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## **Patent Demands and Initial Public Offerings**

By Robin Feldman<sup>1</sup> and Evan Frondorf<sup>2</sup>

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This paper presents the results of a survey conducted to study the topic of patent demands and how they affect recently public companies. Anecdotal evidence suggests that both competitors and monetizers may opportunistically time their patent demand activity to major funding events in a company's development. Such demands may include both the threat of legal action as well as the initiation of actual litigation. The study attempted to explore this issue by surveying recently public companies about their exposure to patent demand activity surrounding two major funding events in a company's development: the first round of venture capital funding and the completion of the initial public offering (IPO).

After an exhaustive search process, over 550 U.S. product companies were identified that issued IPOs between 2007 and 2012. The paper details responses from in-house staff, most often the general counsel, at over 50 of these product

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<sup>1</sup> Harry and Lillian Hastings Professor of Law and Director of the Institute for Innovation Law, University of California Hastings College of the Law.

<sup>2</sup> Research Fellow at the Institute for Innovation Law, University of California Hastings College of the Law. We wish to thank Abraham Cable, Lauren Cohen, Mark Lemley, Brian Love, and Doug Melamed for their comments on prior drafts of this paper, and Dr. Carolyn Spencer for her comments on survey design and methodology. We are also grateful to Kristy Brady, Kimberly Fong, Sona Karakashian, Shaila Nathu, Saman Shooshani, Jake Wexler, Josh Wolf, Timothy Yim, Josh Young, and former UC Hastings librarians Peter Gigante and Linda Weir for outstanding research assistance.

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companies. The results provide quantitative information on the companies' exposure to patent demand activity at each of four periods: the period before receiving the first round of venture capital funding, the year after receiving the first round of funding, the period between officially declaring an intent to go public and issuing an IPO, and the year following the completion of the IPO. For each period, information is available about whether each company received patent demands, how many demands were received, and the origin of the demands. The paper also includes results about exposure to patent demands depending on industry. In particular, we compared patterns of exposure faced by companies in information technology, the life sciences, and clean energy.

Results also include subjective views of respondents. Specifically, company lawyers report on whether patent demands pose a problem to companies in the respondents' sector and whether patent demands have had an impact on the respondents' company. Respondents also provide rough estimates of the costs their company has incurred to prepare for or defend against patent demands. Finally, respondents had the opportunity to provide free-response comments on the impact of patent demands on their company and general comments about the topic of patent demands.

The results provide important observational data on strategic behavior in the market for patent monetization. In particular, the results provide evidence of a tactical strategy among monetizers to pursue demands against companies during one of the most public and vulnerable periods of a company's development — the

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completion and aftermath of its IPO. The results were particularly striking for companies in the information technology industry that went public.

In contrast, we did not find systematic evidence that companies were targeted with patent demands near their early funding rounds after formation. For example, none of the information technology companies reported receiving patent demands in the period immediately before or after their first round of venture capital funding. In contrast, roughly 60% of information technology respondents reported receiving patent demands in the periods around the company's IPO. Similar, but less dramatic patterns were observed for the small sets of life science and clean energy companies that responded.

The key findings from the study include the following:

- Very few respondents reported receiving patent demands before the company's first round of venture capital funding or in the year following the first round;
- Nearly half of respondents reported patent demand activity in the period surrounding the IPO — either during the short period from the time of the public announcement to the actual IPO; or in the year following the IPO;
- Of the companies that received patent demands in the year following the IPO, half said they received four or more patent demands during this period, and more than 80% said some of the activity against them originated from patent monetizers;

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- The large majority of patent demand activity near IPOs was against companies with revenues above \$50 million at the time of their IPO;
- None of the information technology companies surveyed reported receiving patent demands before the first round of venture funding or in the year following the first round;
- Roughly 60% of the information technology companies reported receiving patent demands in the periods surrounding the IPO;
- Almost all patent demand activity against information technology companies originated from monetizers;
- Most companies said patent demands are a problem in their sector, with all information technology companies agreeing that patent demands are problematic for their industry;
- Nearly half of companies said they have spent more than \$250,000 preparing for or defending against patent demands, with more than two-thirds of the information technology companies falling into this category.

For readers who are less familiar with survey and empirical data, we note that the results are observational in nature. Larger sample sizes and response rates are necessary for generalizable results, and we look forward to additional work by academics across time that may provide replication on a larger scale.

### **Background on the Extent of Modern Patent Monetization**

While patent monetization is not a particularly new concept, it is only recently that the market for patent monetization has experienced dramatic growth.

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Indications of this growth are visible through increased litigation activity from patent monetizers, who now dominate patent lawsuit filings. For example, in 2013, Feldman, Ewing, and Jeruss documented the rapid growth in patent litigation. Approximately 2,500 patent lawsuits were filed in 2007; by 2012, the number of lawsuits had doubled to more than 5,000.<sup>3</sup> Nearly all of this growth resulted from increased activity by patent monetizers. Monetizers filed 428 patent lawsuits in 2007 — that number grew to 2,750 in 2012, an increase of more than 600%.<sup>4</sup> By 2012, lawsuits by monetizers represented the most common type of patent litigation, increasing from about 20% of lawsuits in 2007 to nearly 60% by 2012.<sup>5</sup> The increase in patent litigation across the time period was observed in both the number of lawsuits filed and the number of defendants sued. Although the number of defendants declined after passage of the America Invents Act in 2011, the levels remain far above those observed in 2007.<sup>6</sup>

Before continuing, it should be noted that the terminology used to describe the actors involved in patent monetization has been and still is subject to politically

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<sup>3</sup> See Robin Feldman, Tom Ewing & Sara Jeruss, *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 UCLA J.L. & TECH. 1, 42 (2013), available at <http://www.lawtechjournal.com/articles/2013/041024-Feldman.pdf>; see also Matthew Sag, *IP Litigation in United States District Courts: 1994 to 2014*, IOWA L. REV. (forthcoming) (manuscript at 17), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2570803](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2570803) (finding that patent litigation volume doubled from 2010 to 2013).

<sup>4</sup> Feldman, Ewing & Jeruss, *AIA 500 Expanded*, *supra* note 3, at 42.

<sup>5</sup> *Id.* The actual percentages vary slightly depending on whether individuals and trusts, which often behave similarly to patent monetizers, are included as monetizers for calculation purposes.

<sup>6</sup> For a description of the possible impact of the America Invents Act on patent litigation, see *id.* at 43-57.

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charged debate.<sup>7</sup> Government agencies, academics, and journalists use terms including “non-practicing entity” (NPE), “patent assertion entity” (PAE), and the popular colloquialism, “patent troll,” to label actors in the patent assertion landscape.<sup>8</sup> In this paper, we use a purposefully broad, simple term — “patent monetizer,” defined as any entity or individual whose core business involves licensing or litigating patents rather than making products. The use of “patent monetizer” ensures that all actors involved in revenue generation using patents are included in the discussion, regardless of the actions they take to do so or how they are organized. It also makes no judgment as to the legitimacy or acceptability of an actor’s behavior or business dealings. However, when discussing previous work by other authors, we will preserve the author’s choice of terminology.

Although the number of lawsuits filed by monetizers has increased notably, the main engine for profit generation is not collecting damages from a decision on the merits in court. In fact, the complexity of the patent system and high costs of litigation encourage settlements and extraction of licensing fees regardless of whether the patent holder is likely to prevail. For example, Chien found that fighting a PAE demand through litigation costs companies an average of about \$850,000.<sup>9</sup> Meanwhile, settling cost an average of only \$340,000, and fighting out of court

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<sup>7</sup> See generally Robin Feldman, *Patent Demands & Startup Companies: The View From the Venture Capital Community*, 16 YALE J.L. & TECH. 236, 244-54 (2014), available at <http://yjolt.org/sites/default/files/Feldman-1.pdf> (discussing in detail the choice of “terms and points of measurement” when studying patent assertion).

<sup>8</sup> *Id.*

<sup>9</sup> Colleen Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 472-73 & 473 tbl.1 (2014), available at <http://stlr.stanford.edu/pdf/startupsandpatenttrolls.pdf>.

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resulted in expenses of \$170,000.<sup>10</sup> Such non-litigation options were not only cheaper, but also considerably more popular for defendants than choosing to work through the entire litigation process. Bessen and Meurer reported similar mean legal costs of about \$420,000 for small or medium-sized companies and \$1.52 million for large companies responding to a NPE demand.<sup>11</sup>

One major result of this phenomenon is that patent demands — including litigation or the threat of litigation — have become an unpleasant part of life for many growing product companies, especially startup companies in the technology sector. In a 2013 survey, Chien found that 75% of venture capitalists had received NPE demands against at least one company in their portfolio, and 20% of all venture-backed startup companies surveyed had received demands.<sup>12</sup> Feldman, conducting a similar survey, found that 70% of venture capitalists have experienced demands against a portfolio company, while 31% of venture-backed companies independently reported demands against them.<sup>13</sup> Respondents reported that a majority of these demands originated from monetizers.<sup>14</sup>

Patent lawsuits overwhelmingly affect companies with small revenues and the least ability to defend against patent demands through expensive litigation. In

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<sup>10</sup> *Id.*

<sup>11</sup> James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 397-400 (2014), available at <http://cornelllawreview.org/files/2014/01/99CLR387.pdf>. Small and medium firms were defined as companies with less than \$1 billion in annual revenue. Large companies exceeded \$1 billion in annual revenue.

<sup>12</sup> Colleen V. Chien, White Paper for the Open Technology Institute, *Patent Assertion and Startup Innovation*, NEW AMERICA FOUNDATION (2013) at 10-11, available at <http://ssrn.com/abstract=2321340>.

<sup>13</sup> Feldman, *Patent Demands & Startup Companies*, *supra* note 7, at 263-65.

<sup>14</sup> *Id.* at 266-67.

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another study, Chien found that companies with less than \$10 million in revenue make up more than half of unique defendants in PAE lawsuits;<sup>15</sup> according to Bessen and Meurer, companies with less than \$100 million in annual revenue make up as much as 82% of defendants in NPE lawsuits.<sup>16</sup> Meanwhile, operating companies only sued companies with less than \$10 million in annual revenue 16% of the time.<sup>17</sup> These small companies find themselves most vulnerable to strategies based on the economics of patent litigation, with settlement often being the most attractive option regardless of the merits of the demand.

The majority of targets of patent assertions are technology and software companies. According to Chien, nearly 90% of technology venture capitalists have faced demands against a portfolio company,<sup>18</sup> while Feldman found that 70% of venture capitalists have experienced demands against an information technology portfolio company.<sup>19</sup> The percentages were far smaller for venture capitalists in other sectors.<sup>20</sup> More generally, the patents asserted in litigation are largely software, technology, or Internet-related patents. In an examination of NPE lawsuits, Bessen, Ford, and Meurer found that 62% of these suits involved software patents.<sup>21</sup>

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<sup>15</sup> Chien, *Startups and Patent Trolls*, *supra* note 9, at 471.

<sup>16</sup> Bessen & Meurer, *supra* note 11, at 397-98; *see also id.* at 398 n. 57 (explaining that making this estimate requires an assumption that firms with unreported revenue have revenues less than \$100 million); *see also* Chien, *Startups and Patent Trolls*, *supra* note 9, at 464 (reporting a wider range of 66-82% using the RPX Corporation database from Bessen & Meurer).

<sup>17</sup> Chien, *Startups and Patent Trolls*, *supra* note 9, at 464.

<sup>18</sup> Chien, *Patent Assertion and Startup Innovation*, *supra* note 12, at 10-11 & fig.1.

<sup>19</sup> Feldman, *Patent Demands & Startup Companies*, *supra* note 7, at 265.

