

Patent Assertion Entity Activities Workshop
Transcript, Part 1 of 4

December 10, 2012
9:00 AM (Start) to 10:30 AM (Morning Break)

NOTE: This transcript has not been completely proofed and is intended to be temporary. A final version will be posted soon.

SUZANNE MUNCK: Good morning, everyone. Thank you, very much for coming to our workshop. My name is Suzanne Munck, and I'm Chief Counsel for Intellectual Property for the Federal Trade Commission. If you have any questions, please contact me at 202-418-6776 or smunck@ftc.gov.
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JON LEIBOWITZ: Actually, Suzanne, I repudiate everything you said about me. This is a great audience. This is a terrific audience. I can't recall Kim, can you recall the last time on a patent or competition matter that we had a ~~file~~ use like this, in a overflow room?

KIM: No.

JON LEIBOWITZ: Kim cannot recall, and she is the voice of experience, although very, very youthful. Good morning. On behalf of my collea

competition? And should we do anything? But before we dive into what, I'm sure, will be a lively debate, let's talk for a moment about acronyms. And here in DC, of course, who doesn't love a good acronym?

So we are looking today at PAEs, or Patent Assertion Entity activity, not the more general non-practicing entity, or NPE activity. The term NPE includes any entity that does not manufacture or sell products that use it to patented technology. For example, universities.

So they conduct research, they patent their inventions, and they work with companies who seek to include their technology to improve products. By contrast, PAEs focus on purchasing patents from existing owners. PAEs make money by licensing the intellectual property to, or litigating against, manufacturers who are actually using the patented technology.

Acronyms aside, we all know a few colorful streamers for PAEs, but we are not going to use any of them today, I hope. Because here, as my former colleague, Bill Kovacic used to say, former Chairman, we are but seekers of the truth. What in mind, here are some truthful facts.

It is clear that PAE activity is a growing issue in the United States. There were more than 4,000 patent lawsuits filed last year. James Bessen and Michael Meurer report that at least they believe, that PAE generated activity, the PAE generated revenue cost defendants and licensees \$29 billion in 2011, a 400% increase from 2005.

They calculate that no more than 25% of that flows back to innovation. Almost like lobbying in Washington DC. And by the way, I used to be a lobbyist. 75%, they claim, is dead weight loss. And let me exclude from that, where's Manus, Manus Cooney?

MANUS COONEY: Over here.

JON LEIBOWITZ: You're over there. Not dead weight loss. And of course Mr. Hand, Mr. Lloyd

Now most of these cases settled before summary j

After lunch, we're going to hear from Stuart Gamm, the Chief Economist of the United States Patent and Trademark Office. And I'm especially glad Stu has joined us

PROFESSOR COLLEEN CHIEN: Good morning, everyone. It's a pleasure to be here. And quite an honor. Thank you, Chairman Leibowitz, Suzanne Frances, and others for inviting me here. I'm here to start the day by providing some information about Patent Assertion Entities.

I have a reputation with talking quickly, and I have 80 slides. So I'm going to try to go through them as efficiently as possible. But if you do see something, I have uploaded them to SSRN, if somebody out there is interested in following up. So I just wanted to mention that.

OK. So today is going to be really interesting. I think we'll have a lot of different perspectives about Patent Assertion Entities. And I want to just echo Chairman Leibowitz's comments about what our focus is today. So let's start with Just

RPX has estimated that 250,000 patents cover phone technology. Even if we take a tenth of those, that's still 25,000 patents. And even though we have a lot

We don't really know the answer. But what we probably know is that most patent fights are not conducted in public. And those are, and even those aren't, are often resolved under NDA. So what this produces, then, I think, is this groundswell of technology that is increasing the rate of enforcement about which we don't really understand the consequences, good or bad. And so that's why I'm really glad that we have this chance to talk about these issues.

So now that we know what we are talking about to some degree, the view that I'm going to present today-- I think everyone is going to have their own perspective-- is one that's empirical and descriptive, but it's also motivated by policy concerns. And so here are some of my sources of data.

I've also gotten data from, or referred to with information from Intellectual Ventures and Acacia. In particular, I do rely heavily on data from RPX. And because of that I want to kind of talk about that data a little bit. And Mallory is here from RPX, and they've been very generous in giving access to this data to me.

