One chain, five baskets: how a value chain's classification decides its pricing

一条链，五个筐：为什么产业链的分类方式决定了它的定价

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From The Qian Xuesen Institute

Glacier Institute（庚辛研究院） | Working Paper No. GI-WP-2026-P10-EN | Date: 2026-09-22 | Language: English, with Chinese title and abstract

Cite as:

Glacier Institute (2026). One chain, five baskets: how a value chain's classification decides its pricing. Glacier Institute Working Paper GI-WP-2026-P10-EN. https://glacier.mba/research/GI-WP-2026-P10-EN.html

庚辛研究院（2026）. 《一条链，五个筐：为什么产业链的分类方式决定了它的定价》. 庚辛研究院通讯论文 GI-WP-2026-P10. https://glacier.mba/research/GI-WP-2026-P10.html

Key Takeaways

1. **The bucket picks the ruler, and the ruler picks the number.**
2. **One financial statement, read out of three buckets, is three different stories.**
3. **Five sets of buckets run at once, and they never notify one another.**
4. **A bucket-spanning company is usually not counted by both sides but counted by neither.**

Abstract

Whether a company is filed under an application industry or under a base capability determines which peers it is measured against, which language the investment committee uses, and how much deviation it is allowed. This paper argues that in the primary market, classification is not the background to pricing; classification is itself a pricing device. By the time price is discussed, half the outcome has already been fixed by the filing. It answers two founder questions: why identical data draws opposite reactions from different investors, and whether a company should contest its own category.

The mechanism comes from two literatures that rarely meet. One is categorisation research in organisational sociology: objects that span two categories are systematically discounted, because evaluators' cognition and their own professional division of labour both run by category. The other is comparable-company valuation in accounting and finance: changing the peer set changes valuation error and multiples materially, and peer sets are usually copied straight from an industry taxonomy. From both ends the same point emerges: the bucket picks the ruler, and the ruler picks the number.

Evidence comes from three public classification systems anyone can download. Counting line by line from the official files, their finest levels hold 1,012, 83 and 173 categories respectively, a twelvefold spread in resolution over one economy. A seam is then quoted verbatim from the official definitions: one physical device class falls into two categories that already diverge at the four-digit level, solely according to whether the variable it measures is pressure. No company is named anywhere.

A self-audit table follows: twelve externally observable signals, each with the bucket it points to and how to verify it. The claim is stated as a falsifiable proposition, with four boundaries. This paper is about the classification device, not about any company's valuation; no transaction record appears, and no figure of the Institute's own.

Keywords: primary market; industry classification; categorisation; comparable-company valuation; peer set; taxonomy; hard technology

* **Disclosure:** Glacier Institute is the research arm of Glacier Capital, and this paper is issued under the name of Glacier Institute. In the course of its business, Glacier Capital acts as financial adviser to a number of technology companies and invests its own capital in some of them; such relationships may overlap with the industries discussed here. This paper does not concern any specific mandate and uses no non-public information; all company, industry and data references are drawn from public sources and cited individually. The authors received no third-party compensation for this paper.

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JEL Classification: C81（数据收集与数据估计方法）, G24（投资银行与创业投资）, G32（融资政策与企业价值）, L22（企业组织与市场结构）, L25（企业绩效）

摘要 (Chinese abstract)

同一家公司，被归进「某个应用行业」还是归进「一类基础能力」，面对的是完全不同的可比公司、不同的投委会话术、不同的容忍度。本文主张：在一级市场里，分类不是定价的背景，分类本身就是定价装置。机制来自两支互不相识的文献——组织社会学的范畴化研究与会计金融学的可比公司估值研究。证据来自三套公开分类体系：本文逐行统计得到三套体系最细一层分别为 1,012 个、83 个与 173 个筐；并从官方定义里逐字抄出一处缝。在此基础上给出一张「归类自查表」。本文不点任何公司名，不出现任何交易记录，不出现庚辛自身的任何数字。

Keywords (Chinese): 一级市场；产业分类；范畴化；可比公司估值；对标；分类体系；硬科技

1. The Problem: One Company, Two Buckets, Two Exam Papers

A company makes tactile sensing. It can be written up as a robotics component company, as a sensor company, or as a materials company. All three describe the same patents, the same production line, the same customers.

But the three descriptions map onto three different things: three different peer sets, three different multiple ranges, three different investment-committee vocabularies, three different notions of what counts as normal. Filed under robotics, they look at your unit shipments. Filed under sensors, they look at your yield and unit-price curve. Filed under materials, they look at your qualification cycle and patent moat. One financial statement, read out of three buckets, is three different stories.

The Glacier Institute names this step:

> 「比分类更早的一步，是被谁分类。同一家公司，被归进某个应用行业，还是被归进一类基础能力，对应的是完全不同的对标 (comparable)、投委会话术与容忍度。早期商业化往往只有一个场景，事实层面也确实像那个行业。这张牌不争，估值的锚就被别人先钉住了。」
>
> *The step that comes before classification is being classified by someone. The same company, filed under an application industry or under a base capability, faces entirely different comparables, a different investment-committee vocabulary and a different tolerance. Early commercialisation often has only one scenario, and on the facts it really does look like that industry. Do not contest this card and someone else nails the valuation anchor first.*
>
> — Glacier Institute website, /institute.html [1]

That passage appeared once in the published working paper GI-WP-2026-P1, in a single paragraph, as a preliminary note to the valuation-band framework [2]. This paper completes it: if the step really does come before classification, it deserves a full account of the mechanism, a table you can audit yourself against, and a proposition that can be refuted.

