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Monetary Policy in Post-Conflict Countries: Restoring Credibility

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Abstract

Monetary chaos typically grows out of conflict situations. Governments commonly finance military operations by printing money, which along with falling output propels inflation into high- or hyper-inflationary ranges. Consequently, at the end of the conflict period, the value of the currency is usually highly degraded, there has been substantial substitution into foreign currencies, and the financial system is inoperative. This paper uses case studies and econometric analyses to examine post-conflict monetary experiences in several countries that underwent violent conflicts in the 1990s: Bosnia-Herzegovina, Croatia, Serbia-Montenegro, Kosovo, Moldova and the Transdniestria region, Georgia and the regions of Abkhazia and South Ossetia, Afghanistan, and Tajikistan. It is found that timely overhauls of monetary policy that re-establish the credibility of money lay a good foundation for post-conflict recovery: they both reduce inflation quickly and move money out of the realm of powers and authorities used to the benefit of some parties to a conflict, and into the realm where it serves the common good. However, credibility-oriented reforms do not necessarily have a beneficial effect on growth, at least in the short-run –- potentially posing a problem for making peace work.

Key words: Conflict, monetary policy, macroeconomic performance
JEL classification: D74, E31, E42

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Introduction

Among the problems faced by post-conflict countries, the restoration of macroeconomic stability is important for promoting a return to normal economic activity. Periods of conflict are associated with highly adverse macroeconomic conditions. In addition to profoundly disrupting production, employment, consumption, and distribution, fighting often forces people out of locations in which they ordinarily earn their livelihoods and destroys stocks of productive resources such as factories, bridges, and roads. While peace settlements typically work out arrangements to halt conflict and establish guidelines for resolving unsettled issues, the *aggregate uncertainty* of post-conflict situations can work significantly against economic recovery: Because the sense of outstanding risks makes it difficult to foresee how the post-conflict environment will unfold, people and businesses avoid committing themselves to projects and activities that would take time to yield and for which returns are uncertain. Consequently, wealth often continues to be held in precautionary forms like foreign-currency cash; productive investment is slow to materialize; and displaced populations hesitate to return to their pre-conflict locations and activities, yet without developing new homes and livelihoods either. This state of limbo is especially problematic because failure to restore economic conditions may jeopardize the ability to make peace stick.

An important issue here is the monetary chaos that typically grows out of conflict situations. With production declining, the tax base shrinking, and tax collection disrupted, governments often meet the fiscal burdens of wartime by printing money -- either literally, or by circulating government 'coupons', or by granting credits to the government through the central bank.[1] In the face of falling output, high rates of monetary growth push inflation rates into high or even hyperinflationary ranges, with prices rising at seemingly unfathomable rates and the real value of the domestic currency nose-diving. Indeed, two-thirds of all hyperinflations -- defined by Cagan (1956) as episodes in which monthly inflation exceeds 50% -- in the contemporary period had a period of violent conflict associated with them, as can be seen from Table 1.

Inevitably this extent of inflation erodes confidence in the national currency, and often provokes substitution of foreign currencies for national money. People shift their savings to the extent possible into strong foreign currencies, like the U.S. dollar and Deutsche mark (or now euro); given that banks and other financial institutions often stop functioning in periods of conflict, these foreign currency holdings are most often kept in cash. In addition to using foreign currency as a store of value, it may also come to be used in the two other traditional

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[1] See FitzGerald (1997) and Addison, Murshed and Le Billon 2000).

functions of money, that is, as a medium of exchange for conducting transactions, and as a unit of account in denominating values.

With such monetary degradation and financial collapse, it is virtually impossible to begin reconstruction without monetary overhaul: without a credible currency and minimal payments system, the government cannot make payments to employees or suppliers, prolonging problems of lack of cohesion and control. Thus, in many recent post-conflict situations, high priority has been given to restoring a rational monetary system, to the extent that provisions for monetary policy were included in the Dayton Peace Accord. And yet, what type of monetary régime is appropriate in a given post-conflict context is not at all clear. For one, developing viable institutions and mechanisms for monetary policy is a matter of governance -- that is, of determining goals of policy, defining rules and authority for its conduct, and codifying them in law -- and as such, it relates integrally to processes of re-building trust and sense of shared public responsibility among formerly antagonistic parties. Moreover, establishing the *credibility* of monetary policy is especially important in a post-conflict context: with urgent needs for public spending on reconstruction, the public may doubt that deficits will not be monetized, unless the rules of monetary policy specifically limit government recourse to this possibility. And finally, choice of monetary-policy regime also plays into broader questions of national economic development: Many post-conflict economies are small, underdeveloped, and/or in stages of post-socialist transition (Collier et al 2003). They may also need or want to position themselves favorably towards opportunities for international economic and financial integration, which in turn depends on having a currency that is stable and convertible at low cost (Alesina and Barro 2002). As such, they may benefit particularly from monetary-policy options other than the traditional 'one-country-one-money' paradigm, such as currency boards.

This paper examines monetary-policy experiences in several post-conflict cases. After first discussing monetary-policy options and the special problems of post-conflict countries, we examine the experiences of several countries that went through violent conflicts in the 1990s: Bosnia-Herzegovina, Croatia, Serbia-Montenegro, Kosovo, Moldova and the Transdniestria region, Georgia and the regions of Abkhazia and South Ossetia, Afghanistan, and Tajikistan. Both case studies and econometric analyses demonstrate that in the aftermath of conflict, credibility-oriented monetary reforms are needed to bring inflation down into a normal range; however, monetary reform does not necessarily have beneficial effects on growth, at least in the first years after conflict ends. Broadly, it is argued that establishing credible monetary policy is important for post-conflict recovery; that the means for accomplishing this depends on the country's circumstances in ways that we identify; that contrary to a standard element of peace agreements, monetary policy is often not workable as a function of a minimalist federal state (or requires special measures to stand a chance of working); and finally, that it is not necessarily unacceptable to have regions within a country using a currency other than the national one as their primary money. In the end, what matters is moving money out of the realm of powers and authorities used to the benefit of some parties to a conflict, and into the realm where it serves the common good.

Options for monetary policy and the special problems of post-conflict countries

In some respects, the context of monetary reform in post-conflict countries is not dissimilar to that of other countries that have undergone periods of very high inflation. In both cases, inflation has substantially eroded the real value of the domestic currency, so that the proverbial 'wheelbarrows of currency' may be required to make major purchases. If high inflation has persisted for several years, people and businesses will have adopted practices aimed at minimizing its real effects, including frequent adjustments in wages and prices, fast pass-through of exchange-rate changes, and/or growing use of foreign currencies as store of value, unit of account, and/or medium of exchange. In both cases, the scope for generating government revenues through seigniorage will also have been eroded by currency substitution.[2]

To bring inflation down and keep it in a favorable range, the recent literature explores three main options.[3] The first is to reform the mandate of the central bank, increasing its independence from the central government and specifying that its goal is price stability (Bernanke et al 1998). Here the government retains access to seigniorage, which can be important for public finance in countries with weak tax bases,[4] and keeps open the option of using currency depreciations to boost demand for the country's goods in the face of adverse economic 'shocks.' But this is a relatively demanding route to price stability. In principle, reform of the mandate of central bank should be negotiated democratically and codified in law, to ensure that it reflects popular preferences towards stabilization of output and prices (Mishkin 2000). There also needs to be general commitment within the government towards sound public finance, since gains from independent monetary policy depend on keeping it out from under unsustainable fiscal imbalances.

[2] On the relationship between currency substitution and seigniorage, see Végh (1989).
[3] All three options emphasize the need for a 'commitment mechanism': as argued in the seminal works of Kydland and Prescott (1977) and Barro and Gordon (1983), if unexpected increases in money supply can be used to boost output, the government has incentives to be biased towards expansionary policy; however, the public will come to realize this, so that the extra money growth will only raise average inflation without favorably affecting output. Thus, some form of commitment mechanism is needed to keep the government from supplying the economy with too much money.
[4] See Agénor and Montiel (1996: 144-145).

