Some facts about business method and software patents at the USPTO and the EPO

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Overview

- A few remarks on NPEs
- Review previous findings in the US and Europe
- Present a summary of facts about Class 705 and their owners
  - Patents issued 1976 to 2006 (new NBER database)
Non-practicing entities

**Definition:** a patent holder that does not practice the invention on which he holds a patent

**Benefits**
- Allows efficient specialization in knowledge production
- Reduces reliance on scale and trade secrecy, which may favor competition
- Enables VC financing because increases the salvage value of knowledge-intensive firms
- Anand and Khanna (2000) – stronger IPR associated with more and earlier tech licensing

**Costs**
- “Potential infringing” not a level playing field
- Current bargaining strength in negotiations probably too strong due to
  - Preliminary injunction threat (but, eBay)
  - Some low quality patents (but, KSR)
  - Reasonable royalty computations
Complex products

- Too much bargaining power granted to the owner of a small share of the technology in a complex product
  - “willful” infringement - ignoring a cease and desist letter even if there is good reason to believe one is not infringing
  - “reasonable royalties” principle appears to yield excessive royalties in complex product cases
    - Lemley and Shapiro (2007) – court awarded royalties average 10% in electronics vs. 14% in chem/bio – seems too small a difference
  - Threat of “patent ambush” in SSOs?
- Cross-licensing does not help with NPEs
Independent invention defense

- Problem of inadvertent infringement when there are many minor patents, not always clearly written.
- Exacerbated by the imbalance in bargaining power between potential infringer and patentee.
- Proposed by Shapiro (2007), among others.
  - Obvious costs in terms of discovery, etc.
  - Benefit – the fact of independent invention suggests that the invention was not “non-obvious” to persons having ordinary skill in the art.
  - Shapiro shows that welfare is almost always higher if independent invention allowed.
Independent invention defense

- Lemley (2007) - concern that racing with no guarantee of being the sole winner may discourage some high cost innovations; he suggests the following modifications:
  - Wilfulness – only copying, not indep invention
  - Prior user right instead (rules out simultaneous inventions)
  - Make simultaneous invention relevant for obviousness in court
  - Take indep invention into account when deciding to issue injunction
Empirical studies of bus meth patents

- Business methods
  - Defining them?
  - Allison & Tiller 2003 – internet bus meth
  - Wagner 2008 – postal meters; Europe

- Financial
  - Lerner 2006a, 2006b - litigation
  - Duffy & Squires 2008 – financial innov patenting
  - Hall 2007 – payment systems
  - Hunt 2008 – do they increase R&D?
  - Hall et al. 2009 – Europe
  - Takalo & Komulainen 2008 – exchange; Europe
Summary of findings – bus meth

- Allison & Tiller 2003 – internet bus methods
  - 1423 internet patents in 705, 707, 709 issued 1990-99
  - Amt of prior art same as other patents, but more is non-patent
  - US inventors dominate, small firms and individuals do well compared to large firms

- Wagner 2008 – postal meters; Europe
  - 1901 bus meth apps found that are equivalent to class 705 US pats
  - Differ wrt claims, prior art refs, litigation; opposition rates of 44% in franking device (postage meter) industry
Summary of findings - financial

- Lerner 2006 – litigation through 2005 on pats issued 76-03 in subset of 705
  - Higher litigation rate than any other technology
  - Very highly litigated by small entities (p>1)
- Hunt 2008 – do they increase R&D?
  - Little effect visible (based on tech employment)
- Duffy & Squires 2008 – financial innov. patenting
  - Long pendency
  - Few in 705/35 (finance, e.g., banking, investment or credit) directed towards highly innovative financial products
- Takalo & Komulainen 2008 – 378 European exchange pats in IPC G06Q 40/00B
  - Growth follows US, most applicants US firms
  - Few granted, 45% opposition rate
Summary of findings – financial

- Hall 2007 – payment systems pats
  - Held by equipment mfgrs, large fin firms, new entrants
  - Slightly less than half in class 705

