



# Digitizing The Kaleidoscope Of Informal Financial Practices

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## Abstract

This paper contrasts the psychological and cultural richness of informal savings mechanisms with the simpler, more rigid and yet less intuitive format of digital savings products. Financial inclusion should not imply a rejection of informal financial practices but a synthesis of the informal and the digital.

**Keywords:** informal financial practices

## Formalizing Financial Mechanisms

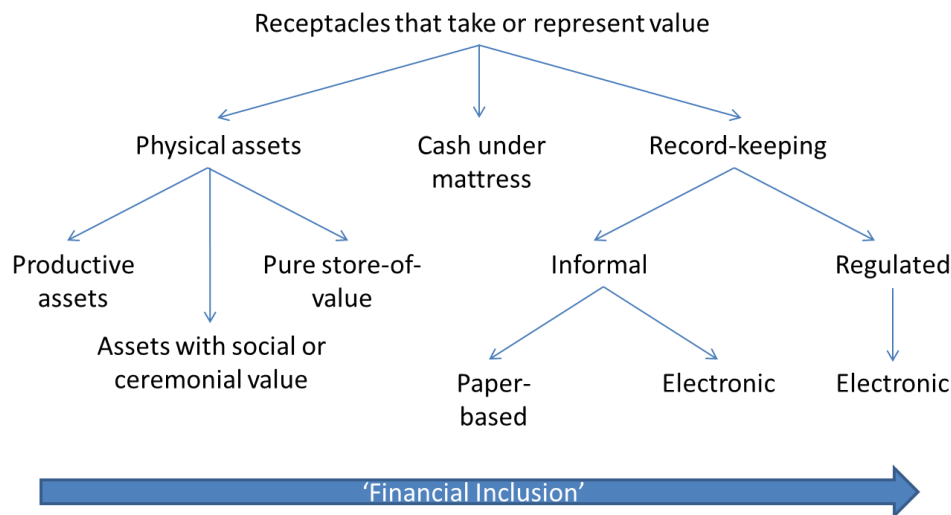
Few people in the world live purely hand to mouth (Deaton, 1989). Most people engage in inter-temporal transfers of value, from such time when they gain command of some foodstuff or other resource to such time when they decide to consume it or trade it for something else they want. These transfers may not be monetized and may be as basic as storing a food crop, but they do entail a practice of financial management which results in vastly increased chances of survival and comfort.

If this is so, why do we speak of financial exclusion? Because many people in the world do not count on any kind of organized structure to help them perform even the most basic form of financial management. FinScope surveys reveal that in 2009/10, 33% of people are out-

right financially excluded in Kenya, 47% in Nigeria, and 56% in Tanzania (FinMark Trust, 2013).

Much of the literature on financial inclusion tends to assume that the objective is to push these people through several transitions. The first transition reflects an increasing disembodiment of value, from physical commodities to written records and monetary tokens of value, and eventually into purely digital systems. The second transition reflects an increasing institutionalization of service delivery, from autonomously procured and negotiated solutions to community-based support structures, and eventually into professionally managed bureaucratized organizations. Through these transitions people are expected to find more security in their resource holdings, reduced transaction costs, and more and better choices to meet their needs and aspirations.

Figure 1: The Implicit Conventional View of the Financial Inclusion Journey



Thus, a trend towards being financially included is conventionally assumed to be a shift in people's financial mechanisms represented by the left-to-right arrow in Figure 1. Starting on the left, a hoe which is used in the fields would not typically be seen as a savings instru-

ment, whereas a cow that produces milk and symbolizes fecundity and permanence might be, and a jewel most certainly would be. Monetizing the savings in cash suggests a more deliberate isolation of pure, fungible economic value. Converting that monetary value into com-



munity-based IOUs enables a more productive use of those resources, especially the more accurate the record-keeping is. Putting one's accumulated resources into an electronic account with a regulated entity—just like you and I do—represents a pinnacle of financial inclusion. It allows for more effective internal and external governance over the management of accumulated resources, and these can be intermediated over a much broader collection of economic actors.

Such is the conventional view of financial inclusion. This depiction of financial inclusion is in principle fine insofar as it touches on issues of safety of savings and efficiency of intermediation.

But it only tells half the story. What it neglects is the mental processes by which people understand how to incorporate these various financial mechanisms into their daily lives, how to use them as tools to convert dreams into realities. We must distinguish between the safety and efficiency of informal financial *mechanisms*—the cow, the jewel, the IOUs of friends and neighbors—and the adroitness of informal financial *practices* through which people incorporate them into their daily lives. We turn to these practices next.

### The Richness Of Informal Financial Practices

Many observers, such as Parker Shipton (1990) in his analysis of savings behavior in Gambia, have noted people's preference for illiquid assets. He observes: "Nothing in The Gambia is more sought after than money, but nothing is more quickly disposed of. Indeed, money is even seen as something to get rid of, something to convert into longer lasting forms." Any available money is just too *available*.

The crux of financial behavior lies in carefully balancing one's need for discipline and flexibility. Discipline is about committing to a path of setting money and resources aside and making it harder to revisit prior savings decisions. Discipline is required every moment one decides to forego current expenditures to put money into a cookie jar (we call this *discipline in*), as well as every subsequent moment one decides to hold back from raiding the cookie jar to satisfy current spending urges (we call this *discipline out*). Flexibility is about having the liquidity to meet changing desires and circumstances, or outright emergencies. Flexibility is created any time people find a way to extract value out of assets they hold (by selling or pawning them) or relationships they have nurtured (by soliciting loans or gifts).

