

Where the Risk Allocation Is Written

Chile's concession contracts contain no risk-allocation clause. They allocate risk anyway — in a median of 53 separate clauses per contract, and mostly by sharing it. A companion note to *The Optimal Risk-Retention Frontier*.

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Audience: Ministries of Finance and PPP units; transaction advisors; multilateral development bank infrastructure desks; researchers measuring risk allocation empirically **Companion paper:** Austral, *The Optimal Risk-Retention Frontier* (Paper 11) — this note is about **measuring** the quantity that paper optimises. **Evidence base:** the 133 concession contracts of Chile's Ministry of Public Works, read in full: 530 documents of contractual text, 63,159 pages, 46,192 numbered headings, 7,523 classified clauses, 8,216 validated citations from amending acts and rulings back to a specific clause.

Abstract

The Optimal Risk-Retention Frontier derives how much of each risk a Ministry of Finance should keep. Applying it to a real programme requires knowing how much it **currently** keeps — and that turns out to be a measurement problem, not a reading problem.

We read the complete contractual text of Chile's 133 concessions: the bidding terms, their annexes, the clarifying circulars, the amending decrees and agreements. **The phrase "asignación de riesgos" (risk allocation) does not appear anywhere in the text of any of the 128 sets of bidding terms.** "Matriz de riesgos" (risk matrix) appears once, in body text, never as a clause heading. There is no risk-allocation clause, no risk matrix, no annex where the allocation is set out. For a programme routinely described as the best-documented concession framework in the world, that is a striking absence.

It is not, however, an absence of allocation. Reconstructing the allocation from the operative clauses — minimum-revenue guarantees, land and expropriation, catastrophe and insurance, regulatory change, interference with third-party services, environmental cost coverage — we recover a holder, a mechanism and a citation for **618 of the 665 contract × risk cells (93%)** in the five risk categories every contract allocates, and for **126 of the 127 contracts** with bidding terms in the corpus. The allocation is written down. It is simply written **in a median of 53 different clauses per contract** (p25 39, p75 73), a median of 8 per risk category.

The sixth category, currency, is counted separately and for a reason that turns out to be the note's second finding rather than a caveat: in 116 of those 126 contracts **there is no currency clause at all**, and that is not a gap in our reading. Section 4.1 gives the evidence.

Two findings follow, and both bear on the frontier. First, the Chilean State is **already in a shared-risk regime**: of the 618 reconstructed cells, **488 (79%) share the risk** between the parties through an explicit mechanism — a band, a revenue guarantee, insurance, revenue or cost sharing, a variable concession term, compensation for an act of the authority. The doctrinal caricature of the transfer-everything concession does not describe this programme. Second, the framing question for such a programme is not *transfer or retain* but **where on the band each contract sits, and whether anyone knows** — because nobody holds the allocation in one place, and assembling it costs 53 clause readings per contract.

A methodological corollary, small and consequential: **risk assumption in Chilean bidding terms is not written as "assumes the risk."** That formula appears in none of the 26 contracts used to calibrate our detector. What appears, in 25 of 26, is "*serán de cargo de...*" ("shall be borne by") attached to a concrete object — the works, the land, the permits, the maintenance. A search for the word *risk* does not find the Chilean allocation. Any empirical risk-allocation study over civil-law concession programmes that codes from headings, or greps for *risk*, is measuring the vocabulary rather than the allocation.

Keywords: risk allocation · risk retention · public-private partnership · concession contracts · Chile · contract text as data · shared risk · minimum-revenue guarantee · empirical measurement · risk matrix.

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1. Why the question is a measurement question

The Optimal Risk-Retention Frontier gives a Ministry of Finance a target: for each risk class, the share α^* it should keep, given the transfer premium, the incentive value of private management, and its own cost of retention. To act on the target, a ministry has to know where it is now. The frontier's efficiency claim is a comparison, and a comparison needs two numbers.

