Euro. J. History of Economic Thought 13:2 213–231 June 2006

On Hayek's denationalization of money, free banking and inflation targeting[1]

J. Stephen Ferris and John A. Galbraith

1. Introduction

A noteworthy if somewhat ironic development in the history of European monetary thought has been the failure of Hayek's version of free banking. That is, while it is perhaps not surprising that traditional monetary economists have rejected Hayek on the grounds of the apparent complexity introduced by having multiple bank monies, more surprising has been the rejection of Hayek's proposal for the denationalization of money by subsequent free bankers. To a large extent, the exclusion of Hayek from the evolution of free banking can be attributed to his retention of non-redeemability as a central feature of his competitive banking system. Although non-redeemable money was to be backed by a bank's promise to maintain the purchasing power of its money, current free bankers consider only the promise to redeem money in terms of something tangibly fixed to be credible and hence effective (Selgin and White 1994). In addition to this issue of credibility, traditional objections have focused on the over-complicated structure that would seem to arise from having each bank choose its own bank-specific monetary unit. Such a system would displace a common national money with one with a multiplicity of monetary units that result, in turn, in multiple money prices and commodity exchange rates, all within what was a previously unified economy or optimum monetary area.[2]

This paper re-examines both of these seemly plausible objections in relation to the feasibility of Hayek's proposal and finds that these objections do not withstand closer scrutiny. It does so by demonstrating that a bank's promise to provide a stable, non-redeemable money can be made just as

Address for correspondence
J. Stephen Ferris, Department of Economics, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario, K2P 0T9, Canada; e-mail: stephen_ferris@carleton.ca

The European Journal of the History of Economic Thought
ISSN 0967-2567 print/ISSN 1469-5936 online © 2006 Taylor & Francis
http://www.tandf.co.uk/journals
DOI: 10.1080/09672560600708359

effective as a bank's promise to redeem its money in terms of a specified commodity. Thus, accepting the feasibility of the latter, which current free banking does, rules out automatic rejection of the former. To reveal how markets could handle the policing problems posed by non-redeemable money, one draws on the experience gained by central banks now engaged in explicit inflation targeting. By developing an enforceable performance contract, competition through the market would lead to further system-wide refinements and adjustments that would promote convergence of both bank practices and money prices and so allow free banking to deal with the complications of multiple money units and prices.

The paper proceeds by first reviewing the basic nature of Hayek's proposal for denationalizing a national currency. The basis for the price stability commitment central to this proposal is then analysed in terms of what the market would require to make such a promise effective. Drawing on the contemporary lessons learned under central bank inflation targeting, the paper discusses a scenario under which free banks responding to market incentives could make Hayek's free banking operationally acceptable and so feasible.

It is concluded that the rejection of Hayek's version of free banking, on the grounds that the promise to preserve the quality of a non-redeemable money must be ineffectual, is the result of an incomplete examination of what makes any money promise – whether or not for redemption – effective. The conditions for effectiveness are the same in principle for both redeemable and non-redeemable money.[3]

Finally, objections to Hayek on the grounds of complexity are met by considering what types of contracts would evolve for a non-redeemable money system, informed by how present-day, inflation targeting central banks have gone about providing reasonably stable national money prices. The competitive outcome reveals a non-redeemable money system, where banks are led to adopt uniform banking practices to offer 'best practice' performance. A by-product of this approach is that it implies a positive answer to an important practical policy concern; namely, that present-day banks could take over responsibility for inflation targeting from central banks without necessitating a major structural change in the current banking system.

2. Hayek's version of free banking

For Hayek the single most important attribute of any currency was the stability of its purchasing power and Hayek's basic premise was that competition among banks would be sufficient to provide money holders

with more of this attribute.[4] To provide this quality, however, each bank would have to adopt its own monetary unit – in Hayek's terminology, the national monetary unit would have to be denationalized. Removing what Hayek saw as arbitrary (or worse) political control over the supply side of a national monopolized currency by denationalizing its non-redeemable currency also meant the relinquishing of central bank control over private banking. Under central bank control, no individual private bank could affect the purchasing power of the liabilities (notes or deposits) it issued. Purchasing power was determined by the actions of the central bank, actions that remained external to individual banks and beyond their control. As a result, the purchasing power of each bank's liabilities would remain the same, regardless of how each bank behaved (default risk aside). Individual bank monetary liabilities are identifiable by the name of the bank, but such identification served no purpose when assessing its purchasing power.

With bank-specific liabilities, however, private banks assume responsibility for the purchasing power (or quality) of the currencies they supply. The purchasing power of each bank's liability can vary and that value can be affected by the internal actions of that bank relative to all others. This enables the bank to compete in the supply of its currency, perhaps by producing a currency with greater price stability or offering a greater degree of price predictability than its competitors.[5] To prevent competition from producing a 'race to the bottom', individual money holders require the ability to identify where a particular liability is issued.[6] For such a purpose, the name of the issuing bank particularizing the previous national unit would suffice (e.g. Bank of Scotland and Royal Bank of Scotland pounds). Hayek, himself, preferred not to use versions of the national unit, instead he would have encouraged banks to use distinctive names for their specific units – for example, one Swiss joint stock bank might choose to register a distinct trade name such as a 'ducat'.[7] Whether or not a distinctly new name is developed or an established monetary name is modified, n banks competing to provide stable purchasing power produce n different monetary units.