<sup>20</sup> *Id.*

<sup>21</sup> James Bessen, Jennifer Ford & Michael J. Meurer, *The Private and Social Costs of Patent Trolls*, REG., Winter 2011-2012, at 26, 29 tbl.2, available at



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Chien and Karkhanis reported that up to 82% of lawsuits filed by PAEs were based on a software patent, compared to just 30% of all non-PAE lawsuits.<sup>22</sup> Meanwhile, Allison, Lemley, and Walker found that almost 94% of assertions of the most-litigated patents — patents that are the subject of eight or more lawsuits — involved software patents.<sup>23</sup> Allison, Tiller, Zyontz, and Bligh reported that Internet patents were 7.5 to 9.5 times more likely than non-Internet patents to be the subject of infringement litigation.<sup>24</sup>

Behind much of this litigation are software patents of low quality. In a 2013 survey, Chien noted complaints from numerous venture capitalists and startup companies about poor patent quality. Respondents called many software patents “not novel” and said “many obvious things are patented.”<sup>25</sup> Using a probit model, Miller estimated that 39% of software patents and 56% of business method patents

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<http://object.cato.org/sites/cato.org/files/serials/files/regulation/2012/5/v34n4-1.pdf>.

<sup>22</sup> Colleen Chien & Aashish Karkhanis, *Software Patents & Functional Claiming*, Presentation to the Software Patent & Trademark Office Roundtable at Stanford Law School (February 12, 2013), *available at* <http://digitalcommons.law.scu.edu/facpubs/603/>.

<sup>23</sup> John R. Allison, Mark A. Lemley & Joshua Walker, *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO L.J. 677, 696 (2011), *available at* <http://georgetownlawjournal.org/files/pdf/99-3/AllisonLemleyWalker%2520677-712.PDF>.

<sup>24</sup> John R. Allison, Emerson H. Tiller, Samantha Zyontz & Tristan Bligh, *Patent Litigation and the Internet*, 2012 STAN. TECH. L. REV. 3, 4 (2012), *available at* <https://journals.law.stanford.edu/sites/default/files/stanford-technology-law-review-stlr/online/allison-patent-litigation.pdf>.

<sup>25</sup> See Chien, *Patent Assertion and Startup Innovation*, *supra* note 12, at 15 (quoting one startup respondent as saying, “[i]n the case of software patents, not only is there significant prior art in a large percentage of cases, but most software patents are not novel: someone had a need to do something, and created it,” and another as saying, “the biggest problem with patents is in the software world, where many obvious things are patented.”).

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(often software patents themselves) could be found at least partially invalid, compared to 28% of all patents.<sup>26</sup> And in practice, software patent owners are far less likely to win their cases than owners of non-software patents. Allison, Tiller, Zyontz, and Bligh found that software patentees won less than 13% of their cases, compared to 37% of cases won by non-software patentees.<sup>27</sup>

The impact of patent demands is substantial. Bessen and Meurer estimate the direct aggregate cost of NPE patent assertions to be \$29 billion in 2011 alone, a more than four-fold increase from 2007.<sup>28</sup> Moreover, Bessen and Meurer note that only about 20% of those costs flow back to independent inventors or to research and development.<sup>29</sup> And that \$29 billion figure includes only direct business and legal costs to U.S. companies — the indirect effects are also large. Patent demands can lead to “significant operational impacts,” including loss of clients, hiring delays,

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<sup>26</sup> Shawn P. Miller, *Where's the Innovation: An Analysis of the Quantity and Qualities of Anticipated and Obvious Patents*, 18 VA. J.L. & TECH. 1, 6-7 (2013), available at [http://www.vjolt.net/vol18/issue1/v18i1\\_1-Miller.pdf](http://www.vjolt.net/vol18/issue1/v18i1_1-Miller.pdf).

<sup>27</sup> Allison, Lemley & Walker, *supra* note 23, at 696 & tbl.10. These percentages consider only patent owner wins and defendant wins on the merits, and exclude default judgments and settlements; *see also id.* at 693-94 & tbl.8 (describing how NPEs were also found to have a significantly low win rate, winning only 8% of their cases, compared to 40% of cases won by product companies).

<sup>28</sup> Bessen & Meurer, *supra* note 11, at 408 & tbl.4.

<sup>29</sup> *Id.* at 423.

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changes to products, or complete exit from a business.<sup>30</sup> Pending demands and litigation can also lead to a reduction in a company's valuation.<sup>31</sup>

Most important, in what economists are calling the "leaky bucket," little of the money paid to monetizers flows back to invention and innovation.<sup>32</sup> Rather, only an estimated 20% of payments to NPEs flows back to inventors or to internal research and development.<sup>33</sup>

Among all of this assertion activity, there are undoubtedly monetizers that have targeted valid patents against companies that are clearly infringing. It is also true that a small inventor is at a severe disadvantage asserting a patent on its own against a large infringer. The complexity and expense of the patent system has always been daunting for small players in the field. The concern, however, is that the economics of patent litigation may be encouraging strategic behavior that can be harmful to innovation. Rather than returning money to inventors small and large, we may be incentivizing vast amounts of wasteful activity.

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<sup>30</sup> See Chien, *Startups and Patent Trolls*, *supra* note 9, at 474 (defining a "significant operational impact" as resulting in "a business strategy pivot, product change, business/business line exit, delay in hiring or meeting operational milestone, and/or a reduction in the value of the company.").

<sup>31</sup> *Id.*; see also Chien, *Patent Assertion and Startup Innovation*, *supra* note 12, at 12 ("Having an outstanding patent lawsuit...can cause a company to be devalued significantly, for example, by 20%.").

<sup>32</sup> Fiona M. Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, 79 ANTITRUST L.J. 463, 482-82 (2014), available at <http://faculty.haas.berkeley.edu/shapiro/pae.pdf>.

<sup>33</sup> See Robin Feldman & Mark A. Lemley, *Does Patent Licensing Mean Innovation?*, IOWA L. REV. (forthcoming) (manuscript at 6), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2565292](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2565292) (citing Bessen & Meurer, *supra* note 11, at 423).

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Legislators and policymakers have taken note of the rapid rise in patent demands by monetizers, leading to new and proposed regulation as well as a spike in common law decisions. The America Invents Act, which took effect in 2011, introduced numerous reforms to the patent system. As it pertains to patent monetizers, the act changed joinder rules that apply to patent lawsuits, making it more difficult to include multiple defendants in the same lawsuit.<sup>34</sup> The House of Representatives approved another patent reform bill in 2013 mainly pertaining to litigation reform<sup>35</sup> — the bill died in the Senate, but multiple reform bills are now back under consideration.<sup>36</sup> At least 20 states have passed legislation since 2013 targeting instances of bad faith patent assertion, with bills introduced in numerous other states.<sup>37</sup> Outside of legislation, numerous commissions and agencies have considered the issue of patent assertion in particular. The White House issued

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<sup>34</sup> Leahy-Smith America Invents Act, 35 U.S.C. § 299 (2012).

<sup>35</sup> Innovation Act, H.R. 3309, 113<sup>th</sup> Cong. (2013).

<sup>36</sup> *See, e.g.*, Innovation Act, H.R. 9, 114<sup>th</sup> Cong. (2015); Protecting American Talent and Entrepreneurship Act of 2015, S. 1137, 114<sup>th</sup> Cong. (2015).

<sup>37</sup> *Patent Progress's Guide to State Patent Legislation*, PATENT PROGRESS (last visited Apr. 1, 2014), <http://www.patentprogress.org/patent-progress-legislation-guides/patent-progresss-guide-state-patent-legislation/>. *See, e.g.*, Bad Faith Assertions of Patent Infringements, VT. STAT. ANN. tit. 9, §§ 4195-4199 (West, Westlaw through 2013-2014 Sess.) (delineating factors that courts can consider as evidence of bad faith assertions of patent infringement, and creating remedies and enforcement policies, making it the first state to pass legislation against patent trolling). In many other states, the acts signed into law are nearly identical to the Vermont legislation. *See, e.g.*, Actions for Bad Faith Assertion of Patent Infringement, ME. REV. STAT. tit. 14, §§ 8701-8702 (West, Westlaw through 2015 ch. 1); Bad Faith Assertions of Patent Infringement, VA. CODE ANN. tit. 59.1, §§ 59.1-215.1 – 59.1-215.4 (West, Westlaw through 2015 ch. 1); Patent Infringement Claims, MO. ANN. STAT., tit. 26, §§ 416.650-416.658 (West, Westlaw through 2014 Sess.).

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executive orders and a report on patent assertion in 2013,<sup>38</sup> while the Federal Trade Commission has opened an investigation focusing on the economic effects of 25 patent monetizers.<sup>39</sup>

The Supreme Court has also joined the conversation, handing down six patent-related decisions during the 2013-2014 term. In comparison, the Court heard only five patent cases in the 15 years after the creation of the Federal Circuit in 1982.<sup>40</sup> Each decision last term walked back Federal Circuit logic and curtailed some of the broad powers enjoyed by patent holders.<sup>41</sup> Notably, in *Nautilus v. Biosig*, a unanimous court overturned a Federal Circuit rule that patent claims may contain ambiguity as long as the claims are not “insolubly ambiguous,” possibly setting a lower bar for overturning patents for indefiniteness.<sup>42</sup> In *Octane*, the Court ruled that the Federal Circuit’s standard for awarding attorney’s fees to prevailing parties in patent cases was “unduly rigid.”<sup>43</sup> The Patent Act contains a fee-shifting provision that allows district courts to award attorney’s fees in “exceptional cases,”<sup>44</sup> which the Federal Circuit had defined as cases that involve inappropriate conduct or are

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<sup>38</sup> See EXECUTIVE OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION (June 2013), available at [http://www.whitehouse.gov/sites/default/files/docs/patent\\_report.pdf](http://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf).

<sup>39</sup> See Press Release, Federal Trade Commission, FTC Seeks to Examine Patent Assertion Entities and Their Impact on Innovation, Competition (September 27, 2013), available at <http://www.ftc.gov/news-events/press-releases/2013/09/ftc-seeks-examine-patent-assertion-entities-their-impact>.

<sup>40</sup> Robin Feldman, *Coming of Age for the Federal Circuit*, 18 GREEN BAG 2D 27, 27 (2014), available at [http://www.greenbag.org/v18n1/v18n1\\_articles\\_feldman.pdf](http://www.greenbag.org/v18n1/v18n1_articles_feldman.pdf).

<sup>41</sup> See generally *id.* (discussing the evolving relationship between the Supreme Court and the Federal Circuit).

<sup>42</sup> *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120, 2124 (2014).

<sup>43</sup> *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S.Ct. 1749, 1755 (2014).

<sup>44</sup> Patent Act, 35 U.S.C. § 285 (2012).

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both “objectively baseless” and “brought in subjective bad faith.”<sup>45</sup> Noting that this framework is “too restrictive” and covers conduct that is already “independently sanctionable,”<sup>46</sup> the Court also ruled that the Federal Circuit’s evidentiary standard of clear and convincing evidence for fee recovery was unjustified, finding that a preponderance of the evidence standard is used in most other patent-infringement litigation.<sup>47</sup> The decision in *Octane*, along with the opinion in a closely related case, *Highmark*,<sup>48</sup> may help to decrease the effectiveness of monetizer strategies by holding patent claims to a higher standard of clarity and precision and by introducing a greater risk that a losing monetizer will be responsible for attorney’s fees.<sup>49</sup>

The increasing level of interest in patent monetization has led to novel research on the topic. However, while many studies use litigation data, few patent demands actually progress to a lawsuit. Threats of litigation and licensing requests take place in a realm outside of the courthouse, making up the large majority of demand activity,<sup>50</sup> and information about this substantial activity is not covered by

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<sup>45</sup> *Brooks Furniture Mfg., Inc. v. Dutailier Intern., Inc.*, 393 F.3d 1378, 1381 (2005).

<sup>46</sup> *Octane*, 134 S.Ct. at 1756-57.

<sup>47</sup> *Id.* at 1758.

<sup>48</sup> *Highmark, Inc. v. Allcare Health Management System, Inc.*, 134 S.Ct. 1744 (2014).

<sup>49</sup> See Feldman, *Coming of Age*, *supra* note 40, at 35 (discussing these cases in more detail).