For most programmes, the current position is assumed to be readable. The PPP toolkits, the reference guides and the appraisal manuals all picture a **risk matrix** — a table with risks down one side and parties along the top — and the appraisal literature treats retrieving it as a clerical step before the analysis begins. The World Bank's *PPP Reference Guide* recommends it; PFRAM's data requirements presume something like it; a large share of the empirical risk-allocation literature codes from exactly such tables.

Chile is the natural place to test that assumption, and not because it is a hard case. It is the easy case: a 30-year programme, 133 contracts, everything published — bidding terms, clarifying circulars, amending decrees, Technical Panel discrepancies, arbitral files, court rulings. If the allocation is legible anywhere, it is legible here.

2. The clause that does not exist

We read the complete contractual text of all 133 contracts. For the 128 with bidding terms in the corpus we searched the full text, not the headings:

Phrase	In the text of	As a clause heading
<i>asignación de riesgos</i> (risk allocation)	0 contracts	0
<i>matriz de riesgos</i> (risk matrix)	1	0
<i>gestión de riesgos</i> (risk management)	2	0
<i>distribución de riesgos</i> (risk distribution)	82	64

The distinction between text and heading is worth keeping, because only one claim survives in its strong form: **"risk allocation" appears nowhere at all**. "Risk matrix" does appear once, buried in body text, and never as a heading. There is no risk-allocation clause in a Chilean concession contract, and there is no annex that substitutes for one.

The fourth row is the interesting one, and it is where a careless reading goes wrong. *Distribución de riesgos* is a real heading in 64 of 127 contracts — half the programme — so a researcher who finds it may believe the matrix has been located. It has not. That clause regulates **one** risk: in most contracts, demand (the minimum-revenue guarantee and the revenue-sharing mechanism attached to it); in a smaller group, the State's coverage of environmental-measure costs. It is a mechanism clause wearing a general title. Coding it as *the* allocation table produces a matrix with one row filled and the rest silent — which is exactly how a programme in a shared-risk regime comes to be described as transferring everything.

3. What is there instead

The allocation is distributed across the operative articles. It is in the minimum-revenue guarantee and the revenue-distribution mechanism; in the land and expropriation clauses and the consequences of late delivery by the Ministry; in the catastrophe insurance and the care-of-works cover; in the compensation regime for an act of the authority (articles 19 and 20 of the Concessions Law); in the clauses on interference with third-party services, canals and easements; in the environmental cost-coverage bands; in the service-level regime and its deductions.

Reading those clauses against the six risk categories — construction, operation, demand, regulatory change, currency, force majeure — produces, for each contract and each category, a holder, one or more mechanisms, and the clauses that say so:

Contract × risk cells, the five categories every contract allocates (133 × 5)	665
Reconstructed, with a citation	618 (93%)
Contracts with at least one category reconstructed	126 of 127
Contracts with all five reconstructed	119 of 133
Contracts with a currency clause as well, i.e. all six	10
Contracts with no bidding terms in the corpus (excluded, not imputed)	7

And the number that explains why nobody does this by hand:

Clauses carrying one contract's allocation	
Median	53
Interquartile range	39 – 73
Maximum	189
Median per risk category	8

Fifty-three clause readings, spread across a 500-page document and its annexes, to answer one question about one contract. For a 133-contract portfolio, that is the reason the question is not asked.

A further measurement, which is really a warning about taxonomies: **64% of the allocation statements we found sit in clauses that a heading-based taxonomy does not classify as risk clauses at all.** They are in the clause on the Fiscal Inspector, in the contract guarantees, in the duty to report, in the tariff-collection technology. Risk allocation is not a chapter of a Chilean concession contract. It is a property of the whole document, and it has to be modelled as a separate axis rather than as a section of one.