The division of labour with two companion papers is stated here to avoid overlap. P1 is about **segments**: cutting 0–100B USD into three, one exam paper each, answering "which segment" [2]. P3 is about **migration**: value moving along the chain from the whole machine toward perception and actuation components, answering "where the value on the chain is going" [3]. This paper is about **the classification device itself**: answering "by which set of buckets are we being measured". The relation: buckets come first (this paper), then segments (P1); value migrates along the chain (P3) while the buckets usually do not move with it — and that lag is the source of counter-example three in Section 8.

This paper answers two questions founders ask. First: why the same deck is praised at one firm and dismantled at another. Second: whether a company should actively contest its filing. Section 10 answers both directly.

The route: Section 2 shows how buckets get made and how many kinds there are; Section 3 gives the mechanism from two literatures; Section 4 brings evidence from three public classification systems; Section 5 sets out the Glacier Institute's published practice; Section 6 gives a self-audit table; Section 7 states the claim as a proposition that can be refuted; Sections 8 and 9 mark the boundaries.

> One financial statement, read out of three buckets, is three different stories.

表 1 / Exhibit 1 Five classification sets running at once, with how each is made and how fast it updates. This paper's compilation. Three of them are checked against public files in Section 4.

Who makes the bucket	How it is made	Update speed	Checked against a public file here
Official statistical classification (census and statistics)	By "what activity the establishment is primarily engaged in", following the production process	On a five-year order	Yes, Section 4 [15][16]
Market index classification (portfolios and comparison)	By source of revenue and the market's evaluation habits	Annual review	Yes, Section 4 [17]
Tender and procurement catalogues	By the buyer's budget line	With the buyer's budget cycle	No; public availability varies
An investment firm's internal sector map	By partner coverage and the fund's mandate	With the fund cycle	No; not public
Media and popular usage	By whichever story is easiest to tell	With the news cycle	No; no stable version

图 1 / Exhibit 2 One and the same description of activity, falling into five different buckets under five classification systems. The figure is this paper's own synthesis; how each system is built and how fast it updates come from Table 1 in this section, and the five landing points come from the body of the same section. No company is named in the figure; it refers only to "one description of activity".

2. Where Buckets Come From: Five Buckets, Five Ways of Making Them

2.1 Five buckets on one chain

A hard-technology value chain, from base materials to final application, can usually be laid out in five segments: materials and process; devices and components; modules and subsystems; whole machines and products; scenarios and services. A company physically occupies one or a few of these, but **in other people's classifications** it must be put into one bucket.

This paper calls the five segments five buckets, not because this is the only way to cut, but because they stand for five different pricing logics: the closer to the materials end, the more the moat and the qualification cycle matter; the closer to the scenario end, the more revenue and repeat purchase matter. Which bucket a company is put in decides which question the investment committee asks first.

图 2 / Exhibit 3 How classification travels through the comparable set into pricing, and the bucket-spanning branch. The figure is this paper's own synthesis; the two mechanisms on the main chain come from Sections 3.1 and 3.2, and the bucket-spanning branch from Section 3.1. No multiple, price or company name appears in the figure.

2.2 Five kinds of bucket-maker

Worse: more than one party makes buckets, and each makes its own. In practice at least five sets run at once.

The point of Table 1 is not which set is more accurate; it is that **they are not synchronised**. A company can simultaneously be a component in the official statistics, an instrument in the index classification, software in the procurement catalogue, robotics on some firm's sector map, and a "humanoid robot concept" in the press. These five identities never notify one another and never correct one another.

2.3 Why this is worst at an early stage

A mature company has a revenue mix to speak for it: lay out the share of revenue by segment and the filing argument mostly ends. An early company has no such thing. The Glacier Institute's original text goes straight to the sore point:

> 「早期商业化往往只有一个场景，事实层面也确实像那个行业。」
>
> *Early commercialisation often has only one scenario, and on the facts it really does look like that industry.*
>
> — Glacier Institute website, /institute.html [1]

"On the facts it really does look like" is the key phrase: this is not a misjudgment. An early company's only landed scenario is in that application industry, and anyone classifying by the facts would file it there. So contesting a filing is not correcting an error; it is asserting a **future that the facts do not yet fully support** — and the difficulty and the risk of doing so belong in this paper's boundaries (Section 8).

> Five sets of buckets run at once, and they never notify one another.

3. Mechanism: Why a Bucket Can Decide a Number

3.1 Spanning two buckets costs you a discount

Organisational sociology has a repeatedly confirmed result. Zuckerman [4] studied the relation between US listed companies and securities analysts and found that analysts are organised by industry: a company whose business spans analyst industry lines is covered by fewer analysts, and thin coverage brings a valuation discount. He called it the categorical imperative — **to be evaluated by a market, you must first land inside the evaluators' classification.** And firms respond: spanning too widely creates pressure to pull back into one bucket.

Hsu [5] found the same direction in a completely different setting: films spanning multiple genres are rated lower by both audiences and critics, and find it harder to attract resources. Hsu, Hannan and Koçak [6] turned this into a general theory with two empirical tests:

表 2 / Exhibit 4 Levels and category counts of three public classification systems. The NAICS figures were counted by this paper line by line from the official structure file [16] (the six-digit and four-digit counts agree between the structure file and the description file, cross-checking each other); the SIC figures were counted by this paper from the public manual page [17]; the ICB figures are as published on that system's official page [18]. "Finest level" means the finest granularity that system publishes.