If individual bank liabilities become generally accepted in exchange, all available goods and services become priced in terms of each bank's monetary unit so that each bank now needs to establish a price index, in terms of which its promised performance can be assessed.[8] That is, each bank would define the basket of commodities in terms of which it wished to measure price stability and then assume responsibility for keeping its rate of change in line with its promise.[9] A further consequence of distinguishing among non-redeemable monies is that the banks would now settle their inter-bank clearings at varying market rates, where the exchange rates would be determined in the outside currency exchange developed for this

purpose.[10] That is, even though all bank monies are non-redeemable, the monies can be made exchangeable in the market for other bank monies. In this way the bank could use the current market exchange rate of its competitor's monies to value payment orders on its competitors taken in as new deposits from its own customers.

Under Hayek's view of free banking, then, banks would compete in non-redeemable monies by promising a stated quality of purchasing power, based on a monetary unit of their own choosing. By expanding or contracting the quantity of its currency in circulation, the bank can affect the exchange value of its monetary units and so compete in quality with its competitors. In doing so, they would operate both with an eye on the inflation measure appropriate for their liabilities and on the exchange value of their money relative to their competitors. In evaluating their performance, potential bank customers would do likewise.[11]

3. Effective free banking under Hayek

Should the market generally prefer price stability, as Hayek assumes, competition among banks for individual bank money holders means that a successful bank can profit from better supplying the constancy in purchasing power desired by its customers. Banks that continue to produce a lower quality currency and/or refuse to follow their innovating competitors in offering superior performance will be driven from business. Thus, as in any other product market, Hayek sees the competitive market process as creating the incentives that will lead industry to provide an ever-improving level of performance in meeting consumers' demands for ever sounder money.

Whether such a competitive banking system can work, however, depends very much on whether profit-maximizing banks will keep their promise to maintain a given quality for their money. Both mainstream and current free banking doctrine doubt that competitive suppliers of non-redeemable money could provide this promise credibly.[12] Such a reservation is readily understandable since banks that profit in the long term by adhering to a promise based on future price levels face an apparent conflict of interest. Given that future prices reflect current bank practices only with a lag, banks that promise money of a certain quality will always face the temptation to break that promise for short-run profit.[13] This is the well-known time inconsistency problem. Given that the recognition lag is sufficiently long to make cheating on the promise profitable, who would deal with a bank offering non-redeemable money merely on a mere promise of keeping the purchasing power of that money constant?

It is because of the assumed impracticality of enforcing a future price promise that free banking advocates have turned their attention to an alternative type of bank contract, one that White has referred to as a goods-backed deposit guarantee (see the survey in Selgin and White 1994). Here, a free bank delivers price stability indirectly by offering a more credible promise to its liability holders. Money holders are promised that they can redeem the value of their deposits fixed in terms of some real good (such as gold) and the ability to withdraw on demand is thought sufficient to enforce the promise and make the contract credible.[14] It is important to recognize, however, that even if maintaining the fixed commodity value of deposits through redemption would maintain the price stability desired by their customers (which it will not), the promise to redeem, standing alone, is no less subject to being broken than any other type of promise. Indeed, if the recognition lag for depositors shared the characteristic that redistributive activity could be hidden for a time from depositors, then the redemption contract would share the same time inconsistency problem facing the price stability contract. However, given that the redeemability contract did work in practice (Checkland 1975, White 1995), the lessons of history can be used more positively. That is, the characteristics needed to make a bank's promise to maintain a certain quality of money reliable can be found at least in part by isolating the special features used to make the bank's redemption promise credible to its money holders.[15]

It appears to be taken largely for granted in much of the free banking literature that a bank's promise to redeem units of its money for a fixed number of units of a redemption medium will always be effective. Perhaps the ease by which a breach of contract can be detected makes this appear self-evident.[16] However, automatic redemption has never been taken for granted by bank customers. As is illustrated by the history of free banking in Scotland, there is a long history of legislative and court action designed to deal with the potential of a free bank to refuse to honour its redemption promise. In particular, early recognition of the potential costs imposed by the refusal to redeem led to the inclusion of the special Scottish legal clause of 'summary diligence' into the Bank of Scotland's original charter (in 1695).[17] Yet even with this charter provision, which should have settled immediately the question of non-redemption and the legal status of the promise in the bank's notes, requests to redeem were not always honoured. As late as 1728, the Bank of Scotland had to be taken to court to honour its 'summary diligence' clause. With the charter provision upheld by the courts, the bank next attached an option clause, allowing it up to a six month grace period before any action could be taken in court to force payment.[18] Only by 1765, through the Scottish Bank Note Act, was the question of summary diligence finally resolved for all private Scottish

banks.[19] Only then would the failure to pay off a bank demand liability in terms of the promised commodity proceed directly to bankruptcy or to the winding up of a bank's business without recourse to the usual court delay of proving liability. This then allowed holders of redeemable money, which would not be redeemed, quicker access and, hence, a greater likelihood of ultimate redemption, even if not in the form of the specified commodity.[20]

The significance of this excursion into Scottish banking is that more than the ability to recognize at low cost the breaking of a promise is needed in order to make a promise effective. Non-compliance must impose a cost and the payment of that cost must be credible for the contract to be enforceable. In this case, the general contract provisions of Scottish law and the enforcement abilities of Scottish courts were used to impose a sufficiently severe and immediate penalty on any Scottish bank that failed to keep its promise. If that external enforcement mechanism were removed, the redemption promise of the bank would become much less credible, perhaps as 'incredible' as the bank's promise of purchasing power quality. Given general awareness of the time inconsistency problem inherent in their monetary promise, Scottish banks were able to meet the demand for bank money by pre-committing to a penalty for failure to perform on their offered redemption contract sufficient to make their promise credible. Here the courts made pre-commitment more credible by allowing banks to consent in advance to being placed in bankruptcy if they failed to redeem, thus allowing holders of their money to seize without delay the bank's remaining assets.