Informal financial practices are a constant search for opportunities to lock up various amounts of lasting value but with quick-release mechanisms in case of justified

need. This balancing act they achieve in a surprising number of ways.

One might consider investing in a cow: surely a sellable asset, hence with good liquidity characteristics in case of need. But there are a number of features in a cow (let's call them *frictions*) which hold you back from triggering a sale too rashly:

- a) **Financial penalty:** there are transaction costs involved in selling and buying back a cow (cost of taking it to market, bid/ask spread), which raises the cost of breaking a commitment to keep the cow.
- b) **Indivisibility:** cows cannot be sold fractionally (e.g. only a leg), which reduces the risk of succumbing to smaller temptations.
- c) **Waiting period:** cows cannot be sold immediately, one must wait until the next market day or until a buyer is found, which reduces the risk of succumbing to impulsive decisions.
- d) **Mental labeling 1:** the discreteness of cows invites mental associations between the herd and a claimed purpose, which helps concretize the benefits of saving and hence the psychological cost of dis-saving.
- e) **Mental labeling 2:** the fact that cows produce milk put it in people's minds in the category of a productive investment or working asset rather than *mere* disposable savings; these mental associations with livelihood raises the (mental) stakes of selling the cow. Savings are often seen as money at risk of mis-spending, in a way that investments are not.
- f) **Peer pressure:** in many cultures cows signify visible success, so buying cows creates positive social signaling; conversely, selling a cow is a pretty public affair and people are loath to accept weakness publicly.
- g) **Social meaning:** cows often represent divinity or fertility or completeness of family in various cultures, and hence they engage social mores, beliefs and perceptions which induce people to preserve them for the longer-term.

Notice how some of these frictions are merely economic, some purely psychological and others entirely social, but they all push the saver to preserve the value vested in the cow, to maintain an inertial savings behavior. It's not that the frictions are *attached* to the cow; the collection of frictions is what gives a sense of *cowness* to the cow. People just know that when they invest available resources into a cow, they are "removing wealth from a short-term cycle and placing it into a long-term one" (Shipton, 2010, referring to Parry and Bloch, 1989).

The cow represents a complex mixture of frictions or discipline devices wrapped around what is in the end an easily sellable asset. The value is not irremediably



locked up. The marvel here is not so much that such a complex and satisfying instrument exists, for that is merely a product of nature, but rather that people are able to project their own mental models around money into such a complex instrument.

Each type of animal in a farm—a chicken, a goat, a pig, a cow—embodies different measures of each of the discipline mechanisms described above. Indivisibility, selling frictions, the classification as an investment and the social significance all increase as you go up the animal progression. The livestock progression can therefore be thought as a menu of savings vehicles, where each animal has a natural savings size and time horizon sweet spot, as well as a natural sense of importance and concreteness of the savings objective. Saving for a pair of shoes *feels* like chicken, the goat is best to ensure the quarterly school fees for five children, whereas it seems right to save for a distant wedding celebration using cows. The power of animals as a savings menu is that it carries implicitly a choice system: it speaks to the savings vehicles as much as it does to the savings purposes that might be behind them.

These discipline mechanism operate across all informal savings vehicles, not only for animals. People can combine these frictions in different ways simply by switching to other instruments available to them informally. Money hidden in secret caches (in jars or under mattresses) eliminates social frictions but will likely be subjected to much mental labeling by assigning a clear purpose to each cache. Transaction costs are very low, though there might be an attempt to bring in some indivisibility (e.g. by saving the money in higher-denomination bills) and liquidity delays (e.g. by saving in foreign currency which may not be readily accepted at shops).

Go with a ROSCA (rotating savings and credit association) if you feel you need to make a stronger social commitment in order to engage in more regular savings. Alternatively, go with jewelry if you want strong cultural charge but operating in less public fashion (playing on the notion of jewelry as family heirloom) and in a form that is more immediately liquifiable (introducing the possibility of pawning rather than selling as a path to liquidity).

There is yet a further way of marrying the need to discipline oneself to build potential liquidity for tomorrow with a potential need for liquidity today in case of harsh need, and that is by investing in social or human capital rather than physical capital. Building social capital is about supporting friends in need and offering donations during the town's festival, but may also be about building a bigger house than you really need to display success and stability, and even going for a few drinks with

your mates from time to time to deepen bonds. Building human capital is about educating your children, investing in them rather than necessarily in their dowry.

Social considerations around money management are important as signaling and monitoring devices around your savings behavior and as a source of potential liquidity in case of need. But these benefits may come at a substantial cost, as it may make successful savers more vulnerable to claims of relatives, neighbors and socio-religious organizations to share their bounty. This sharing culture is a recurrent theme in African sociological analyses, and is described vividly in Harden (1991) and Maranz (2001). Thorn Walden (1974) notes that the claims of the extended family on the African entrepreneur acts as a tax on liquidity, and as a result entrepreneurs are reluctant to let the liquidity in their business rise, thus demonstrating a form of illiquidity preference.

This has two implications. First, the social motivations and transactional or liquidity constraints referred to earlier work well in tandem. Second, where a culture of sharing prevails, savings vehicles that make it socially acceptable to save become particularly important for households. Such might be the case with cows which, due to their ceremonial status, cannot be expected to be disposed of when a relative or friend comes calling for help. It is also the case with a savings groups or ROSCA, which “offers each member a chance to save without appearing selfish to kin or neighbors with claims on the cash” (Shipton, 2010).