A second option is to 'hard peg' the national money to a major international currency such as the dollar or euro, via a currency board. Here domestic money can be exchanged for the foreign currency at a fixed, pre-specified rate, and is backed in full by reserves held at the currency board. Currency boards can establish credibility quickly, and they may helpfully promote trade and capital flows by eliminating exchange-rate fluctuations relative to the anchor currency; also, seigniorage is still generated through interest earned on foreign-currency assets held in reserve. But currency boards have disadvantages as well, including the lost opportunity for countercyclical policy, risks that the pegged rate may drift out of line with the scarcity value of foreign exchange, and the lost of a lender of last resort to the financial system. But if there is a good candidate for an anchor currency -- in particular, that of a major trade partner that undergoes similar aggregate fluctuations -- then a currency board can be highly effective for credibility purposes (Alesina and Barro 2002).

The final option is outright adoption of a foreign currency. Currency adoption virtually eliminates uncertainty about the value of money, and costs of changing funds into the adopted currency disappear. It also represents a strong commitment since it is presumably quite costly to reverse (though not impossible). Like a currency board, currency adoption can establish credibility very quickly and may helpfully promote trade and capital flows; it also involves relinquishing prospects for countercyclical policy and loss of a lender of last resort. However, with currency adoption, there is no longer a basis for collecting seigniorage, unless special arrangements can be made with the country whose currency is adopted.[5] Again, a key question here is whether there is a good candidate for an anchor currency.

Yet in choosing among these options, post-conflict countries face several additional problems that non-conflict countries do not. First, in post-conflict countries, governance itself may be fundamentally problematic. Peace agreements or ceasefires may have halted fighting, and arrangements for an interim government may have established a basis for negotiating the forms and functions of governance. But the process of re-building trust and sense of shared public responsibility among formerly antagonistic parties is a long one, and in the meantime, the political, institutional and legal processes needed to reform monetary policy may well not be in place.

Second, post-conflict economies are often collapsed, with production, employment, consumption, and distribution having declined severely. Logistically, the destruction of

[5] See Alesina and Barro (2002). Gros (2002) discusses possible arrangements for seigniorage-sharing for Balkan countries that might adopt the euro.

communications and transportation infrastructure may complicate first steps of monetary reforms, such as replacing the degraded domestic currency with a new version. Moreover, economic statistics are likely to be limited, and there will probably be only a limited cadre of trained economic personnel -- suggesting that policy options intensive in economic information and analysis will not be viable in the short-term. Also, the reconstruction project itself implies enormous public-expenditure needs, which may risk reviving tendencies towards fiscal indiscipline, potentially posing problems for policy credibility.

Finally, conflicts themselves are often associated with compounding economic problems of transition and/or underdevelopment (Collier et al 2003). This implies that post-conflict reforms must not only establish new mechanisms to regulate access to resources and ensure equitable opportunities for voice; they must also prioritize the re-creation of shared opportunities for growth and prosperity, which is difficult to do without yet having a mutually acceptable vision of the future of the national economy. An issue that may be tricky here concerns the choice of an appropriate foreign currency for a currency board or currency adoption: Although the U.S. dollar or the euro may be widely used informally in the traditional functions of money, it may be problematic to shift it into a more formal role -- unless there is a rough consensus that the country's economic future will be well-served by prioritizing ties to the U.S. or Europe, respectively.

Post-conflict experiences

In this section, we review the experiences of a number of countries that aimed to overhaul their monetary policies in the aftermath of conflict. Basic information on the countries discussed in shown in Table 2. All of the countries experienced a violent conflict during the 1990s, though the nature, severity and duration of the conflict varied considerably among them. Most of the countries were also exiting from socialism at the time that conflict broke out. Although most are several years into the post-conflict period, in many cases issues that were central to the conflict remain unresolved and under active discussion. Consequently, the following descriptions need to be viewed as reflective of circumstances as of this writing, acknowledging that how the future will unfold is uncertain.

Multiplicity of possible paths: The Balkans

Along with the break-up of Yugoslavia, each newly independent republic introduced its own currency. Many were originally set at par with the Yugoslav Dinar -- but with the latter already unstable and conflicts breaking out between and within Bosnia, Croatia, and Yugoslavia, the currencies immediately went their separate ways. Currencies in all three places began spiraling down in value -- although none so severely as the Yugoslav dinar, which underwent one of the worst hyperinflations in history; between February 1993 and January 1994, prices rose by 156 *million* percent (see Table 1). In addition, in 1992 and 1993, the Serb areas within Croatia and Bosnia issued their own currencies, both set at par with the Yugoslav dinar.

Not surprisingly, such extraordinary rates of inflation fueled an enormous degree of currency substitution, with the Deutsche mark in particular replacing national currencies. The extent of currency substitution was perhaps not fully appreciated until the period of euro conversion in early 2002. Authorities had substantially underestimated the amounts of euro-predecessor currencies that people would turn in -- which averaged € 525 per capita in foreign-currency holdings in Bosnia-Herzegovina, € 650 in Croatia, € 700 in Montenegro, and € 425 in Serbia.[6] The size of these holdings illustrates clearly the importance of precautionary wealth in conflict and post-conflict economies: people aim to build up wealth that could be used to finance consumption in the event of major disruption, and hold that wealth in highly liquid items whose values are uncorrelated with national uncertainties.[7] This also highlights that, because of outstanding uncertainties, wealth that could be used to begin to rebuild productive capacity often remains unutilized.[8]

The Balkan countries took very different approaches to monetary reform, in ways that can be attributed both to differences in the underlying development and structure of their economies, and in the extent to which problems and tensions remained unresolved at the outset of the post-conflict period.

Croatia. Croatia went the route of establishing an independent currency with a strong central bank. Among the countries considered here, Croatia was the most prosperous before conflict erupted; it remains the most prosperous by far, with GDP per capita of $10,000 (see Table 2), and it hopes to join the EU with Romania and Bulgaria in 2007. Unlike the other countries

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[6] Bosnia-Herzegovina sent back 4.3 billion DM banknotes during conversion period (Nicholl 2003). In Croatia, for all currencies folding into the euro that were brought forth for conversion (mostly DM), the total value was estimated at 2.9 billion euros -- an amount equivalent to 75% of the value of national currency (Kraft 2002). In Montenegro, it had been estimated that there were DM120m in the banking system and circulating or “stuffed into jam jars”; in fact, around DM900m was exchanged (*Financial Times* 2002). In Serbia, around 8-9 billion marks were exchanged between January and May, whereas they had expected 3-5 billion (Deutsche Presse-Agentur 2002). The conversion rate was 1.96602 DM per euro.

[7] This discussion is not necessarily relevant for very low income countries, where most households have little in the way of precautionary savings.

[8] Thus, the quantity of DM brought forth for euro conversion prompted Serbia’s central bank governor, Mladjan Dinkic, to remark: “It seems that we are not as poor as we like to say” (Deutsche Presse-Agentur 2002).

considered here, it also exited its period of conflict against Serb expansionism with relatively few outstanding issues of conflict domestically that would encumber the process of reconstruction and recovery -- which is not to say this process was a walk in the park, given that post-socialist transition had only just begun, but only that it did not entail the extremely delicate, externally-mediated balancing of interests that was required elsewhere to stay on the path towards peace.

The Croatian National Bank underwent significant reform in the post-conflict period, with its mandate brought into line with current thinking about benefits of an independent central bank. The law governing the central bank gives it “operational autonomy and independence” while stating that it “shall be responsible to the Croatian Parliament” and that “in making decisions based on this Law and in their implementation [the Bank] shall neither seek nor take instructions from the bodies of the Republic of Croatia or the European Union or from any other body” (Article 2). The law makes explicit that “The primary objective of the Croatian National Bank, within the powers granted, shall be to achieve and to maintain price stability” – yet also states that, “Without prejudice to its primary objective, the Croatian National Bank shall support the economic policy of the Republic of Croatia, thereby acting in accordance with the principles of the open market economy and free competition” (Article 3). The Croatian dinar, which had been introduced in December 1991 as a transitional currency, was replaced by the kuna in May 1994. Since then, the inflation rate has stayed in a range between 2 and 7%, remarkably low by transition-country standards.

