

What is stalling the growth of the patent insurance market?

In his fourth article on insuring intangible risks, Tim Freestone investigates the limitations of the patent protection markets and how growth could be stimulated

After three decades, the US patent insurance market appears to be stalled at about \$30m in premium volume.

This article, the fourth in our series on intangible risk and intellectual property (IP) insurance, identifies how the marketing of patent insurance sets up a pattern of negative and self-reinforcing business practices that greatly constrain the industry's growth – and we propose a path for the market to reach its true potential.

TODAY'S PATENT INSURANCE MARKET

Today's global patent insurance industry appears to be stalled at \$50m-60m in annual premium. The US is estimated to have about a 50% share of these premiums with the EU and Asia having 40% and 10% respectively.

These premium estimates do not include large corporations that self-insure their IP risks or the premiums of companies large enough to negotiate IP coverage onto their general commercial liability policies; coverage the conventional commercial insurance industry excluded more than three decades ago.

The standalone IP insurance industry was born in the early 1990s to fill this void.

WHAT IS PATENT INSURANCE?

Patent insurance exists in two basic forms:

- **Defensive:** Defence cost insurance covers the litigation cost (and may also cover damage awards) if the insured (the defendant) is sued for improper use of a plaintiff's IP.
- **Enforcement** (also called "abatement"): Covers the litigation costs of a plaintiff that pursues a defendant who has improperly used the plaintiff's IP. Enforcement insurance represents a very small part of the market.

WHO WRITES PATENT INSURANCE?

Virtually all patent insurance is underwritten by Lloyd's syndicates. Lloyd's distributes insurance capacity through coverholders to whom Lloyd's cedes underwriting authority.

There are seven Lloyd's coverholders that underwrite patent insurance in the US. Coverholders market their insurance services primarily through the independent insurance agency and brokerage system; the same sales force that represents the conventional insurance industry.

WHO NEEDS PATENT INSURANCE?

Annual premiums of \$50m-60m seems a shockingly low volume for a class of assets that drives over 85% of corporate valuations.¹

For context, the US commercial insurance industry generated about \$226bn in premium volume in 2016 in 18 different lines of business focusing on assets that contribute less than 15% of corporate valuations.²

Commercial fire insurance generated about \$11bn in premium volume in the US in 2016. Virtually all businesses not large enough to self-insure will purchase fire insurance.³

Embedded in a fire policy is coverage for damage caused by lightning strikes. The chance of a business or home being struck by lightning in any particular year across the US is quite small; about 0.5% (1 in 200) according to the US National Lightning Safety Institute.

Lightning-strike risk only adds pennies to the price of a fire policy, but has about the same probability of occurrence as for the top 1% of the riskiest patents.

The riskiest top 1% of all US patents (in aggregate) had an annualised risk of about 0.8% (1 in 125) of litigation for the years 1978 – 1999.⁴

Patent risk drops substantially below lightning strikes after the



riskiest top 1%, to 0.38% (1 in 250) at the 95th percentile; 0.28% (1 in 300) at the 90th percentile and only 0.08% (less than 1 in 1,000) at the 50th percentile.⁵

Why do so few companies have patent insurance while every business and home has lightning-strike insurance?

Some may argue the two events are not comparable since the average lightning strike results in financial damage of about \$18,000 compared to the average patent litigation suit that will be in excess of \$100,000.⁶

Larger loss events make diversification more difficult but there are more than enough patents to ensure the patent insurance industry achieves adequate diversification.

WHO BUYS PATENT INSURANCE?

Large companies self-insure patent risk and they have an arsenal of tools available for defending against this risk. These tools include strategic patent acquisitions that enable them to counter-sue, coaxing disputants to resolve their differences through the trading of IP in negotiated settlements. This is why only about 10% of all patent litigation goes to trial.