These informal financial practices, embodied in a variety of locally available instruments and rules of thumb, allow people to reduce the stress created by exposure to frequent, conscious financial decision-making. The little decisions that prevent depletion of savings can grow exhausting, adding up to what experts call decision-fatigue. The poor are particularly prone to the ravages of such exhaustion, and once decision fatigue sets in, self-control flies out the window (Spears, 2010). To avoid the hazards of decision-fatigue both during acts of *discipline in* (hiving off a portion of income into a safety zone) and *discipline out* (restraints on spending or breaking the walls of the safety zone), savers require the aid of automaticity, a phenomenon that occurs when unconscious mental processes substitute for conscious ones (Bargh and Chartrand, 1999). This is why people respond better to learning rules of thumb which they can implement more automatically than to formal financial education training which invites more conscious analysis of situations (Drexler et al, 2011).

This discussion illustrates the surprising array of complex instruments that people will routinely scan over each time they need to make a decision to push money to tomorrow or to create more liquidity for today. None of



them come with an instruction manual, there is no published catalog of available options with a comparison of their features, no financial advisers are on hand. These are not required, because the modalities of use of each has become coded into a tradition of informal money management practices which most people have come to adopt naturally. For all the complexity of informal financial options, people come to understand them intuitively. Digital accounts appear, in comparison, as arbitrary jumbles of imposed rules.

### The Rigidity Of Formal Financial Services

The quest for financial inclusion too often entails a transition from these highly nuanced and evolved informal practices to a smaller set of much simpler (and hence, inevitably, more rigid) formal financial services.

That by itself is not a problem: much innovation is indeed about creating simpler and faster ways of doing what before were numerous and complex tasks. Think of Google's online search engine replacing entire reference libraries. Moreover, it is not uncommon for innovations to entail some loss of useful functionality, as a price to pay for gaining in convenience and usability in other ways. Consider for instance the new breed of e-book readers which, for all the purchasing, storing and reading convenience they bring, allow for a much degraded version of browsing relative to what you could do with a physical book. With e-books, we've gone back in reading experience, from the easy-to-browse book to the earlier scroll format, and it matters because it makes us miss the big picture, it reduces our choice (Zaid, 2010, pp. 61-67). And yet, for many people, those other advantages the e-book brings more than compensate. Such is the way of progress.

Ashraf *et al* (2003) review the most common formal commitment savings devices. A cursory look at their list shows the extent to which formal institutions have found it hard to incorporate the range of discipline mechanisms embodied in informal options, especially on discipline-out, into their digital account services. We can attribute this to several factors that are inherent to digital services; we review each in turn below, and then turn to a general discussion of how the richness of informal financial practices might be married with the structure of formal finance.

#### 1. Lack Of Discreteness Over 'Savings Lumps'

Informal savings mechanisms tend to be lumpy: a physical asset, a fixed savings club or ROSCA contribution and pay-out amount, the content of distinct jars. But when money is handled electronically as pure numerical information, it is jumbled into a single quantity within a continuous scale of value that we call our balance. It may be mathematically convenient to handle money electronically, but it makes the act of planning and sav-

ing more difficult for many who are not used to it because it is harder to keep amounts separate, distinct.

Think again about animals. Every chicken, goat, pig or cow represents a discrete value, and this helps the saver in several ways. It presents clear proximate investment targets ("I want another cow"); it presents clear investment strategies ("I'll accumulate ten chickens which I will then exchange for a goat"); it invites assignment of ultimate purposes to each savings vehicle ("the goat is to pay for school fees, the pigs help pay for durable assets like a motorcycle, the cow is for marriages and funerals"); it offers a natural savings progression (first chicken, then goat, then pig, then cow). This kind of savings fragmentation or discreteness helps discipline and planning.

With electronic accounts, in contrast, the savings progression is now one dollar after another after another, a continuum. There are no obvious proximate investment goals, there are no decision markers, and any dollar is as good for one thing as for another. There are no in-built discipline devices to use as savings crutches. Remedying this by splitting value into separate accounts seems rather artificial and overly complex.

This links into the notion described in Rutherford (2001) of savings as creating useful lump sums. We tend to emphasize the size of lump, but the real point is that, be they large or small lumps, it's their distinct lumpiness that makes them useful. Savings lumps must resolve themselves in people's minds, not lose themselves within a bank account.

#### 2. Lack Of Higher Psychological Or Social Charge

Informal savings mechanisms carry associations that allow, or even force, people to transcend pure economic analysis. Some are charged with moral values, such as the loose but highly ritualized norms that govern the sharing of money among friends and family. (Shipton, 2010, notes of saving through ROSCAs that "it allows one to save without breaking Rule One of social life in Western Kenya: never look selfish.") Some are charged with family values, like jewels treated as heirlooms or cows marking husbands as good family providers. And some are charged with social value, like cows that assume ceremonial roles. The associations that cows have in many cultures with security, fertility and religion – almost like an extension of the family itself— represents a richness of mental associations that bank accounts will never be able to replicate.

These values apply also at the portfolio level. Shipton (2010) also refers to the reluctance among Luos in Kenya to "convert wealth *downward* from livestock to grain to cash." Formal finance, in contrast, tends to be built on





the assumption that “different forms of property are pretty substitutable or fungible.” There is therefore a challenge of formal finance to fit within the social norms and mores that influence how people manage their money and wealth. How can you inject moral charge into formal financial products?