System	Publisher	Intermediate levels	Finest level	Categories at the finest level	How obtained
NAICS 2022	US Census Bureau	96 three-digit; 308 four-digit	Six-digit (US industries)	**1,012**	Counted line by line from the official structure file [16]
SIC	US public classification manual	10 Divisions	Major Group	**83**	Counted from the public manual page [17]
ICB	FTSE Russell (LSEG)	11 Industries; 20 Supersectors; 45 Sectors	Subsector	**173**	As published on the official page [18]

category-spanning objects face both a **cognitive** difficulty (the audience does not know by which standard to judge them) and an **attentional** loss (they do not appear in any single category's search results). Pontikes [7] adds an important qualification: the same ambiguous classification works in opposite directions for different audiences — a deduction with consumers, sometimes a credit with investors, because what investors read out of ambiguity is possibility. Vergne and Wry [8], reviewing the field, gather these threads into one conclusion: categories are both cognitive devices and evaluative devices.

For the primary market: **a bucket-spanning company is usually not counted by both sides but counted by neither.** Early hard-technology companies span by nature — they make a device, serve an application, and talk about a platform. Each of the three is true; together they leave the evaluator without a ruler. Pontikes's qualification explains why this is not entirely bad news in the primary market: here the evaluators are people who buy possibility to begin with. But it also warns of something: **the audience that reads possibility out of ambiguity is investors, not customers, not procurement officers, not regulators.**

3.2 Change the peers and the number changes

Finance and accounting approach the same thing from the other end. Comparable-company valuation works by finding similar firms, taking their multiples, and applying them to the target. The problem is what "similar" means.

Alford [9] tested exactly this: the accuracy of the price-earnings method differs significantly with how the comparable set is chosen, and when chosen by industry, the coarseness of the industry definition itself changes the result. Kaplan and Ruback [10] show that the precision of the comparables method depends on how the comparable set is constructed. Liu, Nissim and Thomas [11] compare classes of multiples systematically, again pointing to the comparable set and the choice of multiple as joint determinants. Bhojraj and Lee [12] dispense with industry classification altogether: they construct "economically comparable" sets from fundamentals and show these explain valuation differences better than industry-based sets — **which confirms from the opposite direction that industry classification carries a systematic bias when used to pick peers.**

Bhojraj, Lee and Oler [13] place four industry classification schemes side by side and test how they differ in explaining stock-price co-movement, financial ratios and valuation multiples. Chan, Lakonishok and Swaminathan [14] show that "industries" under different schemes differ in explaining return co-movement. Hoberg and Phillips [15] rebuild industry boundaries from firms' own product descriptions in their annual filings, producing a classification that differs visibly from the official ones and performs better in explaining several economic variables.

Together these say: **industry classification is not a neutral layer of labels. It is a measurement device with a construction, a bias, and an effect on the number.** It is widely used not because it is accurate but because it is already there.

表 3 / Exhibit 5 Where an activity description lands in NAICS 2022. All codes and category names are quoted verbatim from the official description file [16]; the last column quotes the definition or illustrative example that decides the step. No specific company is involved.

An activity description (no company named)	Six-digit code	Official name of the code	Its four-digit parent	The sentence that decides it (original)
Making pressure-measuring transducers	334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	3345 Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	"industrial process variables, such as temperature, humidity, **pressure**, ..."
Making transducers other than pressure	334419	Other Electronic Component Manufacturing	3344 Semiconductor and Other Electronic Component Manufacturing	"Transducers **(except pressure)** manufacturing"
Making piezoelectric devices	334419	as above	3344 as above	"Piezoelectric devices manufacturing"
Making integrated circuits, memory chips, microprocessors	334413	Semiconductor and Related Device Manufacturing	3344 as above	"integrated circuits, memory chips, microprocesso..."
Making search, detection, navigation and guidance systems and instruments	334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	3345 as above	"manufacturing search, detection, navigation, guidance, aeronautical, and nautical systems and instruments"
Writing, modifying, testing and supporting software for a particular customer	541511	Custom Computer Programming Services	5415 Computer Systems Design and Related Services	"writing, modifying, testing, and supporting software to meet the needs of a particular customer"
Primarily conducting research and experimental development in electronics and allied fields	541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	5417 Scientific Research and Development Services	"conducting research and experimental development ... in the physical, engineering, and life sciences, such as ... electronics"
Making general purpose machinery not covered by any of the above	333998	All Other Miscellaneous General Purpose Machinery Manufacturing	—	The definition opens with a long string of "except"; this is a residual bucket
Making electrical equipment and components not covered by any of the above	335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	—	As above; a residual bucket

3.3 The two literatures together

Section 3.1 is the evaluator side: evaluators are organised by category, and category-spanning objects are discounted. Section 3.2 is the instrument side: pricing tools take peers from a classification, and changing the classification changes the number.

Both paths reach one conclusion, put here in one line: **the bucket picks the ruler, and the ruler picks the number.** By the time price is on the table, the bucket has already happened, and usually nobody has raised it as an item for discussion. The Glacier Institute's original describes exactly that lag: 「这张牌不争，估值的锚就被别人先钉住了」[1] — *do not contest this card and someone else nails the valuation anchor first.*

> A bucket-spanning company is usually not counted by both sides but counted by neither.

表 4 / Exhibit 6 The filing self-audit table. Twelve externally observable signals, each with the bucket it points to and how to verify it. This paper's compilation; the classification facts in rows 1, 4, 5 and 12 come from Tables 2 and 3 and [16]–[18]. The table names no company and contains no figure of the Institute's own.