And when we compare that data to the Feldman, Jeruss work that was done for the GAO, we want to kind of see, does it skew in one way or another? And when you do the comparison side by side, you see that some years RPX has been higher. We compare it to patent monetizer, both actual and suspected, versus the PAEs that RPX has tracked.

But on average, some years were higher, some were lower. Net, on average, RPX does skew a

The first case you bring will probably be the most expensive. You're going to have to figure out all of your theories, think through your experts, and figure out what you're going to do. But as you go on, if you're successful, you're able to capture these economies of scale by asserting over different defendants.

Now this is a risky business model. When I went back and looked at the public NPEs from just a couple of years ago, a lot of them had already gone out of business or changed form. There's no guarantee you're going to succeed. So you may not get your investment back. You may only get through the first two of these.

But I think it is important to see that the economies of scale are what drive this business model and make it economic. And if we consider the NPEs that are out there, we see that most are taking advantage of this economies of scale type business model. The majority of defendants are sued by a PAE who has named more than 15 defendants over two or more suits.

So we're not talking about PAEs being one-off players, but rather those who have brought several cases, most cases, and over many defendants. And when we think about the defendant distribution, we also hear most from companies like Apple and Google.

And if you can look at this graph, what it represents on the y-axis, the log revenue of the defendant, and on the x-axis, the number of litigations that are brought, on average, per year. So again, when we look on the top right, we see companies that are making a lot of money, and are sued over and over again. And that's where you get from, the Googles and Apples of this world.

But you can see that, because you need to sue a lot of defendants, you're going to have to also bring in other types of defendants. So in the top left, you have bricks and mortar companies, like Williams-Sonoma and Starbucks, who each, I think, had 12 suits brought against them, who don't make technology but may use it, and therefore, are potentially infringers.

You have on the bottom left small companies start-ups, small companies in general, this is one, Brainlab, that are being sued, that frequently, but also don't have that much revenue. And then on the other side, with the Groupon, LinkedIn I realize now it's a little different for you guys-- on the right-hand side you see companies that are not necessarily having a lot of revenue, but are highly exposed, insofar as that they're on the radar.

People know who they are. Groupon and LinkedIn are not high revenue companies, but they are household names by now, and their operations are fairly apparent. So they're being sued quite often.

So again, when we think about PAEs, we think about them as just a problem for tech companies, it's really, now, something that is affecting problem or opportunity, it's something that's affecting the industry and companies generally.

There are several things that drive settlement. One is to draw a quote from David Schwartz's great study on contingent fee lawyers and also drawing upon Carl Work with Mark Lemley, the

settlement number is really driven by the possibility of an injunction, or the economic value of the patent.

So if I'm a company who makes a product, and I have a component there, the cost of switching that component, if there's an injunction against it, might be really high. I don't want risk that. Or the possibility of a large jury verdict is something that I worry about. And so this is one of the drivers of settlement.

But another is the issue of looking at the other two parts of the art, with looking at the costs, when it's cheaper for me to settle than to fight, that's also going to be a driver with respect to my settlement. So Carl coined the word "holdup" believe. And I think there are two different types of holdup that are going on here.

One is kind of injunctions, or remedies related to holdup. And this is cost of defense related holdup. OK. So I'm going to move on now to looking, in particular, at one sector I wanted to focus a little bit on startups for a few minutes. And I think startups are really interesting for a number of reasons.

One is that there are very important to our economy right now in particular. Here's data from John Haltiwanger showing that startup job creation is actually greater than the entire private sector between 2003 and 2007, which I think is quite astounding.

And he's released a study more recently a couple weeks ago, that shows the job creation, and also job destruction by firm age. Four out of 10 hires at young firms are for newly created jobs. And for older, existing firms it's a much smaller ratio.

Now the important to remember, though, is as much as they create jobs, they also fail. And they change course at a high rate. So they shed a lot. So they're both interesting from the perspective of having an interesting new business model that might be growing, but also participating and contributing patents, potentially to the marketplace.

