Demand-Shifting Intangibles, Market Concentration and Pricing of Risk

Gayeon Hong
Department of Economics, SNU
Ph.D. Candidate [1]

July 9, 2025

[1] This research was supported by the BK21 FOUR (Fostering Outstanding Universities for Research) funded by the Ministry of Education(MOE, Korea) and National Research Foundation of Korea(NRF)

Overview

Motivation:

- Intangible assets are proxies by nature, "not directly observed" capital.
- Yet, they are often treated as homogeneous..!

Objective:

- Investigate how demand-based "M&As"—driven by intangibles like customer relationships, brand equity, and consumer capital—affect (1) market structure and (2) systematic risk.

Classification: **Demand Shifter** vs. Other type Intangible

- **Demand Shifter**: customer relationships, brand equity, trademarks
- **Neutral**: intellectual property rights, patents, technology, R&D assets

Motivation

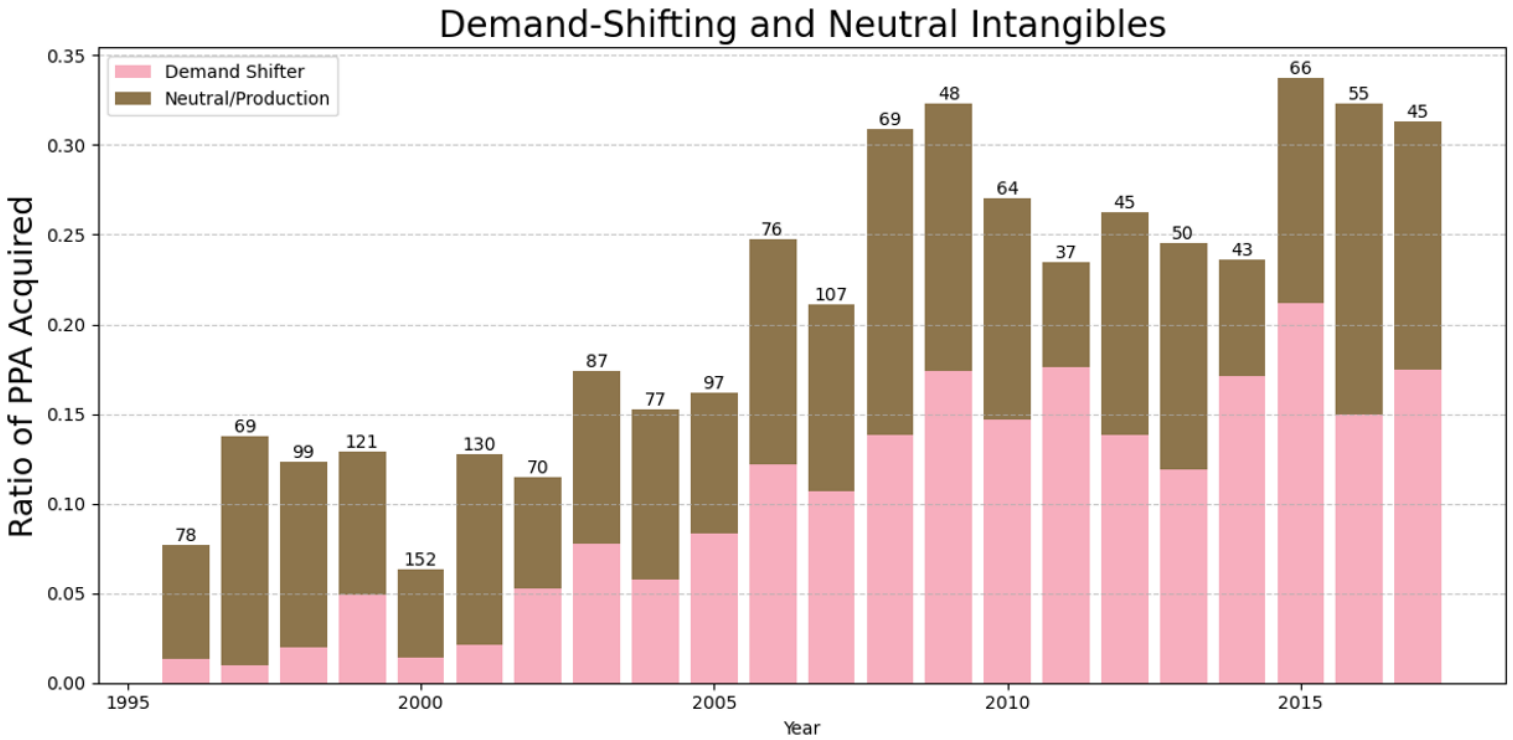


Figure: Increasing Role of Intangibles

- Modern firms increasingly invest in customer-facing intangibles: brand equity, customer data, loyalty programs.
- "Mergers" are now often motivated by acquiring **demand-shifting intangible assets**
  - From the late 1990s to mid-2010s, the share of demand-based intangible assets in M&As grew from less than 5% to over 15%, with some years exceeding 66%.

Purchase Price Allocation (8-K/A Report)

- Under ASC 805, acquirers must allocate the purchase price to identifiable assets at fair value
- This includes separate recognition of intangible assets such as customer relationships, trademarks, and technology

* These allocations are disclosed in 8-K, 10-K, or 10-Q filings and reviewed by auditors

Cash	$	328.9
Accounts receivable		7.1
Inventories		379.3
Other current assets		29.3
Property and equipment		174.8
Goodwill		744.7
Intangible assets		621.2
Accounts payable, accrued expenses and other current liabilities		(177.0)
Other liabilities (mainly deferred income taxes)		(288.0)
Total purchase price		1,820.3
Less: Cash acquired		(328.9)
Total purchase price, net of cash acquired	$	1,491.4

(a) Purchase price allocation

