

The Bank of the Future

What a treasury actually sells, and what is left of it when the money cannot leave

J. Konstapel, Leiden, 21 August 2026 — second version

1. The picture

Start with a fishnet.

A fishnet is made of one thing: strand. There are no separate parts. What looks like a knot is strand that has turned back on itself and closed. What looks like a hole is the mesh between four knots.

The whole model runs on that image. Eight rules are enough for this essay, and every number below comes out of them.

1. There is one primitive: the strand. It is not a thing that vibrates. It is self-resonance.
2. A strand has two states: open, and closed on itself. A closed strand is a knot.
3. Winding a strand puts tension on it.
4. Tension that has nowhere to go accumulates. This is loading.
5. Loading is measurable before anything visible happens.
6. A mesh that closes lets tension pass through and away. This is discharge.
7. What does not close keeps its tension. Unclosed tension does not disappear. It waits.
8. The same pattern repeats at every scale. A neighbourhood is a mesh. So is a household. So is a person.

Nothing here needs physics. The rules are used as a description of how a group of people and their obligations behave.

2. What money is in this picture

Money is an intermediary. Something is exchanged through it. On one side stands potential activity; on the other, real activity — a product, a service, an hour of someone's attention.

In the language above, that is tension exchanged for discharge.

The word helps. *To pay* comes through Old French *paier* from Latin *pacare*: to pacify, to satisfy. A payment was originally the act that settled an obligation and let the parties go. It closed something.

So a payment is not a transaction. It is a mesh closing.

That gives a test for any monetary arrangement. Does it close meshes, or does it hold them open?

A value chain in Porter's sense is a chain: $1 \rightarrow 1 \rightarrow 1 \rightarrow 1$. A hierarchy is $1 \rightarrow M$. A network is $M \times M$. The chain is the shape market pricing produces, because a ratio scale flattens everything into a line. A chain ends, and at the end sits a customer who cannot see what was spent upstream. The net has no end. Every strand returns.

3. What a bank actually earns from

The word *float* has two meanings inside a bank, and they belong to two different desks.

The payments department means money in transit: the days between the debit of the payer and the credit of the payee, while more than one bank is involved. In the Netherlands that source has been closed. Value dating was abolished in 2005, and by 2021 the sector's own cost-and-benefit study of Dutch payments recorded no float or value-dating income at all. Instant payments removed most of the remaining delay.

The treasury means something else, and that is the meaning this essay uses. Float is the money that stays inside the bank, moving between the bank's own customers. It does not leave. The treasury can place it on the money market for as long as it holds.

3.1 The product is a forecast

A treasury does not manage a stock. It manages a forecast.

Deposits are payable on demand. Loans run long. The interest margin comes from that difference in maturity. How far you dare push the transformation depends on how well you can predict the net outflow.

A predictable flow can be placed at term. An unpredictable flow has to stay overnight, at the lowest rate. So the margin is bought with forecast accuracy, and nothing else.

That can be costed. Let σ be the standard deviation of the daily net outflow. Hold a buffer of $k \cdot \sigma$ for the confidence level you want. That buffer earns the overnight rate where it could have earned the term rate. The price of imprecision is:

$$\text{cost} = k \cdot \sigma \cdot \Delta r$$

Put numbers in it. A deposit base of €100 billion. A forecast error of 1%, so $\sigma = €1$ billion. A confidence factor $k = 3$, giving a buffer of €3 billion. A spread between overnight and one-year money of 0.8 percentage points.

$$\text{cost} = €3\text{bn} \times 0.8\% = €24 \text{ million per year}$$

Halve σ through better forecasting and €12 million a year stays in the bank. Not one extra customer is required.

That is the treasury business in one line. It sells the reduction of σ .

3.2 Why internal traffic is worth so much

Now the float in the treasury sense returns, and its value is not that the money sits still. Its value is that it is not in σ .

A payment between two of the bank's own customers has a net effect of zero on the position. One account down, another up, same balance sheet. It does not have to be forecast at all. Every guilder or euro of internal traffic is noise removed from the forecast.

