

Calculating FRAND royalty rates – an economist's perspective

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Paris, June 14, 2016

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Overview

1. Theoretical principles
2. Economic framework
3. Implementation
4. Empirical considerations

Theoretical principles (1): optimal incentives

Setting FRAND = maximizing the value of the standard

- Preserve incentives to invent / develop technologies (cost of R&D, account for risk of upfront investments)
- Preserve incentives to make patents available on the terms of the policy
- Encourage implementation of the standard
- Reduce the risk / uncertainty associated with SEPs

Theoretical principles (2): competitive pricing

In principle, perfect competition produces a welfare maximizing price

For SEP licensing, two important deviations from perfect competition

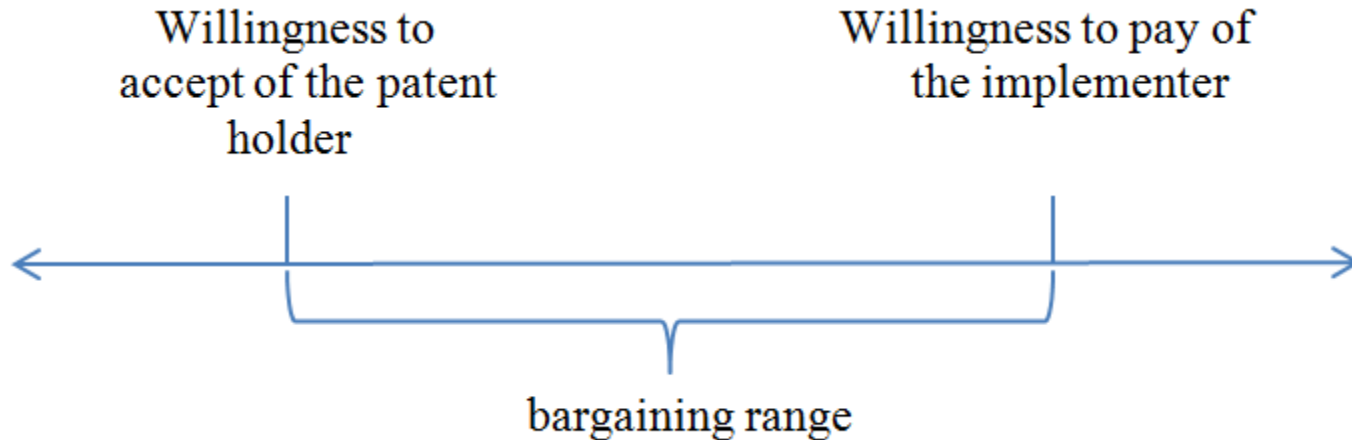
- Incomplete contracts / ex-post pricing (hold-up)
- Complementarity between patents (royalty stacking)

Setting FRAND = restore the outcome of a competitive process

FRAND rate = outcome of a hypothetical ex-ante licensing contract
(taking into account the existence of complements)

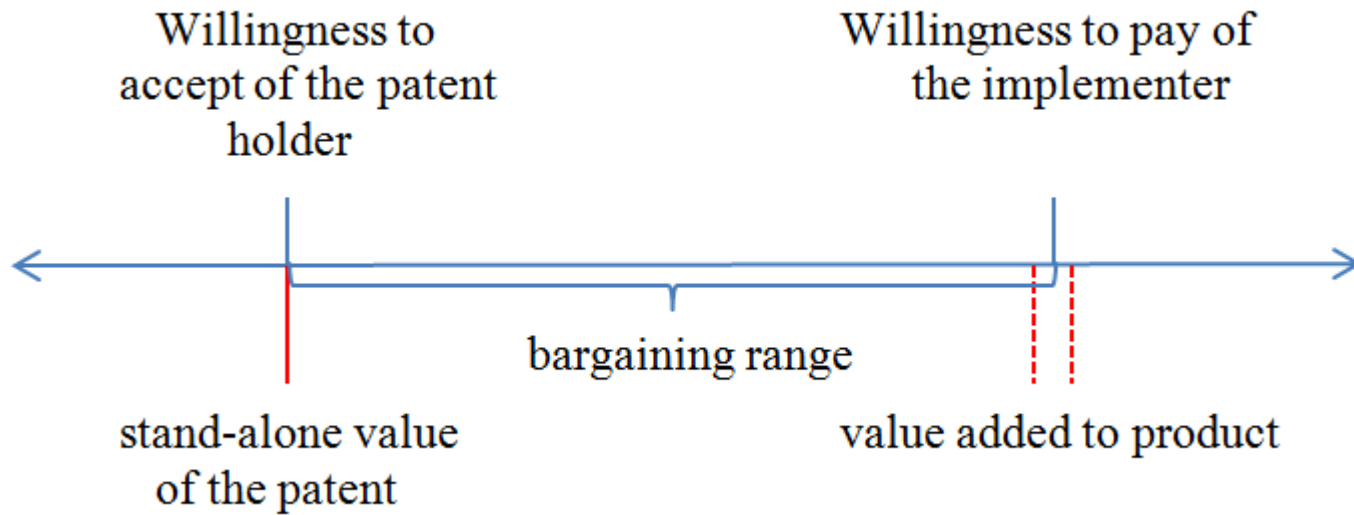
Common framework (1)