So what are these benefits, then, that small companies might be able to realize from PAEs? Let's talk about those briefly. Here's some data from RPX that I printed in an earlier paper that shows that, in terms of the source of PAE patents, the majority of them is still coming from small companies, companies making \$200 million or less in revenue. And that's the primary source of patents, at this point.

Inventors also contribute a large share. But we think about, like bankrupt companies, other companies are the ones that really assist in financing startups. Those are much smaller in percentage. And a survey that I did showed that this was something that startups were very interested in.

I did this non-random survey of companies. 44% of them said they had already monetized their patents. Another 20% said they had done it. This was small companies startups, mostly.

So they are interested in this transfer, in the monetization. Here it's not clear, by the way I asked the question, whether it was monetization for PAEs or licensing, but you still get the picture, that they're interested in monetization. What about the harms?

Well, as we mentioned before, PAEs need to cast a wide net in suing people and assertions. So if we look at the suits, as they're distributed, the priority of them are small, have less than \$10 million in revenue in terms of unique defendants.

Now in terms of the total defenses, still the top bracket dominates. But you do see that just because you're small doesn't mean you're going away without being exposed at all. Now, why are small companies being sued? I think these startups try to kind of tell a story, that if you are able to collect a lot of small payments, then it's easier and it's more of a sure thing than collecting one large payment.

Now some new research that I've just completed looks that's the CrunchBase database of startups, and tries to look at how many of them were sued in different revenue bands. And as you might expect, the larger you get in terms of your funding, the more likely it is that you'll be sued. Remember these are just suits, they're not patent demands. We don't know how to measure those.

So this is fairly considerable. So if you have \$20 million to \$50 million in funding, there's a one in five chance that you're going to be sued. If you're larger, the chances go up to 40%. And so I think if you do it \$50 million to \$100 million, it's like 35%, or something like that.

And some startups have a fairly significant effect from this. We're talking about nuisance suits, are nuisance value. But some startups feel more than nuisance. They feel a significant operational impact in terms of having to change their product, not being able to meet one of their major milestones. That's how startups operate. They kind of have to meet their milestones.

A number of them exited or pivoted their business strategy. And this is not stuff that I really expected to find. And when I did my initial interviews to set up questions, people told these stories of companies pivoting, or going out of business. And I thought that seems really extreme. The company probably was suffering, anyway. Not doing well.

And then when I did the survey I was really surprised that a number of folks said that that was their experience. I think we need to look further into this. Startups as a group, are more fragile. But it's interesting to think about these demands. It's essentially taking products or potential companies off the market. That's something we need to consider.

We don't really know these net benefits or costs, because a lot of people can't talk, they're under NDA. And so, I think, that leaves a lot of gaps in our understanding of what's really going on. I think one thing is that NPEs are unpopular right now. So people were also reluctant to talk to me about the benefits of their assertion strategies.

I talked to one person who said it's really a ~~vogue~~ ~~now~~ to hate NPEs but monetization helps some companies. That's something that we need to explore further, as well. So I want to talk now about what this means for policy.

Before we had PAEs we had the kind of non-enforcement patents, only a tiny fraction being enforced. After PAEs we can see

So if we think about the efficiency of the transfer, more money is going to the lawyers than is going back, in terms of settlement, and then, about settlement having to be split between the contingency lawyer and inventor, you can see that this pie can be sinking for the inventor themselves.

You couple that with the fact that many of these patents aren't transferred and changed hands many times, each of those hands gets a cut or has gotten some of the share of that upside. And you consider, then, what is the efficiency of that transfer?

So I want to talk briefly, then, about reforms in this policy section before conclude. And I think a lot of reforms are going on. And a lot of them have been very healthy and have tried to address some of these asymmetries in cost, as well as exposure.

In the judiciary, right now we have the program of eBay, so some different cases. The Causal Nexus case, and some of them now that are coming out on RAND patents, saying that, we're not going to award injunctions, in many cases. That's bringing down the kind of pressure that injunctions bear.

We also have, on the damages side, a real effort by Judge Rader and others to say, we need real world evidence, we need better evidence to actually prove the damages case. So if the cost of assertion is going up, you've got to hire more experts, you have to get witnesses to say this is the real value of this patent. So that's driving up the cost of assertion.

