Central bank independence and accountability: theory and evidence

Clive Briault, Andrew Haldane and Mervyn King discuss the importance of central bank accountability:[1] *how it relates to central bank independence; why central banks should be accountable for their actions; and how accountability and transparency can help to reduce the inflation bias which might otherwise result from discretionary policy-making.*

Over the last few years many central banks have made significant strides towards greater accountability and transparency. There has been a dilution of what Karl Brunner[2] once called the 'peculiar and protective political mystique' that has traditionally surrounded central banking. Central banks in countries which have recently adopted inflation targets have all become more open about the formulation and presentation of their monetary policies.[3] Similar moves have been evident among central banks recently granted greater independence through legislative changes—for example, in France. And in the United States there is active debate on the replacement of the Humphrey-Hawkins Act—and its multiple objectives—with a single objective of price stability, and on the publication of the full transcripts of Federal Open Market Committee (FOMC) meetings.

How might we best explain this shift towards greater accountability and transparency? One answer is that greater accountability has run hand-in-hand with moves towards greater central bank independence: greater accountability is the government's *quid pro quo* for granting greater central bank autonomy. Why? Independence delegates responsibility for monetary policy to an ultimately unelected authority—the central bank. So making this authority accountable for its actions insures against a 'democratic deficit'.

But this argument scarcely explains existing central bank practices. The Bundesbank is strongly independent yet has relatively few burdens imposed upon it in terms of accountability and transparency. And it is striking, too, that the statutes of the embryonic European Central Bank follow a similar blueprint. At the other end of the spectrum, the Bank of England has little formal central bank independence. But the United Kingdom's new monetary framework is characterised by considerable transparency. New Zealand offers a different model again. Independence was granted in the context of a formal contract between the government and the Reserve Bank, with accountability imposed through the threat of dismissal of the Governor.

It is clear from these examples that, in practice, the mappings between accountability and independence are far from straightforward. And, correspondingly, no one analytical model is able to account for all of them. But to begin to understand these mappings it is useful to consider a set of distinct models of monetary policy institutions. These models provide the organising framework for our discussion of central bank accountability and independence.

Defining central bank independence and accountability

When considering *independence*, we follow Fischer's[4] dichotomy between central bank *goal* independence—the central bank setting its own targets (or at least determining how precisely these targets are specified)—and *instrument* independence—the central bank's ability to choose its own instrument settings. The difference between them is crucial in explaining why various monetary models may imply differing degrees of accountability.

Turning to *accountability*, the Oxford English Dictionary defines accountable as 'obliged to give a reckoning or explanation for one's actions; responsible'. In turn, it defines responsible as 'legally or morally obliged to take care of something or to carry out a duty; liable to be blamed for loss or failure'. So the natural context in which to consider accountability is within a principal-agent relationship. And, in a monetary policy context, these roles are typically taken by the government (as principal) and the central bank (as agent).

Within this principal-agent relationship, however, accountability might take a variety of forms. The simplest case to envisage is when there is a formal contract between the government and the central bank—a 'legal' obligation to carry out a duty, or *de jure* accountability. This contract

(1) This is a shortened version of a paper co-authored by Clive Briault, Andrew Haldane and Mervyn King which is forthcoming in 'Toward More Effective Monetary Policy', Kuroda, I (ed), proceedings of the Seventh International Conference sponsored by the Bank of Japan's Institute for Monetary and Economic Studies held on 26–27 October 1995, Macmillan Press. Copies of the paper are available on request from the authors.
(2) Brunner, K (1981), 'The art of central banking', Centre for Research in Government Policy and Business, *Working Paper No Gp B 81–6*, June.
(3) See Haldane, A G (1995), 'Introduction', in *Targeting Inflation*, Haldane, A G, (ed), Bank of England.
(4) Fischer, S (1994), 'Modern central banking', in *The future of Central Banking*, Capie, F, Fischer, S, Goodhart, C and Schnadt, N (eds), Cambridge University Press.

might specify the areas over which the central bank exercises discretion (its 'duty'); what it is to be held accountable for (its 'responsibility'); what needs routinely to be monitored to ensure effective accountability (a 'reckoning' or 'explanation'); and what penalty will be imposed for non-compliance (apportioning the blame for 'loss or failure').

