Predicting Patent Litigation

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250K

Patents

250K Patents

Held by:
- **IBM**
- **Nortel**
- **Google**
- **Apple**
- **Others**

250K patents...

"Most of its junk"

"there's a lot of crap out there"

"Need to kiss a lot of frogs"

Which are the good ones?

250K Patents

250K Patents

Defensively: Which patents are the riskiest ones?

Problem: Which Patents will be litigated?

Issuance

Enforcement

Litigate

1 %

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Issuance

Enforcement

Litigate

1 %

Relevant Traits

Issuance

Intrinsic Traits

Enforcement

Litigate

1 %

Patent Events

Issuance **Ownership** **Investment** **Financing** **Citation** **Enforcement**

Transfer

Maintain

Securitize

Forward Citation

Litigate

Size Change

Reexamine

1 %

Intrinsic Traits

Acquired Traits

Methods

Data
- Matched pair set: 667 litigated patents and 3 x 667 unlitigated patents issued in 1990 and matched by primary PTO technology class (rare events model)
- Log-transformed versions of continuous variables

Coding
- Transfer: hand-coded to find true re-assignments and exclude M&A, intra-company transfers
- Reexamination: ex parte only

Statistics
- Logistic regression (SPSS)
- Characteristics developed over life and prior to first litigation (time-series)
- Intrinsic, acquired, and intrinsic + acquired

Litigated vs. Unlitigated Patents – Acquired Traits (Characteristics Developed Over Patent Lifetime)
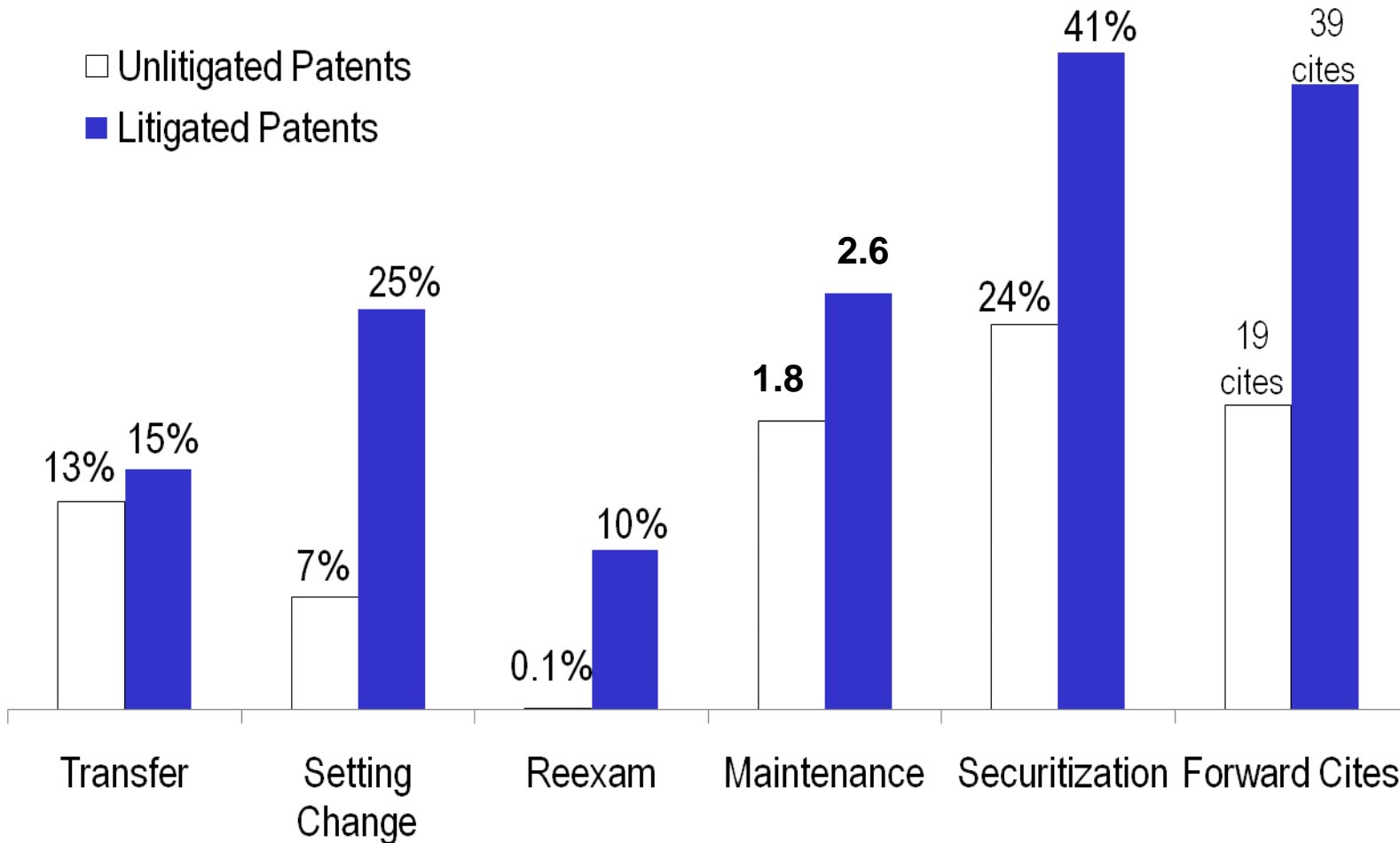
Litigated vs. Unlitigated Patents
(Characteristics Developed Prior to Litigation)

