

Examples and synthesis of academic equity-royalty licenses

Hervé Lebret
May 2010

Motivation

- There is a need to provide facts and figures about university licensing.
- It is not easy to find systematic analyses so a few examples are provided.
- Some more (corporate) industry-specific numbers are provided (Appendix)

However...

Even if the facts & figures can be rationalized, there will remain differences in the perceptions of why universities should license and how.

I am aware that the debate will remain open.

General concept

“The license issue fee typically ranges from \$10,000 to \$50,000, but can be as high as \$250,000 for an especially promising technology that is close to market. Royalty rates are typically 2% to 5% but can go as high as 15%.” [...]

“Recently, licensing managers have begun to take equity in start-up companies in combination with, or in place of, license issue fees or royalties. In a typical arrangement the university takes a 5% equity position in the company in place of the license issue fee.”



**UNIVERSITY REVENUES
FROM TECHNOLOGY
TRANSFER: LICENSING
FEES VS. EQUITY
POSITIONS**

MICHAEL J. BRAY
Medquest Pharmacy, Salt Lake City, Utah

JAMES N. LEE
*Center for Advanced Medical Technologies,
Salt Lake City, Utah*

More considerations

Technology Transfer: Licensing Intellectual Property from Universities to Industry

Behfar Bastani; Evelyn Mintarno; Dennis Fernandez
Fernandez & Associates, LLP.
1047 El Camino Real, Ste 201
Menlo Park, CA 94025
www.iploft.com

The amount of licensing fee or royalty is case-specific and decided based on the type of technology, its stage of development, the size of the potential market, the profit margin for the anticipated product, the strength of the patents, the estimated dollar value that has led to the discovery, the projected cost of development needed to complete the product, the scope of the license (nonexclusive vs. exclusive; US vs. worldwide; narrow vs. multiple fields of use; etc.), royalty rates for similar products, and the expected cost of bringing the product to the market.

A company may take into consideration that the inventions at hand are embryonic and require further research and development before they are ready for the marketplace, thus arguing for a reduction of the licensing fee or royalties based on an increased level of risk involved. Licensing fees generally range from a few thousand to a few hundreds of thousands of dollars. Royalty rates range from 1% for processed technology to about 10% for a patent with direct or significant market commercialization. The majority of the rates are between 3% and 6%, depending on net sales. However, the term “net sales” has to be defined clearly in order to avoid conflicts.

Some universities, such as the University of California, require licensees to reimburse patent application legal fees. Some universities will have license issue fees and require companies to pay for ongoing expenses in research and development. Universities may also set a minimum annual royalties payment after a specific period of time, regardless of actual sales. Others may include terms ensuring the university’s right to acquire the technology back should the company perform below a predetermined performance target or fail to pay the minimum fee, especially in the case of an exclusive license. Universities may also require progress or marketing reports during the licensing period, with a preference for post-sales information.

In general, however, keep in mind that licensing terms are case-specific, negotiable and vary from institution to institution. Some universities such as Caltech give licensing preference to start-ups,⁷ both to avoid the possibility of a big company’s shelving of the technology and to increase commercialization of the technology. Caltech rarely asks for up-front payment fees (especially from a start-up), allows for options giving entrepreneurs time to raise money, accepts equity as an up-front payment and does not require reimbursement of patent legal fees. Stanford, which prefers cash instead of equity as an up-front payment, is also willing to take risks by offering options, and offers the possibility of lower up-front fees by emphasizing subsequent royalties. Stanford also asks for licensing terms renegotiation every two or three years with the view that renegotiation promotes licensing success and a better long-term relationship.