### 3. Awkward Quantification Of Debts

In many traditional communities, financial relationships are often nurtured as a way of creating a web of support around individuals and families. Extended families and communities are complex webs of crossed gifts, favors, loans and sacrifices, and the more inter-woven is the history of mutual support the tighter the community is likely to be. In this context, benevolent acts and money contributions to other members of the community are expected to be offset through reciprocal actions, but it is often assumed that they won't be returned tit-for-tat, dollar-for-dollar.

The principle is that these social obligations which are weaved together shouldn't be fully extinguished, but rather that they should create a history of mutual support. The reason for keeping only loose tabs on each other is that it gives people a greater sense of hope that they will be able to turn to their family, friends and neighbors in case of need, whatever the need is and whenever it arises. In a moment of need, you can turn to people around you who are beholden to a history of mutual support and debt, regardless of the precise amount of money they might owe you.

This history of mutual debt and support is of course what we often refer to as social capital. If debts directly offset each other, there would be a process whereby the sense of social obligation (as opposed to sheer creditworthiness) would balance around zero. The way social capital develops is generally the opposite: with each gift or debt that is offset, social capital increases. You have more scope to turn to the community for support in case of future need.

One distinguishing characteristic of formal finance is the precise quantification –and hence offsetting— of debts. Once debts are quantified, they can be settled by a precise amount, hence extinguished forever. Creditworthiness may be built up through a history of repaying debts, but that itself is a quantifiable effect: there is still a fairly precise cap on the amount of debt you can expect to get in case of need.

Thus, moving from informal to formal debt leads to a more precise awareness of the *limit* to the amount of debt support you might be able to get in case of need. While formal finance may open new doors to debt sources which you didn't have before, it is emotionally less reassuring because it is very obviously capped. People will

therefore be loath to give up informal financial arrangements which are part of the social capital game, because that embodies at least the hope of more open-ended support in case of need.

This is only one way in which the monetization of debts potentially changes not only social practice but the morality of mutual support. Reducing a whole bunch of social interactions to a precise numerical representation of debt is something that people justifiably are scared of doing.

### 4. Inadequate Balance Between Discipline And Flexibility

Most bank products offer either liquidity (current accounts) or discipline (time deposits, pension plans), but not both at the same time. To the extent that banks expect their customers to separate their savings at all, it is mainly to segregate that money over which they want immediate versus deferred access. Customers are expected to invest in a balanced portfolio of banking products which matches their liquidity and discipline needs. That may work for wealthier people with more predictable cash flows (primarily the salaried and medically insured), but it's a difficult game to play for people with less stable income whose liquidity needs are more unpredictable.

For poor people, all moneys need to stand ready to do double duty. Most informal savings mechanisms do this double duty remarkably well, offering self-discipline when money is more plentiful but without foregoing liquidity in cases of stark need. A jewel may be a stepping stone to a good marriage and a pawnable asset in case of a medical mishap. A cow is an income supplement and a buffer against emergencies. More generally, savings (building up assets and social status when circumstances permit) is not separable from credit (being able to extract value out of assets and relationships at times of need).

The discipline elements of informal savings mechanism emanate from their physicality or the cultural context in which they are used, and hence feel natural to people. Bank products, on the other hand, can only have discipline elements by incorporation of a rule imposed by the bank. There are two broad types of rules: temporal constraints on the disposal of funds (such as a maturity period or a cap on the number of withdrawals) and limitations on the use of the funds (such as creating a school fees account which can only be used to pay for schooling). There may be an *out* to these rules, by incurring explicit financial penalties if the early liquidity conditions are not met.

Because these rules and penalties are not grounded in any natural feature of the savings mechanism itself, they



appear arbitrary to people. In case of need, when they need to break the commitment to save (which is a commitment to themselves as much as it might be a promise to the bank), they are likely to resent the arbitrary nature of illiquidity features or penalties which may have seemed reasonable when the stark need was not there. People may like the rules, until they bite.

### 5. Explicit (Though Not Necessarily Transparent) Transaction Costs

Informal financial mechanisms often incur sizable transaction costs, but these costs are usually not easily quantified in terms of either their size or the point in time in which they are incurred. Consider two examples.

Doorstep deposit collectors typically collect a fee of one day's worth of savings on a monthly savings cycle. You may turn over \$1 every day in January, and at the end of the month you will get back \$30 (not \$31). The amount of the fee is explicit, but not so the timing of when it is incurred. Is the \$1 loss composed of a sequence of tiny daily deposit fees? Is it a single withdrawal fee when the cash is returned? Or is it the equivalent of an account maintenance fee?

Saving in a physical commodity such as a cow or jewel carries a liquidity cost, which technically is defined as the bid/ask spread, or the difference between the instantaneous buying and selling price. This is a less explicit form of intermediation fee, which the intermediary gets for creating a market in that commodity. Not only is the level of the fee never explicitly quantified (at any given point in time, one tends to establish the buying price or the selling price but not both), but its incidence is spread between the moment of buying and the moment of selling the asset.

In both cases we cannot tell when the transaction costs are incurred because these services are discretized into full savings cycles, rather than presented as a continuous service or *running tab*. Only when there is a promise of real-time balance checking does the need arise to assign fees to particular events *and* points in time. Because digital savings services are intangible, customers must be given the ability to assess their holdings through direct inquiry. Therefore, savings based on currency-denominated digital accounts forces formal providers to be more explicit about both the level and timing of charges.