Bosnia-Herzegovina. In contrast, Bosnia-Herzegovina entered the post-conflict period with substantial difficulties remaining between its two ‘entities,’ the BH Federation and the Republika Srpska. To shift monetary policy onto a neutral plane, the 1995 Dayton Peace Accord laid out clear-cut procedures for its conduct in the first six years.[9] The Central Bank of Bosnia and Herzegovina (CBBH) was to be run as a currency board, having no authority to create money through credit. The first governor would be appointed by the IMF with the approval of the Presidency and could not be a citizen of Bosnia-Herzegovina or a ‘neighbouring State.’ The CBBH’s Governing Board would have three other members appointed by the Presidency: two from the BH Federation (a Bosniak and a Croat who would share one vote and one from the Republika Srpska.[10] The new currency, the Konvertible Marka (KM), was introduced in 1997; first pegged to the Deutsche mark, it is now tied to the euro. The Constitution stipulated that

[9] These were written into Article VII of Annex 4 of the Dayton Peace Agreement.
[10] All Board members would serve for six-year terms. The Governor was given authority to cast tie-breaking votes on the Governing Board. After the first six years, the Governing Board was to be made up of five governors appointed by the Presidency for a term of six years, with the Board appointing the Governor from among its members.

after six years the Parliamentary Assembly could give the CBBH authority to issue money. But when the six years were up in mid-2003, it was decided to maintain the currency board, partly because it aligns well with Bosnia-Herzegovina's long-term goal of taking the economy "closer to and eventually into Europe" (Office of the High Representative 2003).[11]

Even so, the process of bringing the country under a single monetary régime was not without problems. As is often mentioned, seemingly simple practical matters such as deciding the name and designs for the new currency proved very difficult to solve, and the Office of the High Representative often had to step in to resolve deadlocks.[12] But balanced actions were often possible: For example, two sets of banknotes were implemented, one for each entity; although they depict people and places of differing significance to the two entities, their similar colors and layouts make them very similar in look and feel (see Figure 1).

Moreover, while KM banknotes went into circulation in June 1998, it took time to get them widely accepted in the country's patchwork of currencies. For some time they circulated alongside three other currencies (the Deutsche mark, the Croatian kuna, and the Yugoslav dinar) -- prompting the CBBH Governor to remark in 1999 that, "The KM is developing well and is used all over all the country, but its use is still uneven and we have a long way to go … before the KM can be described as the dominant currency of the whole country."[13] This currency mélange was a particular problem for price stability because the Yugoslav dinar was still heavily used in the Republika Srpska, so for some time inflation there retained the upward impetus from Yugoslavia's monetary indiscipline. Still, with the passage of time, and inflation in both entities settling into low-to-moderate ranges, the credibility of the konvertible marka has continued to improve -- to the extent that CBBH Vice Governor Dragan Kovačević recently remarked, "If you went out today and asked citizens about the type of the banknotes they had in their pockets, I believe they wouldn't be able to tell you the specific design of those banknotes, but I am certain they would know how much money exactly they have" (CBBH 2004).[14]

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[11] In addition, although the position of Governor was supposed to be handed over to a Bosnian national, the stay of the IMF appointed governor, Peter Nicholl, was extended for 18 months by making him a Bosnian citizen. In late 2004, the Bosniak vice-governor, Kemal Kozaric, is expected to replace Nicholl. To ensure balance, the presidency intends to name a Croat as the next internal controller of the central bank and a Serb as the next chairman of the managing board of the State Deposit Insurance Agency (a position also currently held by Nicholl). See Nicholl (2003).

[12] See Office of the High Representative (2003).

[13] Quoted in Wyzan (1999).

[14] Note also that the CBBH has introduced a 200 KM banknote for which there is only one design, and hopes are that the dual-design system will no longer be needed going forward.

Serbia-Montenegro. Whereas the experience of post-conflict monetary policy has contributed beneficially to moving peace forward in Bosnia-Herzegovina, in the rump-state of Yugoslavia it has been more of a centifugal force between the constituent parts of the Republic. A central problem was that, in the period after the Dayton Peace Accords, no particular effort was made to improve the credibility or independence of monetary policy, so that it remained available as a means of financing fiscal deficits. Consequently, although Yugoslavia had successfully exited from hyperinflation in 1994, upward pressure on prices persisted through the 1990s, the credibility of the currency remained low, and the use of deutsche mark as store of value, unit of account, and medium of exchange remained widespread. After Slobodan Milosevic left power in 2000, some impetus for reform came in with the new government. As part of the new looser association between Serbia and Montenegro, their monetary policies were separated (see below), and the National Bank of Yugoslavia became that of Serbia. Discussions also began about reforming the mandate of the central bank to ensure its independence, although these were complicated by the fact that the central bank governor, Mlađan Dinkić, who was spearheading the drive was also a popular member of an opposition political party.[15]

The continued difficulties of the Yugoslav dinar contributed to the difficulties of Montenegro's position: as a very small state (population of 660,000 versus Serbia's 10 million) dependent on tourism and aluminum exports, it could in principle benefit from close economic and financial integration with its far larger neighbor, yet Serbia's economic and political turbulence significantly constrained its own prospects for recovery and development. To insulate itself against Serbia's price instability, in November 1999, Montenegro made the Deutsche mark legal tender alongside the Yugoslav dinar, with the assistance and support of the Bundesbank; it also set up its own central bank (Guzelova 2000). In November 2000, it dropped the dinar entirely in favor of the mark. To some extent this was only a rationalization of the status quo: According to Finance Minister Miroslav Ivanisevic, "The expulsion of the dinar was not carried out through the government decision. It was an outcome of a confrontation between one of the most stable currencies in the world and a very weak one" (Reuters 2000).[16] The euro later replaced the mark -- a move that was apparently discouraged by the European Central Bank.[17] Thus, although monetary policy was to have been one of the few domains of shared national policy

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[15] In principle, a central bank governor cannot be a member of a political party, but Dinkić's group, the G17 Plus, was not a political party when Dinkic was appointed to office (Cvijanovic 2003a, b, c). Dinkic left office in July 2003.

[16] According to Ivanisevic, the dinar had dwindled to 3% of money supply (Reuters 2000).

[17] According to Central Bank president Ljubisa Krgovic, the ECB discouraged adoption of the euro on the grounds that it would raise the real exchange rate and discourage income growth (the Balassa-Samuelson effect). Krgovic countered that Montenegro had already incurred this cost in adopting the Deutsche mark (*Financial Times* 2002). More broadly, the EU urged Serbia and Montenegro to continue work towards rebuilding federation (Solana 2001).

between Serbia and Montenegro (along with national defense and foreign relations), the failure to re-establish the credibility of monetary policy contributed to Montenegro's peaceful though not unproblematic drift away from its much larger partner.

Kosovo. Much larger than Montenegro, with a population of about 2 million, Kosovo had been an "autonomous region" within Yugoslavia, but broke away from it in a violent conflict that began in 1997-98 and ended in NATO intervention in 1999. Since then, Kosovo has been under a UN Interim Administration Mission for Kosovo (UNMIK), which involves the United Nations, the Organization for Security and Coöperation in Europe, and the European Union; 'Pillar IV' of its mission is Reconstruction and Economic Development, which is headed by the EU. In the immediate post-conflict period, it was critical to suspend ties between Kosovo and Yugoslavia, and to take immediate action to establish foundations for relief and return of refugees.[18] To these ends, the UNMIK established the Deutsche mark as the official currency of Kosovo in September 1999, and it converted to the euro with EU support in January 2002.[19]

The adoption of a strong international currency was clearly beneficial for expediting relief, and also served the important role of taking price instability out of the volatile mix of uncertainties at work in Kosovo. Still, prospects for economic recovery and growth remain impaired by the lack of progress in resolving Kosovo's status relative to Serbia: without knowing what sort of association between the two, if any, will be eventually be defined, and with all governance in the hands of UNMIK, productive investment remains minimal, economic activity remains in established patterns and oriented to everyday needs, and little work is being done to develop a vision of how the economy might viably develop -- let alone to put in place laws, structures, and institutions that would promote such a vision. Thus, although sound money has worked in favor of maintaining the fragile peace in Kosovo, the emergency adoption of the DM/euro has probably not played any role in deepening it either.