There are other reforms as well that don't go to the substantive law, but go more to the procedure. So Post Grant Review, and the PTO discovery form are meant to bring down the cost of defense. If I can say, this patent that I'm being sued on is not a good one, I want to put it right into the PTO, I can stop my litigation, hopefully, and turn off the clock on the expenses.

In e-discovery reform, we can also reduce expenses, and that brings down the cost of defense. The Misjoinder Rules, making it difficult to sue as many defendants in one case, are meant to increase those costs.

So I think a lot of this is in process, and we'll see how it goes. One-way fee shifting could, I think, dramatically change the courtroom economics, as well as the question of whether or not contingent attorneys take these cases. So that's a very interesting kind of proposal. And there's been more movement in the case law, as well as looking at The Shield Act, which I think is very interesting, and I'm probably pretty helpful.

I think we do want to draw upon past work, because fee shifting is not a new thing. We had two-way fee shifting in Europe, and in other jurisdictions. We've had a fee shifting in the United States, in Alaska and Florida. We've had one-way shifting in terms of civil rights litigation. And so we have some data to draw upon. It's, unfortunately, not totally tailored, but we know some things.

That repeat players are more immune to fee shifting, because they are able to structure themselves. People who are judgment proof are less sensitive to fee shifting regimes. And if

you set up the fee shifting regime to be set on key towards invalidation of patent, or finding of non-enforcement, well very few cases get there again, going back to Chairman Leibowitz's comments.

We also need to worry about the pre-suit dynamic. That should be 50 to 100. Because if we're talking about fee shifting in cases, well what about what happens before the case is even brought? I want to consider market based ways of reducing the cost of defense, briefly. Because I think those are also very interesting and important.

And some of these, I think, capitalize on some of the different advantages that PAEs have been able to capture. They capture economies of scale. Could we use those economies of scale also in defense by having group defense, non-settlement, underwriting insurance policies, having a defense contingency type of offering?

All these terms of self-help, I think, are ways of using the existing tools within the patent system, we can reduce the cost of defense. And of these are discussed in this article that I wrote about a year and a half ago.

And I think what's really interesting is, when I did a survey of startups and asked them, "How did you respond to suits?" 22% of them said they responded to the demand by doing nothing. They did nothing and that resolved the demand.

And if we now understand the business model involved in sending a lot of letters, there's not the energy to go after every single candidate. This is a place where greater education, more awareness of the economics, and of the business model might produce great efficiencies in bringing down the cost of defense.

By the way, these types of costs of defense reduction, market based approaches have been used before. And I draw upon the work of Steve Ussner, the great historian at Georgia Tech. His literature is great. I commend it to you, and it's summarized in some of my papers.

But in the late 1880s, I think we see a very parallel time in history, and sometimes we'll hear from Adam and others about other related times in history. But here in the late 1880s, we had railroads that were under attack by a lot of patent speculators, they called them, who were suing based on patents they had acquired.

And what the companies did is get together to form these associations that mounted common defenses in patent suits. They got together. They paid annual fees in proportion to earnings. And they got full legal services for that. The members, in exchange, agreed to provide information and to share information. To pool it and to basically get that information together.

Importantly, they also agreed that they would not settle. They would not settle cases. They would refuse to settle them, and would fight them, which is something that's, privately, not beneficial. If I have this suit against me, I'd rather just get rid of it and move on, and focus on business. But because they belonged to these associations, they were bound to do so.

And these protests seemed to work, according to the historical accounts. They overcame this kind of divide and conquer approach to say, we will combine our information. We will work together and overcome. Because they were united opposition, inventors didn't go forward on their litigations. And you can see that, again, defendants had a lot of access to information that really helped them carry out their business.

Speaking of which, the competition authorities had a role in this story, as well. In terms of thinking about the combinations of these groups, a covenant not to settle could be construed as something that's anti-competitive and antitrust. There were suits that were brought to say these are anti-competitive collusions. They were rejected, I think, because the Congress understood the dynamics that were going on here.

I think we'll have more discussion about what the appropriate role in this situation. What I would say, though, is right now we've got a lot of reforms in process. We also have a quick moving market, so I want to kind of make my final point by saying that we should continue monitoring and researching these issues. There's still so much that we don't know.