- Claims: 12.6, +3.4 claims
- Prior Art Citations: 10.3, +3.3 citations
- Small Entity: 36%, +23% small
- Family Members: 4.0, +0.9 family members
- Transfer: 8.0%, +1% transfer rate
- Entity Size Change: 4.2%, +9.7% entity size change
- In Force at Time of Lit: 66%, +34% in force
- Reexamined: 0.5%, +5% reexamination rate
- Securitized: 0.5%, +10% securitization rate
- Fwd Cites (per month): 0.05, 2x forward cites
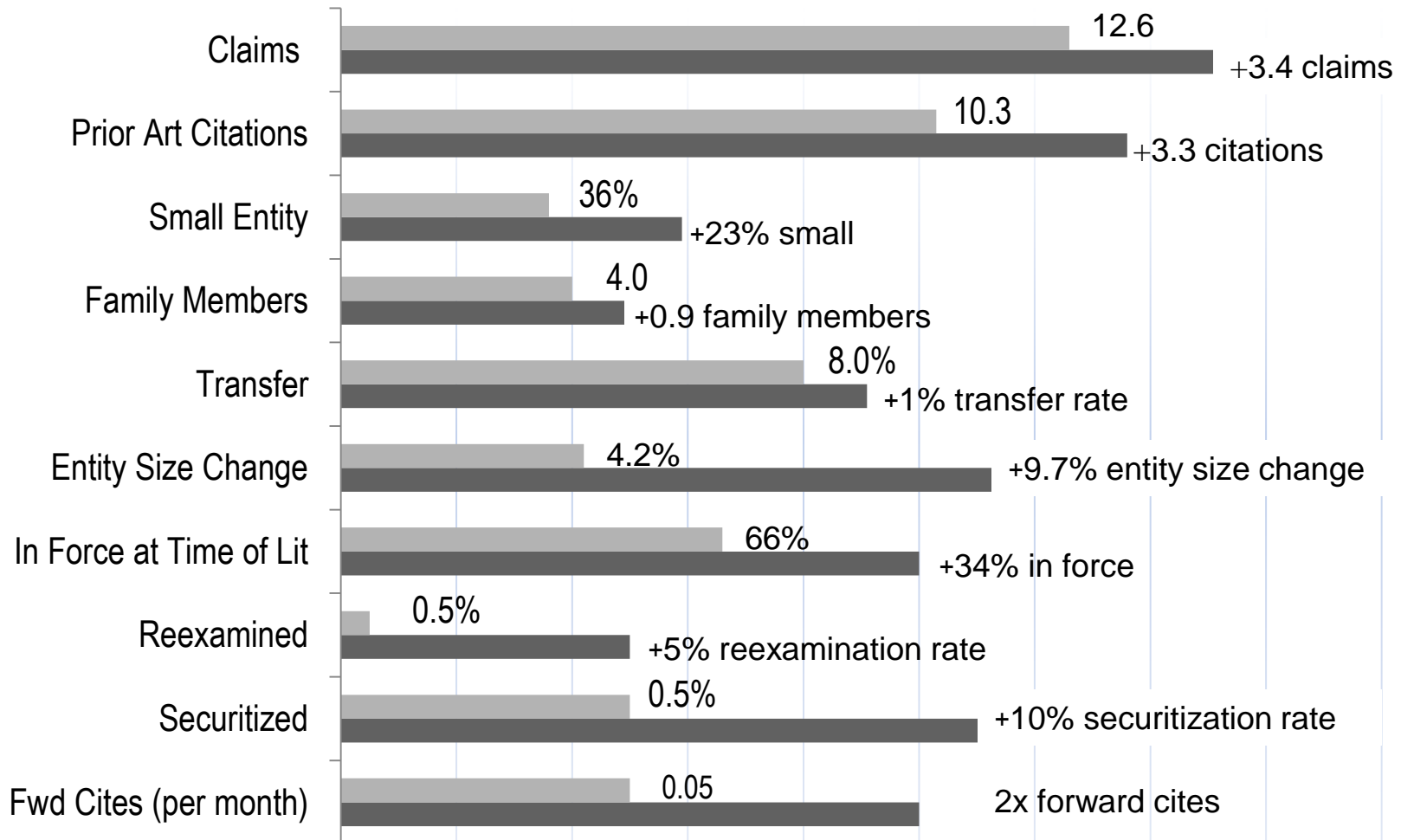
Logistic Regression Model Results (Time-Series)