The problem with explicit savings charges is that there are no obvious moments at which the value of savings services is concentrated in customers' minds, and hence no obvious charging moments. People find it hard to justify paying a fee to deposit (giving money on top of money?), to keep money in a bank (monthly fee, even if

I do nothing?), or to get their money back (withdrawal fee as ransom?).

Worse, bank customers can observe bank charges explicitly (as account deductions), but they may not be fully aware of what gave rise to them or what they are for. Therefore, bank charges tend to be explicit, but not necessarily transparent. Informal services tend to be the opposite: they are transparent (you are aware of the general costs and risks of keeping and selling cows) but they are not so explicit.

### 6. Sense Of Hierarchy And Judgment

Informal savings services tend to occur on a private basis or within a pre-existing social setting that people have learned over time to feel comfortable with. They know what information ought to be kept private and what is to be shared with others; who is to trust and who is not; who can be relied upon during difficult times, and who will seek to take advantage of them. Maybe their choices are limited, but they can work out the nature of these relationships.

When there is a formal service provider, all this is harder to assess. There is no moral or social guide. The bank is represented by people sitting at a branch, and yet the service is impersonal. Trust is unfathomable: the bank feels solid, but is it on my side? There is no social context: the bank represents a towering organization, a hierarchy in front of which people often feel talked down to, uncomprehending, disadvantaged. They fear not being made to feel welcome and even being humiliated. This sense of humiliation comes from a feeling that they are not good enough in the bank's consideration, like the bank is passing judgment on them.

This sense of judgment is reinforced through many bank product features, such as account opening procedures that require proof of income or references, and penalties for not making a payment in time or for not keeping a minimum savings balance. Once I participated in a focus group in Tanzania in which we were testing a commitment savings product that worked on the principle of indivisibility: before the target date you could withdraw the full amount accumulated in the electronic account, but you could not do partial withdrawals. We explained that we wanted to allow early liquidity in the event of a major family emergency but that we wanted to discourage withdrawals to satisfy small temptations along the way. While focus group members fully accepted the notion of restricting access to the funds to ensure that savings goals were met, they reacted negatively to the notion of permitting all-or-nothing withdrawals. To them, going to the bank to ask for early liquidity and have the bank tell them that they needed to take all your money back felt like rejection, like the bank didn't want to hold their money anymore because they failed to keep their



end of the bargain. Indivisibility is fine as long as it is between them and their cow and their jewel, but when an external, hierarchical party is involved the same act is tinged with fear of judgment. Clearly, informal discipline features must be adapted when inserted into a formal context.

### A Historical Perspective: Virtual Money Is Virtually Ageless

We tend to make many assumptions about how people and societies manage money. To get a sense of that, one can look at how misconceived are the standard views of how money evolved over the last few millennia. This is territory covered by two recent, fascinating books, by an anthropologist and an economist (Graeber, 2012, and Martin, 2013, respectively).

Contrary to conventional wisdom, both books remind us that there is no evidence that human societies ever worked on barter. In the beginning there was debt, as people variously shared, gifted and loaned each other stuff. The fabled *coincidence of wants* problem that makes barter so impractical (the fact that at the market you and I can only transact if I want your chicken *and* you want my goats) was solved by separating transactions in time (now I take something from you, later you'll take something from me), developing simple debt tracking devices (such as the tally stick), developing various moral codes to guide the sizing and fulfillment of these dues, and periodically netting out and settling the various debts across people in the community.

In Graeber's words, "abstract systems of accounting emerged long before the use of any particular token of exchange." The primary need was to create common notions of value, not necessarily to harmonize how value got passed around or stored. So in the beginning money only fulfilled a unit of value or accounting function; coinage as a means of payment and storage of value came later, much later.

The startling conclusion is that "there's nothing new about virtual money. Actually, this was the original form of money." People everywhere seem to have no problem managing the "artistry" of gifting – an even more intangible and convoluted practice than exchanging digital money. You can see generosity and balanced reciprocity leading to mutual insurance (Platteau, 1997). But you can equally see dependence and charity preserving hierarchy. In Graeber's eloquent words, gifts "are usually fraught with many layers of love, envy, pride, spite, community solidarity, or any of a dozen other things." There's nothing simple or tangible about that, but somehow people work out a proper response to gifts (whether they are an honor, a provocation, or a form of patronage) intuitively.

So there is no reason to believe that dealing with abstract notions of (mobile, digital) money should, in itself, be a barrier for ordinary people who are used to informal debt and reciprocity arrangements. Might this begin to explain why it is that, given the right conditions, mobile money can just take off as it did in Kenya?

The real challenge to traditional societies with the *formalization* of finance is not the *dematerialization* of money but the increasing *monetization* of transactions. The monetization of everyday transactions creates new paths to social mobility and innovation. Yet it leads to a vision of society in which economic value becomes the measure of all things, and static traditional relationships are replaced by dynamic monetary ones (Martin, 2013). It subjects people to the *absolutism* of contracts (to use Keynes's term) where the ethics of social interactions is transformed. In Martin's graphic language, "respect for contract and for the monetary standard becomes a matter not of fairness, but of accuracy."

At the personal level, removing the social context from transactions may obliterate much of the intuition and survival strategies people have developed around money matters for centuries. The social dimension of informal finance allows for much more open-ended negotiability of resources in case of exceptional need (Johnson, 2012). But it's not about leaving money matters casual. On examining the typologies of informal financial mechanisms documented by Rutherford (1996) and MicroSave (1999), one wonders at how inventive and recurring certain structures are. Those can only be the result of a natural evolutionary process based on variation (fed by the inherent flexibility of social arrangements) and selection (the disciplinary and insurance benefits they bring).