This basic reasoning can, of course, be applied to the promise related to non-redeemable money. Since a comparison of the potential use of redeemable or non-redeemable money must be grounded in the same legal and institutional environment, the promise to preserve the purchasing power of the bank's non-redeemable liabilities would have to be accompanied by a similar penalty to ensure compliance. By analogy, a bank's prior consent to be placed into bankruptcy could be required as an essential part of the agreement should its purchasing power promise be broken. In the absence of other considerations, an informed market would require this before that bank's money would find acceptance.

The use of severe penalties for non-compliance to prevent banks from breaking their payment promise only serves this purpose, however, if it is possible to identify, and identify sufficiently quickly, when a bank is breaking its promise. Otherwise, undetected misbehaviour by a bank could last long enough to make cheating followed by bankruptcy profitable (White 1999: ch. 12). Relative to non-redeemable money it would seem that redeemable money has a distinct advantage. A bank depositor need only ask to have a deposit redeemed in the specified commodity, e.g. gold, and if

the bank does not do so, the bankruptcy penalty would take effect right away. Even here, however, the ability to monitor the most relevant dimension of the bank's implicit promise is much more problematic. That is, given that it is the guarantee of the future redeemability of bank money that has value to any money holder, the ability to ascertain current redemption at low cost need not guarantee similar redeemability in the more distant future.

Even so, it would appear inherently more difficult to detect when a bank has broken its promise to keep its future price level or maintain its inflation rate target. Here, however, the ability to observe current variations in inter-bank exchange rates became Hayek's public signal for how well any bank was adhering to its promise.[21] That is, variations in current exchange rates will occur as a result of adverse clearings among banks. Hence, a bank that over-expands relative to the real demands of its customers (leading eventually to a rise in prices expressed in its money) will have more of its payment orders flowing to its competitors than it will have competitor orders coming in to it. As its competitors sell off the excess orders of the expanding bank, the excess supply in the market will cause its exchange rate with other bank monies to depreciate. Such a depreciation then signals that a bank is not adhering to its inflation target and market observers will realize this implication and interpret unfavourable exchange movements as a sign of a bank's potential non-adherence to its purchasing power promise. Under competition, ongoing exchange rate depreciation leads to a loss of business as the public flees from it to banks that offer greater relative price stability. In this way, the market penalizes a bank's failure to keep its purchasing power promise.[22]

Although a depreciation of a bank's currency in the inter-bank exchange market could signal a broken promise, there are other, more benign reasons for current exchange rate changes. Hence, it would be uneconomic to trigger a bankruptcy penalty or flight of money holdings simply for failure to maintain an exchange rate when daily movements are more likely to be related to variable lags in the transmission process, shocks or other random events unrelated to bank behaviour. Given that the reason for the promise is to give the bank the incentive to maintain a fixed inflation rate, not a fixed exchange rate, the bank's contract would be better focused on the actions the bank could take to offset threats to the real value of its monetary unit. In general, the threats that arise may come either from its decisions and operational practices or from random events outside its control. In either case, they result in undesired changes in current purchasing power. However, only those changes that can be attributed to the failure of a bank to respond appropriately to the observed change in its expected future purchasing power would reflect the breaking of the bank's promise. In

other words, the promise of a bank to preserve purchasing power can only mean a promise to take timely and appropriate action to achieve that end.

In an important sense, the behavioural promise that is proposed is really no different from the promise to redeem bank money in terms of some commodity such as gold. Although that contract has the indirect consequence of keeping the purchasing power of the bank's currency reasonably constant as a consequence of keeping the price of gold fixed, it is the ability to police the actions of the bank – whether or not the bank will return gold on request – that ensures the feasibility of that contract. In this case, the current actions of the bank similarly cannot guarantee that any particular inflation rate can be attained with certainty at any particular point in time. Nevertheless, given that there is a connection between current bank actions and future expected and actual money prices, the feasibility of the price stability contract would then require as explicit and observable a series of current actions by the bank as those required under the redemption contract. So the problem of assessing whether a free bank is adhering to its promise of price stability becomes identifying whether the bank is undertaking the separate different actions needed for it to achieve its particular target. Once these procedures are identified, they can be made explicit and observable and so specified as a form of contract. One such set of procedures is those adopted by central banks currently engaged in explicit inflation targeting as their way of maintaining their own commitment to price stability.