4. It is mostly shared, and it says how

Of the 618 reconstructed cells, **488 (79%) allocate the risk to neither party alone**. They share it, and they name the instrument that does the sharing:

Risk	Shared	Concessionaire	State	No such clause	None found	Not in corpus
Construction	120	4	0	—	2	7
Operation	13	112	0	—	1	7
Demand and revenue	110	2	11	—	3	7
Regulatory change	121	1	0	—	4	7
Currency and FX	10	0	0	116	—	7
Force majeure	124	0	0	—	2	7

The two rightmost-but-one columns are different claims and the table keeps them apart. **None found** is a statement about our reading: we did not find a clause in a contract we hold, and one may be there. **No such clause** is a statement about the contract: there is none, and we know because we looked in every Ministry document of the corpus rather than only in the bidding terms. Only currency has earned the second column.

The instruments are conventional, and that is the point — nothing exotic is required to produce a shared-risk programme, only a band here and a guarantee there, accumulated over thirty years of drafting. Demand is shared through minimum-revenue guarantees, revenue-distribution mechanisms and variable concession terms. Construction is shared through State delivery of land, cost coverage for interference with third-party services **up to a cap**, and compensation for additional works. Regulatory change is shared through the statutory compensation regime for an act of the authority. Force majeure is shared through catastrophe insurance and the suspension regime.

Only **operation** comes out as a genuinely transferred risk (112 of 133 to the concessionaire), which is what the frontier predicts for a controllable risk and what a well-drafted contract should do.

Two honest weaknesses in the table, both worth stating because they are the kind that get quietly smoothed:

Part of the allocation is by statutory reference, not by drafting. The compensation for regulatory change and for force majeure is largely in the Concessions Law (articles 19, 20, 26 and 27), which the bidding terms invoke rather than restate. Our reconstruction captures the invocation, which is the right unit for a contract-level comparison, but a reader comparing Chile with a common-law programme that spells these out in the contract is comparing two drafting conventions and not two allocations.

4.1 Currency: the guarantee that retired itself

Currency deserves its own treatment, because it is the one category where the answer is an absence and the absence is informative.

Ten of the 126 contracts we hold allocate exchange-rate risk. Eight do it through a **Mecanismo de Cobertura Cambiaria** (currency-cover mechanism): an optional facility under which the State absorbs the exchange-rate movement on foreign-currency debt service **inside a $\pm 10\%$ band** around an initial rate. Two — the two Santiago airport concessions — do it differently, by denominating the tariff itself in dollars and passing the movement through to users. The other 116 contain no currency clause in any document: not the bidding terms, not the clarifying circulars, not the amending decrees, not the supplementary agreements.

The eight are one cohort. Four urban Santiago motorways, the Litoral Central road network, and three stretches of Route 5, all tendered or agreed **between 2000 and 2003**. Three of the eight pacting it in a *supplementary agreement* rather than in the bidding terms — which is why a sweep confined to bidding terms, as ours originally was, found five and not eight. No contract tendered after 2003 pacting it again.

And then it stopped being used. Not repealed — **renounced, by the concessionaires who held it**. Four of the eight document the renunciation in their own financial statements, and all four give the same reason: they refinanced out of dollars and into UF. Ruta del Maipo, on its 144A bonds: *"in May 2005 the Ministry's Currency Cover Mechanism was renounced... the debt relating to the 144A bonds in US dollars was converted to UF."* Elqui, with the reasoning explicit: *"proceeded to renounce the currency cover mechanism... since the concessionaire is no longer exposed to the risk of movements in the exchange rate."* Two of those that never took it up say the same thing from the other side: *"holds no currency cover contracts at present, since its debts are denominated in local currency."*

That is the mechanism of the absence, and it is worth stating as a finding rather than a footnote. Chilean concessions are denominated in Unidades de Fomento, the inflation-indexed unit of account, and the depth of the domestic UF market let concessionaires fund in UF at thirty years. Contract revenue in UF, debt in UF: no mismatch, nothing to allocate. The State's currency guarantee was not a good idea that fell out of fashion — it was **a contingent liability made unnecessary by the development of a domestic long-term market**, and it was handed back by its beneficiaries at no cost to the Treasury, because the band never had to pay.