But small to medium size enterprises (SMEs) cannot afford to engage in strategic patent acquisitions, nor can they afford the heady costs of patent litigation where the average cost is \$1.6m through discovery and \$2.8m through trial and final disposition.⁷ Moreover, these suits can take three to five years to resolve.

This is why one SME owner, whose patent had been infringed, wrote in *Forbes*: “For most small companies patents are just about worthless;”⁸ his point being that while patents confer the legal right of an owner to exclude others from making, selling, using or importing their patented invention, others can still infringe those rights forcing the owner to file suit to protect their IP rights. This can be very expensive, especially when the owner

faces a much larger disputant with superior resources.

Patent insurance can level the playing field for small companies by funding the legal expense of a plaintiff seeking to protect its IP or that of a defendant who has been sued for infringement.

HOW BIG IS THE MARKET FOR PATENT INSURANCE

Nigel Swycher, founder and CEO of Aiestimos, a London-based patent analytics firm he founded six years ago, estimates that at least 1% of all SME's have substantial IP risk. He bases this estimate on his six years leading Aiestimos plus his 20 years at the London law firm of Slaughter and May where he led the intellectual property group.

One percent of the US's 30m SME translates into about 300,000 “good candidates” for patent insurance.⁹

PRICE AND DIVERSIFICATION

Our sources indicate the premium range for patent insurance is between 1% and 7% of the policy limit with the average being 3% to 4%.

We used data from the American Intellectual Property Law Association (AIPLA) to estimate the average policy limit based on the average “at risk” amounts (see box, *How we derive the value of the policy limit?*).

The “at risk” amount is the dollar amount of the infringement suit.

STARTLING CONCLUSION

If our assumptions for premium volume (\$30m), policy limits (\$2.5m) and premium rates (3%) are even approximately correct, then there are only about 400 patent insurance policies written in the US.

Each insurer will have less than 60 policies if the policies are

How we derive the value of the policy limit?

To obtain an estimate of the policy limit for an IP insurance policy, we need to introduce the “Patent Litigation Expense” by the amount at risk in a litigation suit. The “at risk” amount represents the damages the plaintiff is seeking against the defendant.

We assume the insured will desire a policy limit that coincides with the estimated litigation expense amount.

- The AIPLA publishes the median patent litigation expense by “at risk” interval
- The AIPLA defines “at risk” as being: “The best average estimates of patent infringement litigation expense in federal court through the end of discovery and completion of litigation (e.g., through the appeal if there was one)”
- The “at risk” intervals and the median litigation expenses are:

AMOUNT AT RISK	MEDIAN LITIGATION EXPENSE
0 to \$1m	\$600,000
\$1m to \$10m	\$2m
\$10m to \$25m	\$3m
>\$25m	\$5m

- We don’t know the size of companies that populate these “at risk” intervals but we make the assumption that larger “at risk” intervals tend to involve larger companies and smaller “at risk” intervals tend to involve smaller companies.
- We assume the population of companies with “at risk” amounts greater than \$25m tend to be those most likely to self-insure patent risk.
- We assume that companies with “at risk” amounts of less than \$1m are probably too small to qualify for patent insurance.
- We eliminate the upper and lower “at risk” intervals from this distribution as we believe these contestants are unlikely to be candidates for patent insurance.
- We assume most companies will have litigation expenses close to the median litigation expense.

Based on these assumptions most “good candidates” for insurance will have litigation expense of \$2.5m (\$2m + \$3m/2) and we select this value for the average policy limit.

evenly distributed.

If this is true, it would explain why the pricing of patent litigation insurance is excessive relative to the risk.¹⁰ The patent insurance companies will need high premium rates to cover the risk caused by their lack of diversification.

This would also explain why, as we have been told, the patent insurance companies rely principally on qualitative, rather than actuarial-based, assessment of risk.

Their portfolios are not large enough to produce statistically reliable results so they try to reduce risk through extreme vetting

of each policy. This results in unnecessarily high prices that reduce volume. Reduced volume leads to a lower opportunity for diversification and a self-reinforcing negative cycle of business practices.