Stanford University



Equity Considerations

Since the cash in a license is usually backloaded, OTL will often ask for equity in the start-up company. This is compensation for the risk OTL is taking, but it is also because OTL believes in the company. Although exact amounts of equity taken by Stanford vary, normally it will not acquire more than a 5% equity stake in a start-up and OTL will ordinarily maintain its equity percentage through Series A financing.

http://otl.stanford.edu/about/brainstorm/1203_equity.html

Start up Guidelines

- **Royalty: 1% non-exclusive, 2% exclusive**
- **Equity: 5% non-exclusive, 6% exclusive**
- 3 year patent cost deferral
- 3 year (or \$2M investment, IPO or buyout) royalty free
- **Anti-dilution warrant to \$2M investment**
- **Other shareholder rights (common)**
 - Pre-emptive
 - Piggyback
 - Co-sale

MIT Typical Terms



- Exclusive
- Field of Use: Limited
- License Issue Fee: \$25 - \$100K
- Royalty: 3-5%
- Minimum annual royalty: escalates over time
- Equity: 5% after significant funding
- Patent expense reimbursement

<http://acscinf.org/docs/meetings/234nm/presentations/234nm62.ppt>

Caltech



@CALTECH



Equity Deals

The Caltech Model for Taking Equity In Start-Ups

The rationale for receiving equity is straightforward. First, Caltech grants a reduced royalty rate on sales of licensed products. This is very important to VCs or angels because high royalty rates together with the perennial problem of royalty stacking results in a lower valuation for a company at the time when an acquisition or IPO is being considered. Founder's stock on the other hand is common stock and upon formation has little value; moreover it is diluted over time. Caltech typically receives 4%-5% of the post series A financing of the company. There are exceptions where it may be higher, if, for example, Caltech has funded the proof of concept or royalties are waived.

A few examples from public sources

Company	University	Field	Equity	Equity antidilution *	Royalty
A123	MIT	Energy	5.0%		0.2%
Akamai	MIT	Internet	2.3%		0.0%
Algos	Virginia	Medtech	0.0%		4.0%
Avicena	Not disclosed	Biotech		3.0%	?
Cambridge Heart	MIT	Medtech	0.0%		2.0%
Cubist	MIT	Biotech		2.0%	?
Genometrix	MIT	Biotech		10.0%	4.0%
Google	Stanford	Internet		2.0%	?
Imatron	UCSF	Medtech	0.0%		2.0%
Kopin	MIT	Semicon	?		3.0%
Momenta	MIT	Biotech	9.0%		
Nanogen	Salk	Biotech		5.0%	
Neurometrix	MIT	Biotech	10.0%		2.2%
Sangamo	Johns Hopkins	Biotech	3.8%		
Sontra	MIT	Biotech		5.0%	2.0%
Speechworks	MIT	Software	0.0%		5.0%

* antidilution is usually up to 1st round and/or level of funding or valuation of the company

Source: S1 documents of public companies

**Appendix:
General royalty terms
of corporate licences
(industry specific)**

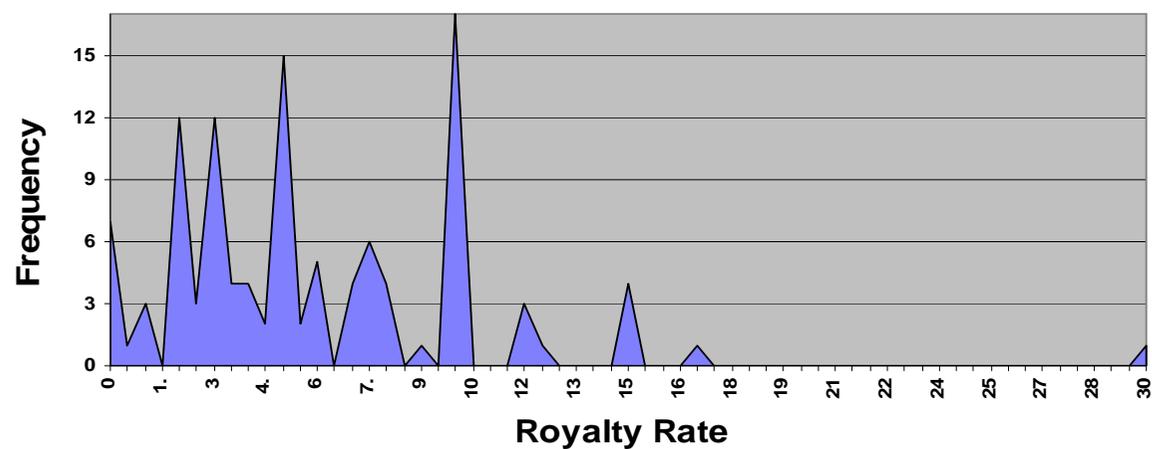
Illustration of the concepts in pharma:

- A raw idea is worth virtually nothing, due to an astronomical risk factor
- A patent pending with a strong business plan may be worth 1 %
- An issued patent may be worth 2 %
- A patent with a prototype, such as a pharmaceutical with pre-clinical testing may be worth 2-3 %
- A pharmaceutical with clinical trials may be worth 3-4 %
- A proven drug with FDA approval may be worth 5-7 %
- A drug with market share, such as one pharma. distributing through another, may be worth 8-10%

Example of royalty rates

Royalty Rates for In-Licensing by Industry							
Industry	0-2%	2-5%	5-10%	10-15%	15-20%	20-25%	>25%
Aerospace	50.0%	50.0%					
Automotive	52.5%	45.0%	2.5%				
Chemical	16.5%	58.1%	24.3%	0.8%	0.4%		
Computer	62.5%	31.3%	6.3%				
Electronics		50.0%	25.0%	25.0%			
Energy		66.7%					
Food/Consumer		100.0%					
General Mfg.	45.0%	28.6%	12.1%	14.3%			
Government/University	25.0%	25.0%	50.0%				
Health Care	3.3%	51.7%	45.0%				
Pharmaceuticals	23.6%	32.1%	29.3%	12.5%	1.1%	0.7%	0.7%
Telecommunications	40.0%	37.3%	23.6%				

LER Royalty Rate Distribution



Example of royalty rates

Technology / Industry	Earned Royalty	Up-Front Payments	Minimum Payments
Reagents/Process	1-3%	Patent Costs	\$2-10K
Reagents/Kit	2-10	Patent Costs	\$2-10K
Diagnostics In Vitro	2-6	\$5-20K	\$2-60K
Diagnostics In Vivo	3-8	\$5-20K	\$2-60K
Therapeutics	4-12	\$20-150K	\$20-150K
Medical Instrumentation	4-10	\$5-150K	\$5-20K (Yr 1)

Source : G.Gorey & E.Kahn, Genetic Engineering News, July-August 1991

Industry	Average	Median	Max	Min	Count
Chemicals	4.7%	4.3%	25.0%	0.1%	78
Internet (incl. software)	11.8%	8.8%	50.0%	0.3%	88
Telecom (excl Media)	4.9%	4.5%	15.5%	0.4%	73
Consumer Gds, Rtl , Leis	5.5%	5.0%	28.0%	0.1%	98
Media & Entertainment	9.1%	5.0%	50.0%	2.0%	25
Food Processing	3.2%	2.8%	10.0%	0.3%	38
Medical/Health Products	6.1%	5.0%	77.0%	0.1%	376
Pharma. & Biotech	7.0%	5.0%	50.0%	0.0%	458
Energy & Environment	5.0%	5.0%	20.0%	1.0%	107
Machines/Tools	5.2%	4.5%	25.0%	0.5%	90
Automotive	4.3%	3.5%	15.0%	0.5%	59
Electrical & Electronics	4.2%	4.0%	15.0%	0.5%	139
Semiconductors	4.3%	3.0%	30.0%	0.0%	75
Computers & Office Eqp	5.3%	4.0%	25.0%	0.2%	73
Software	11.5%	6.8%	70.0%	0.0%	147
Industry Summary	6.4%	4.8%			1,924