No.	Signal	Which bucket it points to	How to verify it
1	**Whose pocket the customer's budget comes from**	R&D budget → base-capability bucket; production or procurement budget → application bucket; marketing budget → service bucket	The paying department on the contract or purchase order; the heading of the buyer's project approval document
2	**Which category it is listed under in tender or procurement catalogues**	The catalogue's category name is the bucket the buyer assigns	The category field in public tender notices; the buyer's published catalogue and its version date
3	**What the acceptance criteria are**	Device-level metrics (yield, consistency, lifetime) → device bucket; system-level metrics (cycle time, utilisation) → whole-machine bucket	The acceptance clauses in the technical agreement; the metric list in test reports
4	**Which code is reported in the official statistical classification**	A manufacturing code → manufacturing bucket; an R&D services code → services bucket (see row 7 of Table 3)	The company's own statistical filings; the industry code and vintage year in annual or registry records
5	**Which authority regulates it**	The regulating body is a statutory bucket	The issuing authority named on licences, filings, and test certifications
6	**The dominant layer in job titles being hired**	Whichever layer appears most often in job titles is the bucket the market reads	Public job listings over the past year; keyword distribution over titles
7	**Who lists you as a competitor**	Whoever benchmarks against you has put you in their bucket	Comparison tables in others' public materials; how third-party reviews group you
8	**Which word the press uses**	The head noun in article headlines is the public's bucket	Headline word frequency in public coverage over the past year, with the window stated
9	**Which hall you are placed in at trade shows**	Hall divisions are the organiser's bucket	The official floor plan and the classification field in the exhibitor directory
10	**Which standards and specifications are cited**	Whichever standards family your documents cite locates the bucket	Standard numbers cited in product documentation and test reports
11	**What kind of customer the upstream supply chain treats you as**	The payment terms, pricing unit and technical support tier your suppliers give reflect the layer they file you in	The pricing unit in purchase contracts (per die, per set, per system)
12	**What the investors in this round have previously backed**	An investor's existing portfolio is the peer set in their head	Publicly disclosed portfolios; distribution across value-chain layers

4. Evidence: Three Public Classification Systems, and One Verbatim Seam

4.1 Sources and method

Three publicly available classification systems are used:

1. **The North American Industry Classification System, 2022 edition (NAICS 2022)**, published by the US Census Bureau. This paper downloaded the official structure file and description file (.xlsx), counted entries at each level line by line, and quoted several six-digit entries verbatim from the description file [16].
2. **The Standard Industrial Classification (SIC)**, from the public classification manual page of the US Department of Labor's Occupational Safety and Health Administration [17]. Levels and major-group counts were taken from that page.

3. **The Industry Classification Benchmark (ICB)**, published by FTSE Russell (LSEG); the level structure is taken as published on its official description page [18].

The counting method and script are archived in the working-papers directory listed in the writing notes. This paper does only two things here: count entries and quote definitions. No weighting, estimation or extrapolation was performed, and no company was placed in any bucket.

4.2 One economy, finest level ranging from 83 to 1,012

Table 2 reads one way only: **over the same economy, the finest level holds between 83 and 1,012 categories — a twelvefold spread.** This is not a question of right and wrong; the three serve different purposes. A census system cuts by production process because it needs statistical additivity; a market system cuts by revenue source because it needs portfolio comparability. But for a specific company the consequence is concrete: **which system you use to find peers determines which firms you find.** And the research in 3.2 says that once that set changes, the number changes with it.

This also explains a common puzzle in practice: two firms value the same company very differently, and each can produce a self-consistent peer set. The two peer sets may come from two classification systems that already parted ways at this point.

4.3 A verbatim seam: one parenthesis decides the bucket

Table 2 is about coarseness. This section is about boundaries — the same class of device falling into two buckets because of one parenthesis in a definition.

In the NAICS 2022 description file, the illustrative examples for six-digit code 334419, "Other Electronic Component Manufacturing", read verbatim:

> "Transducers (except pressure) manufacturing"
>
> — NAICS 2022 official description file, entry 334419, Illustrative Examples [16]

In the same file, the definition of six-digit code 334513, "Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables", reads:

> "These instruments measure, display, or control (monitor, analyze, and so forth) industrial process variables, such as temperature, humidity, pressure, vacuum, combustion, flow, level, viscosity, density, acidity, concentration, and rotation."
>
> — NAICS 2022 official description file, entry 334513 [16]

Put the two side by side: within the transducer class, **the pressure-measuring ones** are explicitly excluded by 334419's illustrative examples, while "pressure" is one of the industrial process variables enumerated in 334513's definition. The same class of physical device lands in two different six-digit codes according to whether the variable it measures is pressure.

How far apart are those two codes? This paper looked up their parents in the same official file:

Three usable conclusions follow.

First, that parenthesis parts ways at the four-digit level. The parent of 334513 is 3345 (navigational, measuring, electromedical and control instruments), while the parent of 334419 is 3344 (semiconductors and other electronic components). Which is to say: "what variable it measures", a detail that looks purely technical, pushes the company onto two different industrial paths — **instruments** and **components** — whose peer sets, margin structures and valuation multiples all differ. The Glacier Institute's phrase 「被归进某个应用行业，还是被归进一类基础能力」[1] — *filed under an application industry, or under a base capability* — has a literal counterpart in this official file.