With formal finance, all that is replaced by binding credit limits, inflexible terms made up by someone, and an imposed moral requiring you to repay your debts on time. It has an intrinsic tendency to reduce everything to a single dimension – monetary value—and to eliminate traditional limits to accumulation, consumption, competition and one-upmanship. Martin (2013) draws attention to a fundamental paradox at the heart of money: "it is a social technology which depends on other people; yet it is a social technology which isolates us from other people, by transforming the rich and varied ecology of human relationships into the mechanical and monotonous clockwork of financial relationships." In order to throw themselves into the logic of money and formal finance, people need to overcome a natural fear that "left unchecked, the exhilarating independence that money brings becomes destructive isolation" (Martin, 2013).

The core problem of digital finance for poor people is then not how intangible it is, but rather how explicit and amoral everything becomes. "When matters are too clear



cut, that introduces its own sorts of problems” (Graeber, 2012). Societies have always struggled with “the question of what is the appropriate scope of monetary society, and how extensive a role its central concept of economic value should play in coordinating social life” (Martin, 2013). More traditional societies often strive to limit what money can be used for.

### Layering Financial Inclusion, Informal On Formal

So: should we seek to migrate people away from the rich, fuzzy informal practices which they have become so accustomed to and into the more rigid, precisely quantified world of formal finance? Or should we simply accept that for people with little wealth, erratic incomes and proportionately more overwhelming risks, the world of subtly ambiguous but broadly intuitive informal financial practices is better?

Of course the answer always lies somewhere in the middle, but what does this happy medium look like? I don’t see it as a bountiful fruit platter that people can pick from (now formal, now informal) as much as a richly layered cake.

The cake analogy is to represent the idea of platforms, of capabilities arranged horizontally and interworking with each other. Each layer brings a flavor, a texture, a color to the cake, but it is only when slices cut through the entire stack that the full *cakeness* comes through.

Let’s count the layers of financial inclusion. You need an identity layer, so that information can be traced back to individuals and histories can be constructed. You need an efficient money transfer layer, so that money can move cheaply and without delay between the various players whether they are near or far. You need a cash distribution layer, with a multitude of localities where you can exchange various forms of money (cash to electronic, large bills into small change), on demand. You need enforcement mechanisms, so that IOUs can be trusted. You need a reliable accounting record to keep track of all these contracts and IOUs. You need creative packaging of money transfers and IOUs into higher-level financial contracts (savings, credit, insurance, and combinations of all these) that connect more directly with people’s problems and needs. You need social connections and knowledge, so that people can variously give, lend, guarantee, and vouch for each other. You need people who can become evangelists, connectors, educators, marketers, to get others involved. You need, you need, you need...

Go through the list again: each of these functions can be done formally or informally, and in fact both banks and community-based savings groups do all of the above in their own way. But we shouldn’t strive to create two

layered cakes, the nutritious-but-wobbly and the glitzy-but-indigestible. The formal and informal layers need to mix in seamlessly.

M-PESA is a good example of how that can work. It builds on formal national ID and e-payment layers, a semi-formal cash in/out layer, and an informal set of customer practices around sending money home and supporting each other. This interworking of the hugely *formal* (the biggest telco in the land, acting under the watchful eye of the all-powerful Central Bank) with the all-pervasive, timeless *informal* (the gifting and sharing economy) is what Susan Johnson called *The Rift*, and she appropriately revealed it to be the source of the magic that has lit up Kenya with electronic money (Johnson, 2012). M-PESA is as much a triumph of the *formal* as it is of the *informal*.

One commonly hears that M-PESA is *not* financial inclusion. It most certainly is not, but neither is *any* single layer in the cake. It is a misconception to think that the *true* financial inclusion layer, the litmus test of whether something *is* or *isn’t* financial inclusion, concerns the product layer. Consider this analogy: do we count access to clean water by the number of people who can find 500cc bottles of water at the local shop? With access we expect pipes and taps and stuff like that. That’s what creates convenience, reliability, affordability. It’s about the delivery mechanism as much as it is about the water itself. The real magic is happening lower down the layer stack.

By itself M-PESA does not amount to financial inclusion, but in a sense it is also *much more* than financial inclusion. By making larger and remote payments more efficient, it has enabled a whole bunch of impacts which go well beyond whether people decide to borrow or save. That’s the advantage of operating at the lower layers: it is less glamorous because the customer benefits are far less concrete and measurable, but it creates a much broader array of potential channels to impact.

The product agenda to complement the new agent- and mobile-based *digital rails* must be premised on finding the digital equivalents to the informal discipline mechanisms that people already use regularly. Informal mechanisms embed a broader range of discipline mechanisms than one typically sees on formal savings products. This is particularly true for *discipline out*: the lack of regular income associated with informal economic activity and self-employment makes it difficult for people to use fixed rules to save, so it becomes particularly important for them to find ways to preserve their savings once they have built the resolve to set money aside.

Formal financial institutions have a big role in helping their customers build discipline. But they need to present





themselves less as the disciplinarians and more as the providers of tools that people can use to discipline themselves. In order to move people from informal to formal savings mechanisms, banks must find new ways to discretize electronic money accounts, creating separate savings pots for different classes of expenditures or goals, and embedding mechanisms that make people feel more in control of their money. On top of that, the operation of the accounts must be directly intuitive, relating to how people think of their money, and not based on how IT systems work or bank-speak.