And one approach is through looking at statistics. And thinking about issues of, well what happened with this money that small companies got? A lot of them have gotten money. What happened to that?

Did that fund new companies, new products, new ventures? What is the nature of this negative impact? Let's really probe more deeply, and try to figure out exactly how far that's distributed. And really looking at innovation impact.

I think that, besides data, though, we also need to look at case studies, and more kind of full understandings of the things that aren't easily measured. So looking at companies, looking at industries, and looking how the impact of NPEs has been.

And Catherine Tucker's work in this regard, I think, is exemplary, where she looked at medical imaging software companies, and measured the introduction of new products by the ones that were impacted. I think we also need to see if legal and market reforms will work. Thank you, and I will end here. If you're interested in any of the data here, here's some of it.

[APPLAUSE]

JON LEIBOWITZ: Thank you, Colleer. I thought that was just absolutely an excellent way to begin our workshop. Let me also thank the folks from the Antitrust Division, our own Policy and Planning Office, and our Bureau of Economics for the excellent work in putting together a real cross section of interests. The only unifying theme, or one of the unifying things being, how articulate our panelists are.

And in that regard, let me introduce Carl Shapiro who is, again, no stranger to the antitrust

CARL SHAPIRO: Thank you, Jon Good. Good morning, everybody. Nice to be here. This is actually my first time back in Washington, DC giving a talk, since I left the Council of Economic Advisers in May. So it's great to be back in the artist and intellectual property crowd. I see a lot of familiar faces.

If I start to stray and talk about abusing finance, or like liquefied natural gas exports, or the fiscal cliff, just somebody stop me, because that was what I was doing for a while. So I was asked to talk here about give an economic framework for the discussions about PAEs today. And since that was what I was asked to do, that's what I'm going to do.

I have a little trepidation about giving the framework, or the theories as it were, before we hear from folks who live and breathe this stuff, day to day. But I will try to being very informed by the empirical literature in this area which is growing, and of interest.

But I have to quote Sherlock Holmes before I do. Because he said, "It is a capital mistake to theorize before one has data. One begins to theorize to suit theories, instead of theories to suit facts." So I'll try not to do that. So I'll try to provide a framework, but very much informed by the evidence.

OK. I really think, ultimately, the big issue for my purposes at least is, what is the impact of this emerging business form or certainly of growing importance PAEs on innovation. So that's

suits. OK. Now one way to resolve all this is not to note that there is a 2 to 1 in poster children. So maybe that resolve the issue.

But perhaps we should do a little more deeper analysis here. So what I want to do is lay out some economic theory, or framework. Use that to filter and structure the empirical evidence. I'm going to be fairly quickly guide through a bunch of evidence that we have about what PAEs are doing, and how they've grown over time to see what fits with these narratives.

It's not going to be all or nothing. I mean, there's a lot of variation here. So we're just looking for what are the patterns. And then also, where would we gain from more further study? I'm not here to give answers to all that, it's really to listen, to provide framework, where can we learn more? And one of the things that I think we're going to see, at least, I feel after looking through these materials, is that there's these different studies. A bunch of them are inconsistent.

So some more systematic look at evidence would be quite valuable. Because different data sets and different approaches are giving, apparently, inconsistent findings. And that's a signal for some more work. Then I'll talk about, at the

So it's definitely gone up. This particular chart-- and there's other the paper, of course-- it is not just PAEs, though. That includes individuals and trusts in the monetizer category. So we see, as you'll see in a few moments, exactly how you define these categories matters a lot, in terms of what you're measuring the numbers you get.

But there's no question the monetizations are an increasing share of patent litigations. So the levels depend a lot on what you're measuring, the trends are very clear. Basically, in these categories the trend is going up. And Colleen traced the RPX data indicating that in 2012 it's gone up quite a bit more, even from the 40% to perhaps 60%.

And it's always important to remember, a lot of data that you're going to see, and that's available, is litigation. That of course is just the tip of the iceberg. Because so much stuff, there's demand letters, and there's settlement, and there's just licenses that happened prior to litigation. But we don't actually know that the underwater part of the iceberg looks the same as the above water part that we see.