- Hall et al. 2009 – European applications defined by union of
  - EPO equiv of USPTO pats in fin class/subclass (Lerner)
  - EPO pats in IPC/ECLA fin-related classes
  - EPO pats in tech classes where “pure play” fin firms patent
  - Also required words transaction, financial, credit, payment, money, debit card, portfolio, or wallet in title or abstract
  - 3298 patents with priority year 1978-2005
  - 1% control sample of all EPO applications (18,523 patents)
Figure 2: EP and US financial methods patenting

Fall after 2000 due to truncation
85% owned by firms
EPO fin pats owners less heavily concentrated in the US than USPTO owners
But more than other EPO patents (not shown)
Top 6 Sectors with financial patents

- Office, accounting & computing machinery
- Computer services & related activities
- Finance & insurance
- Post & telecommunications
- Other business services
- Radio, television & communication equip.

Share of financial patents

- All regions
- US
- EU27
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
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<tbody>
<tr>
<td>1a  fin pats have longer decision lags</td>
<td>1.2 years longer</td>
</tr>
<tr>
<td>1b  fin pats have lower grant probability</td>
<td>34% vs 64%</td>
</tr>
<tr>
<td>2   prob a fin pat is opposed is higher</td>
<td>9% vs 6.5%</td>
</tr>
<tr>
<td>3   grant is less likely if fewer forward cites, more claims, more XY-type backward cites</td>
<td>yes</td>
</tr>
<tr>
<td>4a  more valuable fin pats more likely to be opposed (more frwd cites, larger family)</td>
<td>yes</td>
</tr>
<tr>
<td>4b  more controversial fin pats more likely to be opposed (more claims, XY cites)</td>
<td>yes, but claims not significant</td>
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Compare to US Class 705 pats

- Other includes job scheduling, price determination, copy protection, postal metering, data record management, etc

<table>
<thead>
<tr>
<th>Class 705</th>
<th>Patents granted</th>
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<tbody>
<tr>
<td>Financial</td>
<td>1,421</td>
</tr>
<tr>
<td>Payment system</td>
<td>1,439</td>
</tr>
<tr>
<td>Other</td>
<td>5,129</td>
</tr>
<tr>
<td>All</td>
<td>7,343</td>
</tr>
</tbody>
</table>
Growth in apps jumps with Alappat and only slightly after State Street. Grants increase before and after State Street, but fall in the early 2000s and then jump up again.
Approximate grant lag distribution

Bus meth pats take 1.4 years longer to be granted; 1.7 years if financial or payment system patents, as in earlier work.
Many more unassigned, many fewer owned by foreign corporations; but more highly concentrated ownership

Top 100 firms: 24% all pats; 34% bm pats; 30% fp pats
Summary

- Business method patents difficult to define using US class; financial patents easier

- In both US and Europe:
  - Rapid growth in applications after 1995
  - More valuable than other patents – more opposition and litigation
  - Take 1+ years longer to grant
  - Reference more non-patent prior art
  - Effects on innovative activity unclear
  - Small entities are the majority of the plaintiffs in litigation
Data issues

- Given the extreme heterogeneity of patenting behavior and value, one can always find a case study in the patent area to support any particular position.
- Therefore, evaluating the importance of many of these problems depends on looking at the data more broadly.
- But much relevant data is either difficult to come by, or very selective due to differences in firm reporting practices.
Data issues

- Two types of data especially desirable:
  - Better and more consistent litigation data - financial settlements in patent suits.
    - Firms that rely on the court system and public services to settle disputes should be obligated to report the details of any settlement reached.
    - Would this cause settlements to happen before a suit is filed?
  - Financial data for licensing – essential if we are going to understand the markets for technology
    - require reporting of patent licenses in some standardized way.
Data and value

Determining valuation a severe problem, given the paucity of public markets for patents

- Ocean Tomo, Yet2.com promising
- In principle, data on litigation settlements and licensing transactions would help establish value benchmarks and improve the operation of the market
- mergers, alliances reported, why not licensing?