Value creation and sharing among universities, biotechnology and pharma

Mark G Edwards, Fiona Murray & Robert Yu

Table 2 Average economic terms of university–biotechnology company deals

Terms of agreement	Pre 1980–1986	1987–1990	1991–1994	1995–present
Post commercial payments				
Royalties	4% (<i>n</i> = 25)	5.1% (<i>n</i> = 43)	4.2% (<i>n</i> = 62)	3.9% (<i>n</i> = 24)
Minimum annual royalty	\$13,438 (<i>n</i> = 8)	\$33,212 (<i>n</i> = 22)	\$50,392 (<i>n</i> = 34)	\$53,479 (<i>n</i> = 11)
Sublicense revenue sharing	37.4% (<i>n</i> = 9)	34.3% (<i>n</i> = 17)	28.4% (<i>n</i> = 27)	28.4% (<i>n</i> = 14)
Pre-commercial payments				
Upfront fee	\$20,085 (<i>n</i> = 21)	\$40,655 (<i>n</i> = 35)	\$48,649 (<i>n</i> = 53)	\$87,942 (<i>n</i> = 24)
Research payments	\$409,321 (<i>n</i> = 14)	\$434,467 (<i>n</i> = 22)	\$1,159,941 (<i>n</i> = 31)	\$585,323 (<i>n</i> = 18)
Maintenance fees (5 years)	\$39,041 (<i>n</i> = 8)	\$53,333 (<i>n</i> = 15)	\$90,496 (<i>n</i> = 22)	\$183,909 (<i>n</i> = 11)
Milestone payments	\$16,250 (<i>n</i> = 2)	\$324,359 (<i>n</i> = 12)	\$445,017 (<i>n</i> = 25)	\$1,585,679 (<i>n</i> = 11)
Sublicense revenue sharing	46.6% (<i>n</i> = 8)	27% (<i>n</i> = 11)	23.4% (<i>n</i> = 21)	25.4% (<i>n</i> = 12)
Total number of deals	<i>n</i> = 40	<i>n</i> = 70	<i>n</i> = 110	<i>n</i> = 45

Appendix 2

- A blog post

Why and How Universities Should Embrace Startup Culture

http://www.davidblerner.com/david_b_lerner/2010/02/why-and-how-universities-should-embrace-startup-culture.html

- A LinkedIn chat showing that the debate is open

David B. Lerner

STARTUPS, VENTURE CAPITAL, ANGEL INVESTING, UNIVERSITY ENTREPRENEURSHIP



I'm a Serial Entrepreneur, Director of Columbia University Venture Lab/Spin-Offs Program, Angel Investor, and Golfer-in-Exile.

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Why and How Universities Should Embrace Startup Culture

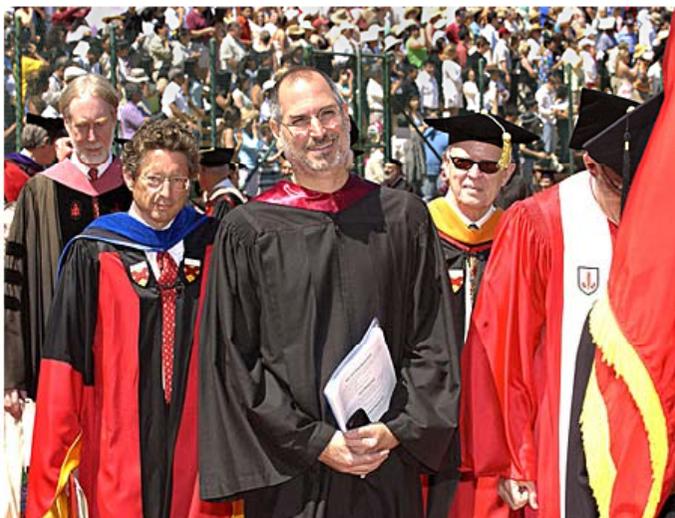
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This is part of my ongoing Series on [University Entrepreneurship](#).

Recently an entrepreneur/investor/blogger extraordinaire I admire by the name of [Chris Dixon](#) touched on the two general paradigms people/institutions can adopt towards one another when conducting business. He first referenced the transactional/legalistic approach wherein labor is exchanged for money in the form of a contract that is enforced by organizations, (especially the legal system). The other approach is one based on trust, verbal agreements, reputation and is "enforced" (so to speak) by the community. As [Dixon points out](#), the world of startups is overwhelmingly governed by the trust/reputation/community approach.

Let's just juxtapose these very different paradigms against the backdrop of the modern American university. As we've established in [earlier posts in this series](#), it has now become fashionable and accepted for universities and their tech transfer offices to engage in the practice of spinning-off companies based on their intellectual property and know-how. In fact, according to [AUTM](#) statistics, over 600 university startups are created every year based on federally funded R & D.



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Recent Comments



davidblerner Hey Graham-- on this map I was really focusing on what the entrepreneur should do to get from zero to one... implicit in all this is that you are going into this business with a very keen awareness...