Intangible assets consist of four separately identified assets. First, we identified the Jos. A. Bank tradename as an indefinite-lived intangible asset with a fair value of $539.1 million. The Jos. A. Bank tradename is not subject to amortization but will be evaluated at least annually for impairment. Second, we identified a customer relationship intangible asset with a fair value of $53.0 million which we expect to amortize over a useful life of seven years. Third, we recognized an intangible asset of $24.4 million for favorable Jos. A. Bank leases (as compared to prevailing market rates) which will be amortized over the remaining lease terms, including an assumed renewal. Lastly, we recognized an intangible asset related to the Jos. A. Bank franchise store agreements of $4.7 million which we expect to amortize over 25 years. The allocation of the purchase price to intangible assets as well as their estimated useful lives is preliminary and may be adjusted.

Research Questions

- **Q1.** How do demand-shifting intangibles in M&As affect industry concentration (HHI)?
- **Q2.** How do demand-driven acquisitions influence firm risk compared to production-based intangibles?
  - Why do firms acquiring customer-focused intangibles show higher market beta (β)?
- **Q3.** What are the broader implications for market power, strategy, pricing dynamics, and investor behavior?

Key Findings

Post-Merger Market Concentration:

- M&As with a higher share of demand-shifting intangibles significantly increase **industry concentration (HHI)**.
- The effect is **amplified in markets with high pre-merger HHI** $\Rightarrow$ "rich-get-richer"

Increased Systematic Risk(β) for Demand-Based M&As:

- Acquiring demand-based intangibles tends to increase firms' exposure to systematic risk ($\beta \Uparrow$) $\Leftrightarrow$ Neutral-based intangibles ($\beta \Downarrow$)

* Particularly in markets with high **pre-merger market power (HHI)**

Literature Review: Three Pillars

(1) Industrial Organization: Market Structure and Strategic Assets

- **Tirole (1988), Sutton (1991)**
  Imperfect competition, endogenous sunk cost
- **Gourio & Rudanko (2014)**
  Customer capital deters entry; durable market power
- **Dou et al. (2021)**
  Killer acquisitions raise post-M&A HHI and limit competition

(2) Corporate Finance / Strategy: Intangibles and PPA

- **Dou et al. (2022)**
  M&A classification using PPA disclosures (8-K)
- **Peters & Taylor (2017)**
  Valuing intangibles using R&D and SG&A
- **Lev & Gu (2016)**
  Accounting friction and misvaluation of intangibles

(3) Asset Pricing: Duration, Beta, and Macro Risk

- **Bansal & Yaron (2004)**
  Long-run risk and cash flow duration
- **Gabaix (2011)**
  Granular firm-level shocks and aggregate risk
- **Gormsen & Lazarus (2023)**
  Firm beta as function of duration and discount rate risk

