

The economics of judicial patent reform in the United States

By **Glenn Perdue**

The patent landscape in the United States is in the midst of significant change. This stems largely from systemic reform efforts aimed at addressing a patent system many consider to be out of sync with today's business realities. Topping the list of concerns is the perception among many that patent quality is poor while patent rights enforcement has been unreasonably tilted in favour of patent holders; even if the patents held are of questionable merit and they do not practise the patent.

These factors, along with the increasing economic importance of intellectual property as a driver of business success – and in many cases survival – have led to the rise of companies focused solely on asserting patent rights. The term patent troll has emerged to define companies such as Acacia Technologies Group Inc (Acacia) that exist for this purpose. But beyond firms such as Acacia that are the focus of many reform efforts, software companies, life science companies and others are also being targeted in varying degrees.

Patent reform activity is occurring on three primary fronts: legislative, regulatory and judicial. A review of these various efforts can be found in the June/July 2007 issue of *IAM* in an article entitled "Clearing the Underbrush" by Cameron Gray (pages 23-28).

Most prominent in the area of legislative efforts is the pending Patent Reform Act of 2007 which is, at the time of writing, making its way through Congress. However, in addition to this broad-based legislative reform effort, there are also more targeted, industry-specific reforms being proposed such as efforts to allow generic biologics, the biotech version of generic drugs.

Current regulatory changes include recent activity at the US Patent and Trademark Office to place restrictions on patent claims

and continuations in an effort to improve patent quality and reduce patent examination time. Another example of regulatory activity that will have an impact on patent value is found in an April 2007 report issued by the US Department of Justice and the Federal Trade Commission relating to the legal and economic issues that exist at the intersection of intellectual property rights and antitrust enforcement. The final chapter of this report discusses heightened regulatory interest in practices that effectively extend a patent's term beyond its original statutory limit.

While there is an intense level of patent reform activity occurring at the legislative and regulatory levels in the United States, the most visible and tangible reforms experienced recently have been at the judicial level. Since May of 2006, the US Supreme Court has ruled on four patent-related cases. These cases have been the subject of an endless stream of articles and discussion. Therefore, the following discussion of these cases will be brief and will focus upon key economic implications.

eBay v MercExchange

eBay was decided on 15th May 2006 and established that injunctive relief was no longer a given for a prevailing plaintiff, particularly if it did not practise the patent in dispute. Key economic implications include:

- Reduced injunction-related leverage, which in turn reduces the patent holder's bargaining power before, during and after litigation;
- Opens the door to compulsory licensing for post-decision royalties and introduced compulsion into the post-decision royalty rate assessment as parties are no longer willing participants.

MedImmune v Genentech

MedImmune was decided on 9th January 2007 and provided that compliant licensees could bring suit against licensors. Prior to

MedImmune, licensees had to be in breach of their licence agreement – thus allowing licensors to claim wilful infringement – before they could bring a declaratory judgment action claiming invalidity, unenforceability or non-infringement of a licensed patent. Key economic implications include:

- Increased likelihood of patent challenges by licensees, which in turn increases litigation risks and enforcement costs for patent holders.
- Increased risk and uncertainty associated with royalty income.

KSR v Teleflex

KSR was decided on 30th April 2007 and found the prior test of patent obviousness applied by lower courts to be too rigid. The US Supreme Court determined that a more flexible approach in assessing obviousness was needed. Key economic implications include:

- Greater uncertainty as to the basis of obviousness and the related concern by some that most things may appear obvious in hindsight.
- Opens the door to more patent rejections and invalidity findings based on obviousness, particularly with patents arising from new combinations of known elements and incremental improvements. The US Court of the Appeals for the Federal Circuit applied *KSR* in May 2007 in *Leapfrog v Fisher Price* in affirming a lower court ruling that Leapfrog's patents were obvious.
- Fewer patents relating to improvements, combinations and methods of use relating to a core innovation will be upheld. This, in turn, will reduce the effective patent protection period for the innovation.