This has been a research problem-- well, I remember back in the '80s, working on licensing issues, and it's very hard to get licensing data because it's private. Well, it's just, it's private and proprietary. The only way you usually get it is through financial statements when they're significant enough to a company that they have to report. And that's not a very reliable data set.

So this is the tip of the iceberg. But I think pretty indicative. And I'm pretty sure we're going to hear later today, people who are there going, oh yeah, this is growing a lot. So I think we can take as given that this is your 0 i e s t h (

I think it's pretty clear that PAs are not facilitating technology transfer. I can return to that. There are various indicators that they're not doing it. So at least one of the primary benefits of sales of trade in patents is not applicable to PAEs.

My title here, overall, was PAEs, Are They Effective Monetizers, Or Tax on Innovation, or Both? Well let me just say, they are effective monetizers. Or at least, it sure seems that way. And the economist would presume that very strongly, that's the source of the gains to trade. I mean, they're buying patents. They're going to lose money if they can't make more money out of those patents.

The fact that they're doing this, the economists, well unless they're massively making some mistake and losing a lot of money, they must be more efficient monetizers. I don't think there's any reason to think this is some business fad that's about to fade out. It's certainly on the ascendancy, in fact.

And while they may not be making tons of money, best we can tell from the publicly traded PAEs, it looks like a profitable line. So that leads the economist to say, well, all right, what are these gains from trade? What's their source? We could do that for the trucking companies. Figure out why they have trucking specialists, cloud computing, or we can do it here, too.

It's a typical type of analysis and value chain for a vertical layer that develops a specialist. And we'll hear more about this, I think, from the panelists who work at some of these companies. But it's pretty clear.

And Colleen mentioned some of these. Certainly foreign investors selling the patents, you can get liquidity. The PAE can pool and share risk among different patents, in terms of what you can get out of them.

Clearly there's specialists that have economies of scale in what they do. Presumably, they're good at selecting patents to assert. This is a patent lawyer, and just being good at patent litigation, and negotiating and litigating. And then, there's some reputational issues that come into play.

Reputation for litigating, not accepting small offers. And what people often point, their immunity from retaliation. At least they don't have ongoing business operations. Those are all private gains from trade. OK? Those should be beyond question.

I mean, we can ask which of these gains from trade applies in different circumstances. If a large portfolio of patents is coming out of a bankrupt company and being bought up, that's not going to be about liquidity and risk sharing. Those gains would apply more for an individual inventor selling the patents. But this is this list of factors that comes in.

At the same time, private gains from trade do not mean social value. So they are effective monetizers. There's money to be made. That's why we're seeing it. Why now? Again, any time we look at an economic phenomenon, it's good to understand why is it happening now, so I can understand what's going on.

It seems that, to me at least, a primary factor is there's lots of raw material. Raw material in this business is patents. Particularly if they're being asserted, or used very much. And a lot of these are software patents. Not all of them, though. And we see the activities in the computer and communications areas.

So basically, there's a lot of raw material out there. Arguably, not monetized as much as it could be. That's the point. That seems to be a primary driver. As Colleen has mentioned in some of her work, this is kind of an ironic legacy of the building up of patent portfolios by a lot of tech companies, for defensive purposes.

And then some of those patents have gotten out into the wild, as it were, either because those companies or lines of business have gone bankrupt

And as economists will tell you, you break up the portfolio, the profits of the portfolio go

So that's got to be a drag on innovation, in and of itself. Because, look, we look at these target companies, as I said big or small, these are the companies that are innovating. And remember, innovation is a much broader concept than invention. Innovation means commercializing, putting together different things, different pieces of technology one has to in this day and age, and so forth. So that's the drag on innovation.

On the other hand, the benefit is more money going to those who are getting these patents. Now, there is a question, are these patents actually reflecting true invention, or just what the patent office will issue? But the first place, you want to look at how much money is going back to the patentees. And that's why, if the bucket's very leaky, not much gets back there. This whole enterprise can't be useful for innovation.

So that's, I think, the place to look. And look, this is obviously going to depend case by case. It's a very different situation if you have a small inventor who is going to be ignored by big companies, who then has an intermediary entity represent them and try to get the money. That's going to give a different ratio, or leak less to bucket than a situation where it's a large paper patent that didn't really amount to anything, asserted against a large company that has revenues.