Second, the real danger is not being misfiled but being filed in a residual bucket. Codes 333998 and 335999 in the last two rows have official definitions consisting of a string of "except". A company landing there has no peers in that system — and the research in 3.1 says that without peers there are no evaluators, and without evaluators there is no coverage [4][6]. **A residual bucket is not a neutral position; it is the position with the deepest discount.**

Third, "primarily engaged in R&D" moves a company out of manufacturing altogether. Code 541715 in the seventh row sits in sector 54 (Professional, Scientific, and Technical Services), while the manufacturing codes in the first six rows sit in sector 33. A company that is R&D-led and not yet in volume production, classified by the rule of "what it is primarily engaged in", may well be filed under services. Its peers then change from manufacturers to R&D service

providers — two groups with entirely different asset structures and valuation logics. **This is the cell early hard-technology companies fall into most easily.**

What this paper does **not** do should be stated: no real company was placed in any code, no count or valuation level was computed for any code, and no multiples were compared across codes. That would require a dataset with company identifiers, which is outside this paper's material. Section 9 lists this as a gap.

记忆点 · KEY POINT

A residual bucket is not a neutral position; it is the position with the deepest discount.

5. The Glacier Institute's Practice: Settle the Bucket, Then Discuss Price

What follows is the Glacier Institute's published practice. The original sentences are taken from the website and published working papers without rewriting; what this paper adds is a re-ordering by classification device.

5.1 Price is a conclusion, not a starting point

> 「创始人常问我们：这一轮该报多少？」
>
> *Founders often ask us: what should we ask for this round?*

> 「我们先把看法说在前面：这个问题问早了。谈价之前有一个更基本的问题——这家公司此刻站在哪个价格带里。为什么？」
>
> *Let us put our view up front: that question comes too early. Before price there is a more basic question — which price band this company stands in right now. Why?*

> 「因为价格是结论，不是起点。」
>
> *Because price is a conclusion, not a starting point.*
>
> — Glacier Institute website, /institute.html [1]

These three set the order: classify first, then price. What this paper adds is the reason — the two literatures in Section 3 show that classification is not merely a matter of sequence; it materially changes the number that follows.

5.2 The framework is a classification device, not a pricing device

> 「价格带是分类框架，不是估值承诺：先认带子，再谈价格。」
>
> *The price band is a classification framework, not a valuation commitment: acknowledge the band first, then discuss price.*
>
> — Glacier Institute website, /institute.html [1]

"Not a valuation commitment" is a boundary statement, and this paper adopts it. A classification device answers only "by which ruler are we measured"; it does not answer "what does the ruler read". Using a classification device as a pricing device is the misuse handled in counter-example two of Section 8.

5.3 Answering the previous segment's paper on this segment's question

> 「最常见的错，是拿上一段的答卷去考下一段的题。技术路线讲得再干净，进了跨越段，考的是产业验证；增长数据再漂亮，再上一段，考的是股东结构与全球承载力。为难之处在于，双方都以为在认真对话。」
>
> *The most common error is bringing the previous segment's answer sheet to the next segment's exam. However cleanly the technical route is explained, once you are in the crossing segment the exam is industrial validation; however handsome the growth data, one segment further up the exam is shareholder structure and global carrying capacity. The difficulty is that both sides believe they are having a serious conversation.*
>
> — Glacier Institute website, /institute.html [1]

That passage is about mismatch between segments; this paper transposes the same shape to mismatch between buckets: **bringing this bucket's answer sheet to another bucket's exam.** A company has prepared device-layer evidence (yield, consistency, lifetime) while the other side is asking whole-machine-layer questions (shipments, customer mix, repeat orders). Both are serious, neither is wrong, and they simply do not meet. The category-spanning research in 3.1 [5][6] describes exactly the cost of this situation.

5.4 What the buyer wants is a coordinate

> 「那么，价格带在谈判桌上到底有什么用呢？给对方一把尺子。据我们了解，投资人抗拒的多数不是绝对价格，而是无法定位这个价格——不知道上一轮是谁给的，下一轮又该由谁接。」
>
> *So what is a price band actually for at the table? It gives the other side a ruler. As far as we can tell, what investors resist is mostly not the absolute price but the inability to locate it — not knowing who set the last round, or who is to take the next.*
>
> — Glacier Institute website, /institute.html [1]

"Unable to locate it" is the everyday version of 3.1's conclusion: an evaluator needs a category before evaluating. Give no bucket and the other side's question is not "is this expensive" but "I do not know how to think about this" — which is far harder to answer.

5.5 A bucket is not chosen

> 「会不会有公司天生就该在更高的带子里？会啊。但是带子不是自己挑的，是被这三张考卷判出来的。」
>
> *Are there companies that belong in a higher band by nature? Certainly. But the band is not picked by you; it is decided by those three exam papers.*
>
> — Glacier Institute website, /institute.html [1]

> 「反过来，先押一个数字再倒着找理由，等于把整轮建在沙子上。」
>
> *Conversely, betting on a number first and then reverse-engineering reasons for it builds the whole round on sand.*
>
> — Glacier Institute website, /institute.html [1]

These two are the source of this paper's most important boundary. Contesting a filing is not picking a bucket you like. It is **producing evidence for the bucket you are in until the other side accepts it** — not asserting it. Counter-example one in Section 8 returns here.