| Variables in the Equation	Lifetime Model (Characteristics Acquired over Patent Life)			Time-Series Model (Characteristics Acquired Prior to Filing of First Litigation)		
	Intrinsic Variables Only	Acquired Variables Only	Intrinsic and Acquired Variables	Intrinsic Variables	Acquired Variables	Intrinsic and Acquired Variables
Nagelkerke R Square	.106	.334	.380	.104	.372	.418
Intrinsic Variables						
Claims (Log)	1.475*** (.059)	-	1.217** (.068)	1.467)*** (.060	-	1.345*** (.068)
Prior Art Cites (Log)	1.126* (.061)	-	.946 (.069)	1.124 (.061)	-	.983 (.069)
Small/Ind Initial₮ Owner	3.156*** (.102)	-	3.259*** (.121)	3.142)*** (.103)	-	3.013*** (.118)
Family Members (Log)	1.327*** (.055)	-	1.129* (.063)	1.332*** (.055)	-	1.208*** (.062)
Acquired Variables	-			-		
Assignments (Log)	-	.279*** (.140)	.339*** (.145)	-	.208*** (.140)	.251*** (.146)
Transfer₮	-	2.061*** (.196)	1.802** (.204)	-	2.311*** (.224)	2.067*** (.235)
Size Change₮	-	2.833*** (.144	2.055*** (.155)	-	2.446*** (.192)	1.990*** (.200)
Reexam₮	-	80.822*** (.747)	79.408*** (.764)	-	65.893*** (1.039)	63.085*** (1.049)
Maintenance Fees₮	-	1.949*** (.059)	2.173*** (.063)	-	6.6E+08 (1507.8)	7.E+08 (1474.4)
Fwd Cites (Log)	-	1.513*** (.047)	1.486*** (.050)	-	61.391*** (.636)	60.574*** (.670)
Securitized₮	-	1.694** (.170)	1.492* (.175)	-	2.667*** (.188)	2.458*** (.192)

*__**s convey significance of Difference.__*

__More stars = difference more likely to be real__

Predicted v. Actually Litigated Patents (Time-Series)