So if you think about that as a fundamental economics, in terms of the cost to the implementers and the money going back to the inventors, the focus for the PAEs is really not the thing to focus on. So I just want to say, don't get hung up on whether the inventing and patenting function is vertically integrated with the patent assertion function.

So if you go back to that classification where a whole bunch of patents all came out of a failed company, or maybe that company is asserting those patents, that's not a PAE, because they were an operating company, still are an operating company, and then they exit a line of business, and then start to assert the patents, in terms of the economics, that's almost the same thing as a patent assertion entity buying those up and then asserting them.

Now let's look at, if we're going to try to figure out, follow the money, this is where there's a good amount of empirical work, and more needs to be done. So let me zip through this. Some of this, pieces of this, you've heard from Coleman, as well. And I'm not going to give all the cites here, but you can sort it out.

PAEs appear to be acquiring more of their patents from smaller companies, than are practicing firms. So that tends to support the narrative that this is a way for smaller companies or individuals to monetize and take advantage of these specialists.

It's very clear our PAEs are focused on information, communication technologies, a lot of software patents. And there's some evidence that these patents tend to be

So then the next group would be, well the royalties they're getting are too high. And that's why they have undo bargaining power, again. And that's probably true. Could well be true. But hasn't really been established empirically.

And the courts are struggling with, what should the reasonable royalties be? Whether it's in a standard essential patents context or any context, for patents covering minor features, complicated products, how the courts are going to deal with royalty stacking issues.

They're moving in the right direction away from a total market value rule. So this seems to me it could be an argument if the PAs are getting too much, but it's not proven. And then you've got the nuisance suit argument, which seems to probably have some salience with startups.

And Colleen's work, Catherine Tucker's work she mentioned, there's some pretty convincing evidence that startups, they really are setback by a lot of these lawsuits. And that's got to be a drag on innovation, in and of itself.

The nuisances, I think, is where we should look for some creative counter defense strategies. If the PAEs are establishing reputations for bringing suits even when any given one suit won't pay for itself, well the defendant should find a way to establish a reputation to defend the suits, even though any given one wouldn't pay for itself, and fight back. And maybe the example from the railroad industry, in the 19th century, is one we can pick up.

Policy implications, in my last couple minutes. Patent policy, look, there's nothing wrong with intermediaries. I don't think we want to go after intermediaries, as a form. I just don't see how that takes us anywhere. We should try to really go after the-- and this is not a surprise to most of you in room-- there are ongoing flaws in the patent system. And those are being, I could say exploited.

And exploited I the don't mean as a negative, it's just American ingenuity at work. And the American Inventors Act is taking steps in this direction. Written description enablement, there's more through Section 112 the PTO can do. Maybe the most important thing is to convince Dave Kappos to stay longer at the PTO. And that's probably not going to work. I think he's already is

So if I'm the competitor I'm like, well, what the hell? Why did you sell your patents to that jerk? I'm still going to hold you accountable. I don't see, if it's retaliation, you could retaliate against the person who sold the patents as your competitor, if they have an operation, if you know who it is. So one of the competitive advantages PAEs could be neutralized, in part, with better disclosure, as an example. But there are a lot of other benefits of that.

Antitrust policy, Jon, I love antitrust, Jon. I don't know so much. I don't know from Section 5, so much. That I don't know. But even with your powerful Section 5, I'm not sure you can fix the whole patent system. So we're going to talk about this afternoon on the panel.

I don't quite see how asserting patents in good faith ever going to be an antitrust violation. There's more room for antitrust if one's talk about the acquisition of the patents. But assembling a portfolio of patents that are not substitutes for each other, kind of hard to see exactly what's the problem with that.

The interesting antitrust questions, I think, come up, not so much with pure PAEs, but with the hybrid ones, where the PAE has an interest in operations. All right. I will wrap up. Let me skip to the last two lines here. Look, if you believe the patent system is functioning well, you will see PAEs as an efficient layer of specialists. If you believe the patent system has some big flaws, you will see the PAEs exposing these flaws.

So this is a bit of a Rorschach test, in terms of what you think of the patent system. This reminds me in the Microsoft antitrust case, one of the things I love was people, when the DOJ came up with the remedy, some of us, including myself, thought it was too weak.