But, equally, it is possible to envisage more subtle forms of accountability or transparency. For example, even a non-independent central bank could perceive advantages in explaining its actions, intentions and objectives as a means of influencing public expectations—and thus lowering the costs of delivering the central bank's goals; in influencing the public's social welfare function—by educating them about the benefits of price stability; and in enhancing the reputation and credibility of the central bank—by providing a means for it to be judged against the coherence and persuasiveness of its analysis. All these examples might bring about greater central bank accountability—*de facto* if not *de jure*. Making the central bank's actions, intentions or analysis transparent subjects the central bank's reputation to a 'reckoning', for which it will suffer 'loss or failure' if it is found wanting. Such a set-up is thus qualitatively similar to a fully-specified legal contract between the government and the central bank.

Rules and discretion in monetary policy-making

There has been considerable interest recently in the design of monetary policy institutions. The typical approach takes as its starting point the idea that there is an 'inflation bias' problem endemic in discretionary policy-making. This problem derives from the incentives of the policy-maker to spring inflation surprises on economic agents to secure short-term boosts to output and employment. But rational agents engage in pre-emptive nominal wage-bargaining in anticipation of these actions. And the authorities can then do no better than to justify these price expectations—hence the inflation bias.

If discretionary policy-making leads to an 'inflation bias', what are the alternatives? Interest initially focused on fixed (or non-contingent) rules for nominal variables such as the money supply.[1] Provided they were credibly adhered to, such rules tied the authorities' hands, thereby preventing monetary policy from pursuing short-term output objectives at the expense of longer-run inflation performance. But such simple rules are not costless. Tying the authorities' hands also inhibits their ability to respond to shocks, such as adverse oil price shocks or sudden losses of competitiveness, which may destabilise output and employment in the economy. This loss of flexibility is then costly if the public care about the costs of unemployment as well as inflation. Herein lies the rules versus discretion trade-off in policy-making. Rules have an inflation—or *credibility*—benefit over discretion, but also impose a stabilisation—or *flexibility*—cost.

But what could a non-contingent rule tell us about the independence-accountability relationship? The imposition of a rule, by itself, involves no delegation of power to any agency, such as a central bank. Consequently, it need not be characterised by any central bank independence—whether goal or instrument independence—or accountability. Formally, there is no distinction between principal and agent under the rule and so nothing for an agent to be held accountable for. So a non-contingent rule, if it were observed in the real world, would thus tell us very little about independence-accountability mappings. This is not too much of a drawback. In practice it is difficult to pinpoint any real-world examples of a strict non-contingent rule having been adhered to by developed countries, at least over the post-Bretton Woods period. While many countries experimented with, for example, monetary targeting procedures in the 1970s and 1980s, in practice none of these frameworks worked in the rigidly inflexible fashion suggested by a fixed rule.

Central bank independence and the Rogoff model

In a highly influential paper, Rogoff[2] showed that a welfare-improving point on the credibility/flexibility frontier (better than either the non-contingent rule or discretionary outcomes) could be secured by delegating monetary policy-making to an authority with greater inflation-aversion than society as a whole—a *conservative* central banker. Such a model probably comes closest to matching what many people would think of as central bank independence: delegation of monetary policy to an inflation-averse authority with instrument independence.

Under the Rogoff model, the conservative central banker trades off some loss of flexibility against some gain in credibility. But Rogoff showed that provided the degree of central bank conservatism (or inflation-aversion) was not too great, there is an improvement in society's overall welfare compared with the discretionary case. So the two most important implications of Rogoff's model are that an independent central bank should attenuate inflation biases (lower average inflation); and accentuate stabilisation biases (raise output variability).

Empirical evidence, using various indices of central bank independence, has attempted to shed light on these two predictions. It lends strong support to the first of them: in the cross-section, greater (goal and instrument) independence does tend to be associated with lower inflation, both in mean and (to a lesser extent) variance. Whether we can tell a causal story from these correlations is, of course, another matter. The second of the model's predictions has fared less well. Most empirical studies have

(1) See, for example, Friedman, M (1959), 'A program for monetary stability', *Fordham University Press*, New York.
(2) Rogoff, K (1985), 'The optimal degree of commitment to an intermediate monetary target', *Quarterly Journal of Economics*, November, pages 1,169–90.

failed to find any significant link between independence and the mean or variability of output growth or employment. Taken by itself, this evidence would imply that central bank independence delivers a 'free lunch': an inflation gain, without any of the countervailing costs of output and employment variability.(1)

Because the Rogoff solution involves delegation of monetary policy responsibility to a non-government agency, it clearly raises questions of accountability. Formally, there is now a clear principal/agent relationship at work, in a way not true of the non-contingent rule. But the model also suggests there is no need for monitoring of the central bank or the imposition of ex-post penalties upon it for failure. Simply leaving an inflation-averse institution to its own devices is enough to ensure a preferred inflation outcome. So the Rogoff case can perhaps be characterised by (almost) complete goal and instrument independence and relatively little accountability.