I.: The hypothetical ex-ante negotiation



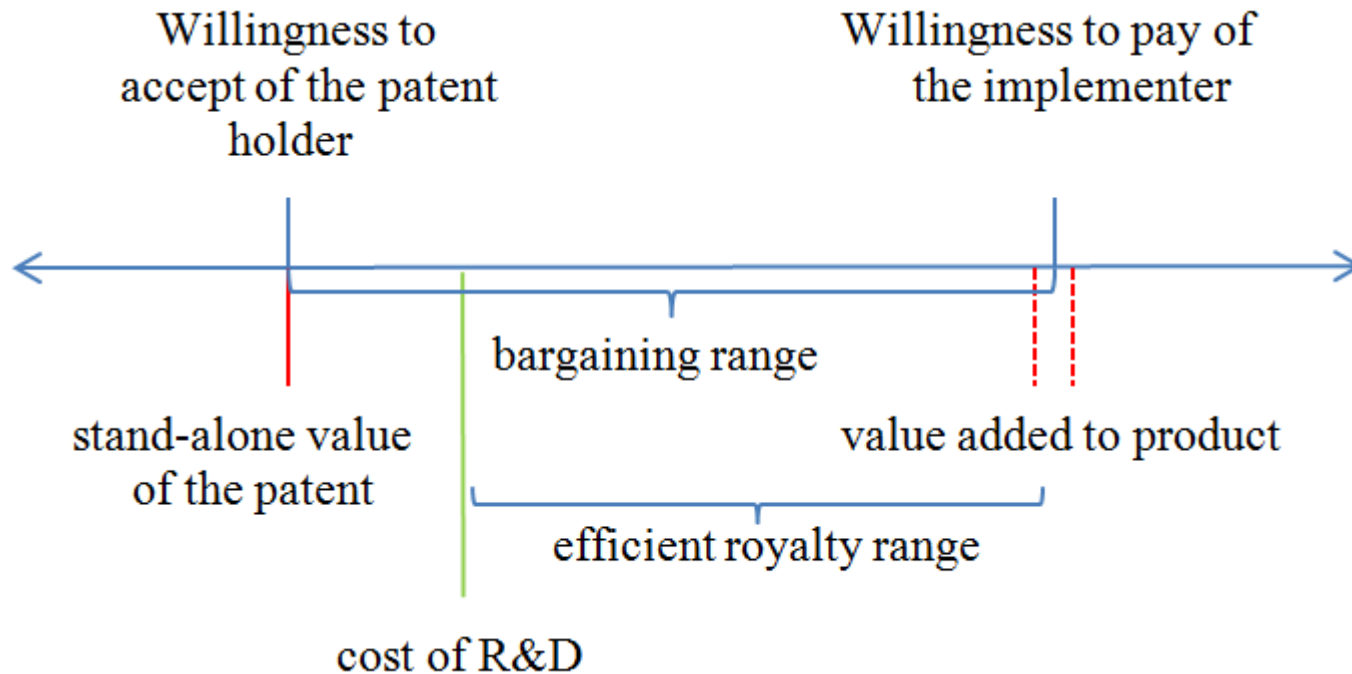
Common framework (2)

II.: The “incremental value”



Common framework (3)

III.: Incentives to innovate and implement



Implementation (1): the royalty base

Product prices (end product or component) provide information on the patent's contribution to value of the product and infringer's profits

In US case law: SSPPU principle, based on the idea that the price of smaller components is “closer” to the value of the technology

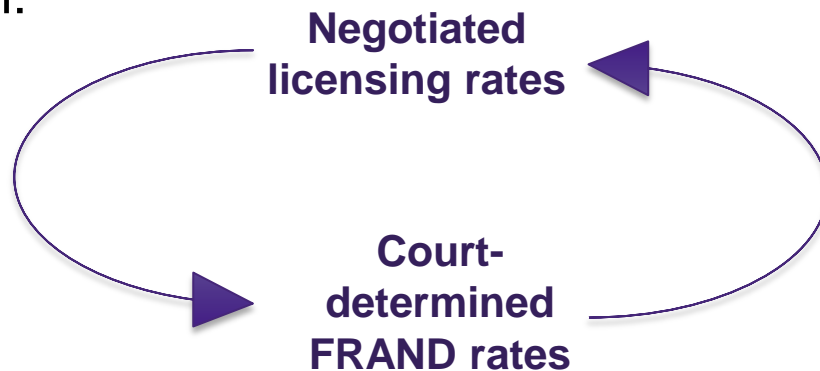
Not correct. Competition in the component manufacturing industry and infringement → price reflects production cost instead of value

If feasible, a comparison between the price of the end product and the price of the same product not including the patented feature is a superior indicator of the value of the technology

Implementation (2): comparable licenses

Observable licensing terms provide indication for outcome of hypothetical licensing negotiation:

- Excluding licensing terms negotiated under threat of injunction / resulting from a settlement?
- practical concern: results in the exclusion of majority of observable licensing terms (except pools)
- circularity problem:



Empirical considerations

- Setting an “economically correct” FRAND rate is prohibitively demanding (full specification of counterfactual equilibria)
- In practice, the FRAND range often proves to be very large
- No convincing evidence that bilateral negotiation of FRAND licensing terms is broken
 - Standards including SEPs are characterized by rapid technological progress (Galetovic et al., 2015; Baron et al., 2015)
 - Inclusion of SEPs has positive effect on contributions to standards and very limited deterring effect on adoption (Baron, 2016)
- Judicial adjudication should not crowd out negotiation