Whilst there is no standard model for how central banks operate to inflation target, the general procedures followed are well understood (Bernanke *et al.*, 1999). For example, given the lag between the initiation of monetary action and its effect on money prices (Bank of England 1999), knowing whether or not intervention is needed today requires a forecast of what money prices will be in the absence of active bank action. Only by having a forecast of what future prices will be at the forecast horizon can the bank know whether its current actions will produce its promised target. Second, as soon as the forecast reveals that the bank is off target, the transition from today to the target horizon can be kept as smooth as possible by requiring the central bank to adjust its control instrument (which could be either an internal administered interest rate or a rate of growth of a money aggregate).[23] Third, given the size of the departure of forecast from target, the central bank must change its control variable by the amount that best current knowledge of the economy suggests would be necessary to bring actual inflation back to its target by the horizon date.[24]

In just such a manner, a free bank that promised a certain quality of price stability could offer a performance contract based on these established requirements. Moreover, since any potential bank would already have

considered some such control mechanism, a performance contract would simply require it to make that control procedure both explicit and visible. This would require first the exact specification of what the bank's control instrument would be and the inflation rate at which it would be targeted. To be credible, on the other hand, the forecast would now have to come from a source that was external and independent of the bank itself. Finally, to rule out the possibility of cheating on promised action, discretion must be eliminated. This means that the magnitude of the change in the bank's control instrument would need to be pre-specified for each observed deviation in forecast from target.

The periodic and public release of an inflation forecast would then bind the bank to an observable course of action – to make an immediate and predetermined change in its control variable should the forecast of price performance be off target. Failure to do so would constitute a broken promise and so subject it to the same penalty as would the broken promise to redeem by banks contracting to supply redeemable money. By adopting such a performance rule, the bank's behaviour becomes both predictable and observable, so that a contract based on such behaviour becomes feasible.

The cost of the bank choosing to commit to a performance rule is that it requires the recognition and acceptance by money holders that even the optimal performance rule will not produce price stability at every point in time.[25] Rather, by foregoing discretion and the possibility of period-specific bank actions, the performance contract is made feasible at the cost of potentially superior period-by-period price level outcomes. As long as the performance rule is not biased towards expansion or contraction, however, the errors arising from the use of a rule compared to adjustment on a case-by-case basis will be random and the results will average the target level over the long term.

To provide predictability and reliability, the performance rule needs to be fixed to prevent unilateral, redistributive changes by the bank. The rule then prevents the bank from using discretion to hide arbitrary changes when acting on the basis of publicly revealed forecast information. Yet flexibility in the forecast horizon and the size of instrument adjustment is necessary to allow competition to respond to changes in market conditions and other circumstances, as Hayek well understood. For this reason, Hayek would encourage banks to experiment with changing both their specific inflation target and the specification of the index used for inflation measure and control.[26] On the other hand, the loop-hole granted by the ability to change contract terms is often taken by critics to mean that the promise at the heart of Hayek's free banking approach cannot remain credible. However, it should be clear that it is only unilateral contractual change that is undesired (since it permits redistributive activity) and

changes in the contractual features of bank performance that are preferred mutually constitute gains from trade and should be encouraged. Hence, consistent with Hayek's well-known views on markets generally, changes such as banks might propose in their inflation measure, forecast horizon, and/or adjustment rule could only be in response to (or in anticipation of) changes desired by the market. Without the ability to change, an established bank could not last in competition with newly entering banks offering superior performance.

It follows that some procedure for incorporating those changes desired by all would have to be added to the contract that each bank has with its depositors. This could take the form of a clause permitting a change in the rule for price stability upon sufficient public notice, perhaps so long as not more than a certain percentage of the bank's creditors did not object during the notice period.[27] The intent would be to allow for adopting changes that would improve inflation targeting.

In summary, then, a bank's promise to maintain the purchasing power of its non-redeemable money can be made effective by first agreeing in advance to a sufficient penalty, such as being placed in bankruptcy, should it fail to keep its promise to act in a manner consistent with price stability. For this to be enforceable, the bank would have to commit to a transparent rule that laid out precisely how it would act for any deviation in the expected real value of its money from target. Full disclosure of its quality control procedure, along with periodic revelation of the inputs used in the process, would indicate whether or not the promise to act as required was being kept. No more than the ordinary legal remedies available to business generally then would be needed to force non-complying banks out of business before either inadvertent or deliberate non-compliance led to significant redistributive loss. In this sense, the non-redemption contract can be put on the same footing, both conceptually and effectively, as its more accepted redeemable counterpart.

4. The practicality of free banking under Hayek

Even if, as has been argued, Hayek's free banking system could exist while supplying only non-redeemable money, it might prove too complicated to be practical as a viable monetary system, or so it has been charged. Here the most telling complication is the scope Hayek's proposal has for generating several different money units all in simultaneous use within a single economy. This could mean multiple different prices for every good and service and require individuals to keep track of multiple price indices for comparing alternative inflation rates within the economy. With banks

settling their inter-bank transactions by selling each other's monies in an outside market, there could arise a multitude of domestic money exchange rates, each of which could vary over time.[28] If such diversity were the final outcome for Hayek's free banking system, its practicality could indeed be called into question.[29]

Hayek himself eliminated two sources of diversity by assuming that the universal desire for a stable currency would lead all banks to adopt the same low inflation target as measured by a price index based on a common commodity basket.[30] General acceptance by the public of similar low inflation targets as set by many of the current inflation targeting central banks would seem to bear out this assumption. Moreover, unlike the current practice, where national currencies face no internal competition, competitive banks would have more incentive to better target the rate desired by potential customers and the profit incentive given to superior performance would lead the system to converge on the bank's offering that desired rate.