<sup>50</sup> Estimates of the number of patent threats range from 60,000 to more than 100,000 per year. See Colleen Chien, *Patent Assertion Entities*, Presentation to the DOJ/FTC Workshop on PAEs (Dec. 10, 2012), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2187314](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2187314) (noting that at least 2500 PAE lawsuits were filed in 2012 and then claiming that the total number of demands is 25 to 50 times that amount); see also EXECUTIVE OFFICE OF THE PRESIDENT, *supra* note 38, at 6 (originally performing the calculation using the data from Chien).

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litigation data sets. Further, these non-court interactions are often obscured and hidden by nondisclosure agreements and fears of retaliation.<sup>51</sup> Therefore, anonymized surveys, such as the one presented in this paper, are an important attempt at beginning to understand the full landscape of patent assertion.

### **An Overview of Initial Public Offerings and Patent Monetization**

An initial public offering can offer a growing and successful company many benefits — an injection of capital, a liquidity event for existing shareholders, and extensive press and publicity, among others.<sup>52</sup> Yet accessing these rewards requires a costly and laborious preparation and filing process, involving coordinated efforts in reporting, auditing, due diligence, underwriting, public relations, and marketing. The required SEC registration forms — most notably, Form S-1 — must offer

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<sup>51</sup> See, e.g., Alex Blumberg & Laura Sydell, *This American Life: When Patents Attack!* (National Public Radio broadcast July 22, 2011), transcript *available at* <http://www.thisamericanlife.org/radio-archives/episode/441/transcript> (“[W]e called people who had licensing arrangements with [a monetizer], we called people who were defendants in lawsuits involving [the monetizer’s] patents, we called every single company being sued by [another monetizer]. No one would talk to us.”); see also Robin Feldman & Tom Ewing, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 2-3 (2012), *available at* <http://web.stanford.edu/dept/law/ipsc/Paper%20PDF/Feldman%20&%20Ewing%20-%20Paper.pdf> (describing similar issues in uncovering information about patent monetizers).

<sup>52</sup> See Elizabeth Myers, Bill Contente, Michael Millman & Christopher Roberts (on behalf of J.P. Morgan), *Why Go Public?*, in NEW YORK STOCK EXCHANGE IPO GUIDE 9, 10 (2013), *available at* [https://www.nyse.com/publicdocs/nyse/listing/nyse\\_ipo\\_guide.pdf](https://www.nyse.com/publicdocs/nyse/listing/nyse_ipo_guide.pdf) (explaining advantages of conducting an IPO); see also PRICEWATERHOUSECOOPERS, ROADMAP FOR AN IPO: A GUIDEMAP FOR GOING PUBLIC 3 (2011), *available at* [http://www.pwc.com/en\\_US/us/transaction-services/publications/assets/roadmap-to-an-ipo.pdf](http://www.pwc.com/en_US/us/transaction-services/publications/assets/roadmap-to-an-ipo.pdf) (discussing potential advantages of going public).

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detailed information about a company's finances, structure, and risks. For many companies, this represents an extensive disclosure of proprietary and sensitive information theretofore unreleased to the public.<sup>53</sup> Soon-to-be public companies must also extensively market themselves through a traditional "IPO roadshow," where companies hold meetings across the world to meet with investors, with the hopes of convincing them to purchase shares during the IPO.<sup>54</sup>

The public display, lasting about three to four months from the initial organizational meeting to the first day of trading,<sup>55</sup> makes a company uniquely vulnerable to unfavorable events and negative press that could adversely affect share prices, a company's valuation, and interest in the IPO. Anecdotal evidence suggests that patent monetizers and competitors are taking advantage of this vulnerability by issuing patent demands to companies during their filing period and shortly after the completion of the IPO. In a 2013 *Reuters* article on patent lawsuits, this potential pattern of patent demands was taken as fact — just part of the path to an IPO: "Patent claims against companies approaching an IPO are relatively

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<sup>53</sup> But see Jeffrey R. Vetter & William H. Hughes (on behalf of Fenwick & West LLP), *The IPO On-Ramp Under the JOBS Act*, in NEW YORK STOCK EXCHANGE IPO GUIDE, *supra* note 52, at 43, 44-45, for a discussion of how recent legislation allows certain eligible emerging growth companies to make confidential submissions of the draft registration statements in the early stages of the filing process. However, a public filing of the registration statement is still required at least 21 days before the start of the IPO roadshow.

<sup>54</sup> See PRICEWATERHOUSECOOPERS, *supra* note 52, at 51-52 (describing the purpose and format of an IPO roadshow).

<sup>55</sup> See Elizabeth Myers, Bill Contente, Michael Millman & Christopher Roberts (on behalf of J.P. Morgan), *The IPO Process*, in NEW YORK STOCK EXCHANGE IPO GUIDE, *supra* note 52, at 31, 32-33 (outlining a standard timeline for the IPO process).



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common, as plaintiffs hope the need for a target company to minimize risks might force a lucrative settlement.”<sup>56</sup>

Much of the evidence for this timing originates from reported events in the press. For example, just three days before its November 2013 IPO, Twitter disclosed in an updated S-1 that it had received a letter from IBM alleging that Twitter had infringed on three IBM patents.<sup>57</sup> This addition of approximately eight lines to the “Risk Factors” section of a 250-page document made news in outlets including the *Wall Street Journal* and *Reuters*.<sup>58</sup> Four months later, Twitter purchased 900 patents from IBM to settle the dispute, an example of companies stockpiling patents as a defense against further threats and litigation.<sup>59</sup>

Developments in ongoing litigation also can have an impact. When GrubHub Seamless, an online food-ordering company, filed the first version of its S-1 in February 2014, the company disclosed that it was currently defending itself against

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<sup>56</sup> Dan Levine, *In Patent Showdown, IBM's Arsenal Drafts Twitter's*, REUTERS, Nov. 4, 2013, available at <http://www.reuters.com/article/2013/11/04/us-twitter-patents-idUSBRE9A30ZW20131104>.

<sup>57</sup> *Compare* Twitter, Inc., Securities Registration Statement (Form S-1/A), at 35 (November 4, 2013), available at <http://files.shareholder.com/downloads/AMDA-2F526X/3989352158x0xs1193125%2D13%2D424260/1418091/filing.pdf> (including the IBM disclosure) *with* Twitter, Inc., Securities Registration Statement (Form S-1/A), at 35 (October 24, 2013), available at <http://files.shareholder.com/downloads/AMDA-2F526X/3989352158x0xs1193125%2D13%2D409822/1418091/filing.pdf> (showing the previous version of the S-1 filing without the IBM disclosure).

<sup>58</sup> See Telis Demos, Yoree Koh & Matt Jarzemsky, *Twitter Raises Sights in Heady IPO Market*, WALL ST. J., Nov. 4, 2013, available at <http://www.wsj.com/articles/SB10001424052702303482504579177541101538338>; see also Levine, *supra* note 56.

<sup>59</sup> See Rachel Abrams, *Market for Patents Was Softer in 2013, Firms Say*, N.Y. TIMES, Feb. 4, 2014, available at <http://dealbook.nytimes.com/2014/02/04/market-for-patents-was-softer-in-2013-firms-say/>.

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patent infringement lawsuits involving its online ordering systems.<sup>60</sup> The lawsuits were filed by Ameranth, a known patent monetizer that earns the majority of its revenue by collecting payments on patents.<sup>61</sup> When Ameranth announced that its patents had been confirmed by the U.S. Patent & Trademark Office just three days before GrubHub's IPO, allowing the lawsuit to move forward, the pending litigation became a salient risk factor for GrubHub in the media.<sup>62</sup> *Fortune* announced, "Amid IPO, one of GrubHub's risk factors just got riskier."<sup>63</sup> *CNNMoney* reported that GrubHub was "facing a potentially expensive lawsuit."<sup>64</sup> The USPTO's decision had been rendered a week earlier, raising the concern that the patent holder may have waited to issue its press release until three days before the IPO to ensure maximum impact.

IBM's threat against Twitter and Ameranth's press release both came days before upcoming IPOs — timing that seems unlikely to have been coincidental. And similar instances of suspicious lawsuit timing occurred before IPOs for OpenTable,

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<sup>60</sup> See GrubHub Inc., Securities Registration Statement (Form S-1), at 24-25, 81 (Feb. 28, 2014), available at <http://d1lge852tjjqow.cloudfront.net/CIK-0001594109/6f68ff88-9480-4835-88e5-8a4eaa002598.pdf?noexit=true> (describing the Ameranth litigation).

<sup>61</sup> See Erin Griffith, *Amid IPO, One of GrubHub's Risk Factors Just Got Riskier*, FORTUNE, April 4, 2014, available at [http://fortune.com/2014/04/04/amid-ipo-one-of-grubhubs-risk-factors-just-got-riskier/?iid=SF\\_F\\_MPM](http://fortune.com/2014/04/04/amid-ipo-one-of-grubhubs-risk-factors-just-got-riskier/?iid=SF_F_MPM).

<sup>62</sup> See Press Release, Ameranth, Inc., Ameranth's 21<sup>st</sup> Century Communications Data Synchronization Patent Claims Confirmed Valid by U.S. Patent Office (April 1, 2014), available at <http://www.prnewswire.com/news-releases/ameranths-21st-century-communications-data-synchronization-patent-claims-confirmed-valid-by-us-patent-office-253417011.html>.

<sup>63</sup> Griffith, *supra* note 61.

<sup>64</sup> *GrubHub IPO Delivers: Up 31%*, CNNMONEY, April 4, 2014, available at <http://money.cnn.com/2014/04/04/investing/grubhub-ipo/>.

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Google, and PayPal.<sup>65</sup> Litigation against PayPal actually led to a weeklong delay in the company's 2002 IPO, in part to refile the S-1 with the SEC in order to reflect the new development.<sup>66</sup> In PayPal's answer to the complaint filed by Certco, PayPal accused Certco of filing the lawsuit "with the intent that it would disrupt PayPal's initial public offering" and claimed that the delay resulted in damages to PayPal.<sup>67</sup>

In addition to the possibility of concerns about the potential impact on innovation and the patent system, patent demand activity timed in relation to stock offerings such as IPOs could raise other concerns. In theory, such strategically timed behavior could suggest that a competitor is trying to harm a company it sees as a potential threat by reducing the amount of money the company can raise in its IPO. For example, in a 2006 complaint, GoDaddy accused a competitor, j2 Global, of this behavior, stating that an infringement lawsuit filed by j2 Global was meant to prevent GoDaddy from successfully completing its IPO, "which would have enabled

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<sup>65</sup> See Tom Ewing, *Indirect Exploitation of Intellectual Property Rights by Corporations and Investors*, 4 HASTINGS SCI. & TECH. L.J. 1, 70 n. 286 (2012), available at <http://hstlj.org/wp-content/uploads/2011/12/Ewing-Modern-IP-Privateering.pdf> (citing these specific cases of suspicious timing).

<sup>66</sup> See PayPal, Inc., Securities Registration Statement (Form S-1/A), at 64-66 (Feb. 7, 2002), available at <http://www.nasdaq.com/markets/ipos/filing.ashx?filingid=1645013> (disclosing the Certco complaint); see also Verne Kopytoff, *PayPal Plans IPO Despite Problems / Patent Suit, Banking Questions Cloud Palo Alto Firms Offering*, S.F. CHRONICLE, Feb. 15, 2002, available at <http://www.sfgate.com/business/article/PayPal-plans-IPO-despite-problems-Patent-suit-2874230.php> (covering the IPO delay).

<sup>67</sup> Answer, Counterclaims, and Demand for Jury Trial, *Certco Inc. v. PayPal Inc.*, Civil Action No. 02-094 (D. Del. Feb 04, 2002), available at [http://www.sec.gov/Archives/edgar/data/1103415/000091205702004798/a2070244zex-99\\_2.htm](http://www.sec.gov/Archives/edgar/data/1103415/000091205702004798/a2070244zex-99_2.htm).