Mechanism

(1) Strategic Channel: Customer Capital Acquisitions

- Customer-based assets (brand, relationship, trademarks) enhance retention, reduce elasticity $\Rightarrow$ markup $\uparrow$ [Dou et al. 2022, Lev & Gu 2016]
- Frequently target rivals' customer bases $\Rightarrow$ HHI $\uparrow$ [Dou et al. 2021, Gourio & Rudanko 2014]

(2) Risk Channel: Macroeconomic Sensitivity of Demand-Linked Cash Flows

This raises the covariance between firm cash flows and aggregate conditions:

$$CF_{i,t} = \phi_i \cdot D_t^A + \varepsilon_{i,t}$$

$$\Rightarrow \beta_i = \frac{\text{Cov}(r_i, r_m)}{\text{Var}(r_m)} \uparrow$$

- Demand-side intangibles stabilize idiosyncratic risk but increase exposure to macro consumption cycles
  - * Gourio and Rudanko (2014, RES) : customer capital and macro sensitivity.

Asset Pricing Implication: Customer capital extends cash flow duration and increases sensitivity to consumption shocks [Bansal & Yaron 2004, Gomes 2009]

Key Contribution

(1) Demand-Based Intangibles and Post-M&A Market Power

- Construct a novel classification of M&As targeting **demand-shifting intangibles**: brand equity, customer relationships
- Show that these M&As significantly increase post-merger industry concentration (HHI)
- Effect is strongest in already concentrated industries [extends: Dou et al. 2021, Sutton 1991]

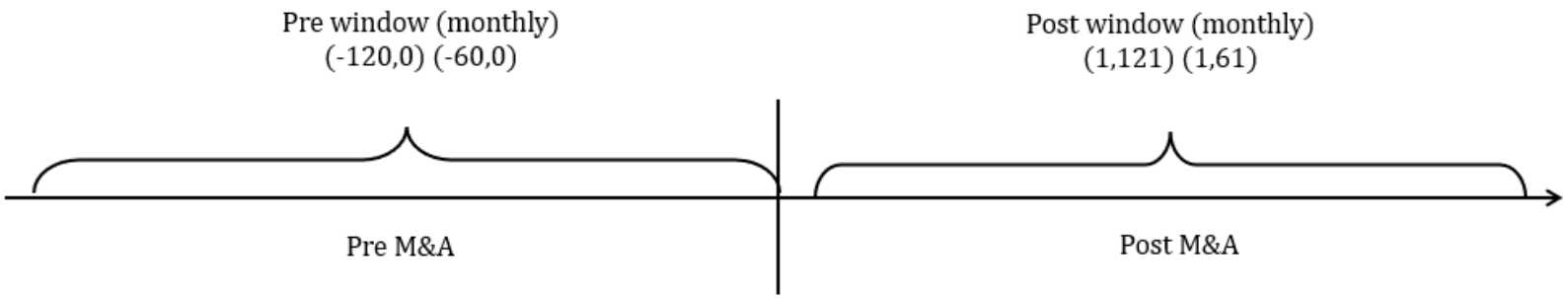
(2) From CAR to Beta: Long-Horizon Risk

- Most M&A studies focus on short-run CAR; we analyze **systematic risk exposure** (beta)
- Find that firm-level market β **increases persistently** after demand-side M&As
- Interpreted as shift in cash flow covariance due to macro-sensitive customer demand [relates to: Gormsen & Lazarus 2023, Belo et al. 2014]

Empirical Analysis

CAPM-Based Estimation

Examine how the market beta of acquiring firms "changes" after acquiring intangible assets through M&A.



$$\begin{cases} R_{i,acq} - R_f = \alpha_{pre,acq} + \beta_{pre,acq}\left(R_m - R_f\right) \\ R_{i,tgt} - R_f = \alpha_{pre,tgt} + \beta_{pre,tgt}\left(R_m - R_f\right) \end{cases}$$

$$R_i - R_f = \alpha_{post,acq} + \beta_{post,acq}\left(R_m - R_f\right)$$

$$\rightarrow \beta_{pre} = \frac{A_{acq}\beta_{pre,acq} + A_{targ}\,\beta_{pre,targ}}{A_{acq}+A_{targ}} \text{ (mkt cap weighted)}$$