5.6 Classify by situation, not by sector label

> 「目前看，按处境分类比按赛道分类命中得多。」
>
> *So far, classifying by situation hits far more often than classifying by sector.*
>
> — Glacier Institute website, /institute.html [1]

The original sentence is about profiling investors, not about filing companies. It is listed here because it provides a methodological mirror: **the same logic of "classification", applied to a different object, yields a different conclusion.** When classifying investors, their present situation beats their sector label; then when classifying companies, does their actual position on the value chain also beat their sector label? This paper argues that it does, and that is exactly what the table in Section 6 asks row by row.

记忆点 · KEY POINT

A bucket is not picked; it is evidenced until the other side accepts it.

6. The Tool: A Filing Self-Audit Table

The first five sections compress into one table. Table 4 lists twelve signals observable from **outside**. The way to use it: read each row for the bucket it currently points to, then see whether all twelve point at the same one. The more scattered, the higher the risk of ending in a residual bucket.

The table deliberately collects only **externally observable** signals. How a company describes itself is not on it — self-description is not evidence, which is what the whole of Section 3 is about: the bucket is given by others.

The twelve rows fall into three groups. Rows 1 to 5 are **buckets given by institutions**: budget, catalogue, acceptance, statistical code, regulator. The hardest to change, but checkable and evidenceable. Rows 6 to 10 are **buckets given by the market**: hiring, competitors, press, trade-show halls, standards. These drift over time and usually lag the facts. Rows 11 and 12 are **buckets given by counterparties**: how the upstream prices you, and what the investor already holds.

One rule of use: **the rows that point somewhere different are the ones to work on first this round.** Not by changing the facts, but by supplying evidence — making the signals that point to the bucket you want checkable, citable and verifiable.

One more word on row 12. It is often overlooked, and it is the fastest one: an investor's existing portfolio is the peer list in their head. The research in 3.2 says the peer set directly determines the number [9][12]. So when one deck draws two different assessments from two investors, it is usually not that their view of the company differs; it is that their lists differ.

记忆点 · KEY POINT

Self-description is not evidence. The bucket is given by others, so it can only be evidenced from outside signals.

7. A Proposition That Can Be Refuted

The claim of this paper can be written as a proposition, together with the evidence that would refute it.

Proposition. If a company's twelve external signals in Table 4 point in scattered directions (falling into more than two buckets), then within one financing round the dispersion of valuation ranges offered by different firms should be significantly higher than for companies whose signals converge; and its probability of being filed in a residual "other / not elsewhere classified" bucket should be higher.

Corollary one (system level). Any public classification system used to pick peers should contain, at its finest level, residual categories beginning with "other" or "not elsewhere classified", and the members of those categories should be less similar to one another than members of non-residual categories. Table 3 has already quoted two such residual categories verbatim from the NAICS 2022 official description file [16], consistent with the corollary. If some mainstream classification system contained no residual category, or its residual members were not less similar, corollary one is weakened.

Corollary two (evaluator level). Within one classification system, the fewer analysts or investors cover a category, the higher the valuation dispersion of companies in it should be. This is Zuckerman's [4] result transposed to the primary market. If coverage headcount turns out to be unrelated to valuation dispersion, the mechanism here needs revision.

Corollary three (direction). Filing effects should run both ways: being filed into a high-multiple bucket should raise valuations, and being filed into a low-multiple bucket should lower them. If the effect is observed in one direction only — raising but never lowering — then what is being observed is not a classification effect but something else (selective disclosure, for instance), and the proposition must be rewritten.

What would refute the proposition: a dataset with company identifiers, classification fields, and quotes from multiple firms. This paper has no such dataset and does not construct one. Section 9 lists this as a gap. Corollary one has been tested once against a public file and was not refuted; corollaries two and three have not been tested in the primary market by anyone.

> If filing only ever raises and never lowers, it is not a classification effect.

8. Boundaries and Counter-Examples

A framework supported only by favourable cases does not deserve trust. Four situations follow where this paper's claim is known to fail, or must be read in reverse.

Counter-example one: contesting a filing is not picking one. The most dangerous misuse is to read this paper as "find a bucket with high multiples and describe yourself that way". The Glacier Institute's originals close that off:

> 「会不会有公司天生就该在更高的带子里？会啊。但是带子不是自己挑的，是被这三张考卷判出来的。」
>
> *Are there companies that belong in a higher band by nature? Certainly. But the band is not picked by you; it is decided by those three exam papers.*

> 「反过来，先押一个数字再倒着找理由，等于把整轮建在沙子上。」
>
> *Conversely, betting on a number first and then reverse-engineering reasons for it builds the whole round on sand.*
>
> — Glacier Institute website, /institute.html [1]

And Section 2.3 has already noted that for an early company, "on the facts it really does look like that industry" [1] — meaning the bucket obtained by classifying on the facts is usually correct. Contesting a filing has exactly one legitimate form: **bring the evidence for the alternative filing up to the point where it is checkable and verifiable, then hand the judgment to the other side.** If the evidence is not there, do not contest.

Counter-example two: a classification device is not a pricing device. A filing decides which ruler is used, not what it reads. A company that moves into a bucket with a higher average multiple may fare worse than before if it ranks at the bottom of that bucket. The Glacier Institute's phrasing is 「价格带是分类框架，不是估值承诺」[1] — *the price band is a classification framework, not a valuation*

commitment. This paper adopts that boundary: **Table 4 is a self-audit table, not an uplift table.**

Counter-example three: ambiguity is not always bad, and buckets lag. Two layers here.

First layer: Pontikes [7] shows that an ambiguous classification may be a credit with investors, because what they buy is possibility. So the discount in 3.1 is not universal — it holds harder with customers, procurement officers and regulators than with early-stage investors.