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GoDaddy to compete more effectively with j2.”<sup>68</sup> Moreover, securities regulators may be concerned if investors appear to be attempting to manipulate stock prices, either before the price is set in an IPO or after the stock has begun to trade. For example, a patent holder in theory could take a short sale position in a company’s stock — essentially betting that the company’s stock price will fall — and then help to facilitate patent related actions, hoping to drive down the price.<sup>69</sup>

This type of behavior has grounding in reality. Recent press has discussed the actions of a hedge fund manager who is betting against pharmaceutical companies and then challenging their patents, all while investing “in those [companies] that would profit if the patents were invalidated.”<sup>70</sup> His strategy makes use of Inter Partes Review (IPR), a mechanism created after the passage of the America Invents Act to allow for expeditious patent challenges initiated by third-party petitions. The

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<sup>68</sup> Complaint and Demand for Jury Trial at 14, *Go Daddy Group Inc. v. j2 Global Comms., et al.*, No. 2:06-cv-02474-NVW (D.C. AZ 2006) (complaint filed Oct. 17, 2006); see also Robin Feldman, *Intellectual Property Wrongs*, 18 STAN. J.L. BUS. & FIN. 250, 288-294 (2013) (detailing the behavior of j2 Global).

<sup>69</sup> For an early article speculating about this type of behavior, see Michelle Carniaux & Michael E. Sander, *The Curious Case of New Bay Capital LLC and VirnetX Inc.*, IPR BLOG (Nov. 22, 2013), available at <http://interpartesreviewblog.com/curious-case-new-bay-capital-llc-virnetx-inc/>. VirnetX, which won its own \$368 million patent infringement verdict against Apple in 2012, claimed that a newly created shell company known as New Bay Capital demanded that VirnetX pay New Bay \$37 million or face potentially damaging requests for Inter Partes Review (IPR) for the patents asserted against Apple. Ryan Davis, *Co. Accused of AIA ‘Shakedown’ Asks To Drop USPTO Review*, LAW360 (Oct. 30, 2013), available at <http://www.law360.com/articles/483839>.

<sup>70</sup> Joseph Walker & Rob Copeland, *New Hedge Fund Strategy: Dispute the Patent, Short the Stock*, WALL ST. J., Apr. 7, 2015, available at <http://www.wsj.com/articles/hedge-fund-manager-kyle-bass-challenges-jazz-pharmaceuticals-patent-1428417408>; see also Ryan Davis, *Hedge Fund’s AIA Attack Should Have Biotech Cos. Wary*, LAW360 (Mar. 9, 2015), available at <http://www.law360.com/articles/628691>.

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manager claims that his challenges will reduce drug prices for consumers. If a pharmaceutical patent really is weak, then society's interests might align with those of similar IPR challengers, making it acceptable to profit from taking the risk of challenging a bad patent. One would have to be certain, however, that both interests align tightly and that no market manipulations concerns exist.

Yet, aside from these stories and assumptions, there exists little research into whether these examples are emblematic of a more pervasive strategy utilized around funding moments. Limited data on the question does exist. In a survey of startups and venture capitalists, Chien found that "timing [of assertions] seemed to be dictated by an event in the company's development."<sup>71</sup> When respondents were asked to list what they considered to be the triggers for patent demands against their companies, the most popular answers were publicity or success, a merger or acquisition, an IPO, and funding.<sup>72</sup> But Feldman, examining patent demands surrounding the initial round of venture funding, did not find evidence that patent demands were tied to receiving venture funding. She reported that only 11% of companies received patent demands within one year of the first funding round, with 53% receiving their first demand more than a year after the initial round of funding and 27% receiving their first demand before any funding event.<sup>73</sup>

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<sup>71</sup> Chien, *Patent Assertion and Startup Innovation*, *supra* note 12, at 11.

<sup>72</sup> *See id.* at 36 n.29 ("The survey asked startup and VC respondents to identify what they thought triggered the suits/demands they had experience with. The top answer was publicity or success (N=21), followed by an M&A event (N=5), IPO (N=6), and funding (N=5).").

<sup>73</sup> Feldman, *Patent Demands & Startup Companies*, *supra* note 7, at 267-68.

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This paper attempts to explore this issue in greater depth by collecting data about when companies receive patent demands. Specifically, we surveyed recently public companies about their experience with patent demands surrounding two major events in a company's development: receiving the first round of venture capital funding, and completing the IPO. The goal was to collect substantive data in order to test the narrative of conspicuous lawsuit timing on the part of monetizers and competitors.

### **Identification of Participants**

To collect information about the effect and timing of patent demands on recently public companies, this study attempted to identify an in-house legal staff member for all U.S. product companies that had gone public since 2007. The particular start date was selected in order to reach a substantial number of companies on both sides of the dramatic increase in patent demand litigation that began roughly around 2009.<sup>74</sup>

The first step in this process was identifying the list of businesses that met the above criteria. A working database of recently public companies was created in late May of 2013 using data from Thomson Reuters SDC Platinum, which provides information on financial transactions, resulting in a list of all IPOs issued on U.S. markets between January 2007 and December 2012. This database is publicly available to researchers who wish to conduct further research or replicate the study.

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<sup>74</sup> See Feldman, Ewing & Jeruss, *AIA 500 Expanded*, *supra* note 3, at 42 (detailing the increase in patent infringement lawsuits); see also *id.* at 18-19 (offering a rationale for choosing a similar date range for another study of patent monetization).

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The set of nearly 1200 IPOs was then narrowed to include only the IPOs of domestic product companies in the same time period. This was accomplished by parsing the data set to remove foreign companies, “blank check” companies, and businesses classified as holding, investment, and real estate companies. Foreign companies were eliminated to focus the study on companies and patent monetizers that operate in the U.S. legal environment, which does not affect foreign-based entities to nearly the same extent as domestically held entities.

A “blank check” company is defined by the SEC as “a development stage company that has no specific business or purpose,” or a company that is created with the intent to undertake a merger or acquisition with another entity.<sup>75</sup> In the raw database of recent IPOs obtained from Thomson Reuters SDC Platinum, these companies frequently included the word “acquisition” directly in their name, such as “Prime Acquisition Corp” or “Highlands Acquisition Corp.” Given that these companies appear to have no relation to product creation or development, they were not included in the final survey database.

Holding, investment, and real estate companies represent a broad category of businesses including investment banks, investment funds, real estate investment trusts (REITs), hedge funds, holding companies, private equity firms, private real estate services, and commodities brokers, among other similar entities. We chose to focus our research on the experience of product companies, given the centrality of

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<sup>75</sup> *Blank Check Company*, U.S. SECURITIES AND EXCHANGE COMMISSION, <http://www.sec.gov/answers/blankcheck.htm> (last visited Feb. 25, 2015).

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product creation for the patent system.<sup>76</sup> One could argue, however, that portions of this category would also be relevant to explore for a more complete picture of all patent demand activity. Other researchers in the future may wish to either include this category or to parse through the different types of entities grouped by the SDC Platinum database used for this study.

The final set of potential contacts included information on, to the best of our knowledge, all 555 IPOs on U.S. markets between 2007 and 2012 that involved domestic product companies, representing the desired response population for the survey. Research assistants were tasked with finding a specific contact in each company's legal department, most often the company's general counsel, who would have the ability to respond to the survey questions. While contact names and phone numbers were often easily accessible on company websites, research assistants did experience difficulty finding e-mail contact information for general counsel. Creative techniques were used to identify e-mail addresses and other contact information; methods included searching state bar websites and using a company's publicly available e-mail addresses in order to extrapolate the company's standard e-mail format.<sup>77</sup> When other avenues failed, assistants called companies' general counsel directly to request participation in the study. At the conclusion of this process, e-mail addresses were collected for general counsel or for another legal contact at 406 of the 555 companies in the final data set.

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<sup>76</sup> See U.S. CONST., art I, § 8 (authorizing Congress to grant patent rights to promote the progress of "useful arts"); see also Feldman & Lemley, *supra* note 33.

<sup>77</sup> For example, searching for publically available addresses could allow a researcher to determine whether a company follows an e-mail format of `firstname.lastname@company.com` or `fullname@company.com`.



### **Design of Study and Participants**

The survey was sent to the legal contact at 406 domestic product companies that issued an IPO on U.S. markets between 2007 and 2012. The surveys were distributed between October 2013 and January 2014, and responses were recorded between October 2013 and April 2014. The set of questions was submitted to the Western Institutional Review Board, which determined that the research met the exemption criteria for human subjects research under 45 CFR §46.101(b)(2).<sup>78</sup>

The survey began with general questions about the respondent's company and its recent IPO, followed by specific questions about the company's experience with and exposure to patent demands surrounding major funding moments in the company's development. The survey continued with questions asking respondents to give subjective opinions and free-form responses about patent demands. The questions concluded with an opportunity for respondents to provide contact information if they were willing to speak further about their experiences with researchers. Participants were told that their responses would be reported anonymously. Thus, the data is presented only in the aggregate and in anonymized form.

Seventy-two recipients started the survey, and 53 surveys were marked as completed between October 2013 and April 2014. Two modifications were made to the initial set of 53 "completed" surveys. Upon inspection of the data, two surveys

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<sup>78</sup> See Letter from Western Institutional Review Board dated September 4, 2013 (on file with authors).

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marked as completed were removed because no responses were actually recorded on either survey. One survey marked as incomplete was added to the set of completed surveys because the respondent only omitted answers to the open-ended questions presented at the end of the survey. Therefore, the final data set presented in this study consists of responses to 52 completed surveys. The response rate was 13%,<sup>79</sup> and the survey sample represents almost 9.5% of the total identified population of 555 U.S. product companies with recent IPOs.

### **Study Limitations**

The research for this study was conducted through a voluntary response survey. This method poses significant limitations to generalizing the findings to a wider population. First, companies may have been more or less willing to complete the survey depending on their experience with patent demands. For example, if a company has not faced significant patent-based threats or lawsuits, the potential respondent may feel that they could not add value to the survey by responding; meanwhile, those who have been particularly affected by patent demands might have a far stronger desire to ensure their experiences are recorded. The resulting non-response bias could shift the results of the sample away from the actual characteristics of the population of recently public product companies. However, as discussed *infra*, some basic checks of our data set reveal that the general characteristics of our sample were similar to those of the entire population.

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<sup>79</sup> For reference, the response rate was calculated as 52 completed surveys/406 companies with identified contact information = 12.8%.

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Using a survey-based research method also presents potential issues with accuracy. The responses provided represent only the respondents' recollections and subjective perceptions, and most data cannot be verified through public records or other independent data. For instance, it is not possible to independently verify respondents' answers to how many patent demands their company has received, when the demands were made, and how much the company has spent defending against patent demand claims. We can only use what private data is volunteered by the company's legal contact. The language of the questions themselves also introduces some subjectivity. We define "patent demands" as including "licensing demand letters, threats of litigation, [and] infringement lawsuits," leaving the judgment call of what crosses the threshold of "threat" up to the respondent when determining what constitutes a patent demand.

Finally, the survey suffered from a low response rate and small sample size. Only 52 completed responses were included in the final dataset, for a response rate near 13%. While this does represent nearly 10% of the survey "population" — U.S. product companies issuing IPOs between 2007 and 2012 — the sample size is small enough that statistical significance should not be inferred from any of the results. In fact, many questions have response totals below 52, especially those that applied to only a specific subset of respondents. While notable percentages, figures, and other results from the survey data are displayed and discussed below, any observations should be tempered by the small sample size. We attempt to be transparent by displaying survey counts (e.g. "11 out of 52 respondents") alongside percentages when possible.