Fractured countries remaining fractured: Georgia and Moldova

A somewhat different set of monetary problems arises in countries where 'autonomous regions' or 'breakaway republics' have fought their way out of the control of the central government, but have failed to win international recognition, remaining then in a state of limbo where the

[18] An estimated 800,000 Kosovars had been driven out of the province, and another 500,000 were internally displaced.

[19] Again, to some extent the adoption of the DM was more a matter of formalizing the widespread use of the DM than it was replacing the dinar. Note that Yugoslav dinars remain in use in Serb areas of Kosovo (see e.g. Gligorov 2002).

future form of relationship between the formal government and the breakaway unit is still to be defined. In this category we put Georgia, which had violent conflicts with the regions of Abkhazia and South Ossetia, and Moldova, which lost control of the Transdniestria region.

Georgia. After declaring independence from the Soviet Union in April 1991, Georgia entered a period of severe economic and political difficulty -- with the payments and enterprise systems collapsing; strong challenges to central authority from the autonomous areas of Abkhazia and South Ossetia; highly accommodative fiscal and monetary policies that unleashed hyperinflation; and a broad-based deterioration of law and order. This period of disorder produced substantial substitution into U.S. dollar cash and secondarily the Deutsche mark. After open conflict ended in 1994, the central government replaced its discredited transitional post-ruble currency, the lari-coupon, with a new currency, the lari. Also, as part of a broad reform program supported by the IMF and World Bank, the mandate of the central bank was overhauled, specifying that its objective "shall be to achieve and maintain the purchasing power of the national currency, and price stability, and to ensure the liquidity, solvency and market-based stable functioning of the financial and credit systems of Georgia."[20] These moves contributed to improving the credibility of the Georgian currency, and inflation has for the most part been low since 1996.

However, the government's monetary authority within the country is to some extent as partial as its political control. The Abkhazia region, which had been an autonomous republic within Georgia during the Soviet era, fought a violent war of secession in 1992-1994, ending in a 1994 ceasefire that has been policed by Russian forces, the U.N. Observer Mission in Georgia, and the Organization for Security and Cooperation in Europe. [21] Since then, Abkhazia has been largely cut off from the rest of Georgia and subject to a blockade; with little work done towards reconstruction, physical infrastructure remains in shambles, and living standards are poor. Just as Abkhazia rejected the control of the Georgian central government, it has rejected its money: the Russian ruble remains the currency of Abkhazia, and as travel material on the region warns, "Georgian currency is not accepted in Abkhazia, and it is a bad idea to try to use it or to flash it about in public places."[22]

South Ossetia, which had been an autonomous *oblast* within Georgia during the Soviet era, also fought a violent war of secession in 1989-1992, ending with a ceasefire and the installation of a

[20] Article 2 of the Organic Law of Georgia on the National Bank of Georgia. http://www.nbg.gov.ge/eng/legalstatus/index.html

[21] A key unresolved issue in the conflict concerns the 200,000 ethnic Georgians who were expelled from Abkhazia during the fighting and have not been able to return.

[22] http://www.abkhazia.org/travel.html

joint Ossetian-Georgian-Russian peacekeeping force that has been in place since July 1992. But unlike Abkhazia, South Ossetia has maintained some degree of regular interchange with Georgia and is not economically cut off from it; this has worked in part through a settlement mechanism, devised with the help of the OSCE, that separates political negotiations between South Ossetia and Georgia from discussion of other issues of mutual interest (UN OCHA 2004). Thus, although South Ossetia is in a “no peace, no war” situation that impedes reconstruction and development, there is some flow of people and goods between South Ossetia and Georgia proper. Still, South Ossetia refuses to enforce laws or policies that might signify some acceptance of Georgian authority. In particular, South Ossetia uses not the Georgian lari as its currency but rather the Russian ruble, although the Georgian lari is also commonly accepted in trade there, along with the U.S. dollar.[23]

Moldova. Moldova’s post-Soviet monetary experience paralleled that of other former Soviet republics: it first used the Soviet ruble, then replaced it with a Moldovan coupon, and then introduced its own currency, the lei. Prices soared when they were liberalized, and inflation was further fueled by monetary accommodation of fiscal imbalances, reaching 1,500% in 1992. Thereafter, with the support of the IMF, the country undertook legislative reforms to increase the independence of the central bank and shift deficit financing to bonds. However, price stability remained precarious in the later 1990s, due to continued problems with fiscal imbalances and spillover effects of the Russian financial crisis which put great pressure on the lei (see IMF 1999).

In the course of the disintegration of the Soviet Union, Moldova appeared to be leaning towards association with Romania, which prompted its Transdniestr region (population ca. 638,000) to declare independence in 1990; civil war followed in 1992. Although a peacekeeping force consisting of Russians, Moldovans, and Transdniestrians has been in place since 1992, the status of the "Transdniestr Moldavian Republic" (TMR) remains undefined. From early on, the TMR rejected the idea of autonomy within Moldava, but rather sought to establish relations on a sovereign basis.[24] In this regard, Transdniestria refused to recognize the Moldovan lei; instead, it initially used old Russian rubles with an administrative stamp (as had been done with the Czechoslovakian koruna when its two republics separated), and then introduced its own currency, the Transdniestra ruble, in 1994. However, such high inflation accompanied this move that it was quickly necessary to add digits to the denominations. In general, the credibility of the Transdniestian ruble has been as tenuous as the idea of its sovereignty: because it is generally not accepted outside of Transdniestria, Transdniestrans conducting

[23] Note that South Ossetia also uses Moscow time (UTC+3), whereas Georgia is UTC+4.
[24] Lowenhardt, Hill and Light (2001).

transactions abroad must use Russian rubles, Moldovan lei, or U.S. dollars; and even within the TMR, these other currencies are most often used for significant purchases.[25]

Fractured countries striving for reintegration: Afghanistan and Tajikistan

As in Georgia and Moldova, Afghanistan and Tajikistan had civil wars in which regional dimensions were important. But unlike in the former two countries, in the latter two, the peace agreements that ended fighting involved missions of rebuilding the country around the idea of nationhood. In both cases this involved an effort to re-introduce a credible currency that would be used on a national basis.

Afghanistan. After two decades of fighting, Afghanistan had experienced a profound fracturing of authority, with religious and political groups and regional warlords holding powers that might ordinarily be associated with the nation-state, and the mantle of 'central government' figuring as just one element of the mix. The country's monetary situation reflected this erosion of central authority. At the end of the war, multiple versions of the afghani were in circulation (IMF 2003, *The Economist* 2002). One was issued before 1996 by the government of Burhanuddin Rabbani.[26] A *reissue* of this currency was ordered from the original Moscow printer by the Rabbani government in exile, and these notes went into circulation in northern parts of the country.[27] Additionally some of the warlords had issued their own counterfeit versions of the afghani, which were widely accepted and yet sufficiently distinct in appearance that they traded at a discount on Kabul money markets. With this abundance of afghanis in circulation, their value had sunk to a point that the largest denomination (10,000) was worth $0.25. There was also substantial substitution into foreign currencies (especially the U.S. dollar and Pakistani rupee, but also the Saudi riyal, Kuwaiti dinar, and UAE dirham), with supply coming from such varied sources as remittances, 'suitcase trade' in consumer goods, gun-running, and the drug trade.