Uniformity of individual bank targets, however, still leaves each bank free to adopt its own particular method for pursuing that target and different behavioural rules would lead from time to time to fluctuations in inter-bank exchange rates across the domestic economy. But while there will always be more than one set of procedures that could be followed, one would also expect that during any particular time period, one behavioural rule would emerge dominant from the competition with others. Such a process of procedural standardization, where each bank is bound to follow uniform procedures in relation to a common inflation target, will keep each of the banks in step. This means that, under competition, currencies will approach par so that money exchange rates, although flexible, will neither appreciate nor depreciate as long as all behavioural promises are met.[31] It follows that a preference by society for avoiding unnecessary monetary fluctuations within an otherwise optimum currency area would lead to convergence by each bank and to the acceptance by the public of a common target and a common set of controls. Under free entry, potential new (and/or established) banks could offer new methods that promise to produce superior results and these would lead to exchange rate changes in the short term. However, if market expectations and/or time prove these methods to be superior, competition would force the other banks to follow suit. Thus, continuous innovation and experimentation would not be inconsistent with the tendency for individual bank prices to converge under Hayek's free banking system.

With the likelihood that all bank-specific currencies end up exchanging at par, one currency will appear to be the same as any other one. A single price index and a single inflation forecast will then serve to evaluate the inflation performance of any bank following the same standard operating

rule in relation to the inflation target. Should all banks have adopted a common unit as part of their designation (as in the earlier example of Bank of Scotland and Royal Bank 'pounds'), the common unit (pounds) may lead the public to express prices simply in terms of that common unit, where units are understood as an equivalent number of units of any of the circulating currencies exchanging at par. Alternatively, as Hayek (1986: 9) has suggested, a new common monetary 'standard', together with a set of supporting institutions, could be introduced for that purpose.[32] This would preserve the separateness of the individual banks in relation to the common unit of account. However, even with the first case of a common unit name being adopted in general use, the different bank units would still be distinguished for assessment purposes – for either default or quality concerns – by the name of the bank issuing that unit. In just such a way Bank of Scotland's pounds can still be differentiated from Royal Bank of Scotland's pounds, simply by the business name of that bank.[33]

With competitive evolution to a common, neutral monetary unit, banks could settle among themselves effectively either in terms of the new common 'unit', if Hayek's suggestion was adopted, or in terms of an equivalent number of third party units if the first method had evolved. In addition, clearing arrangements could revert to a more familiar form for handling inter-bank payment orders. That is, by settling in common units among themselves, banks need not resort to an outside market for selling off their competitors' payment orders. That option would still exist, however, for nonconforming banks and for the disposal of the excessive clearings of conforming banks that despite their promise were moving out of line. More explicitly, for those banks adopting the same inflation target and common operating practices, there could be a clearing house arrangement that allowed banks to create debit and credit settlement balances (summing to zero for the system as a whole) to handle normal daily clearing swings. Payment orders in excess of a bank's debit limit would be returned to the presenting bank for disposal in the outside exchange market. In that case, a bank over its clearinghouse limit would see its currency depreciate and so provide a visible signal to the market that there was a problem with continuing to hold its units.[34] In any event, even with a common unit of account, each bank would be individually committed to act in a uniform way to any deviation in that measure from the common target for it. Individual bank money prices could vary, allowing a depreciating exchange rate for any bank between inflation forecasts to cast doubt on its inflation commitment and so on its ability to retain business.[35]

In short, projecting the way that individual banks could operate to pursue an inflation target (based on what can be observed from current central

bank practice with regard to inflation targeting), Hayek's version of competitive free banking turns out to be neither impractical nor especially complicated. Indeed, it would likely appear very similar to current banking practice, differing only in that it is not under the monetary control of a central bank. The addition of individual competition in the development and exploitation of behavioural rules also means that the industry would likely generate more accurate information on the transmission process and the length of monetary lags. This in turn would encourage behavioural rules to become more sensitive to market developments and to changing preferences. Finally complexity tends to disappear when market competition encourages convergence on best practice and this reduces the variety cost often thought to be associated with differently named monetary units. Uniformity is ensured when in practice only units of the best behaved banks survive and when all that survive are equally good.

5. Conclusion

Hayek's free banking proposal, based as it is on a non-redeemable bank liability, faces strong objections, primarily because it relies on the credibility of a bank's promise to keep the purchasing power of its money constant. Such a promise, subsequent scholars have argued, cannot be effective under free banking because of the inevitable lag between promise and outcome (White 1999: ch. 12). Only the ability to redeem bank money on demand in terms of something both fixed and tangible, it is argued, can be effective under free banking. The analysis presented here, on the other hand, argues that there is no substantive difference in what is required to make a money promise effective, whether the money promise is redeemable or non-redeemable. Both can be based on the observability of current bank actions. In this case, the feasibility of a promise of stable prices requires the bank to structure its promise (contract) in terms of actions that: a) can be observed currently; and b) when followed are sufficient to guarantee that some measure of future price stability will be forthcoming. Indeed, if the existence of non-redeemable money is cost effective, a societal preference for money with a stable purchasing power would lead free banking to reject a 'wobbly' commodity standard in favour of the proposal set out by Hayek.