Figure: CAPM-Based Beta Estimation around Merger Events

Methodology

(1) Model Specification:

- Monthly CAPM:

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_i(R_{m,t} - R_{f,t}) + \varepsilon_{i,t}$$

  - β_i: Systematic risk exposure, α_i: alpha
- (Pre, Post), (Acquirer, Target)

(2) Structural Change in Beta

- Benchmark beta (β_{pre}) computed as (synthetic method):

$$\beta_{\text{pre}} = \frac{A_{\text{acq}} \cdot \hat{\beta}_{\text{pre,acq}} + A_{\text{targ}} \cdot \hat{\beta}_{\text{pre,targ}}}{A_{\text{acq}} + A_{\text{targ}}}$$

  - A denote the market capitalizations.
- Post-merger beta change:

$$\Delta\beta = \beta_{\text{acq}}^{\text{post}} - \beta^{\text{pre}}$$

  - Interpreted as structural risk shift beyond pre-merger expectation

+ Industry Concentration (HHI):

- SIC3-based HHI:

$$\text{HHI}_{s,t} = \sum_{j \in s} \left(\frac{\text{sales}_{j,t}}{S_{s,t}} \right)^2, \qquad \underbrace{S_{s,t} = \sum_{j \in s} \text{sales}_{j,t}}_{\text{total industry sales in SIC3 } s}$$

Results

Summary Statistics

Panel A. Market Structure

Variable	Acquire			Target		
	Neutral (0)	Demand-shifter (1)	Diff (1−0)	Neutral (0)	Demand-shifter (1)	Diff (1−0)
HHI (Herfindahl Index)						
HHI_{pre}^{Acq}	0.078	0.141	0.063	0.084	0.169	0.085
HHI_{post}^{Acq}	0.075	0.158	0.083			
ΔHHI^{Acq}	**-0.003**	**0.021**				
Sales Share (Industry Relative)						
SS_{pre}^{Acq}	0.025	0.087	0.062	0.003	0.045	0.042
SS_{post}^{Acq}	0.028	0.103	0.075			
ΔSS^{Acq}	0.002	0.019				
Dominance Score (DS)						
DS_{pre}^{Acq}	0.792	0.799	0.007	0.581	0.677	0.096
DS_{post}^{Acq}	0.842	0.855	0.013			
ΔDS^{Acq}	0.044	0.049				
TNIC-based HHI						
$hhi_{pre}^{tnic,Acq}$	0.160	0.247	0.087	0.144	0.240	0.096
$hhi_{post}^{tnic,Acq}$	0.154	0.258	0.104			
$\Delta hhi^{tnic,Acq}$	**-0.002**	**0.016**				
Markup (μ)						
μ_{pre}^{Acq}	1.080	1.113	0.033	0.814	1.018	0.205
μ_{post}^{Acq}	1.088	1.121	0.033			
$\Delta\mu^{Acq}$	0.001	-0.002				

Acquiring demand-shifting intangible assets leads to stronger increases in both market concentration (HHI) and industry share (Sales Share).