For *The Third-Party Guarantee Decision* this is the cleanest possible case: the guarantee that is not needed is the cheapest guarantee available, and the route to not needing it ran through capital-market development rather than through contract drafting. A ministry weighing an exchange-rate guarantee

today has eight Chilean contracts, with dates and citations, showing what happens to one when a local indexed-debt market matures underneath it.

Two cautions, for honesty. **The reading of *why there is no clause* is an expert reading, not a sweep result.** It comes from David Duarte, formerly head of concessions and contingent liabilities at Chile's Ministry of Finance, and in the dataset it is carried in its own field, attributed, with its supporting citations kept in a separate list from the citations that allocate risk — a consumer can show one without the other and cannot show either as the other. **What the corpus does evidence** is the UF denomination: 65 of the 116 contracts without a clause carry a citable passage — the contract stating its own UF denomination, or the concessionaire's financial statements stating its debt in UF — and 23 of those are direct statements by the concessionaire. For the remaining 51 the reading stands as a reading.

5. The vocabulary trap — "shall be borne by", not "assumes the risk"

The detector behind the table was built by reading, and the first attempt failed instructively. Patterns keyed on the obvious formula — "*the concessionaire assumes the risk of...*" — matched **nothing**: that phrase appears in none of the 26 contracts used for calibration. What appears, in 25 of the 26, is "*serán de cargo de...*" — "shall be borne by" — attached to a concrete object: the works, the land, the permits, the maintenance, the costs of the bid.

Chilean drafting does not name risk and then assign it. It assigns **a cost, an obligation or a consequence** and leaves the risk implicit in the assignment. That is a coherent drafting tradition and there is nothing defective about it. But it has a consequence for anyone measuring: a search for the word *risk* returns the 64 contracts with a *distribución de riesgos* heading and misses the allocation entirely. A heading-based coding scheme returns a matrix that is 36% complete at best. Empirical risk-allocation work across civil-law concession programmes should assume the same trap until it has checked, and should report the formula it searched for.

6. What this does to the frontier

Nothing in this note contradicts *The Optimal Risk-Retention Frontier*. It corrects the method by which the frontier is applied to a real programme, and in one respect it strengthens the paper's case.

The frontier's input is recoverable, but it is not readable. α , the share currently retained, is an observable quantity in Chile — we have just observed it for 618 cells, and established for a further 116 that there is nothing to observe. It is not, however, a quantity anyone can look up. It must be reconstructed from dozens of clauses per contract, which means that a diagnostic asserting a country's current risk allocation without saying which clauses it read has not measured anything.

The interesting question moves. For a programme already sharing 80% of its reconstructed cells, *transfer or retain* is the wrong frame; both parties are already on the band. The frontier's real use here is to ask **where on the band each contract sits** — how high the revenue floor, how wide the cost-coverage cap, how the variable term is triggered — and whether the aggregate of those positions across 133 contracts is anywhere near α^* . That is a question about calibration, not about architecture, and it is answerable only with the clause-level data.

The fiscal-space term becomes measurable, and alarming. The frontier charges retention with the fiscal cost of the contingent liability it creates. In Chile that liability is created 488 times over, in bands and guarantees and insurance triggers scattered through 133 contracts, and it is not aggregated anywhere. A ministry cannot price a fiscal-space term it has never summed. This is the same point *The Recognition Rule* (Paper 10) makes about accounting, arriving from the direction of the contract text: what is not written in one place does not get counted.

And it sharpens the Renegotiation Triangle. If the allocation lives dispersed and nobody holds it whole, the information asymmetry with which a renegotiation demand arrives is partly **a property of the contract's format**, not only of the parties' conduct. A concessionaire's counsel reading for one clause has a cheaper task than a ministry official reading for the allocation. That is an avoidable asymmetry, and it is avoidable by construction rather than by negotiation.