How much of a bank's traffic is internal? Take a bank with a share s of payment accounts. If payments run at random between accounts, the chance that both parties bank at the same institution is s^2 . The bank is involved in $2s - s^2$ of all payments, as payer's bank or payee's bank. So the internal share of its own traffic is:

$$s^2 / (2s - s^2) = s / (2 - s)$$

Worked out:

market share s	internal share of own traffic
10%	5.3%
20%	11.1%
30%	17.6%
40%	25.0%
50%	33.3%

The relation is superlinear. Doubling the share from 20% to 40% more than doubles the internal fraction.

This is not economies of scale in the usual sense. It is a position advantage: the larger you are, the less of your own traffic you have to settle with anybody else, and the smaller your σ .

It also prices a merger. Two banks of 15% each have 8.1% internal traffic separately. Merged at 30% they have 17.6%. The gain is not the sum of the customers. It is the cross-flow between the two customer bases, which becomes internal on the day of the merger.

Two qualifications. Payments are not random; people pay nearby, which raises the internal share for regionally concentrated banks. And the formula counts transactions, not amounts; corporate traffic skews the amounts.

3.3 The frame the central bank set: the contingent

The treasury did not operate freely. It operated inside a quota.

Under the Dutch advances arrangement, the central bank set how far banks could run a debit position at the advance rate, which was the floor of the money market. That amount was called the *contingent*, or more precisely the permissible recourse. It was defined as the average daily debit balance over a period of three months. Averaging was therefore allowed. The contingent was held at roughly four billion guilders. Beyond it, banks bid for special advances at a higher price. The discount facility was abolished in 1994.

Three properties of that arrangement matter here.

It is a quantity, not a price. The central bank steered by permitting an amount of standing tension, not by quoting a rate for it.

It is an average over a period, not a daily ceiling. A bank could run well above its contingent one week and below it the next, as long as the three-month average held. The treasury optimised the path. That makes the contingent a tension budget over a cycle.

Exceeding it was not forbidden, only dearer. Above the contingent you went to special advances. A rising price, not a wall.

One further point completes the picture. The central bank set the reserve requirement so that the money market would be short by the amount it wanted. The scarcity was manufactured, so that the

instrument would have grip. That is worth stating plainly, because it is the part that does not have to be reproduced.

3.4 Loro, nostro, and the cost of counterparties

Settlement between banks runs over correspondent accounts. *Nostro* is our account with them. *Loro* is their account with us. Each one carries a balance that should sit near zero and never below it. Each one is a small mesh that has to be kept closed, watched, funded, and reconciled.

The number of them grows badly. With n institutions holding bilateral accounts, the number of relations is:

$$n(n - 1) / 2$$

For sixteen institutions that is 120 bilateral relations. Route the settlement through one point instead, and it is 16. A factor of 7.5 fewer accounts to fund, watch and forecast.

This is the real reason clearing layers exist. Not hierarchy. Arithmetic.

3.5 The limit of this form

Revolut shows how far the existing arrangement can be optimised.

It began in 2015 as an app for exchanging currency without surcharges. By 2026 it reports around 75 million account holders and a valuation near \$115 billion, with a listing planned for 2028 at a target of at least €200 billion. It has no branches. Some seven thousand developers work in units of sometimes ten people, each with its own profit and loss account; roughly one idea in five is kept. Interest is under 22% of income, against up to 80% at conventional banks. Eleven business lines of at least €100 million each are described as shock absorbers.

Read through the net, three of those choices are sound. Eleven income lines are eleven discharge paths instead of one. Small units with their own results are selection by fit rather than by authority. No branches means no fixed knots in space.

And the core is unchanged. Money is still debt at interest. Value is still a price, and that price comes from closed funding rounds: €75 billion at one round, \$115 billion now, €200 billion as the target. The valuation is itself the loading. Eleven lines spread tension. They do not discharge it.

Note also what the growth is really buying. Seventy-five million accounts is market share, and market share is s in the formula above. The strategy is, among other things, a strategy for internalising traffic and shrinking σ .

