Patent Valuation: What is the X Factor?

Patent valuation is, and has been for the last decade or so, a hot topic among scholars and industry professionals. Lately, there has been a surge in patent deals and litigation, adding emphasis to the need for sound valuation principles. This article will look at recent public deals and apply some general financial models and metrics to understand which patent valuation method appears to have the greatest relevance.

Currently, there are three main patent valuation models used in common practice:

- **COST:** determining the value based on total amount spent on project to date
- **MARKET:** identifying comparables and considering value in relation to similar transactions in the market
- **INCOME:** valuation based on the net value of the income the patents may generate over their lifespan

Applying Financials

When looking first at the cost model, it seems an inadequate metric to be used in the valuation of patents. This is primarily because it fails to recognise the value of the patent owner's exclusive rights to prevent others from manufacturing, selling or distributing the patented invention within defined geographical parameters. Furthermore, it does not recognise the possibility that a patent that has proved costly to prosecute has no direct correlation with products in the market place.

The market model is intuitively straight forward, but is often hard to apply. It can be difficult to find a reasonable number of comparables from which to draw valuation conclusions, and it can also be challenging to compare the quality of two portfolios, as differing legal, technical and market issues will affect each.

The widely held view is that the justification for patent acquisition should be tied to the ability of the patents to generate revenue, thus favouring the income model.

In this context, the discounted cash flow model is generally used for evaluating potential income that could be generated by a patent or patent family, using a discount rate that takes into account future revenue streams in line with their present monetary value. In financial theory, WACC (Weighted Average Cost of Capital) is an appropriate discount rate to use for corporate investments that a particular company may choose to undertake, as it reflects the companies' expected returns[1] over time. Since most buyers are public, we can calculate their WACC to be used in conjunction with the income model calculations. In this way, looking at patent acquisitions purely from the income model perspective, any rational CFO could (or perhaps should) identify whether it would be more lucrative to move forward with the transaction as proposed, or simply to invest the money in another line of their business.

With this financial premise, we can scrutinise a number of deals to see if patterns emerge and identify whether it seems plausible that the income (or market model for that matter) is in fact the driver of the deals. Table 1 lists a number of the most recent public deals. However, there are potential discrepancies in the data, as patents (US and non-US) and applications are treated as equal, due to accessible methods of reporting, as well as the reliance upon third party data.

Overview of recent public patent purchase deals

Deal #	Deal Date	Seller	Buyer	Type of acquirer	Total Assets	Price (M USD)	Price / asset	Technology	10 year comp. (M USD)	Annualized (M USD)
1	Aug-10	MOL Global	Facebook	Operating	18	40	2,222,222	Soc. Netw.	100	10
2	Jun-11	Glenayre Electronics	Wi-Lan	NPE	60	8	133,333	Wireless	19	2
3	Aug-11	Motorola	Google	Operating	17,000	5,500	323,529	Wireless	12,960	1,296
4	Sep-11	Mosaid	Google	Operating	18	11	611,111	Internet	26	3
5	Dec-11	Mosys	Tessera	NPE	73	35	479,452	Memory chip	105	11
6	Jan-12	Real Networks	Intel	Operating	360	125	347,222	Video	287	29
7	Jan-12	Adaptix	Acacia	NPE	230	150	652,174	Wireless	429	43
8	Jan-12	Nortel	Rockstar Bidco	NPE	6,000	4,500	750,000	Wireless	11,672	1,167
9	Apr-12	AOL	Microsoft	Operating	925	1,060	1,145,946	Wireless	2,306	231
10	Apr-12	Microsoft	Facebook	Operating	650	550	846,154	Wireless	1,381	138
11	Apr-12	Aware	Intel	Operating	50	90	1,800,000	Wireless	207	21
12	Jun-12	Interdigital	Intel	Operating	1,700	375	220,588	Wireless	862	86
13	Jul-12	Fujifilm	Universal Display Corp.	Operating	1,200	105	87,500	OLED	316	32
14	Jul-12	Digg	LinkedIn	Operating	16	4	218,750	Soc. Netw.	9	1

Table 1 - Number of assets as reported in deal information available. Numbers in red are estimated; USPTO information and assumed foreign counterparts for Deal 11 and assumed 10% WACC for deals 8 and 14. Any shares used for payment (e.g. Deal 1) are valued at the time of deal. For Deals 3 and 7, officially attributed values from SEC filings have been used as prices instead of reported purchase amounts.

[1] If a company has 10% WACC and makes an investment of 100, they expect a yield of 110 after one year. With the compounding nature of percentages, the same investment with a 10 year frontier should yield 259. In other words, when planning for said exemplary project, you need to expect at least 259 in income over 10 years to justify the 100 investment. As this is a simplified model it does not take income timings into account.

Analysing the Data

The first observation of these 14 deals is that they vary in almost all aspects: technology area, price, number of patents, type of acquirer etc. The price per patent differs greatly, from $87,500 (Deal 13) to $2,222,222 (Deal 1), with the former being the most recent deal we have observed.