H1: Demand-shifting M&A and Market Concentration

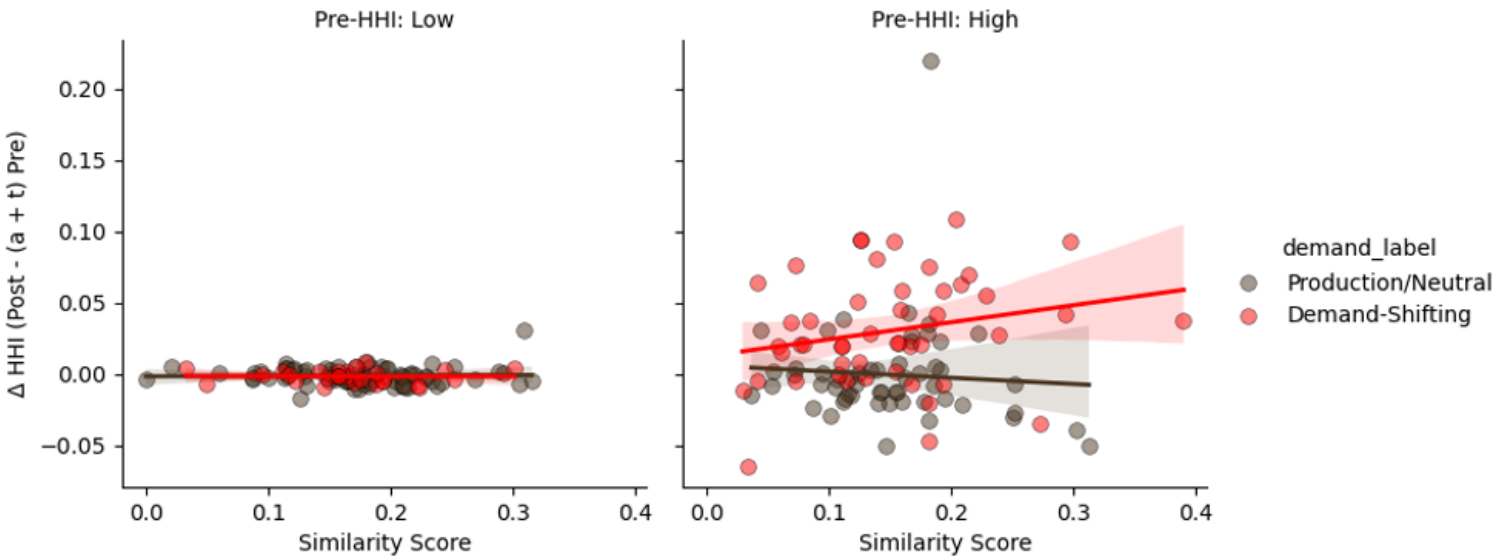
$$\Delta HHI_{jt} = \alpha + \beta_1 \cdot \text{Demand}_{jt} + \beta_2 \cdot \text{PreAcqHHI}_{jt} + \beta_3 \cdot \text{Similarity}_{jt}$$
$$+ \boxed{\beta_4} \cdot \text{Demand}_{jt} \times \text{PreAcqHHI}_{jt} \times \text{Similarity}_{jt} + \gamma_t + \delta_j + \varepsilon_{jt}$$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable				$\Delta HHI_{sic3,60}$				
Constant	-0.003	-0.010***	-0.011	-0.020	-0.004	0.005	0.005	-0.012
	(-1.10)	(-3.16)	(-1.29)	(-1.30)	(-1.47)	(0.57)	(0.57)	(-0.78)
Demand Shift M&A	0.024***	0.018***	0.007	0.049**	0.014***	-0.006	0.005	0.038*
	(5.61)	(4.16)	(0.54)	(2.48)	(3.63)	(-0.47)	(0.36)	(1.82)
Pre Acq HHI		0.094***	0.160**	0.268				0.273
		(3.94)	(2.57)	(1.60)				(1.63)
Demand × Similar			0.083	-0.184*		0.098	0.006	-0.180
			(1.36)	(-1.65)		(1.53)	(0.08)	(-1.52)
Similar			-0.012	0.038		-0.022	-0.022	0.015
			(-0.29)	(0.47)		(-0.53)	(-0.53)	(0.18)
Demand × Pre Acq HHI			-0.076	-0.375**				-0.425**
			(-1.13)	(-2.11)				(-2.36)
Pre Acq HHI × Similar				-0.609				-0.452
				(-0.69)				(-0.51)
Demand × Pre Acq HHI × Similar				$\boxed{1.856^{*}}$				$\boxed{2.285^{**}}$
				(1.96)				(2.25)
Pre Targ HHI					0.031*	-0.031	-0.031	-0.074
					(1.82)	(-0.66)	(-0.66)	(-1.58)
Demand × Pre Targ HHI						0.078	0.024	0.124**
						(1.51)	(0.40)	(2.02)
Demand × Pre Targ HHI × Similar							$\boxed{0.494^{*}}$	−0.393
							(1.78)	(-1.15)
Demand × Pre Targ HHI × Pre Acq HHI × Similar								−1.249
								(-1.48)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.079	0.117	0.179	0.231	0.095	0.132	0.146	0.261

H1: Key Findings

Interpretation: Demand-shifting M&As contribute more to market concentration when they occur in already concentrated industries and among product-market similar rival