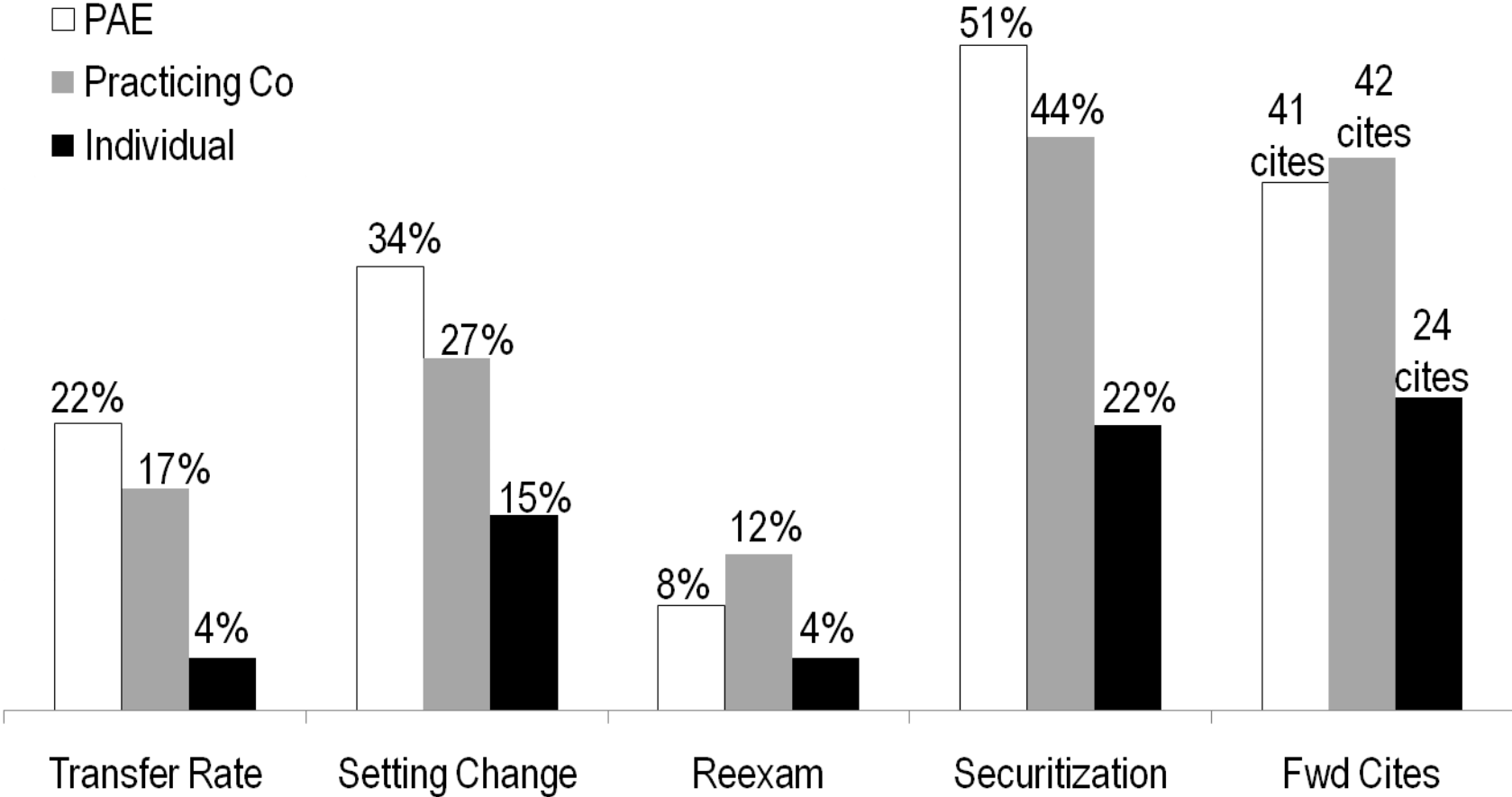| Model	Nagelkerke R2
Intrinsic Characteristics	.104
Acquired Characteristics	.372
Intrinsic and Acquired Characteristics	.418

Bigger (R2) is Generally Better

Payoff: Predicted v. Actually Litigated Patents (Time-Series)