Taking a smaller subset, for example within Wireless Technology, as seen in Figure 1, price still varies between $133,333 and $1,800,000. The smallest variation in price per patent within a 'homogenous' subset would be for NPE buyers, seen in Figure 2, where per patent prices vary between $133,333 and $750,000.

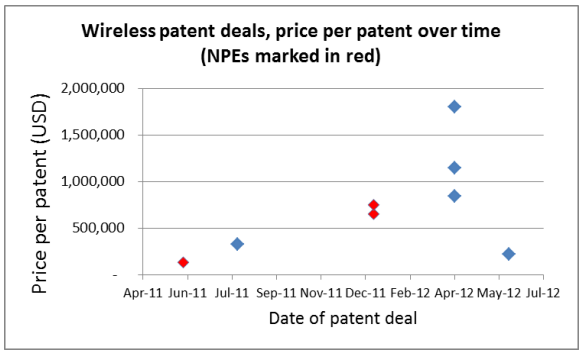

Figure 1 - Wireless patent deals: price per patent over time

Thus, one could say that using the market model as a fast way of pricing patents does not seem appropriate, as we see great variations in our data set. However, in Figure 3, plotting the 14 deals we have reviewed shows that, at most, four are found within the same $250,000 bracket. Therefore, we cannot rule out the market model entirely, but it would be likely to require more detailed data and further analysis of other deals. Surprisingly, in Figure 2, deal size is not seen to affect price per patent.

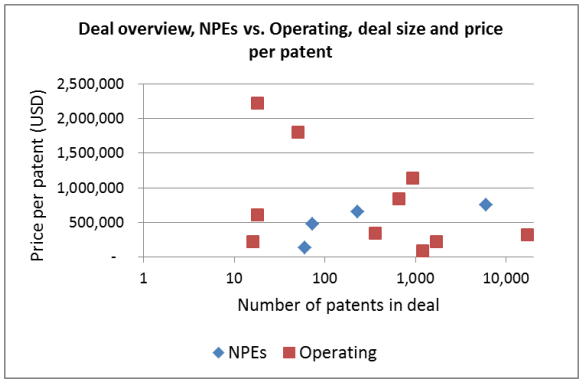

Figure 2 - Operating companies vs. NPEs, deal size and price/patent.

As described above, we could use some financial metrics to try and understand the benefits of the income model. We have calculated the various companies' WACC and assumed that the purchased patents have an average remaining lifetime of 10 years. We then compounded the

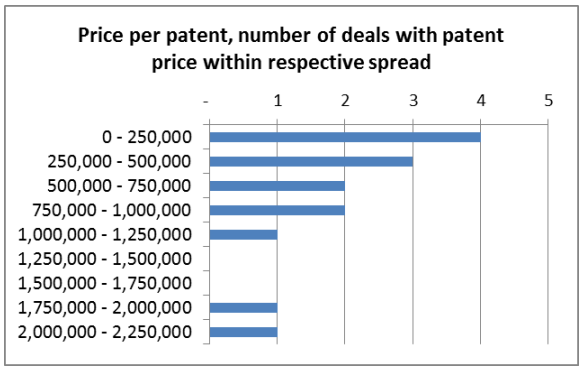

Figure 3 - Price per patent, number of patent deals within price ranges

purchase amount, using the respective WACC[2], to identify the potential revenue that the patent investment should generate in line with the overall performance of the company. *NB. The values can be found in the two far right columns of Table 1*. The first of the two columns shows the purchase price with the 10 year compounded WACC added. For a rational company, that number should be lower than the amount the patents may generate, if using the income model. The second of the two columns shows the same amount but on an annual average basis, highlighting the annual revenues a licensing or assertion programme should generate to be on par with the general performance of the company.

Not all patent portfolios are purchased for licensing/assertion and arguably not all markets are suitable for licensing programmes (for example Deals 1, 4, 14). It is perhaps more probable that portfolios acquired with an offensive action in mind are done so with a clear target, such as counter-assertion. It could still be the case that the income model could be used in evaluating those deals, but taking a 'relief from royalty' perspective may be more relevant, which makes it harder to assess the merits from an external perspective, as those numbers are often kept confidential.

This then presents us with a number of deals remaining where a licensing programme could be envisaged. Unfortunately, we only have one data point for memory technology (Deal 5), OLED technology (Deal 13) is still early stage and video delivery (Deal 6) has a very complex value chain. This leaves us with 8 wireless technology deals, where it is fair to assume that modelling a licensing programme could be a suitable way of using the income model for patent valuation.