Figure: Change of Market Concentration and Demand-shifting M&A



- **Neutral M&As** (Demand $= 0$): "Competition" $\Rightarrow \Delta\text{HHI} = -0.003$
- **Demand-shift M&As** (Demand $= 1$): "Concentration" $\Rightarrow -0.003 + 0.024 = 0.021$
- **Triple interaction term Demand $\times$ Pre-Acq HHI $\times$ Similarity** β_4:
  $\Rightarrow$ Increases ΔHHI by an additional **4–5%p** when both:
  (1) Pre-merger HHI is high
  (2) Product similarity is high

H2: Risk Measures - Summary Statistics

(1) Long-Window Estimates (Monthly-Based, 120m)

Category	IVOL (Pre)	IVOL (Post)	Beta (Pre)	Beta (Post)
Demand-shifting	0.073	0.063	1.051	1.046
Neutral	0.080	0.067	1.007	0.973

Note: Based on rolling regressions over 120 month returns before and after M&A announcements.

(2) Short-Window Price and Market Reaction

Category	IVOL (Post)	CAR(-1,+1)	PEAD (2-5)	PEAD (2-60)
Demand-shifting	0.014	0.009	0.015	-0.026
Neutral	0.016	-0.002	-0.006	-0.038

Note: Event-window measures using market-adjusted returns. CAR is cumulative abnormal return in [-1,+1] days, PEAD is post-earnings announcement drift over days [2–5] and [2–60]. IVOL here is 252-day forward rolling volatility. Weighted by lagged market cap.

H2. Systematic Risk Exposure - Portfolio Table

Goal: Demand-shifting M&As not only reshape market structure but also alter firms' exposure to systematic risk.

$$\Delta\beta_i = \beta_{\text{post}} - \beta_{\text{pre}}$$

		Q1	Q2	Q3	Q4	Q5 (High)
Panel A: Acquirer by Pre-Merger HHI (EW)						
DS (Acq)	Neutral	0.015	0.028	0.013	0.045	**0.050**
	Demand	0.009	0.013	0.026	0.082	**0.202**
Panel C: Acquirer by Dominance Score (EW)						
DS (Acq)	Neutral	0.001	0.003	0.009	0.026	**0.084**
	Demand	0.012	0.039	0.070	0.145	**0.238**

Note: Table shows equal-weighted $\Delta\beta$ sorted by pre-merger concentration and dominance. Stronger increases follow demand-based M&As.

- Beta rises are concentrated among dominant acquirers in demand-shifting M&As and concentrated industries.