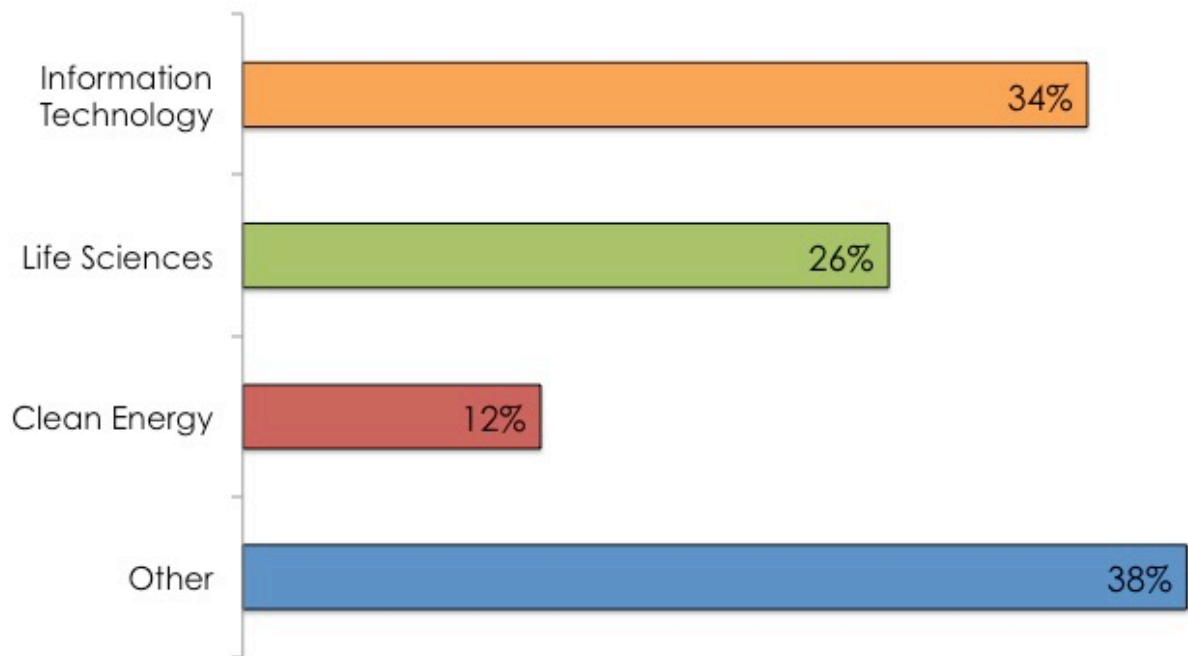
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However, despite these low response levels, the results represent an attempt at making quantitative progress toward understanding potential patterns in patent demand timing. They offer yet more anecdotal and observational data about the extent and timing of patent demands, especially activity that takes place outside of the courtroom, setting the foundation for additional research.

### **General Characteristics of Respondents**

Respondents could categorize the sector in which their company operates as information technology, life sciences, clean energy, or other, with the option of selecting all categories that apply. The ability to select multiple sectors resulted in percentages that sum to more than 100%. When “other” was selected, respondents had the ability to provide a short phrase describing their company’s business. Two companies that were marked only as “other” were manually added to the information technology category after the completion of the survey. The two company sectors were described by the respondents as “internet” and “business intelligence software,” and a determination was made that the companies should also be included in the information technology category.

### In what sector(s) do/does your company operate?



Note: Multiple sectors could be selected, so totals exceed 100 percent.

Of the company lawyers that responded, 34% indicated that their company operates in information technology. 26% of the companies operate in the life sciences, and 12% were categorized as clean energy firms. 38% of respondents chose to classify their company's sector as "other." Phrases appearing multiple times in the "other" write-in section included "manufacturing," "retail," and "oil and gas."

In order to check whether these percentages matched those of the entire population of recently public companies, we returned to our full data set of 555 companies and manually assigned each company to one or more of the four sectors

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available as choices to the survey respondents.<sup>80</sup> The results were quite similar. 33% of the population were classified as information technology companies, compared to 34% of the sample. This indicates that our sample does not have a disproportionate number of information technology companies — a category of companies that we expected to be disproportionately affected by patent demands.

<b>Sector</b>	<b>Sample (self-reported)</b>	<b>Population (manually coded)</b>
Information Technology	34%	33%
Life Sciences	26%	18%
Clean Energy	12%	5%
Other	38%	50%
<b>Total</b>	<b>110%</b>	<b>106%</b>

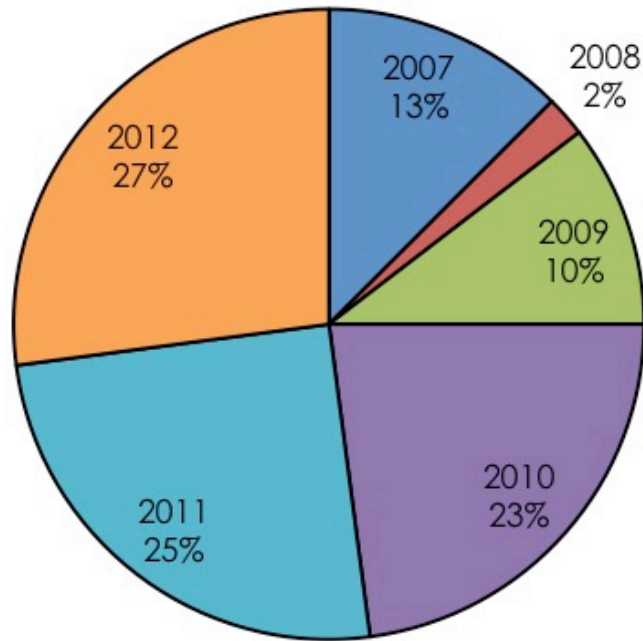
All lawyers responding to this survey were members of a company that completed an IPO between 2007 and 2012, and respondents were asked when their company went public. The majority of companies represented in this survey — 75% — went public between 2010 and 2012. Specifically, 23% went public in 2010, 25% in 2011, and 27% in 2012. The remainder conducted their IPO in either 2007 (13%), 2008 (2%), or 2009 (10%), a down period consistent with the severe decrease in IPOs completed during the economic recession at the end of the decade.<sup>81</sup>

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<sup>80</sup> Note that this check of the data set required us to manually code sectors for each company, while the sample characteristics were obtained through the self-classification of respondents. We classified companies using the “issuer” and “business description” fields from the Thomson Reuters SDC Platinum database, with some additional research conducted online when the nature of the company’s business was not immediately clear. If online searches still failed to describe the company’s business, the default sector selection was “Other.” Thus, it is possible that respondents did not use exactly the same criteria as we did when choosing sectors for classification. For example, we chose not to include companies related to natural gas as members of the “clean energy” category.

<sup>81</sup> See Xiaohui Gao, Jay R. Ritter & Zhongyan Zhu, *Where Have All the IPOs Gone?*, 48 J. FIN. & QUANTITATIVE ANALYSIS 1663, at 1678 tbl. 4 (2013), available at

### When did your company go public?



These results are relatively consistent with the entire population. 63% of the population completed their IPO between 2010 and 2012, compared to 75% of the sample. The population also reflected the downward trend of IPOs completed in 2008 and 2009.<sup>82</sup>

It is possible that the slight over-representation in the respondents of companies with more recent IPOs may be a natural result of personnel turnover.

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[http://journals.cambridge.org/download.php?file=%2FJFQ%2FJFQ48\\_06%2FS0022109014000015a.pdf&code=2b0f8455fdb3b9ea5d1724b76fbc7feb](http://journals.cambridge.org/download.php?file=%2FJFQ%2FJFQ48_06%2FS0022109014000015a.pdf&code=2b0f8455fdb3b9ea5d1724b76fbc7feb) (providing data for the number of domestic IPOs each year from 1980 to 2012).

<sup>82</sup> Once again, the IPO dates from the sample were self-reported by the respondents, while we coded the population IPO dates using information from the SDC Platinum database. However, we would not any expect any difference between the self-reported and manually coded dates because the IPO issue date is a fact not subject to subjective classification judgments.

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Companies with more recent IPOs may be more likely to have the same personnel that they did at the time of the initial funding and IPO, making them more likely to respond to survey questions about those periods.

<b>IPO Year</b>	<b>Sample (self-reported)</b>	<b>Population (manually coded)</b>
2007	13%	25%
2008	2%	5%
2009	10%	7%
2010	23%	17%
2011	25%	22%
2012	27%	24%

Overall, the population data for sector and IPO date indicate that the basic characteristics of our sample are fairly representative of the overall population. This certainly does not rule out the possibility of non-response bias in the sample, but it does demonstrate that our sample is not *prima facie* unrepresentative of the population.

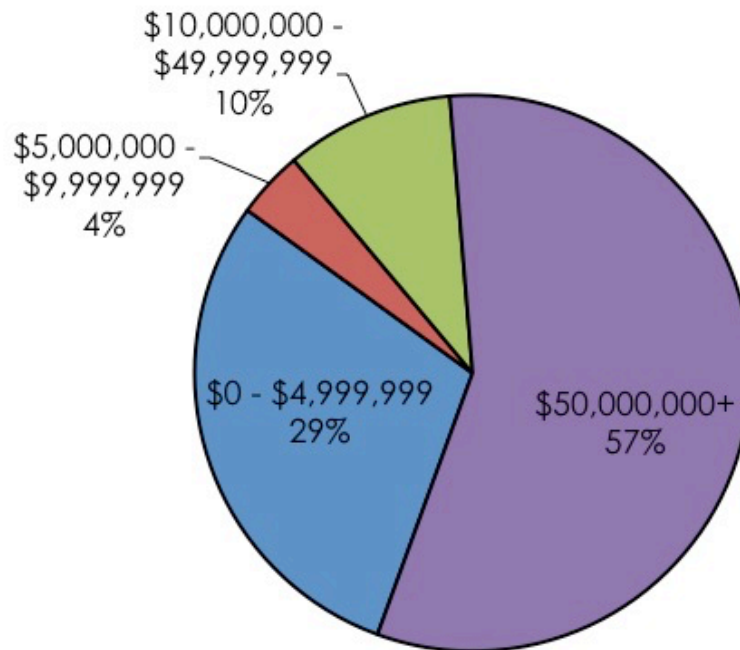
The respondents also were asked about the size of their company at the time of the IPO in terms of revenue. A majority (57%) of respondents said their companies had over \$50 million in annual revenue at the time of their IPO. 29% had revenues under \$5 million, 4% indicated revenues between \$5 and \$10 million, and the remaining 10% worked for companies with revenues between \$10 and \$50 million at the time of the IPO.<sup>83</sup>

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<sup>83</sup> The SDC Platinum database did not include a field for pre-IPO annual revenue, so we did not conduct a comparison of the population data to the sample data.



**What was the size (revenue) of your company at the time of the IPO?**



**RESULTS**

The paper will present the results divided into three primary sections. The first section will explore the extent of patent demands against recently public product companies at four specific points in their life cycle — the period before receiving the first round of venture capital funding, the year after receiving the first round of funding, the period between declaring an intent to go public (filing an S-1) and conducting the IPO, and the year following the completion of the IPO. These periods *also* will be grouped together as two broader events for consideration — namely, the period surrounding the first round of venture capital funding and the

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period surrounding the completion of the company's IPO. The section also considers the types of entities that issued patent demands at each stage.

The second section will discuss interesting drill-down results about the incidence of patent demands, specifically referring to patterns of patent demand exposure for particular sectors such as information technology and the life sciences. The third section explores the perceptions of company lawyers pertaining to the impact of patent demands on their company and their industry, including some estimates of the monetary impact companies face in defending against patent demands.

### **The Extent of Patent Demands Against Recently Public Companies**

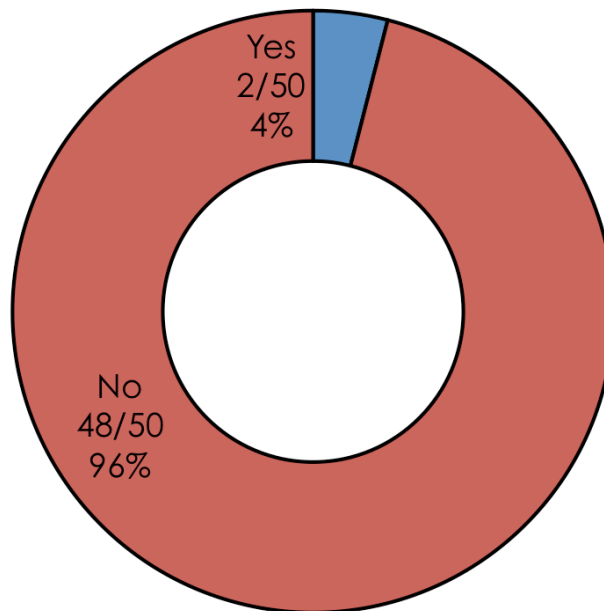
In each of four questions, company lawyers were asked whether their company received patent demands during one of four periods: the period before receiving a first round of venture capital funding, the year after receiving the first round of funding, the period between declaring an intent to go public (filing an S-1) and conducting the IPO, and the year following the completion of the IPO. Patent demands were defined on a broad scale, encompassing both threats and actual lawsuits. Examples of patent demands provided in the survey language were "licensing demand letters, threats of litigation, [and] infringement lawsuits." The language was intentionally broad so as to include all patent-related legal activity that could affect a company's business or costs.