After the interim government took power in January 2002, the IMF had proposed as one option the replacement of the afghani with the U.S. dollar, at least as a temporary measure to expedite reconstruction (Linebaugh 2002). Rumors about this move sent the value of the afghani plummeting in the Kabul money markets, apparently not just due to worries about

[25] See Bowers, Doss and Biobanu (n.d).
[26] After the Taliban took power, these bills continued to be issued from the remaining stocks held at the central bank.
[27] Because the reissued bills used the same serial numbers as the original bills, they could not be distinguished from them.

whether old bills could be exchanged, but also because it seemed to signal that the interim government might not have the centrality of purpose and level of resources needed to undertake a currency overhaul. Instead, the government decided to make strong and concerted efforts to rationalize the afghani as soon as possible.[28] In September 2002, it was announced that existing banknotes would be replaced and the currency re-denominated.[29] The program was well planned and well explained to the public, and benefited from the important support of foreign donors.[30] Replacing old banknotes, which started in October, was a huge logistical challenge: the transportation infrastructure was in terrible shape, travel was not secure, the amount of money in circulation was unknown, and bank branches in the regions had no vaults. When it became apparent in November that it would be hard to complete the work by the year-end deadline, the government extended the conversion period through January and completed the process successfully. Since then, the afghani has been fairly stable against the U.S. dollar,[31] although currency substitution remains widespread, and Central Bank has had trouble moving the afghani into a status of sole legal tender in transactions (BBC 2003, *Financial Times* 2003). Altogether, though, the successful early experience of monetary overhaul likely contributed to improving the credibility of national money and of prospects for national governance more generally.

Tajikistan. The post-conflict monetary experience of Tajikistan was not so fortunate. Because civil war broke out not long after Tajikistan declared independence from the Soviet Union, the government had not set up a central bank nor issued a national currency; rather, the country continued using the old Soviet ruble until Russia replaced it with a new ruble in 1994, at which time Tajikistan joined the ruble zone. This proved to be a bad move: Russia reportedly did not provide an adequate supply of rubles to Tajikistan, and much of that supply anyway flowed out of the country through trade with Uzbekistan and Russia, so that transactions were increasingly conducted in barter and promissory notes. In 1995, with bitter fighting still going on, the government introduced its own currency, the Tajikistani ruble, but it quickly lost value due to monetary accommodation of fiscal deficits, price liberalization, and declining aggregate supply. Even after the initial burst of inflation subsided, it remained consistently in the double-digits in the later 1990s. As elsewhere, there was substantial substitution into foreign currencies, although here there was not much convergence around a dominant one, with U.S.

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[28] The government was apparently also concerned that, even if dollarization could be an attractive option for the short-term, it would be difficult to reverse later.
[29] 1000 old afghanis would equal 1 new.
[30] A major information campaign was launched, mostly using radio, to explain the logistics and rationale of the conversion. In addition to 'real' banknotes, two types of unofficial notes could be traded in, although at a 50% discount (which was equivalent to going discounts on the Kabul money markets).
[31] See International Monetary Fund (2003).

dollars used in Dushanbe, Russian rubles and Uzbek sum in markets to the north, and the Kyrgyz som along roads to Kyrgyzstan.

Although a peace accord was signed in 1997, it was not fully implemented until 2000, at which time the government announced that the Tajik ruble would be replaced with a new currency, the som. The notes, which feature great heroes of Tajikistan's past, were intended to provide valuable symbols of national identity at a time when it had fragmented badly.[32] However, the logistics of the currency replacement did not go smoothly: information given to the public about it was poorly timed and patchy, causing confusion and uncertainty;[33] the lag between the announcement of the new currency and its introduction was only a few days; and the rationale for the change was hardly explained, except to highlight the reflection of national heritage in the banknote design.[34] Compounding the bad start, continued financing of fiscal deficits in part through monetary emissions has kept inflation in a double-digit range. Thus, although the monetary overhaul might have provided a strong start to the peace, especially in its emphasis on potentially unifying symbols of Tajik identity, ultimately it has not been instrumental in stemming the trend towards currency substitution, nor in reducing the uncertainties still present in the aftermath of the war.

<u>Econometric evidence</u>

To examine more systematically the effects of post-conflict monetary-policy on inflation and growth, this section uses econometric analysis to compare countries that undertook credibility-oriented policy reform in the post-conflict period, with countries that exited from violent conflict without fundamental reform, controlling for the general context of the period. Because so many of the countries discussed in this paper were transitioning from socialism when conflicts broke out, the analysis focuses on a sample of 30 countries of East and Central Europe and the Commonwealth of Independent States from 1993 to 2003, of which six -- Bosnia-Herzegovina, Croatia, Georgia, Moldova, Serbia-Montenegro, and Tajikistan -- had

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[32] These include several cherished poets and writers, renowned scientists and philosophers, the first emperor and founder of the first Tajik State, and a pathbreaking scholar of Tajik history. For currency designs and explanations, see http://www.somoni.com/money/.

[33] The initial announcement was made during the workday, so that news of it spread by word of mouth; this reportedly caused anxiety and uncertainty about what the program involved, and some panic buying of goods resulted (Pravda Online 2000). Because official newspapers are published weekly, it took several days for written descriptions of the program to become widely available.

[34] Thus, for example, articles with such titles as, "The New Currency as a Reflection of the National Dream" and "The National Currency is a National Treasure, Heritage and Honor."

widespread domestic conflicts.[35] Because virtually all economies in this area were undergoing post-socialist transition, they virtually all experienced bursts in inflation and strong economic contractions at the outset of this period. Thus, the analysis here asks how the countries that underwent conflicts performed relative to other countries in the region, distinguishing between those that undertook monetary reforms in the post-conflict period and those that did not.

Formally, the analysis models inflation or growth in country i at time t, X_{it}, as follows:

$$X_{it} = \rho X_{it-1} + \alpha_i + \delta_t + \beta_1 \text{CONFLICT}_{it} + \beta_2 \text{ POST-UNRE}_{it} + \beta_3 \text{POST-RE}_{it} + \varepsilon_{it}$$

where X_{it} is the log change in the consumer price index or in real GDP between year t-1 and t. This variable's lagged value X_{it-1} is included to allow for persistence. The term α_i is a country-specific fixed effect, while δ_t is a time-specific effect. The variable CONFLICT_{it} takes on a value of 1 if country i is in conflict at time t (zero otherwise). The variable POST-UNRE_{it} equals 1 if country i in year t had exited from civil conflict without enacting a timely credibility-oriented reform of monetary policy (zero otherwise). The variable POST-RE_{it} equals 1 if country i in year t had exited from civil conflict and undertook a timely credibility-oriented reform (zero otherwise). These last two variables keep the value of 1 from the year after conflict ends till the end of the sample period. Thus:

- The coefficient β_1 indicates the difference in inflation or growth between countries with ongoing conflicts and other countries of the region;
- The coefficients β_3 and β_3 indicate the differences in inflation or growth between post-conflict countries with and without reformed monetary policies, respectively, and other countries of the region;
- $\{\beta_2 - \beta_1\}$ indicates the change in inflation or growth associated with going from conflict to post-conflict without a credibility-oriented monetary reform;
- $\{\beta_3 - \beta_1\}$ indicates the change in inflation or growth associated with going from conflict to post-conflict with a credibility-oriented monetary reform; and
- $\{\beta_3 - \beta_2\}$ indicates the difference in inflation or growth between post-conflict countries that undertook credibility-oriented monetary reforms and those that did not.

[35] In principle, Russia and Turkey should also be considered as conflict countries, due to the conflicts in Chechnya and Kurdistan respectively. However, the analysis does not treat them as such because these conflicts were not of sufficient scope to entail appreciable consequences at a macroeconomic level.

The models are estimated using data on inflation and growth from 1993 to 2003 taken from the International Monetary Fund's World Economic Outlook. Countries considered to have made timely credibility-oriented policy reforms are Bosnia-Herzegovina, Croatia, and Georgia; those that exited conflict without undertaking timely reforms are Moldova, Serbia-Montenegro, and Tajikistan. Years considered to be times of conflict are taken from Table 2; also Armenia and Azerbaijan are categorized as being in conflict in 1993 and 1994, although their post-conflict experiences are not evaluated with those of the others because their conflicts were not civil. The models are estimated using panel-data methods, with fixed effects used to capture persistent unobserved differences in inflation or growth across countries during these years.