Regarding the last point, an overarching concern with *KSR* is that greater patent rejection and invalidity risk will adversely alter the risk-return dynamics of patent prosecution, investment and litigation. For instance, to the extent that *KSR* reduces a patent holder's ability to expand its patent estate around foundational patents, prospects for investment recovery may be diminished as the term of overall patent protection is reduced. This outcome could adversely affect bio-pharmaceutical companies in particular that rely upon follow-on patents effectively to extend patent life. Following *KSR*, these follow-on patents may be more difficult to obtain and enforce, thus contributing to diminished product lifecycles and investment returns.

Microsoft v AT&T

Microsoft was also decided on 30th April 2007 and is in many ways not as far-reaching in its economic impact as the prior three cases. In this decision, the court delved into the issue of what constitutes a component as defined by current statute and found that Microsoft was not liable for damages resulting from the sale of computers manufactured abroad that contained infringing AT&T source code. Key economic implications include:

- Reduced ability to recover damages from infringing foreign sales.
- Recovery of international damages may require additional patent protection in other countries at additional expense to the patent holder.

Economic summary

Taken together, the four Supreme Court cases will, in many instances, diminish patent holder bargaining power, damage recoveries, royalty income and thus patent value.

Particularly potent is the combination of *MedImmune* and *KSR* which, in the words of Chicago patent attorney Thomas Duston, creates a "perfect storm" scenario. Using this combination of case law, otherwise compliant licensees can challenge currently licensed patents on the grounds of obviousness without having to bear the risk of breaching their licence agreement, thus reducing the risk of treble damages as a wilful infringer. This is not to say that *KSR* and *MedImmune* create a no-lose proposition for licensees that wish to challenge the patents they have licensed. Patent litigation remains a high-stakes game that carries significant business risks.

Economic impact summary

	Patent holder		
Supreme Court decision	Bargaining power	Damages & royalties	Patent value
<i>eBay v MercExchange</i>	Injunction leverage	Compulsory licence???	↓
<i>MedImmune v Genentech</i>	More licensee challenges	Lost royalties reduced damages	↓
<i>KSR v Teleflex</i>	More obviousness challenges	Lost damages and royalties	↓
<i>Microsoft v AT&T</i>	Infringement occurring abroad	International recovery	↓

Copyright: Crowe Chizek and Company LLC

However, in the aftermath of these two cases, the licensee's risk associated with challenging a licensed patent has been dramatically reduced, thus logically inviting more litigation of this type against licensors.

Sources of differential impact

In situations where reform efforts affect a large and diverse population of stakeholders, winners and losers inevitably emerge. As a result, battle lines tend to form in the early stages of reform activity as stakeholders begin assessing their vulnerabilities and potential gains.

In the Supreme Court cases considered here, diverging positions became apparent in the various *amicus* briefs filed with the court. As illustrated in these briefs and related lobbying efforts, certain business characteristics become core indicators of the differential economic impact that may result from reform.

Primary method of exploitation

The method of exploitation is the manner in which the patent holder makes economic use of the patent and may include:

- Offensive uses, which exploit the monopoly value of a patent to make and/or sell a product that embodies the patent while legitimately excluding others from competing.
- Defensive uses, which exploit the monopoly value of a patent to block competitive entry for products not covered by the patent or as a form of currency in settlement negotiations, litigation and cross-licensing with parties alleging infringement of other patents.
- Licensing, which creates value through royalty income derived from allowing licensees to practise the patent.
- Enforcement, which creates value through the assertion of patent rights to block infringing competitive activity and/or through the extraction of cash settlements or damages from alleged infringers.

Enforcement is a method of exploitation available to all patent holders. However, *eBay* and other recent reform efforts specifically contemplate situations where a patent holder does not practise the patent but instead focuses upon licensing and enforcement as primary means of exploitation. These reform efforts will more adversely affect non-practising patent holders in general.