That is the boundary of the form. To cross it you have to change what the float is.

4. The reversal: a unit that cannot leave

Suppose a community issues its own unit of account. Call it a Seed. It is fully virtual and exists only in that community's ledger.

Then several things happen at once.

All traffic is internal. In the formula of section 3.2, $s = 1$, so $s/(2 - s) = 1$. Every transaction is internal by construction. What a commercial bank can only approach by merging, a closed unit has on day one.

σ for external outflow is zero. There is no outflow to forecast, because there is nowhere to flow to.

And the margin is zero too. There is no money market to place into, and no second maturity. $\Delta r = 0$. The whole of section 3.1 collapses. The advantage disappears at the moment it becomes complete: nothing can be earned from stillness any more.

That is the design, not a defect. An institution whose float is the whole cannot live from standing tension. It has to live from meshes closing.

4.1 The arithmetic of the stock

With no inflow or outflow, the stock changes in only two ways. Seeds are issued, and Seeds decay.

$$dF/dt = \text{issuance} - \text{decay}$$

Let each member receive i Seeds per week. Let Seeds lose a fraction d of their value per week. With N members, issuance is $i \cdot N$ per week and decay is $d \cdot F$ per week.

In steady state:

$$i \cdot N = d \cdot F^*$$

$$F^* = i \cdot N / d$$

Put numbers in it. Take $i = 10$ Seeds per member per week and $d = 0.02$, that is 2% per week.

$$F^* = 10 \cdot N / 0.02 = 500 \cdot N$$

Each member holds, on average, 500 Seeds. That is fifty weeks of issuance. For 500 people the total is 250,000 Seeds.

Halve the decay to 1% per week:

$$F^* = 10 \cdot N / 0.01 = 1000 \cdot N$$

The holding per member doubles, without one extra Seed being issued.

Double the issuance instead, at 2% decay:

$$F^* = 20 \cdot N / 0.02 = 1000 \cdot N$$

The same result. But the two are not equivalent. Issuance sets the size of the figures on the ledger. Decay sets how long tension may stand before it must move. Only the second is a governing decision.

The time constant makes it concrete. At 2% per week a Seed left alone is worth half after about 34 weeks. At 1%, after about 69 weeks. At 5%, after about 14 weeks. The decay rate states how long the community is willing to let an obligation sit.

4.2 F^* is an average, not a ceiling

This is where the contingent earns its place in the design.

F^* is not a limit anyone is held to daily. It is an average over a cycle, exactly as the contingent was an average daily debit balance over three months. A member may run well above it in one week and below it in the next. What is measured is the path, averaged.

The consequence is practical. Somebody who takes on a large obligation this month is not in breach. They are using their contingent. What matters is whether the average returns.

And exceeding it is not forbidden. It is dearer, and it moves up a layer. Section 8 sets that out.

4.3 Decay replaces two things at once

Decay is not a variant of the interest margin. It is its negation.

An interest margin exists because the same money has two prices at two maturities. Decay gives one price for holding: $-d$, the same for everyone, with no term structure. There is no spread, so no margin can be earned from the spread.

Decay also replaces manufactured scarcity. The central bank had to engineer a money-market shortage through the reserve requirement so that its instrument would bite. Decay needs no such construction. It applies continuously, to everyone, and it bites on holdings rather than on banks.

Silvio Gesell proposed exactly this in 1906 and called it demurrage: money that loses value when hoarded, because money that does not rust gathers power. In the language of section 1: a mesh that does not close keeps its tension, and standing tension grows.

5. What the bank measures

The treasury's instrument was a forecast of flows. The community bank keeps that instrument. Only the payoff changes. In a bank, forecast accuracy buys margin. Here, it buys the right moment to adjust the decay rate.

So this is the successor of the treasury dashboard, not of the central bank.

An ordinary bank watches one number. That is not enough, and an even distribution of balances is the wrong target.

The reason comes from the study of adaptive cycles. Systems pass through rapid growth, conservation, release and reorganisation. The dangerous phase is not the chaotic one. It is conservation: everything optimised, everything running well, all slack engineered out. Collapse then arrives suddenly, and the warning signs are ignored precisely because things are going well.