$$\Rightarrow \text{Strategic market repositioning} \uparrow \text{risk}$$

* Note: Target firms show smaller effects, unless they are also dominant

H2: Key Table

Main Regression

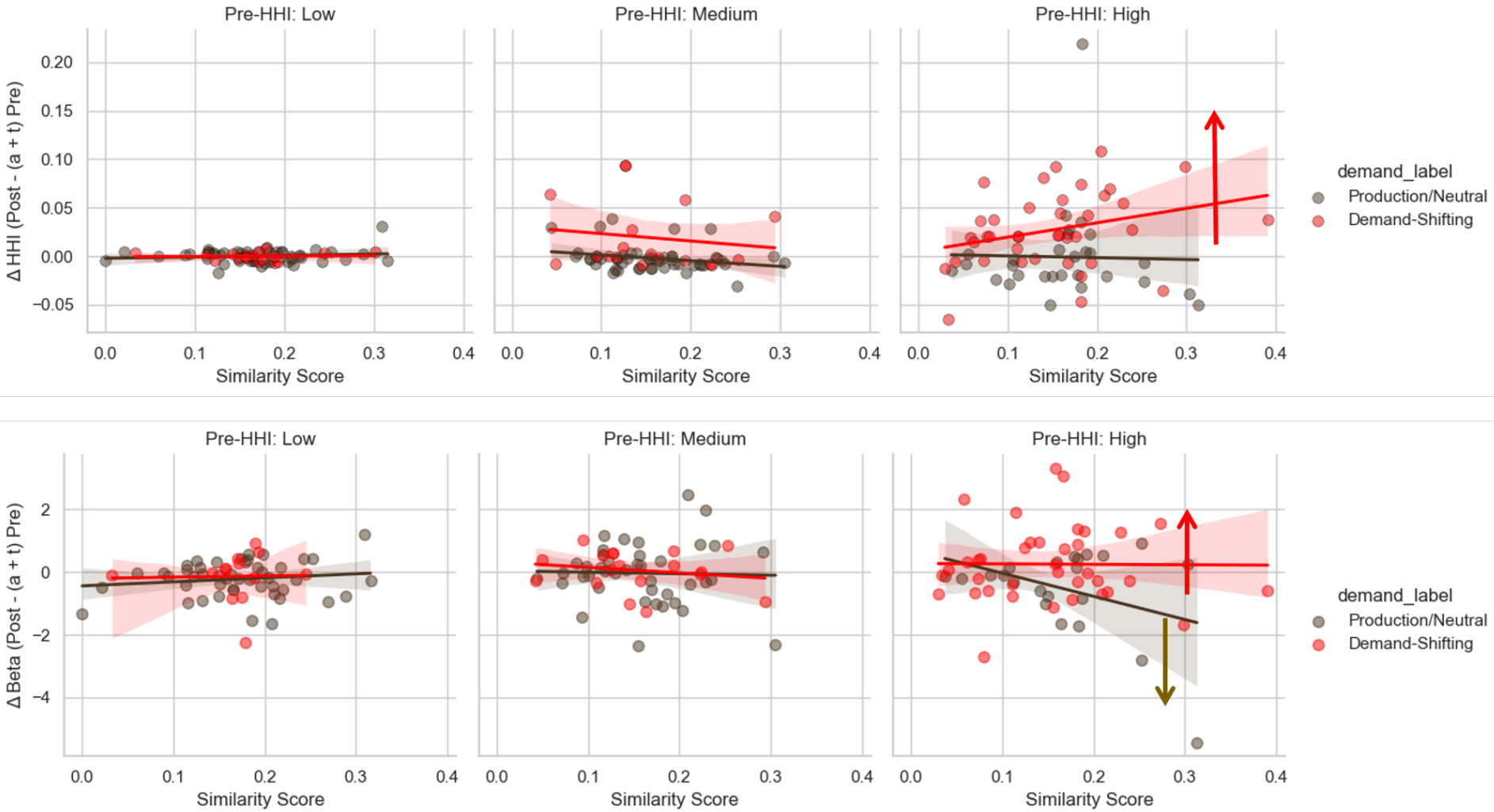
$$\Delta\beta_{i,60} = \alpha + \beta_1 \cdot Demand_i + \beta_2 \cdot DS_i^{Acq} + \beta_3 \cdot HHI_i^{pre}$$
$$+\beta_4 \cdot (Demand_i \times DS_i^{Acq}) + \boxed{\beta_5} \cdot (Demand_i \times DS_i^{Acq} \times HHI_i^{pre}) + \varepsilon_i$$

* Pre-merger HHI, Acquirer dominance score (DS)

Variable	**Coef.**	***t*-stat**	**Significance**
Constant	−1.128	−2.63	***
Demand M&A	−0.165	−0.69	
Dominance (DS)	1.577	3.55	***
Pre-merger HHI	−5.695	−2.82	***
Demand × DS × HHI	6.201	2.41	**

- **Triple interaction:** 6.201 with $t = 2.41 \Rightarrow$ strong amplification when:
  (1) M&A is demand-shifting
  (2) Acquirer is dominant
  (3) Industry is already concentrated
- Demand-based M&A alone does not raise beta significantly.
- Dominant firms experience higher post-M&A beta.

Figure: Impact of Δ HHI, $\Delta\beta$ across Pre-Merger HHI



Implications

Antitrust Implications:

- Increased market concentration could raise antitrust concerns, especially when M&As involve demand-shifting assets that bolster market power (e.g., brands, customer loyalty).
- Regulatory bodies should be cautious of deals that reinforce market dominance through brand equity or consumer relationships.

Investor Implications:

- Investors need to account for the dual impact of demand-shifting M&As on firm risk: heightened market power and increased exposure to macroeconomic risk.
- A firm's risk might increase if its future revenues are highly sensitive to consumer demand cycles.

Conclusion

- Demand-based M&As reshape industry structures by increasing concentration and amplifying systematic risk for acquiring firms.
- This study highlights the strategic importance of consumer-facing intangibles in modern M&As.
- As intangible assets like customer loyalty become more critical, understanding their role in shaping market competition and firm risk is increasingly crucial for both policymakers and investors.

Thanks for listening!