7. Method, and what it cannot do

The corpus is Chile's published concession record: bidding terms and their annexes, clarifying circulars, amending decrees and agreements, Technical Panel discrepancies, arbitral files, court rulings. Twelve sets of bidding terms held only as scanned images — about 6,000 pages — were put through OCR for this work, which is what brought the count of usable contracts to 116 complete and 126 with at least one risk category reconstructed.

Every assertion resolves to a document, a clause number and an exact page: the corpus text preserves the original page breaks, so a citation is exact rather than approximate. Clause numbers are disambiguated by scope, because the body of the bidding terms and its annexes reuse the same numbering. Two measures follow from that, and they are different numbers: after scoping, **7.5% of clause numbers still head more than one clause** somewhere in their contract (9.5% without the scope key); and of the 8,216 citation links, **5% rest on a number that does not identify a single clause**. Those links stay visible — hiding them would make a clause look as though nobody had ever cited it — and are excluded from every rate.

Attribution of an **outcome** to a clause is separate from, and stricter than, the allocation reading. A link counts only when an amending act or a ruling **names the clause number**, validated against that contract's own index: 8,216 such links exist, and 76% of amending decrees and agreements cite the clause they are modifying, which is what makes the level of evidence achievable at all.

Three things this cannot do, stated so that no reader has to discover them:

- **It cannot show that a wording caused an outcome.** There is no counterfactual — no second copy of the same contract with different drafting — and a clause cited in a dispute is not a clause that caused one.
- **It cannot report a rate over a thin base.** Every rate here carries its numerator, its denominator and the sentence defining the denominator, and is withheld below ten contracts. The litigation base, in particular, is contracts that have the clause **and** a Technical Panel or arbitral file — 36 of them — not all 133.
- **It cannot speak for the 7 contracts with no bidding terms in the corpus.** They are reported as uncovered, never imputed. An archive gap is not a contract finding.

8. Limitations and the policy lead

The reconstruction is a reading, and a reading can be wrong in two directions. A mechanism phrased in a way our detector does not recognise is a false negative — currency was the visible case, and correcting it moved the count from five contracts to eight, so it is unlikely to have been the only one. The lesson generalises: our first sweep read only the bidding terms and their circulars, and Chilean contracts are amended by supplementary agreement for thirty years after award. Any category may hold a clause in a document we did not open. A clause that mentions a mechanism in passing, without allocating anything, is a false positive; requiring a party and an object in the same window suppresses most of these but not all. Every cell ships its clauses precisely so that a disagreeing reader can check the specific one rather than the aggregate.

The finding also does not generalise on its own evidence. One programme, one legal tradition, one drafting house. The hypothesis worth testing elsewhere is narrower than the finding: that in civil-law concession programmes the allocation is assigned through cost and obligation rather than named as risk, and that the risk matrix the toolkits presume is a **common-law artefact** that appraisal methodology has quietly universalised. Peru, Colombia, Brazil and Spain would settle it.

The policy lead is two sentences long, and neither requires a legal reform.

For a ministry: commission the allocation table your contracts do not contain. It is a reading exercise over documents you already publish, it costs about 53 clause readings per contract, and until it exists you are negotiating amendments, pricing guarantees and reporting contingent liabilities without knowing what you kept. The reconstruction is not a substitute for the contract — it is an index to it, and its only real requirement is that every cell cite the clause it came from, so that the table can be argued with rather than believed.

For the drafters of the next contract: add the clause. Not as a substitute for the operative articles, which is where the allocation must continue to live and bind, but as a **map** — a schedule that states, for each risk, which clauses allocate it and with what mechanism, and that is expressly subordinate to them in the event of conflict. It costs a page. It removes the 53-clause reading for every future reader, every future amendment and every future dispute. And on the evidence above, it would make a programme that already shares 80% of its risk finally look like one.

Status: draft for David's review before publication. Figures generated from the clause library (`_analysis/t4_clausulas/`, AUST-442) and reproducible from it; the platform module that serves them is `austral-platform/backend/app/modules/clauses`.