A perfectly even, perfectly stable float is that phase. Not health. Rigidity.

The instrument reads three numbers, taken from the three variables of the adaptive cycle.

Potential — the stock. F , and F/N per member, against the steady state of section 4.1. At $i = 10$ and $d = 0.02$ the reference is 500 per member, understood as a cycle average.

Connectedness — how the flows run. Take all transactions in a week and compute the share carried by the ten busiest members. In a community of 500, ten members are 2% of the people. Ten per cent of the flow means a distributed network. Sixty per cent means hubs have formed, and the hubs are now load-bearing.

Resilience — how fast it moves. V , the number of times an average Seed changes hands per week. With 250,000 Seeds outstanding and 50,000 Seeds of transactions in a week, $V = 0.2$: each Seed moves once every five weeks.

The conservation phase has a signature:

- F per member rising above its reference;
- the share through the ten busiest members rising;
- V falling.

All three say the same thing. Tension is accumulating, in fewer places, and moving more slowly. That is loading, and rule 5 says loading is visible before the event.

One number of the three is noise. Three together are a signal.

No forecast model is required. The ledger the community already keeps is the instrument. This is also the reading that the MAZE tension instrument performs on seventeen market indices, where it has been built and runs live. The market version reads a system nobody controls. This version reads one its members do control, which is why the reading can be acted on.

6. Scale, and why layers exist

Every arrangement of this kind fails the same way. It works, it grows, and at some size the administrators take over. Active members become voters.

That is not a risk to manage. It is a size.

The cooperative movement shows both halves. In 1844 twenty-eight weavers in Rochdale pooled what they had and opened a shop with four goods: flour, oatmeal, sugar, butter. Every customer became a member, with a share of the surplus and a vote. Within ten years there were more than a thousand cooperative societies in Britain.

Note what grew. Not the shop. The number of shops.

In 1864 Friedrich Wilhelm Raiffeisen founded the first cooperative lending bank. In 1867 Hermann Schulze-Delitzsch obtained a Prussian law protecting cooperative associations. Cooperative banking and insurance followed, and eventually institutions large enough to prove the rule from the other side.

So growth proceeds by multiplication, not by enlargement. The scale law is one factor:

$$\text{Layer}(n+1) = 16 \times \text{Layer}(n)$$

Sixteen house blocks make a neighbourhood. Sixteen neighbourhoods make a city layer. Sixteen of those make a regional layer.

With people in it, at about 25 people to a house block:

- house block: 25 people
- neighbourhood: 400 people
- city layer: 6,400 people
- regional layer: 102,400 people

And the holding at each level, at 500 per member:

- neighbourhood: $400 \times 500 = 200,000$ Seeds

- city layer: $6,400 \times 500 = 3,200,000$ units of the city medium

The neighbourhood at 400 sits above the size at which everyone knows everyone. The house block at 25 sits below it. That is the right way round: the unconditional layer is the small one, and the neighbourhood is where accounting starts.

6.1 The layer is a clearing node

The stronger reason for layers is the arithmetic of section 3.4.

Sixteen units at one layer, each holding a bilateral account with each other, need $16 \times 15 / 2 = 120$ relations. Each of those is a balance to fund, watch and forecast. Route settlement through the layer above and there are 16.

A layer is therefore not a rank. It is the device that turns a quadratic number of accounts into a linear one. The same reason correspondent banking invented clearing houses, applied one level down.

Other estimates of the scale exist: groups of five to fifteen for the unconditional core, networks of fifty such groups, "human and local scale" as a rule of thumb. These are approximations of the same threshold. The factor of sixteen follows from the structure, carries numbers, and matches the clearing arithmetic. This essay uses it and drops the rest.

7. The ledger does not add up

There is no single currency across the layers. Each layer has its own exchange medium.

The lowest layers handle existence: warmth, food, care, water, safety. Above them, craft and regional trade. Above those, wider circulation.