Model
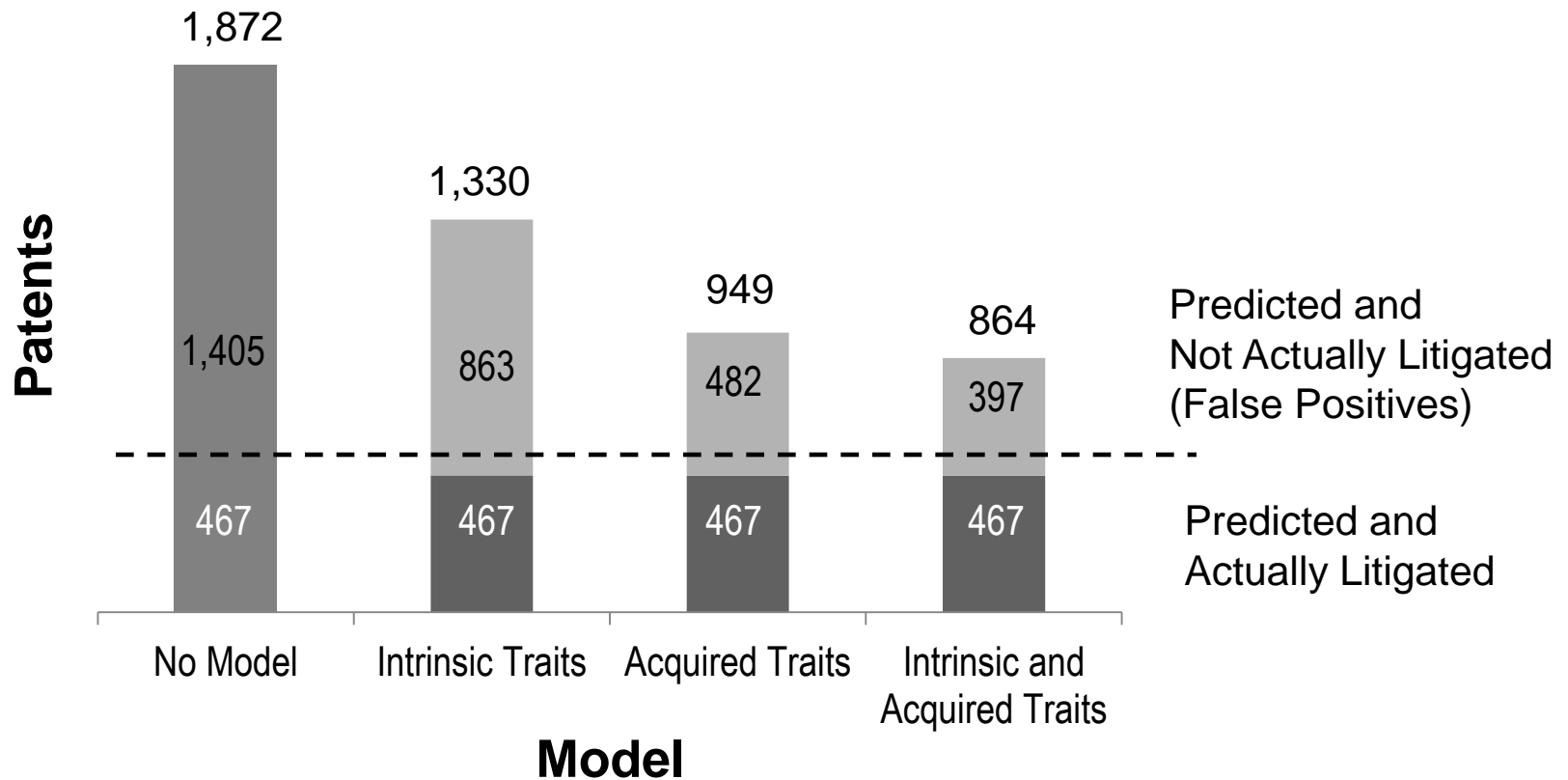
70% observation rate

Differences by Litigant Type

Implications

Potential uses of this work

• **Patent Defense 1.0: freedom to operate, R&D planning and decision-making**

• **Patent Defense 2.0: defensive buying/aggregation, reexamination, insurance**

Policy implications

Patent risk is a function of value and <u>ownership</u>

• **A new kind of <u>patent notice failure</u>. Not a problem of what does this patent cover, but who owns the patent , what they do with it. Those transactions aren't required to be recorded, should they be?**