Results of the analysis are shown in Table 3. As can be seen from column (2), the conflict-related variables are jointly significantly in the inflation equation, indicating as expected that conflict matters in explaining countries' experiences with inflation. The positive and significant value of $\square_1$ shows that countries in conflict tend to have significantly higher inflation than others, ceteris paribus. With $\square_2$ estimated to be positive (albeit significant at a 10% level only), we can see that indeed countries exiting from conflict without reforming policy continue to have inflation higher than non-conflict countries; still, with $\square_2$ - $\square_1$ significantly negative, their inflation rates come down significantly compared to what they were during conflict years. In contrast, with $\square_3$ not significantly different from zero, countries that exit from conflict and undertake timely credibility-oriented policy reforms achieve post-conflict inflation rates that are indistinguishable from those of non-conflict countries. These results verify the basic propositions of this paper: that countries experiencing conflicts tend to have relatively high inflation rates, and that, although inflation may decline after conflict ends, credibility-oriented reforms are needed to bring inflation back in line with rates typical of non-conflict countries.

At the same time, the results of the model of growth and conflict given in column (4) suggest that, while monetary reform may lay a necessary foundation for post-conflict recovery, it is not sufficient for promoting growth, at least in the short-run. With $\square_1$ negative though small and imprecisely estimated, it seems that being in conflict did not appreciably reduce a country's rate of growth (or in this sample in this time period that conflict did not accelerate the post-transition contraction). The insignificant values of $\square_2$ and $\square_3$ suggest that post-conflict countries did not have growth experiences significantly different from non-conflict countries, whether or not they reformed monetary policy; the insignificance of $\square_3$ suggests moreover that, although reforming monetary policy may solve the problem of inflation, it does not provide an appreciable boost to recovery of production. Indeed, {$\square_2$ - $\square_1$} and ($\square_3$ - $\square_1$} are estimated to be significantly positive and negative respectively, which suggests a worrisome aspect of the transition from conflict to post-conflict years: that growth tends to rise in post-conflict countries that do not undertake credibility-oriented reforms of monetary policy, while it tends to fall in those that do.

While one can think of many data and specification problems that may contribute to this result,[36] they are not at all inconsistent with monetary theory and empirical research. As suggested in monetary theory, if the public cannot readily distinguish between a decline in monetary emissions and a decline in product demand, disinflations that are not fully anticipated will tend to be contractionary.[37] Empirical research by Thomas Sargent (1983) on the large disinflations in Austria, Germany, Hungary and Poland after World War I tends to support this view: even though the disinflation programs undertaken by these governments were widely publicized, the shift away from inflationary finance was nonetheless associated with increased unemployment. This suggests that the econometric results of the present paper may reflect a real tendency for post-conflict countries that reform monetary policy to contract in the short-run -- which in the absence of other policies to re-ignite economic growth may pose an important problem for making peace work.

Monetary policy and keeping the peace: Comparative perspectives

Our review of monetary-policy experience in this group of post-conflict countries suggests the following five ideas.

(1) Prompt well-executed monetary overhaul is beneficial for reducing uncertainty, facilitating assistance, and establishing that the orientation of the post-conflict government is towards the social good.

Clearly, monetary overhaul is only one component of post-conflict reconstruction and development -- yet foundations for recovery seem to be laid down more quickly when overhaul is undertaken promptly and effectively. Here we can contrast the experiences of Afghanistan, Bosnia, and Croatia, where timely overhaul of monetary policy reduced the contribution of price instability to aggregate uncertainties, with those of Serbia and Tajikistan, where any beneficial effects of post-conflict currency replacement were soon eroded by the return of monetary indiscipline. Reintroducing a national currency that can be used reliably as a medium of exchange and unit of account, if not also a store of value, is also important for underlining a shift in the government's orientation towards stability, peace, and the social good -- making a

[36] Note, however, that these results are robust to several obvious changes in specification, such as allowing for longer lags in effects of reform on growth.
[37] See, for example, Lucas (1972).

break from the pattern during the conflict when national money served little function other than financing war. As such, an early currency replacement that is well executed can help implement a shift in public expectations of what aggregate conditions will be like in the post-conflict era.

(2) Manipulating symbols and managing expectations are not unimportant in monetary overhaul, as in beginning governance.

Although economists tend to view symbolic aspects of money as tangential to its functions, such aspects are not at all unimportant in a post-conflict context. When issues of national identity are unsettled, and images of coexistence between peoples have not yet formed, decisions concerning currency name and design can be intensely difficult, not only because of still-present feelings of difference and distrust, but also because such decisions mirror the substantive problem of developing a mutually acceptable vision of coexistence. In this regard, the strategy taken in Bosnia-Herzegovina -- of having dual currency designs with differing symbols but similar look and feel -- was an original and balanced solution that permitted forward movement in monetary overhaul, at a time when even the vaguest wisps of 'national identity' could not be conjured up.

A second intangible yet important aspect of monetary reform is the need for the government to manage the public's expectations of it clearly and conscientiously: its goals and practicalities should be clearly and widely explained, and if a currency replacement is involved, its logistics should run as planned, with contingencies in place to guard against slippage. In this respect, the currency-replacement program in Afghanistan worked well, despite the odds, while that in Tajikistan did not. Again, such transparency and communication are beneficial not only for raising the chances of shifting monetary policy to a credible basis, but also for building ideas of governance based on trust and the social good.

(3) Anchoring a currency can be highly effective in making money credible -- but the anchor should embody economic promise that is widely favored, and must be free of geopolitical angles that may relate in some way to the conflict.

In the Balkans, it was obvious what currency would serve as a valuable anchor: not only was the Deutsche mark a widely-used currency substitute, but having the national currency tied to the dominant European currency or replaced by it also held the promise of connection to dynamic, expanding European economy and society. The hope of someday becoming EU members is clearly important in the strategies for growth and development envisioned in Bosnia-

Herzegovina and Montenegro, and provides incentive to continue to make progress on market-oriented economic reforms.

However, among the other post-conflict countries considered here, it is not clear what international currency would have worked well as an anchor. For one, the collapsed nature of post-conflict economies means their trade with the world market is usually minimal and likely to remain so in the short- to medium-term, so there will be not be a major currency that satisfies the criteria for being a good anchor.[38] Moreover, because anchoring implies a prioritization of ties to the country that issues the currency, it requires a shared vision of the country's future, economically and geopolitically, that often remains problematic at the outset of the post-conflict period. Thus, for example, an adoption by Georgia of a dollar- or DM-linked currency board in 1994 would have advanced a sense of irrevocable difference with Abkhazia and South Ossetia, rather than preserving space for dialogue.

(4) Although monetary policy is often thought of as one of the three elements of a minimalist federalist state (along with foreign policy and national defense), the circumstances under which this might work are limited.

In seeking to establish viable forms of association between areas of a country that have been in conflict, it is often proposed that monetary policy be a federal function, along with national defense and foreign policy.[39] Yet without deliberate measures to build equitable voice into institutions and processes of monetary policy, this idea is a non-starter. For one, break-off regions in unresolved conflicts of secession (Abzhazia, South Ossetia, Transdniestria) clearly view national monetary authority as an important violation of their rights to autonomy or sovereignty. For another, efforts to make monetary policy on a national basis without specifically restructuring institutions and processes around the federalist concept have high potential for going awry, as when the indiscipline of Yugoslav monetary policy (among other things) propelled Montenegro and Kosovo out of a nominally federal relationship with Serbia.[40]

[38] Note also that the idea of structuring a currency board around a basket of currencies is generally not advised, since it would not involve the transparency and certainty about value normally associated with a currency board (Velasco 2000).
[39] For Moldova, see CSCE (1993); for Georgia, Shevardnadze (1999); for Serbia-Montenegro and Kosovo, see Solana (2001). The Serbian government has complained that the monetary break-offs of Montenegro and Kosovo violate UN Security Council Resolution 1244 on the sovereignty and territorial integrity of the FR of Yugoslavia (see *Serbia Info* 1999).
[40] While issues of sovereignty and control are clearly at stake here, so too is the fact that the objectives with which the 'broader state' manages its money may well be different from those of smaller or breakaway parts.