The consequence is worth stating plainly. **The float does not add up.** A neighbourhood holds 200,000 Seeds. The city layer holds 3,200,000 units of a different medium. The second is not the sum of sixteen of the first. There is no national total.

That removes the object a central bank governs. A central bank steers a national aggregate by pricing the holding of one money. Where there is no aggregate, there is nothing to steer from a centre. It also removes the need for manufactured scarcity, since decay already does that work.

It removes the exchange rate as well. A convertible rate between a neighbourhood's Seeds and a higher medium would be a price; the price would become a market; and market pricing would return with everything attached to it. There is no conversion. Layers are not joined by a rate. They are joined by activation.

Hawala shows that a common medium in motion is not necessary. There, money does not travel. Only the payment instruction travels, between brokers who trust one another, and settlement between them happens later and in aggregate. What a system needs is a shared way of recording what stands open, and a moment at which the record is cleared.

8. How something rises a layer

When a mesh does not close within its own layer, it does not convert. It activates the layer above, and it becomes dearer. This is the contingent and the special advance, one level down.

The cycle has four phases.

Yellow — detection. Tension rises past a threshold. The trigger is the rate of change of tension, not its level: $\partial \text{tension} / \partial \text{time}$ above an activation threshold. In the ledger that is the three-number signature of section 5, measured against the cycle average rather than a daily figure.

Expansion. The matter spreads to the meshes it touches — the adjacent ones, not everybody.

Peak. Maximum reach. The decision is taken here, and only here.

Learning. The resolution is registered as a pattern, so the next occurrence starts further along.

Three procedural rules hold the cycle together.

A decision requires at least one full cycle of delay. Nothing is settled in the meeting where it is raised. Delay is treated as an instrument, not an obstacle. It is also what makes averaging possible: a contingent only works if there is a period to average over.

A decision at a higher layer is valid only if the layers below resonate — for a city-level decision, agreement from three quarters of the neighbourhoods.

And a trade or profession may block a policy that is unworkable in practice. The block is lifted by a successful practical test, not by a majority. Applied here: those who do the work decide whether a settlement rule is workable, before it becomes a rule.

9. Governance: circles, consent, and one constitutional rule

The bank has no board in the usual sense. It has circles.

A circle is a small group with a feedback loop. What it does returns to it. Circles are linked to circles, each sending one member upward, so that what is decided above carries what is known below.

Decisions are taken by consent. Consent is not consensus and not a majority. A decision once taken is no longer open, unless the collective reopens it. Without that rule everything is permanently renegotiable and nothing settles.

Decisions are prepared in dialogue rather than debate. A debate is a competition with a winner. A dialogue is a shared attempt to reach something none of the participants brought in. Everyone speaks; the initiative is passed on rather than seized.

Roles rotate. In the smallest circles every five days, across four functions: initiative, rhythm, contact, care. Nobody holds a position long enough for the position to become theirs.

Above the circles sits one role that decides nothing.

This is the monitor. It reads the three numbers and publishes them. It has no authority to act on what it sees. Its whole function is that somebody watches the system as a whole while everybody else is inside a part of it. Historically this was the function of a head of state who governs nothing. It is a role of consciousness, not of power, and it is what an ordinary financial system lacks: a body that watches without a position.

The central bank's function is thereby split. Observation goes to the monitor. The single decision — the decay rate — goes to the circle, by consent, once per cycle, with the three numbers on the table.

That is the whole of monetary policy here. One number, decided by people who will live with it, on evidence they can read. Compare it with what it replaces: a quota set centrally, a reserve requirement calibrated to create the shortage that made the quota bite, and a penalty rate above it. Three instruments, none of them visible to the people they acted on.

And the constitution is one rule. Not a list of what may be lent, to whom, against what security. A single rule about **how agreements are made and how they are kept**. Every dispute in a financial institution is finally about that.

One prohibition sits beside it, and it is a definition rather than a restriction: no permanent holding of money or of power. The decay rate is that prohibition as arithmetic. A Seed that never lost value would be a permanent holding. So would a seat that never rotated.