Aside from the question of existence, Hayek's proposal has also been criticized for being too complicated because bank-specific monies could vary in terms of each other. This would require consumers to calculate in multiple bank prices and convert at possible multiple exchange rates. Using recent central bank experience with inflation targeting as a feasible route

for establishing the characteristics of enforceable bank performance, the actions of Hayek's free banks would not be expected to result in different inflation rates, and constantly variable inter-bank exchange rates would be rarities. That is, it would not in practice be as complicated as general discussion might make it appear. The reason is that inter-bank competition in operating practices would produce a convergence among banks in their operating procedures that would in turn result in considerable uniformity in pricing outcomes. With costless arbitrage, all currencies would tend to be treated as one. The outcome would be a banking system with no greater price diversity than the standard banking system of today.

In essence, Hayek's proposal for inflation targeting by free banks can be shown to be both feasible and practical. Whether or not his version of free banking is actually superior to the current approach to free banking depends upon the detailed examination of the full benefits and costs of each alternative and these can be debated. What has been shown here is that Hayek's proposal cannot be rejected out of hand for being either ineffective or impractical.

Notes

1 We would like to thank two referees from this journal for perceptive and insightful comments on an earlier draft of this paper. In addition, we thank T.K. Rymes, Amir Kia, and particularly Professor Charles Goodhart for comments that led to the refinement of parts of our analysis.

2 For many free bankers, these two separate points coincide. That is, if all competitive banks offered money redeemable at par in terms of the same real commodity, then relative money prices would remain fixed and the seeming complexity of the free banking system would be considerably reduced.

3 Note that we are not arguing that the non-redemption contract will necessarily be superior to a redeemable money contract. That would require a more explicit examination of the full benefits and costs of the two contracts and is beyond the scope of this paper. Rather, here we make the more limited claim that in all its essential characteristics, the non-redemption performance contract can be made just as feasible as the more traditionally accepted redeemable money contract.

4 As Hayek writes (1990: 23): 'As soon as the public became familiar with the new possibilities, any deviations from the straight path of providing an honest money would at once lead to the rapid displacement of the offending currency by others'. We also follow Hayek in using 'currency' to mean both notes and deposits, unless mentioned explicitly otherwise.

5 Hayek (1990: 46) writes that if he were in charge of an issuing bank: '...I would announce...my intention to regulate the quantity of ducats so as to keep their (precisely defined) purchasing power as nearly as possible constant. I would also explain to the public that I was fully aware I could keep these notes in circulation only if I fulfilled the expectation that their real value would be kept approximately constant'.

6 The use of bank specific money and variable money prices was earlier used by Ben Klein (1975) to emphasize that it was the ability to distinguish among monies that allowed circumvention of Gresham's Law and countered the argument that competitive banking would necessarily result in an infinite price level. Unlike Hayek, Klein had no assumption about the optimal inflation rate arguing that predictability rather than stability was the valued attribute of money and that distinguishable monies could provide that feature whatever the inflation rate customers desired.

7 See Hayek (1976: 39) in section VIII, *Putting Private Token Money into Circulation*. Each money unit then has its own distinct trademark.

8 Hayek (1978: 123–4) writes: 'Considerations of convenience would probably also lead to the adoption of a standard unit, i.e. based not only on the same collection of commodities but also of the same magnitude'. See the discussion in section 4.

9 While the basket needs to be specified, its contents need not remain fixed forever. Hayek (1976: 39) writes: 'I would announce that I propose from time to time to state the precise commodity equivalent in terms of which I intended to keep the value of the ducat constant, but that I reserved the right, after announcement, to alter the composition of the commodity standard as experience and the revealed preferences of the public suggested'.

10 Here it is assumed that an outside market will arise for the different currencies whose exchange prices reflect the purchasing power of each bank's money in terms of each other. One of the referee's points to the following quote from Hayek (1978: 49): 'The competition between the issuing banks would be made very acute by the close scrutiny of their conduct by the press and at the currency exchange. For a decision so important for business as which currency to use in contracts and accounts, all possible information would be supplied daily in the financial press, and have to be provided by the issuing banks themselves for the information of the public'.

11 For Hayek the exchange value of a bank's notes becomes a sufficient statistic to monitor relative bank performance.

12 There is little doubt that Hayek himself believed that the promise of price stability would be credible. Hayek (1990: 48) writes: 'The kind of trust on which private money would rest would not be very different from the trust on which today all banking rests (or in the United States rested before the governmental deposit insurance scheme!). People today trust that a bank, to preserve its business, will arrange its affairs so that it will at all times be able to exchange demand deposits for cash, although they know that banks do not have enough cash do so if everyone exercised his right to demand instant payment at the same time. Similarly, under the proposed scheme, the managers of the bank would learn that its business depended on the unshakable confidence that it would continue to regulate its issue of ducats . . . so that their purchasing power remained approximately constant'.

13 In Klein and Leffler (1981), these trade-off possibilities are set out formally and while Klein (1975) argues that with distinct monies and flexible money exchange prices, brand name capital may be sufficient to overcome this cheating problem. In essence, that requires each bank to post a bond in terms of specific capital that would be lost should an attempt at cheating be discovered. In White (1999: 236) this potential solution is challenged. For White, the gain that can be made by capitalizing on any temporary departure between actual and expected prices can always be made infinitely large, making this the predictable profit maximizing outcome. Foreknowledge of this result will prevent a pure fiduciary bank money system from ever being established.