Real-world examples of the Rogoff model could, in principle, be held to include any independent central bank. In practice, however, very few real-world institutions combine both high instrument and goal independence with little accountability in the strict way implied by the model. The Bundesbank offers one possible exception. It has complete instrument independence; its objectives are not very precisely specified, so it has a high degree of goal independence; and at the same time, the Bundesbank has relatively little formal accountability. Yet in practice the Bundesbank has been careful to reflect—perhaps even to cultivate—a public acceptance of the need for price stability.

By contrast, and despite having instrument independence, the US Federal Reserve system does not fit neatly within the Rogoff model. It is required to aim for the multiple objectives embodied in the Humphrey-Hawkins Act, which can be thought to dilute its 'conservatism' and goal independence; it is formally accountable to the United States government through the Chairman's twice-yearly appearances at Humphrey-Hawkins hearings and through frequent other testimonies to Congressional Committees; and the Chairman is formally appointed by the President.

This raises a question about the Rogoff model as a blueprint for an independent central bank. Independence without accountability might be interpreted as a dilution of democracy. Indeed, it was largely this concern that lay behind the Roll Committee's(2) recommendation that independence for the Bank of England should be accompanied by greater parliamentary accountability for its actions.

Lohmann(3) presents a hybrid of the Rogoff model, which does involve a form of accountability: the central bank is delegated responsibility for monetary policy but in the event of a significant shock this responsibility can be overridden by the government. This override clause, in turn, alters the central bank's behaviour, making it more aware of the output costs of its actions and thereby securing a welfare improvement. The Lohmann model has some clear real-world analogues. For example, the New Zealand Policy Targets Agreement has explicit exemptions in the event of 'significant' shocks to, for example, the terms of trade; and in the Netherlands and in Canada, the Minister of Finance has the right to issue an 'instruction' to the central bank on monetary policy.

Optimal contracts for central bankers

In recent papers, Walsh(4) and Persson and Tabellini(5) have demonstrated that, in principle at least, resolution of the credibility/flexibility trade-off is remarkably straightforward. The solution takes the form of a contract between the government (the principal) and the central bank (the agent). The contract levies a linear tax on the central bank for any inflation outturn in excess of the inflation target, and pays a linear subsidy if inflation is below the target. In all other respects, the central bank is given complete discretion when setting policy. So the central bank has complete instrument independence but little goal independence, since inflation objectives are written into the terms of the contract drawn up by government.

A suitably-specified contract can be shown to offset fully the inflation bias, while at the same time leaving stabilisation policy unaffected: that is, a linear tax can resolve any trade-off between credibility and flexibility. This result derives from the fact that, in conventional models, the inflation bias is constant across states of nature: it depends only upon the authorities' liking for short-run output gains and their ability to achieve them, both of which are assumed to be fixed parameters. Raising the marginal cost of inflation by a fixed amount (through a linear tax on above-target inflation outcomes) thereby neutralises incentives to generate an inflation surprise. It is assumed here that the government can credibly pre-commit to enforcing a contract, even though the original argument for an independent central bank was that the government could not credibly pre-commit to a rule. As others have observed, the Walsh solution is therefore really a way of *relocating* the inflation bias problem rather than actually *resolving* it.

Recently, Svensson(6) has shown that the same optimal outcome can result from a suitably-specified inflation target. Specifically, if the central bank is charged with hitting an inflation target which is *below* the socially optimal inflation rate, then, by lowering the central banks' inflationary sights by a fixed amount, the inflation bias can be offset. The inflation bias can be offset fully—a first-best can be

(1) Fischer, S, *op cit*, offers some possible explanations for this.
(2) Roll Committee Report (1993), 'Independent and accountable: a new mandate for the Bank of England', *CEPR*.
(3) Lohmann, S (1992), 'Optimal commitment in monetary policy', *American Economic Review, 82*, pages 273–86.
(4) Walsh, C (1995), 'Optimal contracts for central bankers', *American Economic Review, 85*, pages 150–67.
(5) Persson, T and Tabellini, G (1993), 'Designing institutions for monetary stability', *Carnegie-Rochester Conference Series on Public Policy, 39*, pages 53–84.
(6) Svensson, L E O (1995), 'Optimal inflation targets, 'conservative' central banks and linear inflation contracts', *mimeo*, Institute for International Economics, University of Stockholm.

achieved—by setting the inflation target equal to the socially optimal rate of inflation minus the inflation bias.

