

Valuing a Portfolio of Patent Applications

While it is extremely difficult to value patents, valuing patent applications can be exponentially more challenging. No one can be certain that the patent applications will become issued. Neither can one know when such applications might be issued. It is extremely difficult to determine which claims will be allowed. Further, especially at early stages of patent examination, it is impossible to predict the extent of any amendments that will be required by the patent examiner. The ability to write continuations based on patent applications elevates the challenge of valuing patent applications to an arguably imponderable level.

However, a simplifying process of valuing patent applications begins with assuming that the patent applications will be granted in their current forms. Let's say you have a portfolio of 20 patent applications. Let's say you believe these patents all read on one promising new field and that if these patent applications become issued, they will be worth \$10 million. By looking up current statistics provided by the United States Patent and Trademark Office, you also know that the average allowance rate for US patents is 46.7%.

What is the value of the portfolio of patent applications? \$4.67 million ($\$10 \text{ million} \times 46.7\%$)?
NO.

Why not? Because you believe that the more patent applications that will be granted the higher (and more dense) the patent thicket protecting your inventions will become. For example, you may believe that:

- a) 14 or more patents issued will yield 95% of the estimated granted patent portfolio of \$10 million;
- b) More than 7 patents and less than 14 patents issued will yield 70% of the estimated granted patent portfolio of \$10 million; and,
- c) Less than 7 patents issued will yield 15% of the estimated granted patent portfolio of \$10 million.

Thus, you need to figure out the probabilities of scenarios a, b, and c occurring. For example, you need to figure out what the probability is (as per scenario a) that the number of the 20 patent applications that will be issued is a number that lies between 14 and 20 (inclusive of both of these numbers). You would have to calculate the numbers for scenarios b and c as well. The way that I performed these calculations was with Binomial Distributions.

So, for scenario a, I multiplied $\$10 \text{ million} \times 95\% \times 3.1\%$ (reflecting that there is a 3.1% probability that at least 14 of the 20 applications will be granted) which yields \$291,000. I then went through the same process for scenarios b and c. I added the conclusions of scenarios a, b, and c to get a value of \$6.5 million for the portfolio of patent applications which is significantly different than the \$4.67 million number than would have tempted many of us.

Patent Application Valuation				
Binomial Distributions				
Value of Patent Applications Portfolio if Granted				\$10,000,000
Number of Patent Applications				20
Probability of Allowance				46.7%
Number of Patents Granted		Probability		Residual Value
14 or more		3.1%		95% \$291,099
7 at least, less than 14		86.9%		70% \$6,082,563
7 less than		10.0%		15% \$150,625
Value of Patent Applications				<u>\$6,524,288</u>

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