[David B. Lerner: Your Startup: Mapping it Out Some More](#) • 4 days ago



IGraham Laird Hi David, I am an entrepreneur who has stumbled onto your template. Just finished "mapping out" our strategy with my partner and also worked with our local college in some of the development...

[David B. Lerner: Your Startup: Mapping it Out Some More](#) • 4 days ago



davidblerner yes- thanks Andre, excellent points... although to clarify, I'll say that my post wasn't to pit angels vs. vc's, only to showcase a study that

As discussed in my recent post, [The Parable of the Venture Capitalist, the Entrepreneur and the Professor](#), one of the major complaints of the investment and entrepreneurial community is that when it comes to trying to spin companies out of universities the process is far too onerous and takes far too long. As someone who is immersed in this world, I recognize this to be a legitimate gripe in most places across the country.

The cause of course is the fact that most university administrations and tech transfer offices are steeped in the "transactional/legalistic" culture. This is not a criticism by the way, just a fact. Most university administrators place great importance and faith in the opinions and judgment of their Office of General Counsel (OGC)- and with good reason. Universities are often at the economic, cultural and educational nexus of entire cities and must protect their interests and reputation, not to mention their endowments! Remember also, that university tech transfer was only born in 1980 as a result of the [Bayh-Dole Act](#) and so this commercial activity has been newly layered over an existing culture in the overwhelming majority of schools.

So where does this leave us in the context of university startups/spinoffs? I am certainly not naively suggesting that the university suddenly discard all its institutional safeguards for the benefit of promoting a thriving Venture Lab. What I am saying is that it is important for university administrators and tech transfer offices to understand that there is a great distinction between licensing intellectual property to large, existing companies ("Industry" as we say) and licensing IP (and taking equity in!) a fledgling entity that is being formed for the express purpose of commercializing that IP.

A small startup comprised sometimes by nothing more than a courageous entrepreneur, a laptop and some meager seed-money can for the most part hardly wait six months to "ink" a deal with a university. Nor is it reasonable to expect such a person to pay large up-front licensing fees, immediately reimburse patent expenses incurred long before he/she entered the picture or submit to massive and arcane paperwork. Further, as this field of university tech transfer advances it is less and less acceptable to answer every entrepreneur's suggestion with the pat "this is how we do it, sorry", response during a negotiation.

demonstrated angel-backed companies do significantly...

David B. Lerner: [Harvard Business School Study Shows that Angel Investing is King](#) · 5 days ago



Andre Dave, a few other advantages from my experience working with angels (assuming, of course, they are qualified and knowledgeable, and not just wealthy individuals from unrelated fields with the...

David B. Lerner: [Harvard Business School Study Shows that Angel Investing is King](#) · 5 days ago



mynext Thanks for the point to the study. Was arguing with some friends about the benefits of angel investing and this was perfect

David B. Lerner: [Harvard Business School Study Shows that Angel Investing is King](#) · 6 days ago

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Taking our **cues from the investment and entrepreneurial community** is key. We have been doing this for some time in our own program with a lot of success and continue to streamline and facilitate the process. But in a general sense, here are the foundational steps I believe universities ought to take:

- First, to create a dedicated Venture Lab/New Ventures person/group who is a seasoned entrepreneur and investor to be the point person for all the entrepreneurial/venture activities of the tech transfer office. They must absolutely come from and have the confidence and respect of the early-stage entrepreneurial community.
- The Venture Lab must then shed as much of the "transactional/legal" paradigm we have discussed above as possible and adopt the paradigm based on trust/reputation and community. The entrepreneurial and investment community will immediately recognize this as major progress.
- As an **equity partner** in various startups, the University must treat its portfolio as **partners**, not simply as licensees. This implies working with its partners to facilitate success and to back-end its compensation and up-side as much as possible.
- Efforts must be made to streamline license and stock purchase agreement templates so as to speed-up and facilitate deals.
- Deal terms must be kept both fair and simple. It's not about what you can "get" from the entrepreneur along the way, rather it's about enabling them to win in what is an exceptionally difficult endeavor. An eventual sale (or IPO of the company) should be the shared goal and nothing else.