### **Towards Formal Offerings Which Play Into People's Mental Models And Informal Financial Practices**

To sum up the discussion to this point, the key barrier to formalizing financial practices lies not in the intangibility of electronic money but in how to digitize so much ambiguity and so many unstated mental games that people play out with themselves and with each other as they variously discipline themselves and support each other. Digitized formal services use a very precise language of numbers which, today, seems alien to most people. Formalizing and digitizing financial services should not in any way mean suppressing the mental models, habits and attitudes that people have developed through years and generations of operating informally.

The need to financially educate people is a recurrent theme within the financial inclusion field. This felt need arises precisely because of the huge gap between how people have traditionally managed their everyday finances and how formal products work. Very often this feels more like a *re-education* campaign, as it entails weaning people off the simple discipline devices that have been instilled on them by their parents and grandparents, in favor of lackluster formal products which have little bearing on the natural and social world they live in.

Lack of traction with formal financial services is often attributed to an insufficiently granular understanding of client needs and mental processes. The bigger failure is probably in not knowing how to distil the mass of research we continue to produce into compelling products.

In this concluding section we illustrate how digital financial services might incorporate some of the features that are so commonly used in informal financial practices within an intuitive, easy-to-use digital money fragmentation framework. Mas and Mayer (2011) and Mas (2013) present one possible mechanism, implementable on basic mobile phones as a logical extension of mobile payment systems, where money management is cast as a series of money transfers that can occur over space (to others) and time (to oneself).

The starting point is to reframe the value proposition for customers. The mobile phone shouldn't just be understood as a payment instrument. It should be a planning or accounting tool: a mechanism that captures how people keep tabs of their various pots of value, goals and amounts due. This tool is more likely in turn to capture the transactions that derive from them. It's less about what to do with the money people have now (wealth management) and more about how to secure the money they will need (building discipline). It's less about managing stocks (a storage problem) and more about regulating flows (a payments problem). It's less about fillable vessels (the account itself) and more about adjustable rules and frictions (the restrictions placed on those vessels).

*Frictions* are mechanisms that help you *keep money saved*. Those frictions cannot be tacked on as features on an account because those will appear unintuitive and arbitrary to people; instead, they need to *define* the savings products.

Take locking money up, for example. What if instead of opening a time deposit that reaches maturity after a fixed term, people could simply send or push money to a specific date (like Nov 30<sup>th</sup>) or an entire month (November) based on when they will need it, much as they can send or push money to someone else?

Another friction is avoiding instant liquidity by having a waiting period. What if instead of pushing money to a fixed date, people could push some money to *Sundays* (e.g. for the family holiday), *Mondays* (for the big business opportunity) or *Fridays* (for me and my friends). These sub-accounts would only offer liquidity on their name day. That doesn't mean you would necessarily liquidate *Monday money* next Monday; it only means that once a week you have an option of unlocking and using that money, but you won't be exposed to decision fatigue the rest of the week. The name of the account here is doing double duty: as a suggestion of purpose and as a reminder of the degree of availability of liquidity. This helps create intuition on how and why to use it.

Yet another friction is indivisibility, to avoid small temptations. Imagine if people could push money into a *chicken* or a *goat* sub-account, and the defining characteristic of these sub-accounts is that one could only push money in and out in lumps of \$4 or \$40, because that's what a chicken or a goat cost, respectively. This would permit using the language of buying and selling stuff rather than the language of saving and dis-saving.

Peer pressure is another type of friction. People often leave money to someone they trust (informally referred to as a money guard) for safekeeping so that they can



mentally set it aside. Imagine a product where people can send money electronically to their designated money guard, but the money guard can't do anything with that money other than sending it back to the person who send them the money when he asks for it. This is saving through a friend; there's peer pressure because dis-saving can only be done in connivance with the friend/money guard.

Finally, friction can be induced merely through mental labeling – giving names to various pots of money in a way that is evocative of their respective purposes. The difficulty is that sometimes people are not very precise about their financial goals, and prefer to keep their goals fuzzy in their own minds. In that case, the financial service could present to them a list of label options which in themselves are not needs or goals but are suggestive enough to invite users to project their own broad or narrow purposes into them. It might be colors: from *ice blue* (education!) through *deep black* (my secret!) to *red hot* (vacation!). It could be a list of emotions: *I'm feeling virtuous*, *I'm feeling naughty*, *I'm feeling peckish*, *I'm feeling rich*, *I'm feeling lucky*. One could make the labels less abstract, and use names drawn from (localized) bodies of water: an *ocean* (longer-term, open-ended accumulation), a *lake* (mid-size, one-off project), a *flowing stream* (aregular expenditures such as school fees), a *seasonal torrent* (the annual town festivity). Or models of musical bands or cars, from the mundane to the truly aspirational.

These are examples of how one can define savings products as payments to oneself, by adding a time, social or allegorical dimension to them. Imagine that when you came across a little money you could send it to August 15<sup>th</sup>, or to Fridays, or to November, or to money guard Pete; or you could buy the equivalent of one goat with it; or you could send it to banana yellow (which has no frictions other than mental labeling). All these represent money that you've pushed aside, maybe earmarked for a purpose that only you know but maybe not, and which

becomes available under specific, easy-to-remember conditions. Because they are intangible, engaging sub-account names may become hooks onto which people can project their own financial mental models and goals.