WHO SELLS PATENT INSURANCE?

In our first three articles in this series, we asked why the patent insurance market is not growing faster.

The responses we received from a wide number of industry professionals focused primarily on clients’ (the buyers of patent insurance) lack of awareness of the availability and underwriting requirements of the product. The lack of awareness, we were told, is because the primary sales force for the patent insurance industry comprises insurance agents and brokers who are not trained in IP.

We now can see why.

Swycher estimates there are, at least, 300,000 US SME companies that have substantial IP risk that would be good candidates for patent insurance. This represents a very small percentage of the 30m SMEs that independent agents and brokers serve.

To compensate for a lack of diversification, patent insurers resort to extensive qualitative-based risk assessments in an attempt to reduce risk

Virtually every business an insurance agent encounters will require some form of commercial insurance, but only about 1% will have significant IP exposure. As such, it isn’t cost effective for most insurance agencies/brokers to keep highly specialised and expensive IP specialists on staff unless the agency is located in Silicon Valley or one of the other tech-hubs in the US where there is likely to be a high percentage of good candidates for patent insurance. As a result, the sales force has not been effective at developing this market.

Hence, we observe a sequence of negative and self-reinforcing business practices that have constrained the growth of patent insurance:

- Patent insurers (coverholders) are reliant on insurance agents and brokers for sales distribution
- Very few insurance agencies or brokerages have a large enough population of good patent insurance candidates in their service territories to warrant IP specialists
- Good candidates for patent insurance are not made aware of their exposure to patent infringement risk and to the fact there are effective insurance solutions
- As a result, patent insurance companies obtain only a fraction of the number of good candidates
- The small number of candidates prevents the insurers from building diversified portfolios that enable them to perform actuarial pricing of risk
- To compensate for a lack of diversification, patent insurers resort to extensive qualitative-based risk assessments in an attempt to reduce risk

- This forces prices far above the actual risk characteristics of well-diversified portfolios of patent litigation risk, lowers market demand from clients and incentives for agents to sell the product
- Three-hundred thousand patent insurance candidates should provide ample opportunity for patent insurance companies to achieve diversification, even with an average policy limit of \$2.5m and correlation among policies. This would allow the industry to substantially lower premium rates and extreme underwriting criteria.

But there is a catch: to achieve scale economics, patent insurers will have to commit to a price structure and capital strategy that is representative of the risk characteristics of well-diversified portfolios of patent litigation risk. Half-measures of attempting to hold risk in check using qualitative-based risk assessments and high prices will not work. The industry needs big numbers.¹⁰

Is price the most important factor in determining the size of the patent insurance industry?

Swycher doesn't believe so: "It's education also. SMEs should be buying patent insurance now even at today's prices. Yes, it's more expensive compared to most other types of business insurance and the probabilities of being sued for patent infringement are very low.

"But if an SME gets sued for infringement and it doesn't have patent insurance, it's game-over for most of them."

Swycher believes the patent insurance industry has a massive opportunity before it and sees very positive signs the industry is beginning to respond. He identifies the brokerage Aon, and Lloyd's coverholder CFC, as two companies doing "very interesting things to position for this opportunity."

Swycher adds, the patent insurance industry does need a new underwriting approach: "The only way the patent insurance industry can scale-up for this opportunity, is through the use of data analytics and predictive modelling.

"There are about 6,000 patent infringement suits annually and we estimate there are about 300,000 companies with significant IP

risk in the US (many more if you include the EU and Asia). Once you subtract the largest companies that own half of these patents and self-insure patent risk, you are left with a market of slightly under 300,000 companies that could greatly benefit from patent insurance.

"I defy anyone to be able to identify the 6,000 companies that are going to be sued – in the same way that you can't predict which house will be burgled or car will have an accident.