Of course, federalism in monetary policy is a well-established idea, figuring centrally in the plan of the U.S. Federal Reserve and of the European Central Bank. Yet its practice requires a spirit of cooperation and shared orientation to the common good that is at best emergent in the early post-conflict period. Bosnia-Herzegovina provides one model for introducing monetary policy as a federal function while goodwill is lacking: The roles of the two 'entities' in decision-making were well-defined, a policy mechanism was chosen that minimized chances of disagreement, disagreements that did arise were externally mediated, the central bank president was a foreign national, and the arrangement was fixed for six years. In the process, the practice of joint decision-making became less problematic over time. Still, as many commentators have noted, such arrangements, while keeping the peace, suppress the voice of nationals in the crafting of economic policy to such a degree that it is in effect made by foreign authorities in ways that prioritize and institutionalize their values (see e.g. Zivkovic 1999, Chossudovsky 2002).

(5) Outright adoption of an international currency is a potentially attractive option for a mini-state.

In cases where a post-conflict mini-state (whether part of a larger country or newly independent) seeks to establish its own monetary policy, outright adoption of an international currency is a potentially attractive option. Recent research suggests that 'costs of being small' have tended to decline over time, since the growth of international trade and investment has created opportunities for small countries to become integrated into much larger markets (Alesina and Spolaore 2003). However, there are certain public goods, of which currency may be an example, that a small country cannot supply efficiently due to economies of scale or externalities. One way to overcome this problem is to use public goods produced by other countries, as when a small country adopts the currency of a larger one (Alesina and Barro 2002).

In the cases of what might be called mini-states that were considered here (Abkhazia, South Ossetia, Transdniestria, Montenegro and Kosovo), it has been expected that a post-conflict arrangement will involve their monetary re-integration into the larger state of which they are a part. But to the extent that this cannot be worked out satisfactorily (for reasons discussed above), it is also not terrible for them to adopt or maintain a foreign currency as the primary currency within their borders; this is of course already the situation in four of the five places, and the fifth, Transdniestria, may well be too small to have its own currency. Accepting that some part of the country uses a different currency than the national one means accepting that seigniorage revenues of the central government will be lower, and that trade between parts of the country may be lower, than they would be if the entire country used the national currency. But especially considering that the national money is anyway usually only one of several currencies in use within the country, it is not clear that accepting monetary difference is a particularly large price to pay.

Concluding remarks

In sum, shifting monetary policy onto a credible basis is an important element of establishing conditions in which production, consumption, employment and investment can begin to recover from devastating effects of conflict, and also helps to build positive expectations of post-conflict governance. Central here is moving money out of the realm of powers and authorities that had been used to the benefit of some parties to a conflict -- and into the realm where it serves the common good. In this sense, eliminating monetary instability as a source of aggregate uncertainty is valuable not only for keeping the peace; it also makes it easier to begin to discuss and develop shared visions of the country's economic future, creating a sense of promise beyond the immediate post-conflict work. However, the benefits of re-establishing credible money should not be overstated: while reforming policy can bring inflation down quickly, the shift away from inflationary finance may also be contractionary –- which, in the absence of other policies to re-ignite economic growth, may pose an important problem for making peace work.

Table 1. Hyperinflations since World War II.

	Start	End	Duration (months)	Cumulative inflation
Hyperinflations associated with violent conflicts				
Angola	Dec. 94	June 96	19	62,446
Armenia	Oct. 93	Dec. 94	15	34,158
Azerbaijan	Dec. 92	Dec. 94	25	41,742
Congo/Zaire	Oct. 91	Sep. 92	12	7,689
Congo/Zaire	Nov. 93	Sep. 94	11	69,502
Georgia	Sep. 93	Sep. 94	13	76,219
Nicaragua	Jun. 86	Mar. 91	58	11,895,866,143
Serbia	Feb. 93	Jan. 94	12	156,213,790
Tajikistan	Apr. 93	Dec. 93	9	3,636
Tajikistan	Aug. 95	Dec. 95	5	839
Hyperinflations not associated with violent conflicts				
Argentina	May 89	Mar. 90	11	15,167
Bolivia	Apr. 84	Sep. 85	18	97,282
Brazil	Dec. 89	Mar. 90	4	693
Turkmenistan	Nov. 95	Jan. 96	3	291
Ukraine	Apr. 91	Nov. 94	44	1,864,715
From Fischer, Sahay and Vegh (2002: 840).				

Table 2. Background information on countries included in this study				
	Population ('000)	**Per capita income (ppp US$)**	**Conflict years**	**Post-conflict monetary policy**
Balkans				
Bosnia-Herzegovina	4,100	5,000	1992-95	Currency board
Croatia	4,400	9,800	1991-95	Independent central bank
Kosovo	2,100	--	1997-99	Deutsche mark, then euro
Montenegro	675	--		Yugoslav dinar, then dinar and deutsche mark, then deutsche mark, then euro
Serbia	10,000	2,200	1991-99	Standard policy without commitment mechanism
Fractured countries				
Georgia (main)	4,200	3,200	1990-94, 1998	Independent central bank
Abkhazia	375	--	1992-94, 1998	Russian ruble
South Ossetia	100	--	1992-94	Russian ruble, Georgian currency accepted also
Moldova (main)	3,800	2,600	1992	Independent central bank, with some problems of fiscal imbalance
Transdniestria	625	--	1992	Standard policy without commitment mechanism
Fractured countries reintegrating				
Afghanistan	28,700	700	1978-2002	Successful currency reform
Tajikistan	6,900	1,300	1992-1997	Problematic currency reform, standard policy without commitment mechanism

Sources: United Nations Population Fund, World Bank, CIA World Fact Book. Population and income figures are in many cases estimates.

Table 3. Econometric results: Effects of conflict and post-conflict policies on inflation and growth

		INFLATION		GROWTH	
		(1)	(2)	(3)	(4)
Constant		0.0431* (.01)	-0.0062 (.09)	0.0092* (.00)	0.0103* (.01)
X_{t-1}	ρ	0.4912* (.04)	0.4477* (.05)	0.4573* (.07)	0.4658* (.06)
CONFLICT	$\square_1$		0.4952* (.23)		-0.0021 (.03)
POST-CONFLICT WITHOUT MONETARY REFORM	$\square_2$		0.4031+ (.24)		0.0249 (.03)
POST-CONFLICT WITH MONETARY REFORM	$\square_3$		0.1431 (.75)		-0.0316 (.03)
Hypothesis tests					
$\square_2 - \square_1$			-0.0922* (.05)		0.0270* (.01)
$\square_3 - \square_1$			-0.3521 (.62)		-0.0296* (.01)
$\square_3 - \square_2$			-0.2600 (.61)		-0.0566* (.01)
Joint test of significance of conflict variables (p-value)			0.02		0.00
Adjusted R^2		0.63	0.67	0.43	0.45
Durbin-Watson		1.97	1.85	1.79	1.91
No. of obs.		291	291	298	298

Notes: All models include period dummies and country-specific fixed effects. White standard errors adjusting for heteroskedasticity across periods are given in parentheses.

* = significant at 5% level

+ = significant at 10% level

Figure 1. Dual currency design in Bosnia-Herzegovina

50 KM note, verzija FBiH (BiH Federation version), with picture of Musa Ćazim Ćatic

50 KM note, verzija RS (Republika Srpska version), with picture of Jovan Dučić

References

Addison, Tony, S. Mansoob Murshed, and Philippe Le Billon (2000). "Finance in Conflict and Reconstruction." Institute for Development Policy and Management, University of Manchester, Working Paper No. 20 (Nov.)

Agénor, Pierre-Richard and Peter Montiel (1996). *Development Macroeconomics*. Princeton: Princeton University Press.