The line I loved at the time was, about the remedy, if you call it that, in the Microsoft antitrust case, was, if you love the case, you'll hate the remedy, if you hate the case, you'll love the remedy. And here, if you like the patent system-- well I don't want to put it that way. If you believe it's functioning smoothly, PAEs are just a natural part of that ecosystem. If you think it has flaws, they're exploiting them.

All right. Thank you. Here I am, I thought I close the holiday. This is now that I'm back in the nation's capital, these really gingerbread. This was in the White House (21.6 0 * -.0008z54 -0o2T

part, because our first two panelists. Thank you, so much. And why don't you take a few questions, and then we'll go to our break.

PROFESSOR CARL SHAPIRO: Speak up.

AUDIENCE: I was wondering what has prevented the creation of platforms, sort of defense facilitation platforms like insurance companies, these cost oriented insurance companies, that could solve also for the problem of data sharing?

PROFESSOR COLLEEN CHIEN: I think that it's a great question. And if you think about insurance actuaries who makes insurance markets, they need a lot of data. They need a lot of information. If you think about how an underwriter figures out how much you should pay for your car insurance, they want to look at your driving history, your profile as a person, what kind of car you're driving.

And in order to come up with a rate, they're going to be trying to figure out what's happened in the past, and they need a lot of data. In the mitigation space, as Carl's already mentioned, and we've talked about, is not one that has been rich in the past. Now we have more big data, kind of analytics to bear.

But in terms of settlements and licensing rates, and I think that, I think we're still at the tip of iceberg with respect to information. So it has been difficult, I think. There also is the question of adverse selection, which also, I think always besets insurance, in general.

So I gave a presentation last year in Las Vegas, where I talked to a number of insurance companies about their efforts to underwrite mitigation exposure. And they said, no one wants to underwrite the big tech companies. Those are the ones who want insurance.

You want to underwrite companies that don't see very often, so you have a big pool of distributed risk. And so I don't think we've got that pool yet of everyone who's willing to jump in, and have symmetric, or a basically distributed risk sharing.

PROFESSOR CARL SHAPIRO: Two words, adverse selection. So much of what, like Colleen said, if people who need insurance, are ones for whom risks are big relative to their operations of startup smaller companies. Average selection bias here for any type of insurance model.

The other type of defense, though, that I think could work, joint coordinated, is really like I said, establishing a reputation and maybe getting some of the scale economies on the defense side. That could happen. And maybe we'll see it. Maybe industry participants will have more to say about that later.

PROFESSOR COLLEEN CHIEN: Mike?

MIKE: Hi, Mike. Carl, I wonder how you think we should try to calculate what a typical NPE or PAE case looks like? And I wonder what your intuition is about what looks like a plausible number?

PROFESSOR CARL SHAPIRO: OK. First, I don't think there is any typical case, so I'll take your questions to mean average or median.

MIKE: Actually, that was the question, really is, were you referring to mean or median? The number that you said was, mean, but I think your intuition is based on median. Is that right?

PROFESSOR CARL SHAPIRO: No. With all due respect. Look, I want to listen about that. You guys have been looking at this, and I don't see how the mean case out of 500, can be \$150 million either, when the very largest ones were about \$1 billion. And there's like a couple of those. So I don't get that either.

I don't think I'm being confused between mean and median. I'd love to have this conversation. And like I said, I think it's a great line of work to be pursuing. And maybe these numbers will hold up, I'm just not yet convinced. Stand up, and wait for a mic. Talk loud or wait for a microphone.

MICHAEL COHEN: OK. Michael Cohen from NBC Financial Research. And my question is to Professor Shapiro. You talked a lot about leaky bucket. And I was wondering what kind of market forces would prevent solving that really? I mean, wouldn't the incentive create an incentive for additional Patent Assertion Entities just drive up the price of patents, and greater reward inventors?

PROFESSOR CARL SHAPIRO: I agree that competition among PAEs would tend to reduce their profits. But, look, if there's just a lot of costs associated with this activity, that is a leaky bucket. That's sort of the leak from the bucket, inevitably. This is very common rent seeking