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Before the first round of venture capital funding, the survey responses indicate very low levels of patent demand activity among all responding companies.

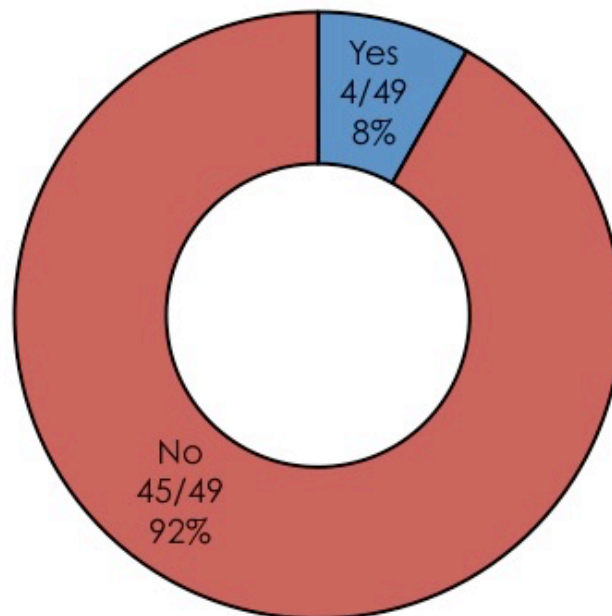
**Only two of 50 responding company lawyers said they received any sort of patent demand at this point in their company's development.**

**Did your company receive patent demands prior to receiving the first venture capital round?**



No evidence was found of patent demand activity timed to the year immediately following the first venture capital round. **Only four of 49 respondents reported receiving patent demands during the year following the first funding round.**

**Did your company receive patent demands within one year after receiving the first venture capital round?**



When these two periods are combined for analysis — the periods before and directly after the first round of venture capital funding — the number of companies receiving demands was still very small. Making sure not to double-count companies that received patent demands *both* before *and* after the first round, **just five of 50 responding companies reported patent demand activity surrounding the first**

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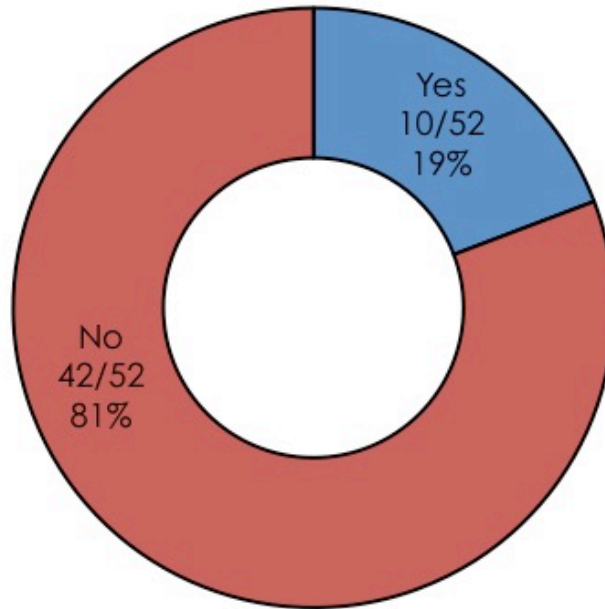
**funding round.** Thus, there is no evidence that recently public companies were systematically targeted for patent demands near their first major round of funding.

There was, however, an indication that patent demand activity rose considerably as the survey companies worked through the IPO process. **In the period between filing an S-1 with the SEC and actually completing the IPO, ten of the 52 responding companies reported receiving patent demands — about one-fifth of the sample.** This is a visible jump from the low patent demand activity recorded around the first venture capital funding event, and its significance is bolstered by the relatively short time period covered by this question. While all other periods examined in this study cover a year or more, the period between filing the initial S-1 and completing the IPO is often only a couple months in length.<sup>84</sup> The high number of demands over such a short period is evidence of systematic behavior of parties taking advantage of timing to extract patent-related revenues or to achieve some other goal.

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<sup>84</sup> See Myers, Contente, Millman & Roberts, *supra* note 52, at 32-33; PRICEWATERHOUSECOOPERS, *supra* note 52, at 47-53 (supporting the standard length of time between the Form S-1 filing and completing the IPO).

**Did your company receive patent demands between filing the S-1 and completing the IPO?**



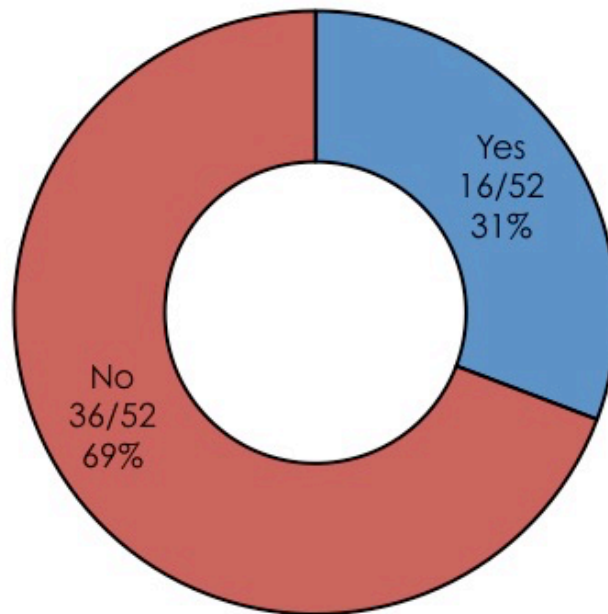
Companies affected by patent demands during this period indicated that the majority of the patent demand activity originated from patent monetizers. Respondents could mark if they received demands from patent monetizers, other product companies, or both during this period.<sup>85</sup> Six of ten companies reported demands issued by patent monetizers, while only four of ten reported demands originating from other product companies. All but one company indicated receiving between one and three patent demands during this period, with one reporting six or more demands.

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<sup>85</sup> Respondents could also note if they were unclear about the identity of the entity issuing one or more of the demands, allowing response totals to exceed 100%.

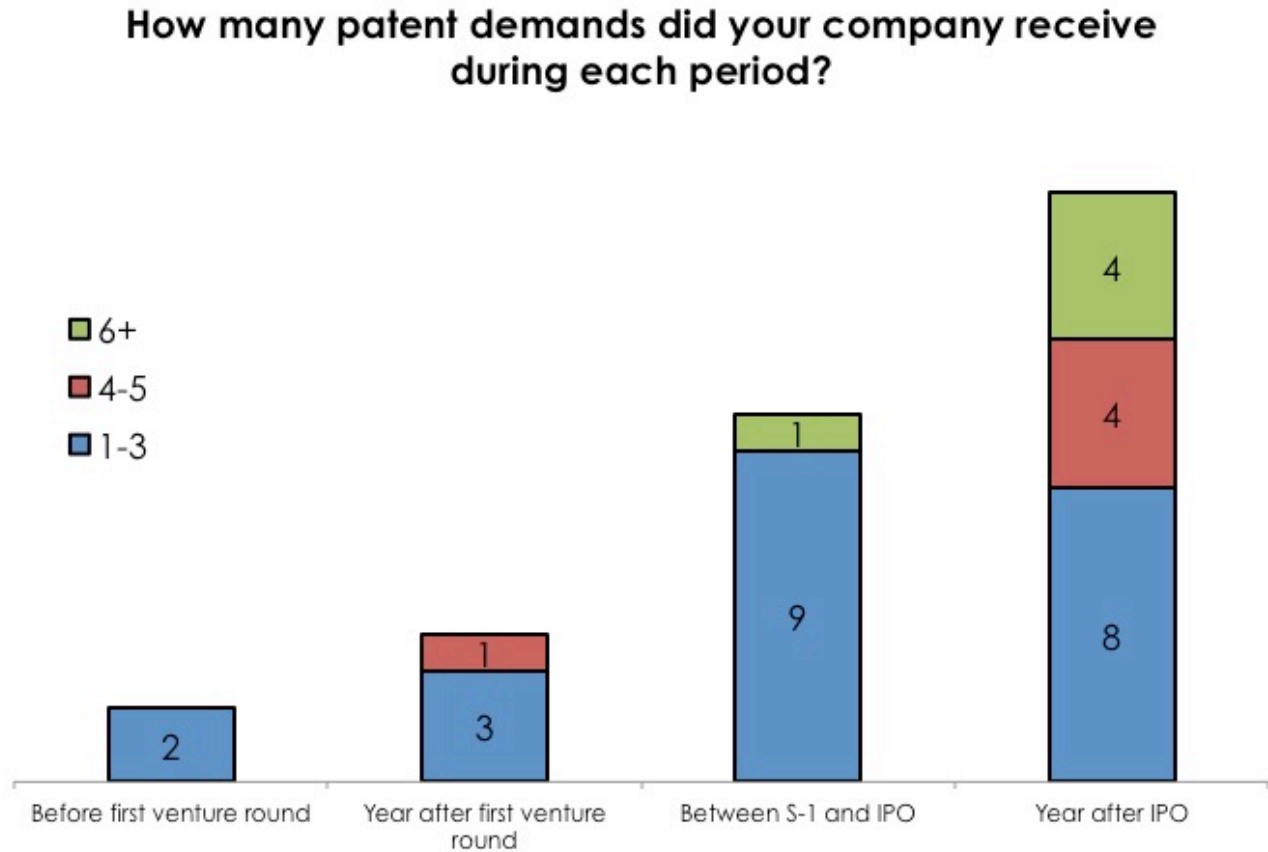
The largest amount of patent demand activity against recently public companies came within one year of the company's IPO. **16 of 52 respondents, or 31%, reported receiving patent demands during this period.**

**Did your company receive patent demands within one year after completing the IPO?**



The number of patent demands also rose sharply, as did the proportion of demands issued by monetizers. In previous questions, all but one company had indicated receiving just one to three patent demands during the periods in question. In the year following the IPO, only 50% of companies receiving demands indicated receiving one to three demands. **25% received four or five demands, while**