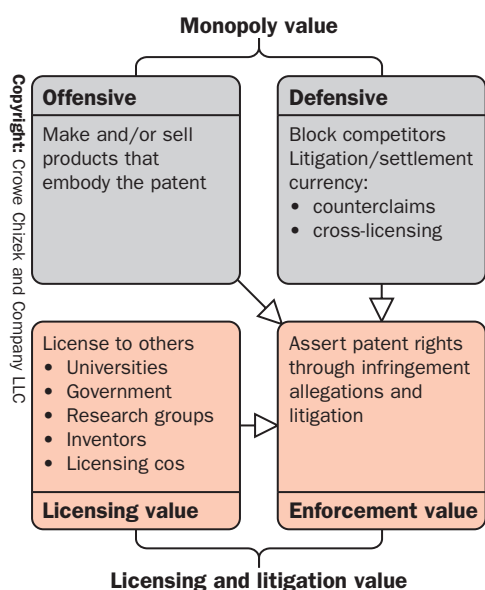
Industry characteristics:

Three primary industry characteristics appear

most relevant in assessing relative economic positions and outcomes from patent reform. The bio-pharmaceutical and software industries are contrasted below to illustrate these often divergent characteristics:

- Innovation dynamics differ between industries based upon the nature of the innovation process and the attitudes of the people involved in the process. For instance, while the software industry has never fully accepted the idea of patenting, the bio-pharmaceutical industry relies upon it and embraces it. Another difference in innovation dynamics may exist due to the components of innovation. Bio-pharmaceutical innovation may result from applying a single, big idea while software innovation may result from combining many small ideas stitched together in a clever manner.
- IP investment dynamics are driven by the risks and returns of the industry and the specific product or service that embodies the innovation. Commercially viable bio-pharmaceutical innovations result from expensive research, development and commercialisation processes. These may last years, cost millions of dollars and result in a single patent. In contrast, a commercially viable software innovation may be developed in a matter of days and be made available to users immediately. While it is implausible for a software company to consult with patent counsel every time a programmer figures out a clever new way to solve a problem, it is essential for a pharmaceutical company to obtain patent protection as the basis for investments in new drugs. In general, IP investment dynamics differ by size and duration of up-front investments, the magnitude and likelihood of downstream returns, and the time horizon associated with market protection.
- Infringement risk and litigation vulnerability also differ by industry and segment. For instance, large software companies such as Microsoft have been particularly vulnerable to smaller companies and individuals with software patents they allege are being infringed. Banks have also become common targets for patent litigation involving cheque processing technology, on-line banking and electronic funds transfer technology. Thus, software, financial services and other industries consisting of large technology-driven companies are

Patent exploitation



generally more susceptible to patent infringement and litigation risks.

Business size and capitalisation

The final point above speaks indirectly to the issue of business size and capitalisation as a factor relevant to the differential economic impact of patent reform. Large well-capitalised companies are generally lucrative targets for infringement actions because the risk of litigating often outweighs the cost of settling. However, such companies also have the means of funding strong defences if necessary, while smaller plaintiffs may lack the capital to go all the way in an expensive and protracted litigation process.

Market observations

To gauge the market's response to the Supreme Court cases discussed herein and the differential economic impact upon certain industries and groups, I obtained share price data for the period 1st May 2006 through to 8th May 2007 for the equities and indexes listed below. These companies and indexes serve as proxies for the broader groups to which they belong and thus enable a general assessment of the short-term value impact of the Supreme Court decisions considered in this article.

Acacia Technologies Group Inc (ACTG) is perhaps the best-known patent rights assertion company in the United States. It is also one of the few public companies focused on this business. Given the lack of public companies like Acacia for which share price data was available, Acacia was selected as the sole entity to represent this broader group.

The Ocean Tomo 300™ Patent Index (OTPAT) is a stock index comprised of 300 publicly traded companies that own quality patent portfolios. It includes companies such as Exxon, Pfizer, IBM and 3M, to name a few. This index broadly represents patent-intensive companies across various industries.

The Biotech-Pharmaceutical Index (BPI) is a stock index comprised of the American Stock Exchange indexes for the biotechnology and pharmaceutical industries weighted equally.