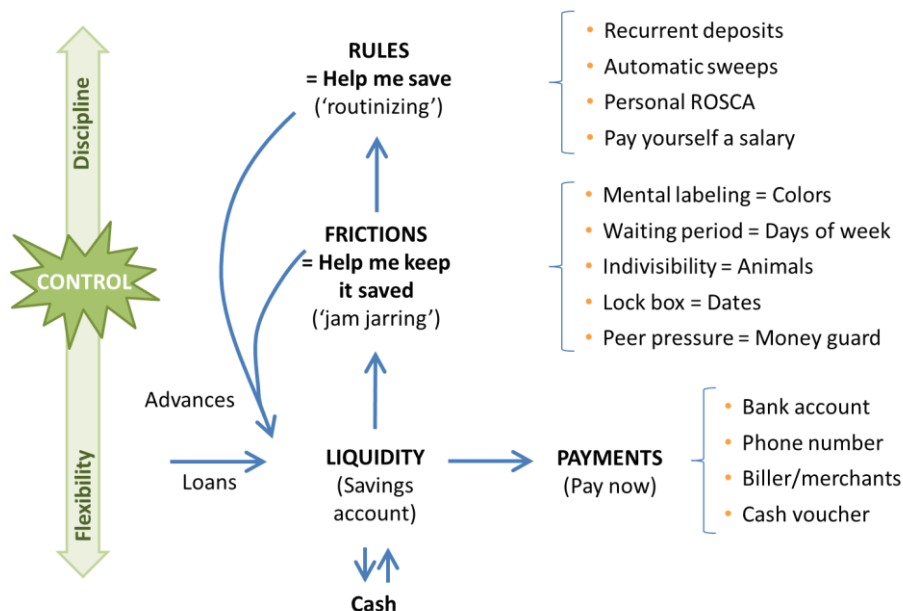
One can go further by adding *rules*, which are mechanisms to help people save more regularly (as opposed to frictions which help people keep the money saved). Common rules consist of recurring deposits (or self-payments) and automatic sweeps based on account balance thresholds. A more interesting one is a "personal ROSCA" or its logical opposite, "paying yourself a salary," which lets people distribute a windfall over a number of weeks.

The purpose of assigning money to frictions or collecting it under rules is to instill discipline. Yet, as we saw earlier, all moneys need to do double duty, as discipline and as potential liquidity. So these frictions and rules must have *outs*, such as being able to advance or borrow against some future money that customers have pushed forward or set aside. This could be offered at low cost, since the advance is fully collateralized by the client's own savings. This could be supplemented by uncollateralized loans offered on the strength of a credit score which captures each client's use of all these discipline mechanisms: how far ahead they plan their goals, how often they contribute to them, whether they realize their goals or not, etc.

Figure 2 lays out the full picture of what this financial service would encompass. In developing innovative savings products, we must think of financial services as a Swiss Army knife of management tools which people can use and adapt in their own way. It's the principle of mass customization: a few well-designed tools can be used to support a variety of use cases and shape very personal experiences. People's sense of ownership over the relationship with the financial service provider - and their feelings of control over their money - will be enhanced if they are able to define how they use the service.



Figure 2: An Integrated Mobile Money Proposition  
Incorporating Hooks into Informal Money Management Practices



This shows a path towards a formal system which provides enough hooks so that people can adopt it while still carrying on managing their money the way they always have. Here the formal and informal meet half way: the formal system operating digitally "ends" in a bunch of intuitive concepts (not soul-less accounts!) you can send money to (colors, days of week, animals, etc.) and the informal system operating in people's minds takes over from there and turns these into worries, dreams and (weak or strong) self-promises. It's informality supported by a formal platform. It's the layered caked of finance, with the (supposed) security and reliability of formal digital infrastructure as the base and the informal fuzziness of people's motives as the filling.

We usually talk about the need for formal financial services to be simple. Actually, that's not right. What we need is for services to be intuitive. As we saw, there is nothing simple about the cow as a savings vehicle. Yet it is abundantly obvious what sorts of constraints or frictions you are getting yourself into when you sink your money into a cow. Many formal or digital offerings are very simple in comparison, but offer no intuition. The account rules seem like an arbitrary imposition, you have to learn them, and you feel cheated when you get caught by a friction you didn't expect. Not so with the cow. To compensate for this intrinsic lack of intuition, the name of digital products needs to convey first and foremost the key liquidity features they embody.

The title of this paper refers to the kaleidoscopic nature of informal financial practices. The metaphor is meant to stress how varied, mutable and unique financial practices and experiences can be. How accidental they may seem, and how they engage the imagination. Such richness of individualized experiences is made possible by people's unique interaction with what is really a simple device. Our challenge is to design the digital kaleidoscope which reflects people's financial worries and hopes and sacrifices.

In order to stand a shot at displacing informal savings options, digital savings solutions must give people much more sense of being in control over their money and the circumstances around it. There are two important ways in which digital services can enhance the sense of control. First, digital services can heighten the sense of privacy. Traditional solutions based on physical objects and social relationships have clear limitations because their privacy/social characteristics are built into them. Digital solutions allow for much more flexible design of privacy features and controls. Second, digital services which incorporate gaming techniques ought to be able to convey more visually and cogently the heuristic games people play in their mind every time they face a money decision. With the advent of smartphones, it should not be hard to imagine colorful and tactile (and, why not, musical too) mobile user interfaces on which to render a kaleidoscope of financial experiences for everyone.



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