"You can't rely, as the industry has been doing, on qualitative assessment of risk alone; you have to also use data analytics and insure enough of the population to allow the law of large numbers to work for you; and if you do, you will quickly see the size of the patent insurance opportunity vastly exceeds the risk.

"When this happens, as I believe it will, the price will be much lower and the industry much larger. I believe the industry is at an inflection point right now."

CONCLUSION

The standalone IP insurance market, after more than three decades, has not been able to capture more than a fraction of the market's potential. We believe this failure has largely resulted from high client-search costs, an ineffective sales force for this product and poor pricing and capital strategies by the patent insurers.

The solution to this problem involves developing:

- Big data and predictive modelling techniques to identify the "good candidates"
- An expert sales force to focus on the identified candidates
- An actuarially-based price structure that reflects diversified portfolios of patent risk
- Underwriting standards that are customised to actuarial predictions of risks.

Our next article reveals the dimensions of the patent insurance opportunity that we estimate to be between \$5bn and \$10bn in the US market alone, at least double this amount if the EU and Asia is included. ■

Footnotes

- 1 Ocean Tomo Intangible Asset Value Study: <https://www.oceantomo.com/intangible-asset-market-value-study/>
- 2 Insurance Information Institute
- 3 Ibid
- 4 Lanjouw, Jean O., Schankerman, Mark: "Protecting Intellectual Property Rights: Are Small Firms Handicapped." Journal of Law and Economics, Volume XI VII, April 2004. Jean Lanjouw (died 2005) was a professor of economics at UC Berkeley and before that, Yale. Mark Schankerman is a professor of economics at The London School of Economics.
- 5 Ibid
- 6 Interview with Nigel Swycher, CEO of Aiestimos, revealed the vast majority of litigation settlements for SMEs is between \$500,000-1m. This is different from litigations that go to trial where litigation expense can be significantly larger.
- 7 AIPLA Survey Costs of Patent Litigation and Inter Parties Review, 30 Jan 2017
- 8 "For Most Small Firms Patents are Just about Worthless," Forbs, by Tod Hixon, 4 October 4 2013
- 9 The US Small Business Administration (SBA) Small Business Profile: <https://www.sba.gov/sites/default/files/advocacy/2018-Small-Business-Profiles-US.pdf>
- 10 For example, using a binomial distribution we can approximate the chance probability of how many insured policies will be litigated. We can then observe the level of premiums collected (given the premium rate of 3% and the policy limit of \$2.5m) versus the claims paid to assess profitability. We can vary the premium rate, policy limit and number of policies to obtain different results. The binomial distribution has a number of limitations that prevents its use in many real-world applications, including that it cannot capture the effect of size discrepancies or correlations among policies. Nevertheless, it does provide a high-level understanding of loss potentials given the model's assumptions.
Table 1 illustrates that for a portfolio of 60 patent insurance policies only two policy claims are required for losses paid to exceed premiums collected. The chance of this happening is 84%. This does not look like a good bet for a patent insurer to make. We believe most of the patent insurance companies today have 60 or fewer policies.

Table 1

Number of Policies	Number of policies in claims	Probability of a Claim Event	Premium rate at 3% of Policy with \$2.5m Policy Limit	Number of claims required to exceed premiums / Probability of event
		99th Percentile 0.8%		
60	2 or more	84%		
	3 or more	12 %	\$4.5m	2 / 84%
	4 or more	0.13 %		
1,000	10 or less	82 %		
	10 or more	28%	\$75m	30 / 0%
	30 or more	0		

It's possible that patent insurers attempt to keep prices high in order to beat the poor odds associated with small portfolios. But high prices also tend to reduce the number of policies sold. We see the odds of success improve greatly if they can increase the size of their patent portfolios.

Note the odds of profitability improve significantly with larger portfolios. For a 1,000-policy portfolio more than 30 policies need to be litigated for claim payments to exceed premiums. The odds of this occurring are close to zero.