The Software Holders Index (XWH) is, at the time of this writing, a stock index comprised of 13 software companies which include Microsoft, Oracle, and Adobe.

The chart on page 7 illustrates the indexed value for each of the above over time so that relative changes in market value can be assessed. Acacia – a relatively small company with 2006 revenues of

approximately US\$41 million and a market capitalisation of approximately US\$400 million – is being used as proxy for patent rights assertion companies. Of course, its comparison to stock indexes is imperfect as indexes tend to include many companies with large market caps which exhibit smoothed stock price movements. As a result, the indexes tended to move together in this analysis while Acacia demonstrated much greater volatility. Notwithstanding these imperfections, this analysis supports several relevant insights:

- Acacia's stock price consistently dropped for several days following each of the four Supreme Court decisions.
- Acacia's stock price appreciated 27% between 1st May 2006 and 8th May 2007 – the one-year period during which all four Supreme Court cases considered herein were decided. However, during the prior three-year period – April 2003 to April 2006 – Acacia's stock appreciated at a compound annual growth rate (CAGR) in excess of 100%. Furthermore, Acacia's stock price was noticeably more volatile during the 12-month period of analysis than the prior 12-month period. It seems reasonable to infer that much of the increased volatility and dampened share price growth observed is attributable to the Supreme Court decisions that adversely affected the value of Acacia's patents – the underlying assets upon which Acacia's business is built.
- Overall returns for the index groups during the one-year period considered were approximately 10% for software companies (XWH), 14% for patent-intensive companies (OTPAT) and 18% for bio-pharmaceutical companies (BPI).

The chart on page 8 compares the closing price of each group the day before the Supreme Court decision with its closing price the day of the decision, the day after the decision and five days after the decision. This analysis provided the following notable observations:

- Based on five-day post-decision price changes, Acacia's stock price was the most affected by all decisions with a 12%, 4% and 12% decline in value following *eBay*, *MedImmune* and *KSR/Microsoft* respectively. The overall value impact based upon cumulative post-decision price change averages was a decline of 15.6%.
- The overall reduction in value indicated for the three stock indexes considered was

Patent value implications

Reduced cash flows due to:

- Reduced damage recoveries
- Higher incidence of rejected and invalidated patents
- Reduced patent estate growth, protection

$$PV = \frac{CF_n}{(1 + r)^n}$$

Increased risk due to:

- Greater patent-related uncertainties
- More patent challenges from competitors, licensees, infringers
- Case law and pending statute – implications unclear

Copyright: Crowe Chizek and Company LLC

3.3% for software companies (XWH), 0.7% for patent-intensive companies (OTPAT) and 0.1% for bio-pharmaceutical companies (BPN).

- The most apparent negative directional change occurred following the *eBay* decision with 10 out of 12 price changes reflecting declines in value.
- The most significant decline in overall values also occurred following *eBay* with an overall average price decline of 2.7%. Overall declines for the index group alone following *eBay* were 1.2%.
- The most notable directional change and overall decline in value for an index group occurred with the software index (XWH). Eight out of nine directional indicators were negative while the overall value decline was 3.3%.

Based on the above, it appears that the *eBay* decision may have been considered to have had the most significant impact on patent value due to weakening of injunction-related leverage for patent holders. In terms of differential impact, Acacia, and by inference companies like it, were the most adversely affected by the four Supreme Court decisions, whereas bio-pharmaceutical companies appear to have been the least affected.

Winners and losers

Firms such as Acacia are obviously being targeted by patent reform efforts and, as the

data suggests, recent Supreme Court decisions have had an adverse impact on patent and business values for this group.