14 Note that the historical-evolutionary approach used in much of the free banking literature tends to rule out non-redeemable money from the start, at least partially on the grounds that this path was not an actual historical outcome for free banks (Selgin and White 1987). Hayek avoids the seeming inevitability of this argument by beginning in a world already accustomed to non-redeemable money, albeit under central bank control.

15 Hayek, himself, believed that making the promise of price stability into a contract was unnecessary and would unnecessarily restrict the flexibility of the bank. In one passage Hayek writes (1990: 47): 'It would, however, be clearly necessary, though it seems neither necessary nor desirable that the issuing bank legally commits itself to maintaining the value of its unit, it should in its loan contracts specify that any loan could be repaid either at the nominal figure in its own currency, or by corresponding amounts of any currency or currencies sufficient to buy in the market the commodity equivalent which at the time of making the loan it had used as its standard'.

16 Note that the strength of the redemption contract arises precisely because it does not promise what consumer's ultimately desire, that is, the stable purchasing power of the notes (deposits) that they hold. Rather, a second (or third) best mechanism for producing price stability is accepted by money holders because the transparency the contract allows for low cost third party observation and hence enforcement.

17 'Summary diligence is a provision in Scottish Law that arises when a contract contains a clause providing for registration of the contract in the Books of Council and Session for preservation and execution. So, where summary diligence is available, it is not necessary to go through normal court procedures. This precludes a debtor from trying to defend a debt action on spurious grounds, thus preventing the creditor from obtaining decree and enforcing it quickly . . . The principal advantage of summary diligence is the short-circuiting of court debt recovery procedures and the ''shock tactic'' approach will often result in early repayment if money is available.' Commentary on Scottish Law, available online at: http://www/legal500.com/devs/uk/sl/uksl_029.htm

18 White (1996: 24) writes 'The Bank [of Scotland]'s pound note now promised to the bearer ''one pound sterling on demand, or in the option of the Directors, one pound and six pence sterling at the end of six months after the day of demand'''.

19 Checkland (1975: 121) writes: 'The statute of 1765 was entitled ''An Act to prevent the inconvenience arising from the present method of issuing notes and bills by banks, banking companies, and bankers, in that part of Great Britain called Scotland''. It killed the option clause and the very small notes. But it left Scotland with its one pound and one guinea notes. Moreover, it cleared up, once and for all, the question of ''summary diligence'' against bank notes (made applicable to bills of exchange in 1681); all such notes were to be subject to protest at law by ''summary diligence''. This meant that there could be no more questioning by the public banks or anyone else of the legal status of the notes of any bank, banker, or banking company'.

20 Even if a reneging bank could be put into bankruptcy instantly and costlessly, the ultimate recovery of deposits funds is typically neither. In relation to US banking experience prior to deposit insurance, Kaufman (2004: 243) writes 'Between 1865 and 1933, receiverships, during which depositors were paid in installments as the assets were sold, lasted as long as 21 years and averaged 6 years in length. . . As a result the loss of liquidity became an increasingly important public policy concern'. This consideration, however, is common to the two contract types discussed here.

21 Under the redeemable promise, the comparable early warning sign would be the abnormal accumulation of an expanding bank's notes and deposits throughout the clearing system. This reflux mechanism allows other banks, but not necessarily the offending bank's own customers, an early sign of a potential breach of contract.
22 The argument in the text assumes that all banks follow Hayek in promising price level constancy so that failure by one bank to maintain that promise will result in exchange rate depreciation. However, the argument generalizes for cases where, for example, the bank's price stability promise is a two percent per annum inflation rate and all other banks promise four. In this case the market would expect a two percent appreciation rate of the first bank's money each period so that failure to maintain that promise would result in the depreciation of that bank's money exchange rate relative to that trend.
23 For this argument it is not essential what the particular monetary control mechanism is as long as it is mutually acceptable and clearly visible. Hayek, himself, preferred a control method other than simply fixing an explicit money growth rate (Hayek 1990: 81). Once a behaviour contract was first adopted, however, competition among independent banks would allow experimentation so that the final control mechanism would be the one resulting in more predictable and stable money prices.
24 For a more extended analysis of these steps in relation to an interest rate control mechanism under indirect convertibility, see Ferris and Galbraith (2003).
25 This is again similar to the second best accomplishment of a redeemable money regime. That is, by promising redemption in terms of a commodity such as gold, only the bank money price of gold is held fixed directly. Given that changes in either the demand or supply of gold do occur, bank money prices will change proportionally. Only to the extent that the relative price of gold stays fixed will the gold redemption contract deliver the desired stability of the purchasing power of bank money.
26 See the quotation in footnote 9.
27 Because the current value of the bank's money depends upon the market's perception of the future usefulness of each bank's money, any change in performance characteristics of bank money will impact immediately on the exchange value of each bank's money. This implies that all recognized improvements will increase the value of the money held by current holders (and so will be welcomed by current holders) but also implies that there will be immediate losses if the market generally does not see the future change as an improvement. In this sense, simple notice of a future change cannot protect current money holders from such negative consequences. A requirement for having the bank convince some proportion of its depositors of the value of the change is then some protection against mistakes made by banks attempting to innovative ahead of the market.
28 Even if multiple prices for each product did exist, transaction costs could be reduced by having each store adopt only one of the currencies as its unit of account and upon purchase apply the current exchange rate to convert to into any of the economy's active medium of exchange.
29 Hayek, himself, did not believe that the multiplicity of bank prices would cause any insurmountable problem. He writes (1990: 67): 'Shopkeepers . . . so long as they know they can instantaneously exchange any currency at a known rate of exchange against any other, would be only too willing to accept any currency at an appropriate price. Electronic cash registered would probably be developed rapidly not only to show instantaneously the equivalent of any price in any currency desired, but also to be connected through the computer with banks so that firms would immediately be credited with the equivalent in the currency in which they kept their accounts . . . '.