10. The legal shell

Nothing here has to be invented.

The cooperative is the form in which member, customer and owner are the same person. It has existed as a legal form since 1867 and it may conduct banking; several large European banks began as exactly that. In the Netherlands the *coöperatie* remains available.

Its virtue is structural. There is no separate capital that can be bought. No share price, so no valuation to load, and no outside party that can take control by acquiring stock.

The community's own unit completes it. A cooperative issuing its own internal medium needs no external funding to operate, and so cannot be captured through funding.

Two things the history also shows. Raiffeisen's bank still lent at interest in the national currency: the cooperative solved ownership, not money. And the large cooperative banks that grew from that movement became precisely the bureaucracies the scale rule predicts. The rule has been tested against its own history and it held.

11. What a member lives

The arithmetic describes a ledger. This is what it is like inside it.

You are in a circle of about a dozen people you know by name. One of them also sits in the circle above and comes back with what was said there. Every five days the roles move round; sooner or later one of them is yours.

Your balance drains slowly if you do nothing. That is not a penalty. It is the reason to look up and see who needs something. You spend it on the neighbour who keeps your garden, on the woman who washes your mother, on the man who fixed the boiler in February. Those transactions move the number, and they are also what makes a street habitable.

You are allowed to go under. If you take on something large this month, your holding drops well below the average and nobody stops you. What is watched is whether it comes back over the cycle. That is a different experience from a credit limit, because the limit is a path rather than a line.

Your Seeds work in your neighbourhood and not beyond it. The carpenter two neighbourhoods over is not paid from your balance. That runs through the layer containing you both, and it is slower —

at least one cycle of delay — and it costs more. This is a real limitation and it is felt as one. It is also the limitation that prevents anyone from outside buying your neighbourhood out.

Once a cycle you sit in the circle where the decay rate is on the table. You see three numbers about the place where you live: how much is standing still, how concentrated the flows have become, how fast things move. If the stock is rising and the movement slowing, someone says so, and the rate goes up.

There are things this does not give you. You cannot leave with what you have accumulated. You cannot build a position. It asks an attention that a bank card does not ask, and some people will not want to give it. That should be said plainly rather than argued away.

What it gives instead: when the wider system has one of its bad years, you are not holding numbers in a database. You are holding fifty people who know you, and the arrangements you built with them while there was still time to build them.

12. Status ledger

Established. The two meanings of float, and the abolition of value dating in Dutch payments in 2005. The advances arrangement with its contingent as an average daily debit balance over three months, priced beyond that through special advances, with the reserve requirement calibrated to produce the intended money-market shortage. The correspondent account structure and its quadratic growth. The cooperative as a legal form, with its record and its failure mode at scale. Demurrage as a design that has been built and run. The four-phase adaptive cycle and its conservation-phase danger. Working non-monetary exchange systems at network scale.

Derived here. That the treasury's product is the reduction of σ , priced at $k \cdot \sigma \cdot \Delta r$. That the internal share of a bank's traffic is $s/(2 - s)$, superlinear in market share, and that this prices a merger. That a closed virtual unit sets $s = 1$ and $\sigma = 0$, and simultaneously sets $\Delta r = 0$, so the margin vanishes with the risk. That $F^* = i \cdot N/d$, that decay rather than issuance is the governing number, and that F^* is a cycle average in the form of a contingent. That decay negates both the interest margin and the need for manufactured scarcity. That a clearing layer converts $n(n - 1)/2$ accounts into n , which is the arithmetic reason layers exist. That layered media make the float non-additive and thereby remove the object a central bank governs.

Open. The parameters of an existing implementation. SWARP issues a unit called Seeds; its issuance rate, the presence or absence of decay, and what Seeds can be spent on are the inputs this arithmetic still needs. Until they are known, the figures above are worked examples with the right structure and provisional values.

The size of a member's contingent, and the averaging period. Three months was the Dutch figure at national scale; the right period for a neighbourhood ledger is an open question and probably shorter.

The price of the layer above. Special advances were priced above the advance rate. What the equivalent premium should be, and whether it is a rate or a delay, is not settled.