What do these models tell us about the independence-accountability relationship? Under the Walsh contract, there is a clear principal-agent relationship at work. The central bank clearly has something to be accountable for; it does not decide itself what it is to be judged against. The contract, in turn, uses this accountability to impose a constraint upon the central bank, penalising (or sometimes rewarding) it for target misses. This constraint (a linear tax) is clearly minimalist: it requires only that actual inflation outcomes are monitored, so that the tax can be levied on them. But with a clearly specified target and an appropriate set of penalties, the agent is provided with exactly the right incentives to 'do the right thing'. There is then no need for exhaustive monitoring of anything other than inflation itself, on which the tax is being levied.

To what extent is Walsh's optimal contract replicated in the real world? Many countries have announced clearly specified targets which might reasonably be interpreted as a performance contract of sorts. This would encompass countries with monetary and exchange rate, as well as inflation, targets. But few of these frameworks impose explicit pecuniary penalties for target misses—such as deductions from the governor's salary or the central bank's budget.

Another way of delivering the first-best, following Svensson, would be to give central banks inflation targets set below the socially optimal inflation rate. But in practice no countries appear to be targeting rates of inflation which are below the socially optimal rate. Moreover, it is questionable whether, under Svensson's inflation target, the central bank would want to be set an objective which it would rarely be seen to hit. This would surely be credibility-depleting over the longer run. It is difficult, then, to argue that the Svensson model has any counterparts in the real world, at least at the moment.

Taking these points together, the only country that perhaps comes close at present to the Walsh contract (or some variant of it) is New Zealand. There, the Policy Targets Agreement is an explicit, and precisely specified, contract between the government and the Reserve Bank. Explicit penalties are written into this contract, in that the Governor can be dismissed for failures to meet the target; he or she is held directly accountable for inflation target misses. Moreover, because the Reserve Bank's budget is fixed in nominal terms, this is also analogous to a linear inflation tax—even though, in practice, this constraint was devised with budgetary rather than monetary incentives in mind. This combination of targets, penalties and accountability thus seems to come reasonably close to matching the Walsh set-up.

Other countries fare well on some features of Walsh's optimal contract, but fail to satisfy fully all the criteria that might deliver it. For example, the United Kingdom has a clearly specified inflation target, which allows simple monitoring. This target, in turn, is intended to impose embarrassment costs on the authorities in the event of the target being breached—so it is a performance contract of sorts, with non-pecuniary penalties. Similarly, moves elsewhere towards clear and quantitative price stability objectives—for example the inflation targets recently put in place in Australia, Canada, Finland, Israel, New Zealand, Sweden and Spain—are a step in the right direction. And the fact that these targets may not be set low enough to offset completely any inflation bias does not preclude them from pushing inflation in the direction of its socially optimal rate.

Moreover, the introduction of an inflation target is not the full extent of the recent changes in the United Kingdom's monetary framework. As important has been the move towards a more open and transparent system of monetary policy implementation. Such a move has been emulated in other countries. These developments go well beyond the accountability and transparency implied even by an optimal contract. It is reasonable to ask, then, what role accountability and transparency about monetary policy-making may play in a world of second-best or worse.

Uncertainty and central bank accountability

In the models discussed above, the authorities' inflation preferences and the underlying model of the economy were assumed to be common knowledge to agents; there was no uncertainty about either of them. In practice, this is rarely the case. For example, the authorities' inflation preferences may be subject to short-run pressures which outside agents cannot observe. And these pressures may vary in their severity according to the state of the political and economic cycle. Even when monetary policy is delegated to an independent monetary authority, it is unlikely such an institution will have inflation preferences that are known with certainty, at least when reputation and credibility are initially low. The same is true of model uncertainty, where the monetary authorities may have superior knowledge to outside agents on the dynamics of the inflationary process. These agents will therefore be unsure quite how the monetary authorities will react to given events.

