as MPEG-LA⁵⁶ or Via Licensing⁵⁷) that puts forward the terms of the license. Every company that obtains a license from the pool is required to enter into a license agreement with the pool of companies offering their patents on a “random and non-discriminatory basis”.⁵⁸

Although the standard licensing terms of a patent pool are effective in promoting market efficiencies, there are constraints on the efficiencies of patent pools. First, each patent pool (and there are dozens) covers a different technology standard and applies to different industries, thereby limiting the efficiency of the pool. Second, patent pools provide no standardization around non-essential patents (which are more than 90% of patents)⁵⁹ because patent pools exist only to the extent that antitrust authorities will provide no-action letters around the pool. In other words, patent pools are effective, but they usually cover only essential patents, and usually the non-essential patents cause the most trouble for companies.

In order to have efficiencies in any market, the more standardized the contracts the better. In the patent market, the lack of standardization for virtually all patent license agreements is a major barrier towards creating efficiency.

D. Patent Clearing and Settlement.

One of the important functions of the financial markets is the role of clearing and settlement of financial transactions. Most individuals understand the idea that when they sell a stock on their online

⁵⁶ <http://www.mpegla.com/main/default.aspx>

⁵⁷ <http://www.vialicensing.com/>

⁵⁸ See http://en.wikipedia.org/wiki/Reasonable_and_non-discriminatory_licensing

⁵⁹ The author speculates more than 99% of patents.

brokerage account, the proceeds from their trades will show up in their accounts within three days. This is actually a requirement put forth by the United States Securities and Exchange Commission:⁶⁰

Investors must complete or "settle" their security transactions within three business days. This settlement cycle is known as "T+3," shorthand for "trade date plus three days."

T+3 means that when you buy a security, your payment must be received by your brokerage firm no later than three business days after the trade is executed. When you sell a security, you must deliver to your brokerage firm your securities certificate no later than three business days after the sale.

The three-day settlement date applies to most securities transactions, including stocks, bonds, municipal securities, exchange traded mutual funds, and limited partnerships that trade on an exchange. Government securities and stock options settle on the next business day following the trade.

The idea behind centralized clearing and settlement in the stock market is that if every investor that bought stock on the NYSE or NASDAQ had to offer payment for the stock directly to the seller, and if every seller had to deliver the stock directly to the buyer, the stock market in the United States would come to a screeching halt.

In the patent market, however, every patent (or patent license) being offered for sale requires buyers and sellers to conduct serious analysis and due diligence regarding counter parties before any transaction can be completed. Additionally, because deals can become complicated based on the type of patent (or patents), the type of technology, and the size of the market, among other factors, patent transactions usually involve a significant amount of customized, non-standard deal provisions in the contract. These deal provisions might include payments over time, or contingent payments, or field-of-use restrictions. Moreover, the provisions may require that the asset in play be held back or clawed back under certain circumstances, throwing the idea of settlement into question at the onset.

⁶⁰ <http://www.sec.gov/answers/tplus3.htm>

Even more difficult for the patent market is that there has never been any kind of centralized effort to understand the encumbrances behind patents. An encumbrance in the patent industry generally refers to a pre-existing license that has already been granted by a patent owner. A perpetual patent license travels with the patent. For instance, if a seller of a patent grants a full perpetual license to that patent to Apple, then the new buyer of the patent can't sue Apple for patent infringement with that patent. From the perspective of the buyer, that patent is "encumbered" because the buyer can't sue Apple.

The problem here is that because of the huge volume of patent licenses in the technology industry (including cross-licenses, licenses embedded in product sales, licenses embedded in covenants - not-to-sue arrangements, etc.), currently, there is almost no certainty that a patent is "unencumbered". Understanding a patent's encumbrances requires a potential buyer to understand all of the past licensing activities of the patent's prior owner. With over eight million patents issued in the United States to date,⁶¹ there are many encumbrance possibilities. Understanding title ownership and potential encumbrances is difficult because most companies do not take the time to consider the issue in the first place. Ideally, the patent industry would create a centralized entity (similar to a clearing corporation as described previously) that would collect licensing data on every patent and record patent licenses. Thus, when a patent is bought and sold, the clearing company could provide a report of past and existing licensees.

One last absence from the patent market is the presence of lenders providing capital to ensure parties are financially able to execute their transactions. In the financial markets, clearing brokers or clearing corporations often ensure a trade goes through by providing capital to the buyer. In the patent market there are buyers of patent assets, but there are no clearinghouses that allow a frequent buyer of patents desiring to buy and sell patents to buy on margin.

⁶¹ <http://www.govtech.com/newsletters/Question-of-the-Day-for-081911.html>

E. Centralized Exchange

Finally, there is currently no centralized exchange in the patent market for the buying and selling of patent assets. IPXI, as mentioned earlier, is seeking to create an exchange around unit license rights, but to date it has not launched. Ocean Tomo for several years generated excitement around “patent auctions” where it would hold live auctions allowing patent sellers to offer patents to patent buyers.⁶² The patent auction concept was significant on a relative basis for several years, but demand for the auction concept dropped off as the patent market evolved. It is no surprise that IPXI was formed and spun out by Ocean Tomo. Again, based on the past history of exchanges, it seems that the most likely scenario for an exchange to happen is that (i) patent buyers (or patent licensees) would first have to embrace the idea that creating a more efficient patent marketplace is in their interests (this is a position RPX supports); and (ii) patent buyers/licensees and patent owner/sellers would have to come together and agree on how the market should be structured. Companies such as RPX, Intellectual Ventures, and Acacia would potentially play an important role in this effort.

VI. **Conclusion**

This paper demonstrates that there is a robust patent market with many players that continues to evolve. However, the market as it stands creates many transaction costs that harm the technology industry. Consider:

- License agreements are basically non-standard;
- Huge amounts of due diligence are required before any deal is transacted;
- Because there is no centralization on the exchange or on the clearing side, there is little data on encumbrances or prices paid in the past;
- Patent buyers have enormously different ideas around technology definitions than do patent owners;
- There is no resource to determine whether a product or service infringes a patent; and
- Targets of patent licensing activities are not yet supporting the idea that an efficient patent market serves their interests.

⁶² For an interesting view on the business see <http://www.slideshare.net/marcusmalek/complete-ocean-tomo-auction-analysis-marcus-malek-intangitopia>

This is a short list and there are likely many other barriers to efficiency in the patent market.

It is not clear that the patent market could, or even should, try to create a centralized exchange that is as efficient as today's financial markets. Nevertheless, patent transactions would benefit from more standardization around patent licenses and the collection and dissemination around encumbrances in a centralized place. Additionally, the patent market needs to develop a group of focused, specialty finance and advisory firms to help patent owners understand their options for monetizing patents. With the help of this advice, hopefully many transactions will take place that start to mirror transactions in the "tangible world" and a group of short-term "intangible" credit providers will arise.