Second layer, and the more important one: **classification systems update more slowly than industries change.** The official statistical system in Table 2 is revised on a five-year order. The companion working paper GI-WP-2026-P3 argues that value on the chain is migrating toward the perception and actuation component side [3]; if value moves while the buckets do not, then for some period **the correct filing may not exist in any current system**. Hoberg and Phillips [15], rebuilding industry boundaries from firms' own product descriptions, are one response to that problem. Table 4 therefore does not require all signals to point at one existing bucket; it requires them to point consistently. If twelve signals point consistently at a position no current system contains, that is information, not an error.

Counter-example four: five buckets is this paper's cut, not the only cut. The five-segment division in 2.1 exists to show that pricing logic varies along the chain. It has no official standing and does not correspond to any level of any system in Table 2. Treating it as a standard will produce errors. The one thing this paper does with it is show that the gradient exists — the moat matters more toward the materials end, revenue more toward the scenario end. The gradient has indirect support in the valuation research cited in 3.2; the specific cut points do not.

> Twelve signals pointing consistently at a position no current system contains is information, not an error.

9. The Scope Within Which This Account Holds

One, subject matter. This paper addresses the filing problem for hard-technology companies raising money in the primary market. Public-market industry classification is governed by mandatory rules from exchanges and index providers; the mechanism differs. In mature industries, filing disputes are rare to begin with, because the revenue mix speaks. No extrapolation is made.

Two, geographic scope of the systems. Two of the three systems in Tables 2 and 3 are American, one is published by a British institution as a global scheme. Other jurisdictions have their own systems with different codes and levels. What this paper uses them to show is the shape — that classification systems have a construction, a granularity and residual buckets — **not a filing recommendation for any specific code**. Any company's actual statistical classification is governed by the official rules of its own jurisdiction.

Three, differences in setting across the literature. The categorisation research in 3.1 is set in listed companies and analysts [4], film markets [5], and several consumer and product markets [6][7]. Transposing it to the primary market is this paper's move, not the original authors'. The valuation research in 3.2 is drawn mainly from US listed companies; the primary market has no continuous quotes, so the applicability of multiples is itself weaker there. Both transpositions are stated here rather than buried in the body.

Four, strength of evidence. Every figure and every quoted sentence in Tables 2 and 3 comes from public files and is reproducible. The level counts were made by this paper line by line; the definition sentences are quoted verbatim, with nothing altered. Tables 1 and 4 are this paper's compilation and have not been independently tested. Every original sentence in Section 5 comes from the Glacier Institute's published statements; the re-ordering by classifiability is this paper's.

Five, what it cannot do. This paper gives no filing recommendation for any company, no multiple, range or valuation level, no comparison of valuation levels between categories, and is not investment advice. Table 4 is a list of questions.

Six, an honest gap. What this paper has not done: use a dataset with company identifiers and classification fields to measure the relation between "scattered filing signals"

and "valuation dispersion". That requires placing specific companies in specific codes, which this paper's material does not support and which is not appropriate for this paper to do. Until that work is done, the proposition in Section 7 is a falsifiable working hypothesis.

> This paper gives no filing recommendation for any company. What is in Table 4 are questions, not answers.

10. Conclusion

One value chain has at least five buckets, and at least five parties making them, none of whom notify one another. Which bucket a company lands in decides who it is compared with.

Organisational sociology says evaluators are organised by category, and category-spanning objects are systematically discounted because nobody knows which ruler to use. Valuation research says change the peers and the number changes — and peers are usually copied straight from an industry taxonomy. Counted line by line, three public classification systems hold between 83 and 1,012 categories at their finest level, a twelvefold spread in resolution over one economy. In one official description file, the same class of device lands in two categories that already diverged at the four-digit level, solely by whether the variable it measures is pressure; and an R&D-led company is filed out of manufacturing altogether.

Back to the two questions of Section 1.

Why the same deck is praised at one firm and dismantled at another. Most of the time it is not that their view of the company differs; it is that their peer lists differ. The lists come from the bucket in each of their heads, and that bucket was loaded before the deck was opened. So what needs handling is not the deck but the bucket — ask first which column they have put you in, then decide which evidence to bring.

Whether a filing should be contested. Yes, but in one way only. Not by picking a high-multiple bucket and describing yourself into it — that is 「先押一个数字再倒着找理由」[1], *betting on a number first and reverse-engineering reasons*. The legitimate way is: find the rows among Table 4's twelve external signals that point somewhere different, bring the evidence for each up to checkable and verifiable, and hand the judgment to the other side. If the evidence cannot be brought, do not contest — self-description is not evidence.

Three sentences summarise the paper:

1. The bucket picks the ruler, and the ruler picks the number. By the time price is on the table, this has already happened.
2. A bucket-spanning company is usually not counted by both sides but counted by neither; and a residual bucket is the position with the deepest discount.
3. A bucket is not picked; it is evidenced until the other side accepts it. Self-description is not evidence.

References

Format: author (year). Title. Journal/publisher, volume(issue), pages. DOI or accessible link. Grouped by source tier: primary material is the Glacier Institute's published external statements; secondary material is peer-reviewed literature and public classification-system files. Every entry below was checked on 2026-09-22 by a single script issuing a real request; no unverified entry is listed. Item-by-item results appear in the writing notes.