Private sector agents then face a problem at the time they enter into the wage-bargaining process. They are uncertain about the authorities' true inflation preferences and about how monetary policy will react each period. And, because they are risk-averse, agents require compensation for this uncertainty, to guard against an adverse inflation shock eroding their real wages. This insurance premium is factored into agents' nominal wage expectations: they bid up nominal wages to insulate their *real* wage from such inflation uncertainties.(1) As this occurs, actual inflation

(1) See the full version of the paper for a formal presentation of this and the other models discussed here.

rises and existing inflation bias problems are worsened. In such a setting, resolving these (model and preference) uncertainties will be unambiguously welfare-improving. So how can the authorities reduce these uncertainties? *Reputation*—or monetary policy credibility more generally—is one way. A good track-record reduces uncertainty about inflation outcomes, by revealing over time information on the distribution of the authorities' 'true' inflation preferences. This story has a potential read-across to a number of countries—perhaps Germany and Japan especially. For example, in Japan revealing information on the authorities' inflation preferences through stability-oriented policy actions has arguably been central in helping to maintain low inflation, in the absence of formal central bank independence.

Reputation amounts to revealing information by 'deeds'. *Transparency*, or *de facto* accountability, can be thought to do it by 'words'. There are a variety of forms these words might take: speeches, Press statements, appearances before Parliament, bulletins and inflation reports, and publication of the minutes of monetary policy council meetings. All of these reveal information on the authorities' reaction function—its actions, objectives and intentions—and thus on the distribution of the authorities' inflation preferences. They also reveal information on the authorities' preferred model of the economy when they set monetary policy. Hence the problem facing agents when entering the wage bargain is considerably simplified under a transparent monetary regime. Correspondingly, agents will demand less compensation for inflation uncertainty, and a lower inflation bias will obtain.

The United Kingdom provides a good case study of how this might work in practice. The Bank of England has no formal goal or instrument independence. But recently its advice has been made transparent. The three most important vehicles for this greater transparency in the United Kingdom have been the inflation target itself, which makes clear the authorities' medium-term price stability objectives; the published minutes of the Chancellor/Governor meetings, at which monetary policy decisions are made and discussed on the record each month; and the *Inflation Report*, which offers the Bank's own independent analysis of inflationary trends. It is interesting, too, that the countries which have become noticeably more transparent in recent years are those with low initial endowments of credibility. For example, it is striking how many inflation target countries—whose monetary regimes have no real track-record because of their newness—have also recently sought greater transparency.

Such a development would sit neatly with the discussion above. These low-credibility countries with new monetary frameworks cannot rely immediately on reputation ('actions') to reveal information on their inflation preferences. So instead they rely on 'words' to boost their credibility. Recent shifts towards greater transparency may be serving as a surrogate for reputation or credibility in countries whose monetary regimes have yet to establish cast-iron inflationary credentials. Openness can serve as a demonstration effect of a central bank's unwillingness to countenance inflation surprises for short-term output gain because it means voluntarily forgoing one means of camouflaging such surprises. That lowers inflation uncertainties and with it inflation itself.

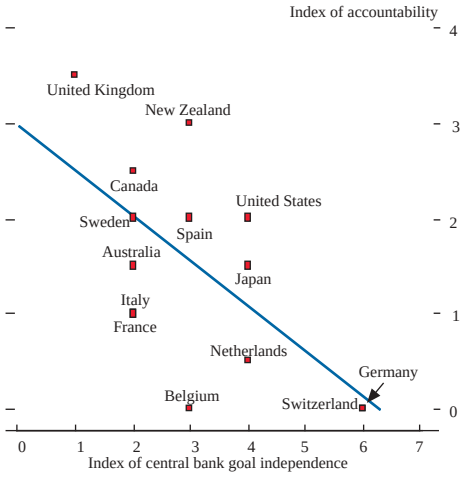
Some cross-section evidence on accountability, credibility and independence

Finally we turn to some empirical evidence on the relationship between central bank independence and accountability. To do this, we create an index of accountability for 14 developed countries, basing this on four criteria: (a) whether the central bank is subject to external monitoring by parliament (as, for example, in France, the United States and the United Kingdom); (b) whether the minutes of meetings to decide monetary policy are published (as in the United States and United Kingdom); (c) whether the central bank publishes an inflation or monetary policy report of some kind, in addition to standard central bank bulletins; and (d) whether there is a clause that allows the central bank to be overridden in the event of certain shocks. These are obviously simple proxies. Indeed, in certain circumstances, some might actually diminish the independence of a central bank through political interference; and they might not capture fully the extent to which some central banks have influenced and cultivated public opinion through other means. But they cover most of the main features of accountability, as defined earlier.