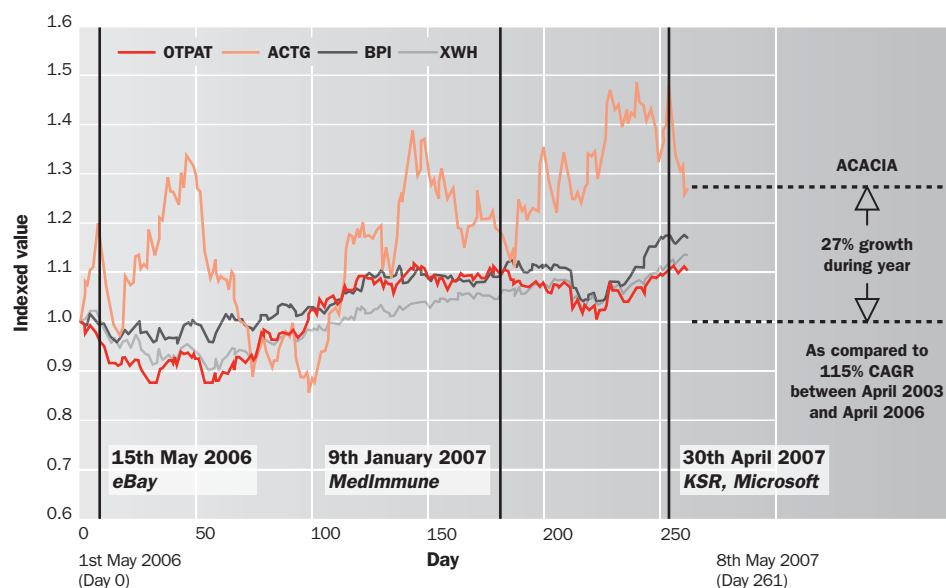
Software companies also appear to have suffered from judicial patent reform efforts, although many such as Microsoft and others that are frequent targets of litigation will probably emerge as net beneficiaries from reform efforts. The decline seen among this group may reflect the overall sense that software and business method patents are particularly vulnerable to reform efforts and that software-related patents are a general target due to perceptions of poor patent quality and previous enforcement abuses.

In many ways, pharmaceutical and biotech companies have the most to lose from current patent reform efforts. *KSR*, *MedImmune* and proposed legislative and regulatory reforms could work in concert to limit the lives of patent estates and threaten royalty income, thus adversely affecting the risk-return dynamics of investing in new products. Although the bio-pharmaceutical index value (BPI) recovered to pre-decision levels five days following the *KSR* decision, on the day of the decision the BPI index value declined 1.0% from the day prior and remained at a similarly depressed level the day after the decision. These post-decision declines may be substantially attributable to *KSR* and the Supreme Court's new, more relaxed view of patent obviousness.

The financial services industry has made its voice heard in Congress and elsewhere regarding the need for patent reform after being targeted with patent infringement lawsuits for years by individuals and companies that control patents related to technology-dependent bank processes. One of the better-known plaintiffs in this area is DataTreasury Corp. In July 2005, DataTreasury settled a long-running patent infringement suit against JP Morgan Chase related to its patents for image capture and storage used in check processing. Following the settlement, a press release was issued by the Texas law firm that represented DataTreasury. "Simply put, a complaint for infringing DataTreasury's patents should be interpreted as a formal invitation to either license or litigate," said lead counsel Ed Hohn of Nix, Patterson & Roach LLP. "We are now preparing to take defendants First Data Corporation and Ingenico to trial."

Recent research by Harvard Business School professor Josh Lerner considers financial patent litigation from 1976 to 2005. Lerner found that financial patents were "being litigated at a rate 27 times

Indexed stock prices



Sources: Yahoo Finance, American Stock Exchange. Analysis by Glenn Perdue. Copyright: Crowe Chizek and Company LLC

higher than that of patents as a whole” and that the patents being litigated were “disproportionately those awarded to individuals”. When considering this dynamic, one can’t help but recall the words of infamous bank robber Willie Sutton who, when asked why he robbed banks, replied: “Cause that’s where the money is.”

In response to patent infringement risks, the financial services industry has lobbied effectively for an amendment to the patent reform act that seeks to protect banks from suits related to cheque clearing along with other targeted reforms that would reduce the number and cost of infringement suits. For these reasons, financial services companies will probably emerge as patent reform winners.