Alesina, Alberto and Robert Barro (2002). "Currency Unions," *Quarterly Journal of Economics*, Vol. 117 (May), pp. 409-30

______________ and Enrico Spolaore (2003). *The Size of Nations*. Cambridge, MA: MIT Press.

Barro, R.J. and D.B. Gordon (1983). "Rules, Discretion and Reputation in a Model of Monetary Policy," *Journal of Monetary Economics*, Vol. 12, No. 1, pp. 101-121.

Bernanke, Ben, Thomas Laubach, Frederic S. Mishkin, and Adam S. Posen (1998). *Inflation Targeting*. Princeton, NJ: Princeton University Press.

Bowers, Stephen, Marion Doss, and Valeria Ciobanu (n.d.). "Gagauzia and Transdniestria: The Moldovan Confederation Conundrum." James Madison University, William R. Nelson Institute of Public Affairs.

British Broadcasting Corporation (2003). "President of Afghan Central Bank comments on use of foreign currency," BBC Monitoring Worldwide: South Asia, Political (Oct. 1).

Cagan, Phillip (1956). "The Monetary Dynamics of Hyperinflation." In Milton Friedman, ed., *Studies in the Quantity Theory of Money*. Chicago: University of Chicago Press.

Central Bank of Bosnia and Herzegovina (2004). "Six years after the adoption of the decision on the design of the BH banknote" (Feb. 19).

Chossudovsky, Michel (2002). "Economic War Crimes: Dismantling Former Yugoslavia, Recolonizing Bosnia-Herzegovina," Centre for Research on Globalisation (19 Feb.). http://www.globalresearch.ca/articles/CHO202G.html

Collier, Paul et al. (2003). *Breaking the Conflict Trap: Civil War and Development Policy*. Washington, D.C.: World Bank and Oxford University Press.

Conference for Security and Cooperation in Europe (1993). "CSCE Mission to Moldova," Report No. 13 (13 Nov.). http://www.ecmi.de/cps/download/MoldovaReport.pdf

Cvijanovic, Zeljko (2003a). "Serbia: Djindjic Versus Dinkic; Premier's campaign against popular federal bank governor marks final break-up of reformist camp." BCR No 398 (16-Jan).

_______________ (2003b). "Serbia: Dinkic Survives Bid to Oust Him; Government backs down in battle with high-flying Serbian bank governor." BCR No 439 (20-Jun)

_______________ (2003c). "Serbia: Top Banker's Days Numbered; Moves to replace successful governor threaten ties with international financial institutions." BCR No 444, (15-Jul).

Deutsche Press-Agentur (2002). "Conversion to euro ends in Serbia" (May 31).

The Economist (2002). "Money to burn; Afghanistan," Dec. 14, p. 64

English, William (1999). "Inflation and Financial Sector Size," *Journal of Monetary Economics,* vol. 44 (Dec.), pp. 379-400.

Financial Times (2002). "Ljubisa Krgovic of Montenegro's Central Bank Tells The Banker How His Country Made it into the Euro-Zone" (Aug. 1).

______________ (2003). "Governor enforces use of Afghan currency in Nimroz Province," *Global News Wire: Asia/Africa Intelligence Wire* (June 18).

Fischer, Stanley, Ratna Sahay, and Carlos Végh (2002). "Modern Hyper- and High Inflations," *Journal of Economic Literature*, Vol. XL (Sept.), pp. 837-880.

FitzGerald, E. V. K. (1997). "Paying for War: Macroeconomic Stabilization in Poor Countries under Conflict Conditions," *Oxford Development Studies*, 25 (1): 43-65.

Gligorov, Vladimir (2002). "The euro in the Balkans," *Vienna Institute Monthly Report*, No. 2002/1, pp. 19-23. http://www.wiiw.ac.at/balkan/files/Euro Balkans WIIW Monthly Report 2002-1.pdf

Gros, Daniel (2002). “The Euro for the Balkans?” *Economics of Transition,* Vol. 10, No. 2, pp. 491-511.

Guzelova, Irena (2000). “Parallel currency move ruled illegal,” *Financial Times*, Jan. 28, p. 3.

International Monetary Fund (1999). “IMF Concludes Article IV Consultation with Moldova.” Public Information Notice (PIN) No. 99/81 (Aug.).

_________________________ (2003). “Islamic State of Afghanistan: Rebuilding a Macroeconomic Framework for Reconstruction and Growth.” Country Report No. 03/299 (Sept.).

Kraft, Evan (2002). “Monetary Policy Under Dollarization: The Case of Croatia.” Paper presented at the 8th Dubrovnik Conference on Monetary Policy and Currency Substitution in Emerging Markets, Croatian National Bank (June). http://www.hnb.hr/dub-konf/8-konferencija-radovi/kraft-case-of-croatia.pdf

Kydland, F.E. and E.C. Prescott (1977). “Rules Rather Than Discretion: The Inconsistency of Optimal Plans,” *Journal of Political Economy*, Vol. 85, No. 3 (June), pp. 473-491.

Linebaugh, Kate (2002). “Dollar Considered to Replace Afghani,” *Bloomberg News* (Jan. 30).

Lowenhardt, John, Ronald Hill and Margot Light (2001). “A Wider Europe: The View from Minsk and Chisinau,” *International Affairs*, Vol. 77, No. 3 (July), pp. 605-620. http://www.gla.ac.uk/icees/outpubs7.pdf

Lucas, Robert E. (1972). “Expectations and the Neutrality of Money,” *Journal of Economic Theory*, Vol. 4, No. 2 (April), pp. 103-124.

Mishkin, Frederic (2000). "What Should Central Banks Do?" *Federal Reserve Bank of St. Louis Review*, vol. 82, No. 6 (Nov./Dec.).

Nicholl, Peter (2003). “Bosnia and Herzegovina: Progress and Partnership.” Comments at the Second Annual Business Conference, London (9 Dec.). Available at the BIS Review site: http://www.bis.org/review/r031223d.pdf.

Office of the High Representative (2003). “The Central Bank of BiH: Six Years After, and

Whither to Now?" *Economic Newsletter*, Vol. 6, Issue 2 (May), pp. 4-5.

Pravda Online (2000). "Tajikistan Introduces a New Currency" (Nov. 1). http://english.pravda.ru/economics/2000/11/01/608.html

Reuters (2000). "Montenegro to Set Up Central Bank" (Oct. 30). Posted at http://www.mediaclub.cg.yu/eng/articles/2000/november/01.htm

Sargent, Thomas (1983). "The Ends of Four Big Inflations." In Robert Hall, ed., *Inflation: Causes and Effects*. Chicago: University of Chicago Press for the NBER.

Serbia Info (2000). "Memorandum of the Government of the FR Yugoslavia on the implementation of UN Security Council Resolution 1244 (1)" (6 Mar.). http://www.serbia-info.com/news/2000-03/06/17631.html

Shevardnadze, Eduard (1999). Speech on Georgian Radio, Tbilisi (27 Sept.), excerpted by BBC World Monitoring. http://news.bbc.co.uk/1/hi/world/monitoring/463827.stm

Solana, Javier (2001). "Federation is the best solution," *EC Delegation to Serbia and Montenegro Newsletter* (Nov./Dec.). http://www.eudelyug.org/en/news/Newsletter/nl112001e.htm#2

United Nations Office for the Coordination of Humanitarian Affairs (2004). "OCHA Georgia: South Ossetia Briefing Note" (Jan.).

Végh, Carlos (1989). "The optimal inflation tax in the presence of currency substitution", *Journal of Monetary Economics* 24, 139-146.

Velasco, Andrés (2000). "Exchange-rate Policies for Developing Countries: What Have We Learned? What Do We Still Not Know?" G-24 Discussion Paper Series, No. 5 (June).

Wyzan, Michael (1999). "Bosnia's Two-Entity Economy Growing but Still Weak," *RFE/RL Newsline*, Vol. 3, No. 48, Part II (10 March).

Zivkovic, Andeja (1999). "Building Peace in the Balkans: The protectorate, a way to dominate," *Le Monde Diplomatique* (July).