The activation thresholds. Section 8 gives the shape of the trigger. The values at which one, two or three indicators constitute a signal must be set against a real ledger.

Running test. The three-number instrument can be run now on any existing community ledger, including one denominated in ordinary money. If the conservation-phase signature does not appear before that community's difficulties, the reading is wrong and the instrument should be dropped.

Build list. The instrument on a live Seeds ledger. The discharge map showing where closure actually happens. A first neighbourhood at the 400 scale, with a contingent and a decay rate set by consent. Then a second, so that the clearing arrangement has something to be tested on.

13. Closing

A treasury sells the reduction of uncertainty. It forecasts the flows, and the interest margin is what the forecast is worth. Internal traffic is valuable because it never enters the forecast at all, and that value grows faster than size, which is why banks merge.

Close the unit so that it cannot leave, and all traffic becomes internal at once. The uncertainty goes to zero — and so does the margin, because there is no outside market to place into and no second maturity to earn from. The instrument survives the transition. The income does not.

What is left is a forecast with a different purpose. Not to price a spread, but to see where a mesh is failing to close, and to adjust the one number that decides how long anything may stand.

Everything else follows. The contingent, because a permitted tension is an average over a period and not a line. The layers, because a hundred and twenty bilateral accounts become sixteen. The separate medium per layer, because an aggregate is the thing a centre governs. The circle and the consent rule, because that one number has to be set by someone, and it should be the people who live inside it.

The bank of the future is not a better payment system. Payment is not the problem. The problem is an institution that requires obligations to remain unsettled in order to exist.

Build one that requires the opposite.

Annotated references

The line this essay comes from

1. **J. Konstapel, "Breaking the Chain of Money", constable.blog, 29 June 2023.** *Why read it?* The diagnosis this rests on: money as intermediary between potential and real activity, paying as *pacare*, the value chain as a cycle, the four relation types, hawala, and the observation that a bank's income is float. Read parts 0 and 3 first.
2. **J. Konstapel, "About the Cooperative", constable.blog, 3 April 2009.** *Why read it?* The legal form and the scale rule, with the record from Rochdale 1844 through Raiffeisen 1864 and the Prussian law of 1867. Short; the paragraph on what happens when a cooperative grows too large is the operative one.
3. **J. Konstapel, "The End of Payments and the Beginning of Reciprocity and Coherence", constable.blog, 25 December 2025,** with the attached paper *The Maternal Exit*. *Why read it?* Why monetary reform inside market pricing does not escape it, and the four-stage construction of an alternative during the stable phase.
4. **J. Konstapel, "Hoe het Volk de Macht weer krijgt", constable.blog, 26 March 2026.** *Why read it?* Consent, circles, dialogue, and the case for a monitoring role above the parties

that decides nothing. Also the warning that a system regulated too well becomes unstable without notice.

5. **J. Konstapel, "Het Regeerakkoord van het Nieuwe Kabinet is al Klaar", constable.blog, 31 July 2025.** *Why read it?* The scale law, the four-phase cycle with its thresholds, and the explicit statement that there is no central currency but a cyclical exchange system per layer. The economic paragraph is short and easy to skip; it carries section 7 here.
6. **J. Konstapel, "The Net — The Vacuum from the Smallest Strand to the Greatest Knot", constable.blog, August 2026.** *Why read it?* The eight rules of section 1 in full, with the ladder of scales.
7. **J. Konstapel, "The MAZE Weather Instrument", constable.blog, 10 August 2026.** *Why read it?* The same three-variable reading, built and running live on seventeen market indices. Evidence that the instrument of section 5 is buildable.