Unintended consequences

Efforts to reform the US patent system and reduce what some view as opportunistic litigation awards may have unintended consequences. Will these efforts harm universities, individual inventors, research institutions and others that do not practise their patents by making or selling a product, but instead create economic value through legitimate research and invention? For this group, patent exploitation occurs through licensing and enforcement, the same methods of exploitation used by Acacia. As a result, reform efforts targeting companies such as Acacia may inadvertently harm these other groups. Universities engaged in bio-pharmaceutical research may be particularly vulnerable given the current reform agenda.

Because of the time and expense associated with patent litigation, individuals and small firms that wish to assert their rights often work with companies such as Acacia or speciality finance companies such as Altitude Capital Partners (Altitude) to fund and manage the litigation process. In fact, the Lerner research cited previously indicates that the majority of the financial patent cases he reviewed did not involve an assignee or inventor as a litigant. Instead, third parties that either licensed or purchased the patent (such as Acacia or Altitude) played the lead role in the majority of these cases.

As reforms make damage recoveries more uncertain for patent holders, returns from investments in patent litigation also become more uncertain. This dynamic could make patent rights assertion financing more difficult to obtain for individual inventors and small companies. Thus, another unintended consequence of current patent reform efforts

Post-decision value changes

	% change from day prior to decision				Overall average		Directional analysis	
	OTPAT	ACTG	BPI	XWH	All	Indexes	Negative	%
eBay								
5/15/2006	-0.1%	-5.9%	0.7%	-0.5%	-1.5%	0.0%		
Day after	-0.4%	-3.6%	0.7%	-1.0%	-1.1%	-0.3%		
5 days after	-3.5%	-12.0%	-2.8%	-3.7%	-5.5%	-3.3%		
Average	-1.4%	-7.1%	-0.5%	-1.7%	-2.7%	-1.2%	10	83%
MedImmune								
1/9/2007	0.1%	2.8%	-0.1%	-0.4%	0.6%	-0.2%		
Day after	0.1%	0.2%	0.1%	-0.8%	-0.1%	-0.2%		
5 days after	1.6%	-4.1%	2.7%	-1.1%	-0.2%	1.1%		
Average	0.6%	-0.4%	0.9%	-0.8%	0.1%	0.2%	5	42%
KSR & Microsoft								
4/30/2007	-0.7%	-5.7%	-1.0%	-1.4%	-2.2%	-1.0%		
Day after	-0.5%	-6.6%	-0.9%	-1.0%	-2.2%	-0.8%		
5 days after	1.3%	-11.9%	0.3%	0.0%	-2.6%	0.5%		
Average	0.1%	-8.1%	-0.5%	-0.8%	-2.3%	-0.4%	9	75%
Cumulative								
	-0.7%	-15.6%	-0.1%	-3.3%				
Directional analysis								
Negative	5	7	4	8				
%	56%	78%	44%	89%				

Copyright: Crowe Chizek and Company LLC

may be that larger, well-funded companies are increasingly able to win a war of economic attrition against smaller adversaries that simply cannot gain access to the capital and expertise they need to litigate effectively. In light of this, some would contend that companies such as Acacia and Altitude level the playing field for smaller patent holders with legitimate rights to defend.

Finally, how will patent reform affect societal welfare? Will consumers be winners or losers? Will reform efforts stifle innovation by undermining property rights and economic incentives? Will patent reform cause potentially life-saving drugs and devices not to be developed and will lives be lost as a result? Will the pendulum of reform sway too far and disproportionately harm patent holders as a result? Or will businesses and consumers benefit from a clearer, fairer patent system that better aligns economic incentives for the greater good? Time will tell.

Glenn Perdue is an executive with Crowe Chizek and Company LLC where he leads the firm's intellectual property practice gperdue@crowechizek.com

The general content of this article was initially presented at a Corporate IP Seminar sponsored by Law Bulletin Seminars in Chicago. At this event, patent attorney Thomas Duston of Marshall, Gerstein & Borun LLP also presented material regarding the four Supreme Court cases discussed herein. The author wishes to acknowledge the helpful insights provided by Mr Duston in reviewing this article prior to its publication