**another 25% reported receiving *six or more* patent demands in the year following the IPO.**

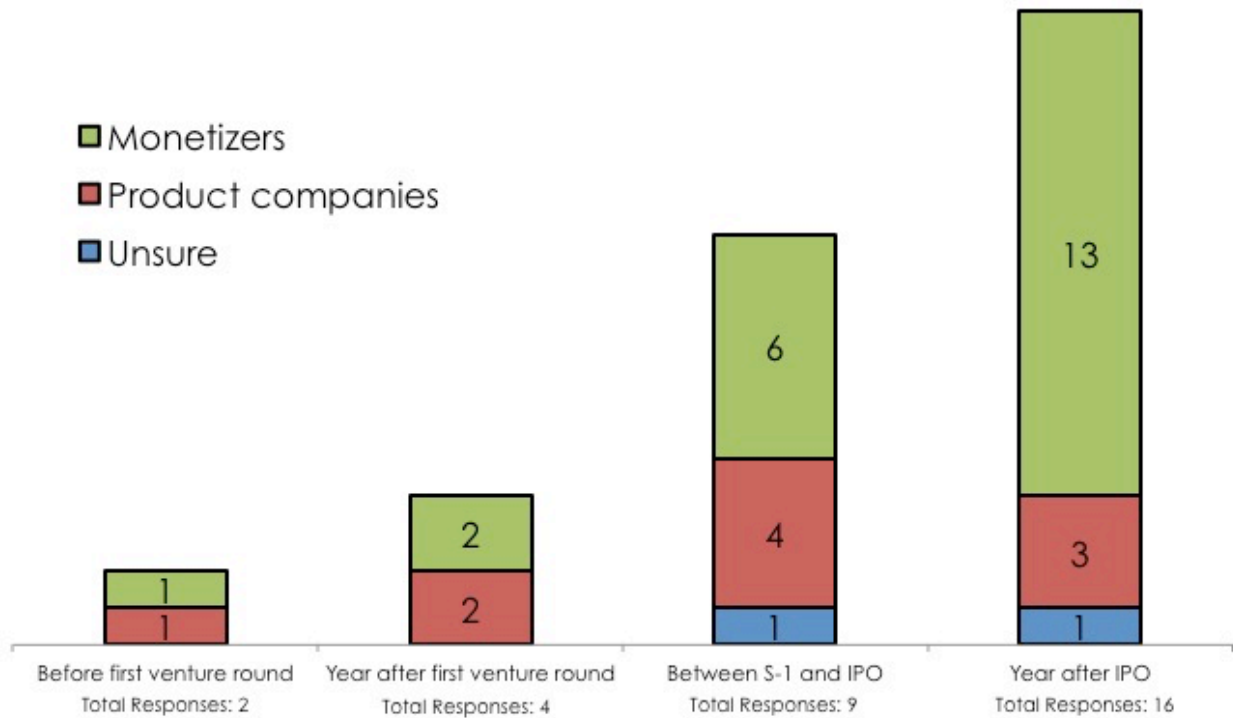


Meanwhile, **13 of 16 respondents, or 81%, reported that at least some patent demand activity against their company originated from patent monetizers during this period, compared to just three companies noting demands issued by other product companies.**<sup>86</sup>

<sup>86</sup> One company said they were unclear about the type of company that issued one or more of the patent demands, so the total exceeded 100% for this question.



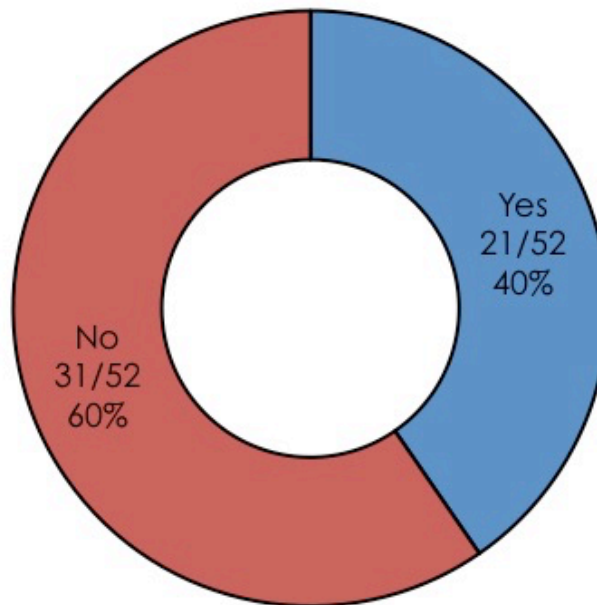
**What type of entity(ies) issued the demand(s) during each period? Choose all that apply.**



These results offer evidence that patent monetizers specifically time their demand activity to a company's IPO. Not only did a higher proportion of the sample receive patent demands just before and after their IPO than during the first funding round, but a higher proportion of companies received *a greater number* of demands, and *more* companies received those demands from patent monetizers.

**When the two periods — the period between the S-1 filing and the IPO issue date, and the year following the IPO — were combined for analysis, 21 of 52 companies reported receiving patent demands either shortly before or after their IPO. This represents 40% of all respondents.** This stands in direct contrast to the level of patent demand activity surrounding the first round of capital funding, when only five of about 50 companies were issued patent demands.

**Did your company receive patent demands between the S-1 and the IPO or within one year after completing the IPO?**



Note: Companies that received demands in both periods were *not* counted twice.

The motive behind this potential timing pattern may have no single explanation. As previously explained, the anecdotal rationale is that patent monetizers take advantage of a company's public vulnerability during the IPO process to gain leverage, with the hope that companies are quick to agree to

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settlements and licensing fees in order to avoid press that might raise questions in the eyes of potential investors.

One analogy to the “leverage” strategy is the near-universal litigation that arises near corporate mergers and takeovers.<sup>87</sup> Cain and Solomon found that almost 95% of large merger deals in 2014 experienced litigation – as they note, “if a target announces a takeover it should assume that it and its directors will be sued.”<sup>88</sup> At the heart of this litigation, mostly filed by shareholders, might be a similar attempt to gain leverage and extract a settlement during a time of great scrutiny for a company. In a comprehensive study of all securities class actions, Baker and Griffith note that pending mergers are a classic example of a pressure point that might lead a business to settle at a point that is “earlier-than-optimal.”<sup>89</sup> As they explain, “Our participants reported that the immediate impetus to settle is likely to be a corporate event — a change of CEO, merger, or acquisition transaction, or other corporate event that causes the defendant to wish to eliminate contingent liabilities.”<sup>90</sup> The result is that, not unlike many defendants facing patent demands, the parties settle although it “may be more advantageous to continue to resist settlement.”<sup>91</sup> The leverage explanation would function similarly for monetizers looking to take

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<sup>87</sup> We thank Abraham Cable for suggesting this connection.

<sup>88</sup> Matthew D. Cain & Steven Davidoff Solomon, *Takeover Litigation in 2014* 2 tbl.A (working paper, Feb. 20, 2015), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2567902](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2567902). In this case, “large” is defined as having a transaction size over \$100 million.

<sup>89</sup> Tom Baker and Sean J. Griffith, *How The Merits Matter: Directors’ and Officers’ Insurance and Securities Settlements*, 157 U. PA. L. REV. 755, at 818 (2009), available at <https://www.law.upenn.edu/live/files/102-bakergriffith157upalrev7552009pdf>.

<sup>90</sup> *Id.* at 778 n. 97.

<sup>91</sup> *Id.* at 816.

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advantage of companies nearing their IPO. A company's wish to "eliminate contingent liabilities" during a public corporate event supersedes whatever positive standing it may otherwise have in the pending litigation. Thus, monetizers may be taking advantage of this pressure-point event following a path that securities litigation plaintiffs have pursued.

The leverage theory, however, does not fully explain why patent demand activity — at least in this survey — is higher *after* the IPO than before. The increase could suggest that companies with "full pockets" from their recent IPO are perceived as a good target for those who would like to extract a demand settlement. Another explanation might combine the "leverage" and "full pockets" strategies. Companies are still publicly vulnerable in the weeks and months following the completion of their IPO — early performance on the stock market is watched closely and factors into a company's reputation and future outlook.<sup>92</sup> This vulnerability, plus the company's recent windfall from their IPO, might make litigation *more* attractive shortly after an IPO than shortly before.<sup>93</sup>

Also lending credence to the "full pockets" theory is data from the survey, showing that **14 of the 16 companies (88%) that received patent demands in the year after their IPO already had annual revenues over \$50 million at the time of their IPO.** A majority of companies receiving patent demands shortly *before*

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<sup>92</sup> See, e.g., Alexei Oreskovic, *Facebook Stock Almost Hits IPO Price, 14 Months After Rocky Debut*, REUTERS, July 30, 2013, available at <http://www.reuters.com/article/2013/07/30/us-facebook-ipoprice-idUSBRE96T1CI20130730> (detailing Facebook's well-documented issues after its IPO that made the company's stock, as Reuters puts it, "a Wall Street punch line").

<sup>93</sup> We again thank Abraham Cable for suggesting this explanation.

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their IPO also had revenues above \$50 million at the time of their IPO. This result can be compared to the work of Chien as well as that of Bessen and Meurer, who describe patent demands as mainly directed against companies with less than \$10 million in annual revenue and overwhelmingly directed against companies with less than \$100 million in annual revenue.<sup>94</sup> Our survey asked only about patent demands near particular events in a company's development, while Chien, Bessen, and Meurer looked at all patent demands, so our finding does not stand in direct contrast. But it suggests that patent monetizers may partially augment their strategy of inducing settlements from small startups in order to attack higher-value companies near or shortly after their IPO, when the company is particularly vulnerable and public valuations are particularly sensitive to setbacks.

Alternatively, a company's increased visibility surrounding an IPO also could lead others to notice its rise and consider making patent demands. It is certainly possible that the publicity from an IPO would allow a patent holder to realize that its patents have been infringed, thus leading to a perfectly legitimate patent claim. Further, the public disclosure of information approaching the IPO could reduce existing information asymmetries and give patent holders new information that was previously unavailable during the early history of the company. This information could provide a potential plaintiff with the necessary data to evaluate whether infringement is actually taking place and whether an infringement suit has a reasonable possibility of success.

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<sup>94</sup> See Chien, *Startups and Patent Trolls*, *supra* note 9, at 471; Bessen & Meurer, *supra* note 11, at 397-98.

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Responses related to product company assertion, however, cast doubt on this “visibility” hypothesis. In particular, respondents did not receive more demands from product companies after the respondents’ IPOs than after first funding rounds. The number of companies affected by demands from product companies remained small — and actually decreases in proportion as a result of increased monetizer demands — across all survey periods.

Specifically, thirteen of 16 respondents received demands from monetizers in the year following their IPO, compared to just two of four companies in the year after the first venture round. In comparison, only three of 16 companies attributed some of their patent demands to product companies in the year after their IPO, similar to the two companies that received demands from product companies in the year following their first venture round. The stark differential between the increase in monetizer activity and the relative stability of product company activity calls the information argument into question. If patent holders needed more information to launch their demands, we would predict the number of product company demands to rise along with monetizer demands. In other words, if the problem is lack of information until the IPO, we would expect both product companies and monetizers to increase their activity near the IPO. That pattern does not materialize here, and the fact that only monetizer activity increased suggests that other factors are at play.

Regardless of the rationale, the initial evidence presented here indicates that patent monetizers are not targeting companies for lawsuits *solely* based on the legitimacy of their potential patent claims. While the survey did not ask respondents about their exposure to patent demands throughout all stages of their company’s

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history, the data does show that few of these recently public companies received patent demands during the initial funding stage. But, in the period between filing the S-1 and the year after the IPO was completed, over 40% of the surveyed companies received patent demands, many more than one. We would not expect demand activity to differ so strongly between these two major funding events in a company's development if legitimacy of claims or likelihood of patent infringement are the only impetuses for patent demand activity. The legitimacy of a patent claim against a company should not improve as that company grows, nor does it increase once that company becomes publicly traded. Thus, if the claims were solely based on legitimacy, one would expect those claims to be launched at a company, regardless of how deep the company's pockets were.

In fact, Love has suggested that patent monetizers assert patents later in their term than product companies and are responsible for most patent infringement claims litigated in the last few years of patent terms.<sup>95</sup> Considering product companies mainly enforce their patents shortly after issuance, delays in asserting patents or clusters of demands near funding events would suggest motives

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<sup>95</sup> See Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could A Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309 (2013), available at [http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1388&context=penn\\_law\\_review](http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1388&context=penn_law_review) (concluding that NPEs “begin asserting their patents relatively late in the patent term” and “are the dominant source of patent enforcement in the final few years of the patent term”). However, Feldman, Ewing & Jeruss have observed that Love studied patents that mostly expired between 2010 and 2012. Since the general increase in monetizer litigation also took place during these years, the level of litigation that Love observed in the final years of patent terms may be related to this overall rise in litigation. For a more detailed discussion of this issue, see Feldman, Ewing & Jeruss, *AIA 500 Expanded*, *supra* note 3, at 71-75.

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other than pure enforcement for filing lawsuits or issuing demands.<sup>96</sup> It casts doubt on “virtuous” innovation-boosting or inventor-protecting explanations for patent monetizer assertions, and suggests that patent monetizer activity is driven by the status of a target company and the potential lawsuit value that status might create. From this perspective, the study is further evidence of the extent to which the economics of patent litigation, rather than the legitimacy of demands, drives patent assertion.