For goal independence we also use four criteria: (a) whether the statutes of the central bank make it independent of the government; (b) whether more than half the appointments to the central bank board are made independently of the government; (c) whether there are government officials on the board; and (d) whether the central bank does in practice set its own goals (for example, monetary or inflation targets).

Chart 1 plots central bank goal independence against our accountability index. The correlation is clearly negative. This is precisely the relationship the Rogoff and optimal contract models, when taken together, would predict. The greater is a central bank's goal independence, the less it is accountable for: setting your own objectives makes it difficult for you to be held accountable for them. But as goal independence lessens—government sets down the terms and conditions, for example through a contract—then accountability rises. The negative correlation in Chart 1 is inconsistent with a purely democratic or political explanation of accountability, which would assert that independence and accountability should run in parallel. Instead it suggests that accountability and transparency may have served as (partial) substitutes for independence in some of these countries, rather than as complements.

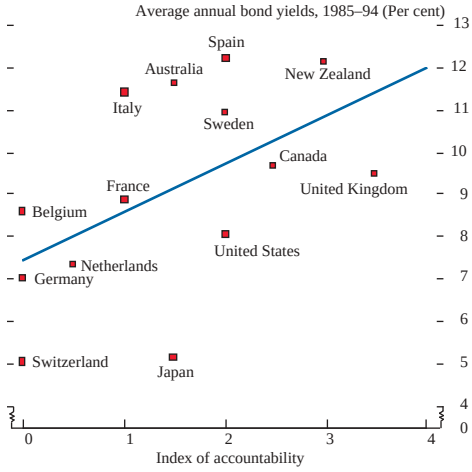
Chart 1
Central bank goal independence and accountability



Of course, there are many other factors at work when explaining such a correlation. And from the discussion above we know that monetary policy credibility—or reputation more generally—is one of the more important of them. High credibility countries have earned their counter-inflationary spurs by deeds, and so do not need to reveal further information on their preferences by words. Low credibility countries are in the opposite position.

Chart 2 plots the accountability index against the average level of bond yields over the past decade—a crude proxy

Chart 2
Accountability and average bond yields



for the inverse of credibility—for our 14 countries. The correlation is clearly positive. Again there is evidence of accountability having been used as a surrogate, this time for monetary policy credibility or reputation. Indeed, Chart 2 could perhaps be characterised as two main clumps: good reputation/low accountability in the bottom left-hand corner; and poor reputation/high accountability in the top right. It is particularly striking to note how many inflation target countries lie in the second of these.

Conclusions

Making a central bank independent imposes a constraint on government interference in monetary policy; while making the central bank accountable imposes a constraint on how it exercises this independence. Both these constraints are generally viewed as desirable aspects of monetary policy-making.

We have tried to extend this conventional wisdom in three ways. First, we have formalised the role and potential value of accountability and transparency in its own right when designing a monetary policy framework. This does not imply that transparency by itself is necessarily sufficient for a monetary institution; merely that it could help that institution combat inflation bias, either by itself or in conjunction with central bank independence or even a formal central bank contract.

Second, we have considered the forms which accountability might take. And we have illustrated this by attempting to match each of the existing theoretical solutions to the inflation bias problem to existing real-world central banking institutions: for example, Rogoff's 'conservative' central banker and the Bundesbank; Walsh's optimal contract and New Zealand's Policy Targets Agreement; and a preference or model uncertainty model and the United Kingdom's new monetary framework.

Third, we have constructed a very preliminary and simple index of central bank accountability which can be compared with measures of central bank independence and with economic performance. Two features are striking here. First, cross-section correlations point towards an inverse relationship between accountability and independence—consistent with accountability and transparency having served as partial substitutes for independence, rather than as complements. And second, countries with a good reputation for low inflation seem to be characterised by relatively low degrees of accountability, and conversely for countries with less respectable inflation track-records. This is consistent with accountability having also served as a partial substitute for reputation among central banks whose monetary frameworks have yet to establish themselves fully.