

Enforcing Patent Rights and Competition

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Main Themes

- Litigation rate per patent has **not** risen
- Number of patents per R&D has risen, increasing overall litigation
- Huge variation across patents and patent owners in litigation rates
- Thus limiting patenting (e.g. via higher patent standards) may not have large effect on overall litigation
- Key issue is how to address small firm disadvantages in settling patent disputes

Overall level is low: 19 suits/ thousand

Hides substantial heterogeneity *across technology areas*

- 11 suits/ thousand **chemical patents**
- 25-35 suits/thousand **computer, biotechnology
& non-drug health
patents**

Filing rates: differences by technology field

Technology field	Cases per thousand, 1978-95
Aggregate	19.0
Drugs	22.2
Other Health	34.6
Chemicals	11.8
Electronics	15.4
Mechanical	16.9
Computers	25.6
Biotechnology	27.9

Since 1978, the number of U.S. patent suits has grown almost tenfold...but so too the number of patents.

Result: Number of cases per thousand patents has been roughly constant:

1978 - 84:	19.3
1985 - 90:	16.6
1991 - 95:	21.1

And Substantial Heterogeneity *within technology areas*

Frequency of litigation varies:

- **With Value of Patent:** Reduces incentives created by patent system
- **By Type of Owner:** So different incentives given to different types of patentees
Large versus Small

What are potential advantages held by larger patentees?

- **Differences in costs or ability to detect infringements.**
- **Patents to Trade**
- **Repeated Interactions**
- **Asymmetry in size: threat points for settlement bargaining**

Lanjouw and Schankerman (2001, 2003)

- Based on comprehensive data -- all patent suits in U.S. during 1978-1999
- 13,625 patent cases

They show how characteristics of patents and their owners affect:

- Likelihood of patent suit
- Settlement and its timing
- Who wins at trial

Valuable patents are more likely to be litigated

- More patent claims
- More future citations per claim
- More future citations by the same firm to its earlier patent

In addition to value, litigation risk depends on:

- Ownership type: individual, unlisted company or listed company
- Patent portfolio size
- Relative size of potential disputants
- Technology concentration

Ownership matters for litigation risk

Small firms and individuals are MORE likely to sue than large firms

Differences by Ownership Type

	Filing Rate	Settlement Rate
Individuals	35.2	94.7
Domestic Unlisted	46.0	94.0
Domestic Listed	10.4	94.1
Foreign	4.2	94.5

Patents To Trade

Portfolio Size	Probability of Case Filing
0 - 10	1.71 %
11 - 100	1.20
101 - 200	0.52
201 - 300	0.43
301 - 600	0.39
601 - 900	0.34
900 +	0.26

Portfolio effect is not due to differences in patent values

In fact, there is a significant **positive** association between the size of the portfolio that a patent is in and the number of its claims and cites per claim.

Repeated Interaction or Multiple points of contact

Finding: Firms that operate in technology areas that have higher concentration (fewer firms) have lower probability of filing suits.

A 10% increase in concentration index lowers the probability of a suit by 4.6%.

Asymmetry - Relative Size

Finding: Firms that are larger than their 'representative' (expected) disputant are less likely to file suits.

A 10% increase in relative size lowers the probability of a case filing by 0.5%.

Other Supporting Evidence

- From survey evidence, European SME's settle disputes earlier when they face larger infringers (Arundel, Bordoy and Kingston, 2002)
- Biotechnology firms tend to patent in patent subclasses where there is less litigation (Lerner, 1995)
- Large firms more likely to use preliminary injunctions against smaller firms (Lanjouw and Lerner, 2001)

Heterogeneity in Litigation Risk (% over patent life)

Percentile of distribution:	99 th	95 th	50 th
Aggregate	7.9	3.8	0.8
Drugs	9.4	3.9	0.9
Other Health	19.5	6.1	1.7
Chemicals	4.2	2.1	0.5
Electronics	7.1	2.8	0.5
Mechanical	6.5	2.8	0.7
Computers	14.8	4.5	0.6
Biotechnology	12.9	6.3	1.3

Heterogeneity in Litigation Risk

Percentile of distribution	99 th	95 th	50 th
Domestic individual	9.4	4.4	1.9
Domestic unlisted firm			
Portfolio <600	14.4	6.3	2.1
Portfolio >600	6.8	2.4	0.7
Small domestic listed firm			
Portfolio <600	6.3	5.4	2.0
Portfolio >600	3.5	3.5	0.8
Large domestic listed firm			
Portfolio <600	5.4	2.6	0.9
Portfolio >600	4.1	1.5	0.4

After the filing of suits, settlement occurs quickly.

Almost 85% before pre-trial hearing

Plaintiffs win about 50% of cases

Patent and patent owner characteristics matter for filing, BUT not for what happens after the suit is filed

Good News: Process ended for most before expenditure on legal process

Bad News: No offset to higher rates of filing for some types of patentees ('small' firms and firms with small portfolios)

Empirical findings imply that the enforcement process undermines R&D incentives of 'small' firms

Market-based solutions

- patent litigation insurance
- patent pools and licensing agents
- alternative dispute resolution mechanisms

Competition policy remedies?

Litigation Insurance

- Low current take-up: only 12.1% of 448 SME's reporting infringement in European survey. Why?
- Current prices very high – annual premium about 6% of coverage
- Compare to 99th percentile in drugs – 9.4 % litigation probability over patent life
- Issue of who controls settlement decision

Moving forward

- Patents are often the only asset of small, new high technology firms
- Raising patent standard or costs may hurt such firms while only reducing litigation marginally
- Key challenge: To reduce enforcement costs by more effective cross-licensing, patent pools AND and to give better access by small firms to these mechanisms (including litigation insurance)