### **The Extent of Patent Demands By Sector**

Potential patterns in the timing of patent demands were clearer for some particular industries. Excluding the group of companies that fell into the category of “other,” the most represented sector in the survey was information technology, with 17 respondents (34%) choosing this sector.<sup>97</sup> Exploring this sector in particular is important to understanding the patent monetization issue. The rise in patent demands has particularly affected software and technology companies, mainly because many software patents suffer from obviousness or non-novel claims, making technology companies vulnerable to patent assertions even if the claims would likely be unsuccessful in court.

**None of the 17 information technology respondents reported receiving patent demands either before the first round of venture capital funding or in**

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<sup>96</sup> See *id.* at 1316-17 (discussing why product companies would be expected to assert their patents as soon as possible after issuance, and why monetizers would not follow the same timeline).

<sup>97</sup> Respondents could identify more than one sector for their company.

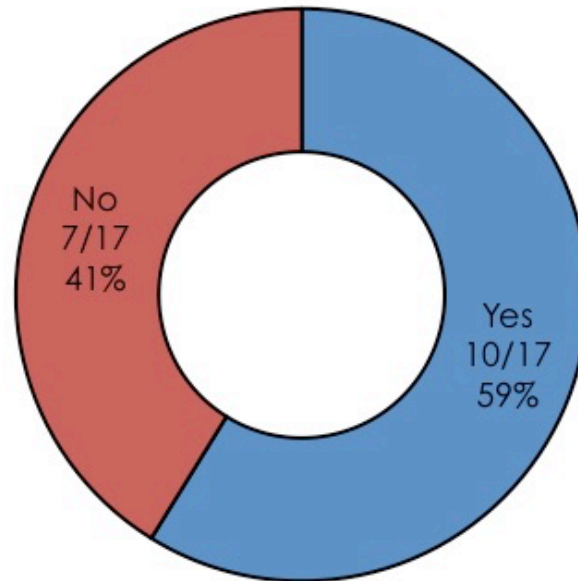


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**the year following the funding round.** The sample size for this cross-section is, of course, quite small, but it indicates that information technology companies are receiving few patent demands while they are still in their relative infancy.

In contrast, a higher proportion — five of 17 (29%) — of information technology companies received demands between the S-1 filing and IPO issue date. **During the combined period between the S-1 and the year after the IPO issue date, ten of the 17 information technology respondents (59%) said they received patent demands.** The small sample size does not allow us to determine whether this finding is statistically significant or significantly different from the proportion of all respondents receiving patent demands near their IPO (40%). However, the sheer disparity in patent demand activity — with no IT companies affected during the initial funding stage and a *majority* affected near their IPO — is evidence suggestive of a larger trend. It is yet another indication that technology companies are disproportionately affected by patent demand activity.

**Information Technology companies only:  
Did your company receive patent demands between the S-1  
and the IPO or within one year after completing the IPO?**



Note: Companies that received demands in both periods were *not* counted twice.

**A sizable majority of information technology companies reported that the demands originated from patent monetizers rather than from other product companies.** In each of the two near-IPO periods — the period shortly before the IPO and the year after the IPO — just one company reported receiving demands from another product company. All other patent demands were attributed to patent monetizers.

Similar, but less dramatic patterns were observed for the small sets of life science and clean energy companies that responded to the survey. Little to no patent demand activity was reported surrounding the first round of venture capital funding. For companies in the life sciences, patent demand activity increased

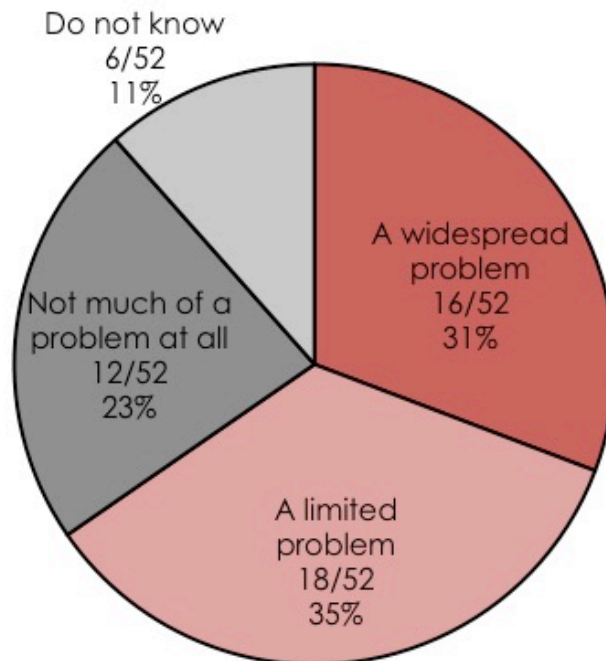
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surrounding the IPO but remained minimal. Half — three of six — of the companies that identified as members of the clean energy sector reported receiving patent demands in one or both of the periods surrounding the IPO.

### **The Impact of Patent Demands Against Recently Public Companies**

The survey also allowed respondents to provide subjective feedback about the impact of patent demands. Company lawyers were first asked whether patent demands are a significant problem in their sector or industry. **A large majority of respondents (34 of 52 respondents, or 66%) agreed that patent demands were a “problem” in their sector, with 31% labeling them a “widespread problem” and 35% calling them a “limited problem.”** Only 12 respondents (23%) said patent demands were “not much of a problem at all.”

**How much of a problem are patent demands against startup companies in your sector?**



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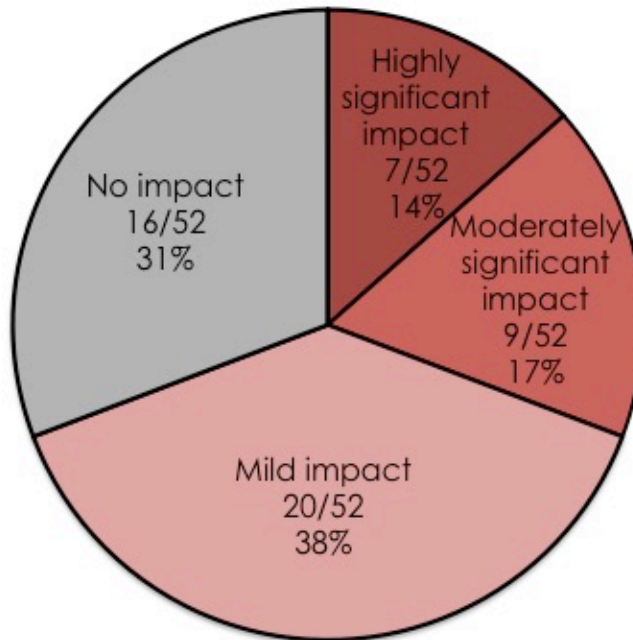
Information technology companies, which incurred higher levels of patent demand activity than any other sector in the survey, found patent demands to be especially problematic. **All 17 responding companies said patent demands were a “problem” in information technology, with 11 of 17 (65%) calling them a “widespread problem.”**

Respondents were then asked a narrower question: have patent demands had a significant impact on your company? Some examples of “impact” given in the survey were “distracting management,” “expending resources,” and “altering business plans.”<sup>98</sup> Here, **36 of 52 respondents (68%) said patent demands have had an impact, though only 16 (30%) said they have had a “highly significantly impact” or a “moderately significant impact.”** The most common choice, made by 20 respondents (38%), was that patent demands have had only a “mild impact” on their company. 16 respondents (31%) said patent demands have had “no impact.”

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<sup>98</sup> Similar descriptions were used by Chien, *Startups and Patent Trolls*, *supra* note 9, at 472, 474-75 (describing examples and extent of “significant operational impacts”).

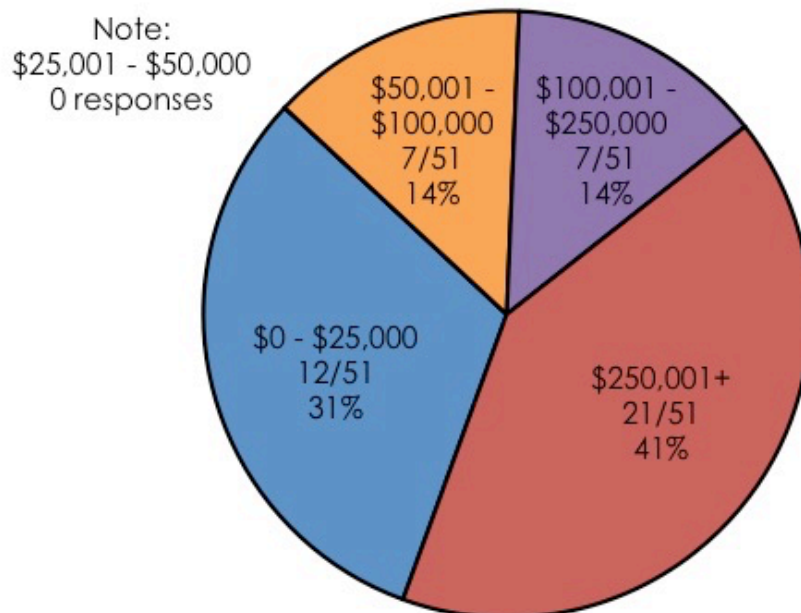
**Have patent demands had a significant impact on your company?**



**15 of 17 information technology company lawyers (88%) reported that patent demands have had an impact on their company, with 11 (65%) saying the impact was either “highly significant” or “moderately significant.”**

Respondents also had the opportunity to provide an estimate of the costs their company has faced in responding to patent demands. As defined by the survey, costs could include “time for company officers and employees, costs of outside counsel and consultants, or other costs.” **21 of 51 respondents (41%) reported spending more than \$250,000 to prepare for or defend against patent demands.** 16 respondents (31%) said they had only spent \$0-\$25,000 responding to demands. 12 of the 21 respondents spending more than \$250,000 were classified as information technology companies, representing more than two-thirds of the IT companies surveyed. Respondents choosing the “more than \$250,000” option also had the ability to write in the amount spent defending against patent demands. Companies who made use of this option most often stated costs in the *millions*, with one reporting costs “over \$25,000,000.”

**Roughly how much has your company spent since its inception to prepare for or defend against patent demands?**



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Notably, **when the data set was narrowed to include only respondents who reported receiving patent demands during one or more of the four periods examined in the survey, 14 of 21 respondents (67%) reported spends above \$250,000.** Only one affected company said they spent \$25,000 or less, signifying that most respondents in the full survey set who chose the under-\$25,000 category did not face exposure to patent demands surrounding their first round of funding or surrounding their IPO.

### **Conclusions**

Our survey of company lawyers at recently public companies lends quantitative evidence to an ongoing narrative: patent monetizers systematically launch patent assertion activity near company IPOs, especially against companies in information technology. We found no evidence of activity timed to a company's first round of venture funding. The high number of patent demands near IPOs, however, stood in sharp contrast. The activity level, with 40% of respondents receiving patent demands shortly before or after the completion of their company's IPO, is especially remarkable when considering the normally short timeframe between an S-1 filing and the first day of trading. Respondents reported that monetizers made the majority of these patent demands; further, many companies received four or more demands in the year after their IPO.

As expected, information technology companies were disproportionately affected, with more than half of responding companies receiving demands either

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before or after their IPO. Almost of all of these demands were attributed to patent monetizers.

Similar to other surveys, respondents continued to overwhelmingly agree that patent demands were problematic in their sector, with many also believing that patent demands have had specific negative impacts on their company. Nearly all information technology companies agreed with these statements.

Despite a limited sample, the evidence presented supports the existence of a tactical strategy among monetizers to pursue demands against companies during one of the most public and vulnerable periods of their development — the completion and aftermath of their IPO. These patent demands serve to extract quick settlements and licensing fees knowing that companies have insufficient time, funds, and human capital to spend on a thoughtful examination of the claims. With a foundation established, our findings will hopefully spur further study of strategic behavior in the market for patent monetization.