30 See footnote 8.
31 Under these circumstances, exchange rate changes arise only for idiosyncratic bank-specific events and lead to departures from par that are only transitory. In such cases, arbitrage would be expected to keep inter-bank exchange rate deviations within the narrow band about par, the size of which is dictated by the real costs of arbitrage activity.
32 'The availability of current accounts, credit cards and similar devices makes it possible to offer a stable unit available for most transactions without issuing it in the form of circulating pieces of metal or paper. The offer of current accounts in a stable unit – redeemable on demand in such amounts of the currencies generally used as are required to buy a ''basket'' of raw materials and foodstuffs at spot prices determined at the international commodity exchanges and measured bay a weighted index – would achieve the same result... The ideal name for the new unit of account, clearly making its function universally intelligible, would be the proverbial term *Standard*, a rather obvious name which, however, has so far never been used as the designation of a particular monetary unit' (Hayek 1986: 9).
33 For Hayek, it was important to preserve the information function of the money exchange market by not allowing the emergence of a clearinghouse to result in the fixing of exchange rates between bank monies. Hayek (1990: 65) writes: '... the dealings of an issue bank in other currencies would therefore never be a purely mechanical affair (buying and selling at constant prices) guided only by the observed changes in the purchasing power of the other currencies; nor could such a bank undertake to buy any other currency at a rate corresponding to its current buying power over the standard batch of commodities; but it would require a good deal of judgment effectively to defend the short run stability of one's own currency, and the business will have to be guided in some measure by predictions of the future development of the value of other currencies'.
34 Aside from attempts to expand artificially, an accumulation of excessive settlement commitments being returned to a bank would signal a reduction in the real demand for that bank's currency relative to other banks in the system. Hence, to remain within the clearinghouse system, the bank would have to contract the real scale if its activity to restore the convertibility of its monetary units at par. Otherwise the bank would have to renegotiate the terms of its notes convertibility at permanent discount.
35 It is the preservation of individual bank prices that polices any collusive attempt by the banks as a group to renege on their promise of price stability. That is, even though joint expansion would not be observed in relative price changes in the money exchange markets (if all expanded proportionally), independent bank forecasts would reveal the forthcoming problem and allow individual banks to profit by following its established procedures for correcting such a departure.

References

Bank of England (1999). *The Transmission Mechanism of Monetary Exchange*. London: The Monetary Policy Committee, Bank of England.
Bernanke, B.S., Thomas L., Adam S.P. and Miskin, F. (eds) (1999). *Inflation Targeting*. Princeton: Princeton University Press.
Checkland, S.G. (1975). *Scottish Banking: A History, 1695–1973*. Glasgow: Collins.
Ferris, J.S. and Galbraith, J.A. (2003). Indirect convertibility as a monetary rule for inflation targeting. *Applied Financial Economics*, 13(10): 753–61.

Hayek, F.A. (1976). *Denationalisation of Money*. London: The Institute of Economic Affairs.
Hayek, F.A. (1978). *Denationalisation of Money*, 2nd edition. London: The Institute of Economic Affairs.
Hayek, F.A. (1986). Market Standards for Money. *Economic Affairs*, 6(4): 8–11.
Hayek, F.A. (1990). *Denationalization of Money - the Argument Refined*, 3rd edition. London: The Institute of Economic Affairs.
Kaufman, G.G. (2004). Depositor liquidity and loss sharing in bank failure resolutions. *Contemporary Economic Policy*, 22(2): 237–49.
Klein, B. (1975). The competitive supply of money. *Journal of Money, Credit, and Banking*, 6(4): 423–52.
Klein, B. and Leffler, K. (1981). The role of market forces in assuring contractual performance. *Journal of Political Economy*, 89(4): 615–41.
Selgin, G. and White, L.H. (1987). The evolution of a free banking system. *Economic Inquiry*, 25(3): 439–58.
Selgin, G. and White, L.H. (1994). How would the invisible hand handle money? *Journal of Economic Literature*, 32: 1718–49.
White, L.H. (1995). *Free Banking in Britain*, 2nd edition. London: Institute of Economic Affairs.
White, L.H. (1999). *The Theory of Monetary Institutions*. Malden, MA: Blackwell Publishers.

Abstract

Recent central bank experience with inflation targeting is used to restate Hayek's reform proposal as a performance contract. This requires banks to first state an explicit inflation target and then promise to perform a set of actions whenever an independent forecast departs from target. Making such actions explicit and observable makes the promise of price stability offered by competing banks operational and enforceable. Competition among banks then leads to convergence on current best practice in the short term and to faster performance evolution as the incentive to innovate induces improvements over the long term.

Keywords

Non-redeemable money, Hayek, free-banking, inflation targeting, performance contracting