I realize that cultural change can come slowly and that each university has its own priorities and pace. There is no blame here. I am merely saying that if universities wish to continue to be in the business of spinning-out game-changing companies such as Google, Netscape, Genentech, Lycos, Sun Microsystems and Cisco, they must be willing to steadily embrace the startup culture through these dedicated programs.

Sounds like a big change I know. So how about starting with a little hug?

Posted by Dave Lerner on 02/07/2010

Technorati Tags: [Bayh-Dole](#), [Chris Dixon](#), [culture](#), [legal](#), [reputation](#), [startups](#), [tech transfer](#), [transactional](#), [trust](#), [university entrepreneurship](#), [VC](#), [venture capital](#)

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Hervé Le Bret YOU

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 Featured discussion

Licensing university technologies: what is a fair deal for start-ups?

What a university deserves as a return for licensing technologies is not an easy subject. Usually, established companies pay an upfront and royalties on sales of products or services using the license. Start-ups has a slightly different model as upfront is usually replaced by equity. Even if academic TTOs (Tech Transfer Office) claim that the terms of a license are dealt on a case-by-case basis, I have found that a typical deal is 10% equity at creation (or 5% if there is antidilution until a event such as the series A round or some level of funding) and a couple of points of royalties (1-3%). It is also well-known that VCs do not like royalties are care less about equity. I have found data published by MIT, Stanford, CMU and Caltech. I also have limited data on public companies which published their numbers. I would be interested in your views as well as links if you are aware of any. Thanks! Hervé

Posted 9 days ago | [Delete discussion](#)

Comments (2)



Hervé Le Bret YOU

University Seed Fund - EPFL

[See all Hervé's activity »](#)

Let me add one thing, after 2 posts I recieved privately: there is one tendency which is "give IP for free or nearly" and this has happened a lot in Silicon Valley and Boston where the "give back to the community works well". The other opposite tendency is to get as high a deal as possible. The truth or fairness is probably inbetween. I plan to put on my blog (<http://www.startup-book.com>) the conclusions of my brief online search in a couple of days/weeks depending on how much more I can find...

Posted 9 days ago | [Delete comment](#)

A LinkedIn forum (1/3)

LinkedIn

Karl Kaiser has sent you a message.

Date: 2/08/2010

Subject: Licensing university technologies: what is a fair deal for start-ups?

Herve,

I am a Suisse working in Silicon Valley and have been involved in Startups. A wireless one got a license from IMEC in Leuven, Belgium for some seed Technology. The startup got acquired and IMEC got some nice money out of it. I suggest you contact their IP licensing office. They have been fairly successful in spinning out startups so they may be willing to share some of their strategies with you.

This is a complicated topic and also different for specific domains (pharma is different than micro-electronics...) .

Good Luck,

Karl Kaiser | kkaiser@bentosys.com

A LinkedIn forum (2/3)

LinkedIn

Steven Collins has sent you a message.

Date: 2/10/2010

Subject: RE: Licensing university technologies: what is a fair deal for start-ups?

Hi Herve,

I see a different perspective based on 2 startups; the VC doesn't care about the equity, because they still look for their %age ownership of company. If you've given away 10% of equity for the IP license that only dilutes the founders. On royalties, as long as the license agreement has a buy-out option that's reasonable, and ideally a rights transfer to the company then they don't really care- better still if the royalties are on net and not gross sales of course, and even better again if payment not due until company is profitable.

From founder perspective, you really want to go for a royalty only deal and not give up equity. I also think that Universities taking equity positions is not the best approach; they can never follow their money and so get pretty diluted pretty quickly, and also are typically underfunded to deal with the legals associated with multiple equity rounds and as a result can often be a slow party in the deal, so you really want drag along rights to kick in...

Interesting question though.

Steve

A LinkedIn forum (3/3)

LinkedIn

via fCh has sent you a message.

Date: 2/08/2010

Subject: RE: Licensing university technologies: what is a fair deal for start-ups?

Hervé, this is a great topic! Bear in mind that a lot of the great companies in the Boston area were formed based on quasi-free ip-transfer from places such as MIT. It must have been those early success that got the MIT officials thinking they could/should make more. Now, from conversations with local entrepreneurs, it's not even worth bothering. Cheers, Flvaius