Primary material (the Glacier Institute's published statements; all quoted sentences come from [1]–[3] unaltered)

[1] Glacier Institute (2026). Glacier Institute website (including the "classify first, then price" and "finding the key" sections and the 0–100B USD valuation band framework). Glacier Capital official website. https://glacier.mba/institute.html (accessed 2026-09-22)

[2] Glacier Institute (2026). *The $0–100bn valuation band: segment structure of the primary market*. Glacier Institute Working Paper GI-WP-2026-P1. https://doi.org/10.5281/zenodo.22869076 (landing page https://glacier.mba/research/GI-WP-2026-P1.html, accessed 2026-09-22)

[3] Glacier Institute (2026). *Value migration in embodied AI: from whole machines to sensing components*. Glacier Institute Working Paper GI-WP-2026-P3. https://doi.org/10.5281/zenodo.22869163 (landing page https://glacier.mba/research/GI-WP-2026-P3.html, accessed 2026-09-22)

Secondary literature (categorisation and market evaluation)

[4] Zuckerman, E. W. (1999). The Categorical Imperative: Securities Analysts and the Illegitimacy Discount. American Journal of Sociology, 104(5), 1398–1438. https://doi.org/10.1086/210178

[5] Hsu, G. (2006). Jacks of All Trades and Masters of None: Audiences' Reactions to Spanning Genres in Feature Film Production. Administrative Science Quarterly, 51(3), 420–450. https://doi.org/10.2189/asqu.51.3.420

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Secondary literature (comparable-company valuation and industry classification schemes)

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[11] Liu, J., Nissim, D., & Thomas, J. (2002). Equity Valuation Using Multiples. Journal of Accounting Research, 40(1), 135–172. https://doi.org/10.1111/1475-679X.00042

[12] Bhojraj, S., & Lee, C. M. C. (2002). Who Is My Peer? A Valuation-Based Approach to the Selection of Comparable Firms. Journal of Accounting Research, 40(2), 407–439. https://doi.org/10.1111/1475-679X.00054

[13] Bhojraj, S., Lee, C. M. C., & Oler, D. K. (2003). What's My Line? A Comparison of Industry Classification Schemes for Capital Market Research. Journal of Accounting Research, 41(5), 745–774. https://doi.org/10.1046/j.1475-679X.2003.00122.x

[14] Chan, L. K. C., Lakonishok, J., & Swaminathan, B. (2007). Industry Classifications and Return Comovement. Financial Analysts Journal, 63(6), 56–70. https://doi.org/10.2469/faj.v63.n6.4927

[15] Hoberg, G., & Phillips, G. (2016). Text-Based Network Industries and Endogenous Product Differentiation. Journal of Political Economy, 124(5), 1423–1465. https://doi.org/10.1086/688176

Public classification-system files (sources of Tables 2 and 3)

[16] U.S. Census Bureau (2022). 2022 North American Industry Classification System (NAICS): official structure file and description file. https://www.census.gov/naics/2022NAICS/2022_NAICS_Structure.xlsx and https://www.census.gov/naics/2022NAICS/2022_NAICS_Descriptions.xlsx (accessed 2026-09-22; the level counts in Table 2 were made by this paper line by line from the structure file, and the code names and definition text in Table 3 are quoted verbatim from the description file)

[17] Occupational Safety and Health Administration, U.S. Department of Labor (n.d.). SIC Manual (Standard Industrial Classification): division and major-group structure page. https://www.osha.gov/data/sic-manual (accessed 2026-09-22; the 10 divisions and 83 major groups in Table 2 were counted by this paper from that page)

[18] FTSE Russell / LSEG (n.d.). Industry Classification Benchmark (ICB) official description page. https://www.lseg.com/en/ftse-russell/industry-classification-benchmark-icb (accessed 2026-09-22; the 11/20/45/173 four-level structure in Table 2 is taken from the figures published on that page)

Verification note: [1] – [3] and [16] – [18] were fetched over HTTP on 2026-09-22 and found accessible (both files under [16] returned 200 and were downloaded and parsed); for [4] – [15], each DOI was resolved against doi.org and its title retrieved from Crossref, matching the entries above. Verification used the `check()` function in `_仓储/_build/refcheck.py`; item-by-item results are in Section 4 of the writing notes.

JEL Classification: C81 (Methodology for Collecting, Estimating, and Organizing Microeconomic Data · Data Access), G24 (Investment Banking · Venture Capital · Brokerage · Ratings and Ratings Agencies), G32

(Financing Policy · Financial Risk and Risk Management · Capital and Ownership Structure · Value of Firms · Goodwill), L22 (Firm Organization and Market Structure), L25 (Firm Performance: Size, Diversification, and Scope)

Appendix: Source Passages Quoted from the Glacier Institute Website

All website quotations are from [1] https://glacier.mba/institute.html (fetched 2026-09-22; plain text after stripping comments, scripts, styles and tags, 6,184 lines). The Chinese originals are given in the body, each followed by an English rendering in italics; the renderings are this paper's and are not the Institute's official English text. Line numbers are listed item by item in Section 1 of the writing notes. The passages are:

- The whole of "Classify first, then price" (「比分类更早的一步，是被谁分类」「价格带是分类框架，不是估值承诺」「因为价格是结论，不是起点」「最常见的错，是拿上一段的答卷去考下一段的题」「那么，价格带在谈判桌上到底有什么用呢？给对方一把尺子」「会不会有公司天生就该在更高的带子里」「先押一个数字再倒着找理由」)
- 「创始人常问我们：这一轮该报多少？」 and 「我们先把看法说在前面：这个问题问早了」
- Investor profiling (「目前看，按处境分类比按赛道分类命中得多」)