Money markets, treasury and the Dutch instruments

8. **M. M. E. van Gils, "Monetair beleid in de EMU", ESB, 13 December 1995.** *Why read it?* The clearest short statement of the advances arrangement: the contingent as permissible recourse, defined as the average daily debit balance over three months, with averaging allowed. Section 3.3 rests on it.
9. **"Veranderingen in het monetair instrumentarium", ESB, 1997.** *Why read it?* The contingent held at about four billion guilders, the reserve requirement then set against the desired money-market shortage, and special advances above the quota. The passage on how the shortage was calibrated is the one that matters.
10. **L. van Velden, *Instrumenten van het geldmarktbeleid in Nederland*, NIBE, Amsterdam, 1997.** *Why read it?* The full technical description of the Dutch money-market instruments in their final form before the euro. The reference work for anyone who wants section 3.3 in detail.
11. **Betaalvereniging Nederland, *Eindrapport kosten en baten van het betalingsverkeer*, 2021.** *Why read it?* Documents that value dating was abolished in 2005 and that float and value-dating income had disappeared by 2021. It settles which meaning of "float" is still live in Dutch payments, and which is history.
12. **Rabobank, *Hoe werkt geldschepping?*, economic special.** *Why read it?* Money creation through mutual acceptance of debt, written by a bank about itself. Useful as the standard account this essay departs from.

On money and its escapes

13. **Silvio Gesell, *The Natural Economic Order*, 1906.** *Why read it?* The original design for money that loses value when held. Section 4.3 is his proposal with a different justification. Read the chapters on free money.
14. **Marcel Mauss, *The Gift*, 1925.** *Why read it?* Obligation without equivalence, and why a gift binds where a payment releases.

15. **David Graeber, *Debt: The First 5,000 Years*, 2011.** *Why read it?* Credit preceded coinage; barter as the origin of money is a story told afterwards. Corrects the assumption that a community must start from exchange.
16. **Karl Polanyi, *The Great Transformation*, 1944.** *Why read it?* Market pricing as one mode of coordination among several, and the reversal by which social relations came to sit inside the economy.
17. **Luc Boltanski and Ève Chiapello, *The New Spirit of Capitalism*, 1999.** *Why read it?* How critiques are absorbed and reappear as features. Why "better payments" and ethical finance leave the arrangement untouched.

On systems, scale and commons

18. **C. S. Holling and Lance Gunderson, "Resilience and Adaptive Cycles", in *Panarchy*, 2002.** *Why read it?* The four phases and the three variables that section 5 converts into ledger arithmetic. The key claim is that systems break in the conservation phase, not the chaotic one.
19. **Elinor Ostrom, *Governing the Commons*, 1990.** *Why read it?* Design principles for shared resources managed without privatisation or a central authority, including nested units. The closest evidence base for section 6.
20. **The Rochdale Principles**, codified from 1844 onward. *Why read it?* Open membership, democratic control, limited return on capital. Two pages, and they explain why cooperative banks structurally could not take the positions that failed elsewhere.
21. **Gerard Endenburg, *Sociocracy: The Organization of Decision-Making*, 1988**, building on Kees Boeke, 1945. *Why read it?* Consent and the double-linked circle as a working method, with its failure modes, from someone who ran it in a company.
22. **David Bohm, *On Dialogue*, 1996.** *Why read it?* Why a dialogue is not a debate, and what has to be suspended for a group to reach something none of its members brought in.

Working systems to check the claims against

23. **Fureai Kippu**, Japan, from 1988. *Why read it?* Hours of care earn credits usable across the network, in several hundred locations. Evidence that a non-monetary unit scales past one community, and that care is where it works first.
24. **Ed Collom, Judith Lasker and Corinne Crompton, *Equal Time, Equal Value*, 2012.** *Why read it?* Measured outcomes from time banks, including who joins and who leaves. Useful because it reports the disappointments too.
25. **Mondragón**, Basque Country, from 1956. *Why read it?* Cooperative production with its own credit institution, at scale, over decades. Read it as the test of the scale rule: what was kept small, what was centralised, and what followed.

The current form at its limit

26. **Rutger Betlem, profile of Nik Storonsky and Revolut, *Het Financieele Dagblad*, 21 August 2026.** *Why read it?* The figures used in section 3.5 — eleven business lines as shock

absorbers, interest under 22% of income, the unit structure, the valuation sequence. It shows how far the existing form can be optimised, and where the optimisation stops.