Table 2, overleaf, adds two more columns to these eight wireless technology deals to try and test whether the income model, as applied to modelling license income, would seemingly justify the patent deal. Without knowing the specifics of the geographic coverage of the respective patents, their encumbrances, breadth of applicability and, most importantly, their quality; choosing licensing targets becomes difficult, so we selected the US smartphone market. In the last two columns, we have translated the annualized 10 year compounded purchase value into royalty rates. i.e. showing which royalty rates would be needed to generate the revenue equal to the compounded purchase price. Since it is only a thought experiment, we assumed all smartphones in the US could be licensed and did not take potential FRAND or royalty stacking into account.[3].

[2] The WACC of Rockstar Bidco and LinkedIn had to be estimated, so 10% was used for both. As a reference, the other companies varied between 8.1% and 11.7%.

[3] This would also make sense even if the acquiring party is producing phones themselves as it could be seen as a 'relief from royalty', and, as discussed above, that could almost be equated to income.

Wireless patent deals, exemplary royalty calculations										
Deal #	Seller	Buyer	Type of acquirer	Total Assets	Price (M USD)	Price / asset	10 year comp. (M USD)	Annualized (M USD)	Royalty per US smartphone	Royalty as %
2	Glenayre Electronics	Wi-Lan	NPE	60	8	133,333	19	2	0.02	0.01%
3	Motorola	Google	Operating	17000	5,500	323,529	12960	1296	10.8	8.00%
7	Adaptix	Acacia	NPE	230	150	652,174	429	43	0.36	0.26%
8	Nortel	Rockstar Bidco	NPE	6000	4,500	750,000	11672	1167	9.73	7.20%
9	AOL	Microsoft	Operating	925	1,060	1,145,946	2306	231	1.92	1.42%
10	Microsoft	Facebook	Operating	650	550	846,154	1381	138	1.15	0.85%
11	Aware	Intel	Operating	50	90	1,800,000	207	21	0.17	0.13%
12	Interdigital	Intel	Operating	1700	375	220,588	862	86	0.72	0.53%

Table 2 - Wireless patent deals: calculations of exemplary royalty equivalents for the compounded rates. Numbers in red are estimated; USPTO information and assumed foreign counterparts for Deal 11 and assumed 10% WACC for deal 8. US Smartphone Market only, Avg. price per unit $135. Source: IDC (market size) NPD (Sales price))

The results seen in the two right hand columns of Table 2, paint a slightly different picture than that seen when comparing price per patent. The required royalties seem reasonable; even the $10 per phone royalties needed for Deals 3 and 8 are in line with the rumoured $5-15 Microsoft demands from Android users[4]. As an example, although all deals look financially sound, on a like-for-like basis, one would probably favour Deal 7 over Deals 3 or 8, as with each having similar per-patent costs, the latter two deals require significantly higher royalties to redeem the purchase price; driven by the much higher purchase sums.

Conclusion

The market model, although intuitive, seems to only provide a basic rule of thumb, rather than an accurate valuation. In our examples, the model generated very different metrics which are difficult to compare without conducting further in-depth analysis of the relevant portfolios.

The income model generates, what seem to be, reasonable numbers, making it a better tool for comparisons. This is particularly the case when identifying the royalties needed to break even. However, as the reasonable income model metrics also vary, there has to be another deciding factor. For example, looking at the blockbuster deals (Google/Motorola and Rockstar), a different set of metrics was likely to have been applied, as the deals are unique in terms of size and heritage.

With so many large, IP-savvy companies choosing to pay varying amounts for patents, regardless of the conclusions that may be drawn from the valuation models, there seems to be an 'X Factor' surrounding patent valuation. Potential contestants include: product launch strategy, immediate

[4] http://www.guardian.co.uk/technology/2011/sep/28/samsung-microsoft-android-licensing-dispute

opportunities/threats, encumbrances and geography; not to mention patent quality. However, could the 'X Factor' simply be that a patent's value is wholly determined by the amount an acquirer is willing to bid?

Although the use of financial models to value patents are increasing in popularity, one cannot simply match patent value to its potential revenue generation without first understanding the market context and the multi-variable strategic factors that over-ride the proposed valuation.

The value that a group of patents can generate depends on a variety of factors that are specific to that group (eg. geographic coverage, encumbrances, prior art, file history etc.), as well as on the context of use. 100 patents in the hands of a large corporation can be worth much more than the same patents if they were in the hands of a lone inventor.

Perhaps this is the greatest distinction to be drawn when considering patents as an asset and assessing them on the same basis as financial instruments. Every owner of a given financial instrument can expect to receive the same return, and so their main problem is to know which instruments to buy and at what price. For patents however, not only does one need to consider price but also the strategy and capabilities that can be linked to the patents to achieve a return. The two latter factors are very difficult to assess in a financial model, which will assume a transparent market with all investors being equal.

This is perhaps why we conclude that the various patent valuation models mainly function as indicators, rather than giving a definitive answer which would allow them to be used as the decision making tools for both sides of any transaction!

For further information on this study or any of our IP services, please call +44 (0) 45 68 1954 or send an email to: info@clearviewip.com