

HIGH AID INFLOWS CASE STUDY: GHANA¹

I. INTRODUCTION

1. Increases in aid inflows allow recipients to increase consumption and investment. Aid presents an opportunity to reduce poverty, increase the standard of living, and generate sustained growth. However, the effective use of increased aid also presents challenges. Good projects must be found and managed; conditions for budgetary support must be agreed and implemented. The imperative to use the funds well can strain the administrative capacity of recipient governments. In addition, aid flows can weaken ownership, fragment and impair budgetary procedures, encourage rent-seeking behavior, and undermine the accountability of domestic institutions.²
2. Related to but distinct from these microeconomic and institutional issues are the macroeconomic challenges of managing aid inflows. Aid inflows can cause upward pressure on the real exchange rate to the detriment of the exporting industries that may be critical to long-run growth. In the long run, this is a microeconomic phenomenon, in other words one rooted in the real effects of aid. But in the short run, macroeconomic policies can determine how aid is absorbed in the domestic economy. Aid inflows can also create problems of fiscal management and debt sustainability, particularly when they are volatile and when they come in the form of debt.
3. This case study is one of five that will form part of the background for a forthcoming study on the macroeconomics of managing high aid inflows.³ The broader study aims to draw lessons from recent country experiences about important issues in the macroeconomic management of high aid inflows. The questions the broader study will address are:

¹ This paper is part of a larger study, the authors of which are Shekhar Aiyar, Andrew Berg, Mumtaz Hussain, Amber Mahone, and Shaun Roache. The principal author of this Ghana case study is Shaun Roache. **This paper should not be reported as representing the views of the IMF. The views expressed are those of the author and do not necessarily reflect the views of the IMF or IMF policy.**

² See for example Brautigam and Botchway (1998).

³ The other countries covered in the broader study are Ethiopia, Mozambique, Tanzania, and Uganda.

- Do we observe macro absorptive capacity constraints? Is aid ultimately used to finance imports?
- Is Dutch Disease a concern? Are the supply-side effects of increased aid and policy reforms (or excess capacity) able to offset the demand-side pressures on real exchange rate?
- How should exchange rates be managed in the face of high aid inflows?
- How should fiscal policy be adapted to the aid inflows?
- Are aid inflows inflationary, and what is the appropriate policy response? Is there a role for sterilization? What instruments should be used (reserves, government paper, banking system)?
- Did PRGF programs adequately manage the macroeconomic impact of surging aid inflows? How can program design be improved in this regard?

4. While the benefits of higher aid and challenges of scaling up are frequently discussed, there is limited systematic analysis of country experiences on these issues. This paper examines the experience of one low income country that has dealt with these questions over the past decade or so.

5. The approach taken in this study limits the range of topics that can be covered. In particular, it is difficult in this framework to address the equally important long-run implications of increases in aid flows. To understand long-run implications for resource allocation, policies, institutions, and growth, it would be necessary to pursue either much longer-run cases or a broader cross-country analysis.⁴

II. ISSUES IN THE MACROECONOMIC MANAGEMENT OF AID SURGES

A. The Macroeconomic Impact of Aid

6. Aid works ultimately by financing net imports. We thus define the rate of aid absorption as the increase in net imports (or more generally the non-aid current account deficit) as a share of the increase in aid flows.⁵ This point is central and deserves belaboring. Some aid directly finances government purchases of imports. In addition, the aid serves by

⁴ Devarajan and Dollar (1998) is example of the former, while the large literature on aid and growth attempts to address the latter.

⁵ See Appendix 1 for a definition and discussion of absorption and its relationship with balance of payments accounting and reserve accumulation. Our usage not be confused with the idea of “absorptive capacity,” which is related but which also involves questions about the rate of return to investments that might be financed by aid.

financing second-round increases in net imports resulting from aid-driven increases in government or private expenditures.⁶

7. Aid also serves as a way for the government to finance its domestic expenditures, as an alternative to domestic tax revenue or borrowing, either from the public or from the central bank.⁷ It may seem, therefore, that the financing of expenditures such as the hiring of nurses is an *alternative* use for aid, in addition to imports. But this approach to the function of aid is misleading; after all, the purpose of aid is *not* to allow the domestic expenditure. After all, the government could always simply borrow from the central bank (i.e. print money) to finance these expenditures. Rather, the purpose of the aid is to provide the foreign exchange that may eventually be required, either to sterilize the money injection associated with the domestic expenditure, or to satisfy the increased demand for foreign currency resulting from higher import demands.

8. One way to understand the issue is to consider a thought experiment in which the government first decides on the appropriate level of government expenditure and its financing, for a given level of aid. This set of decisions in principle takes into account the scope for seigniorage, the supply response to increased fiscal expenditures, the productivity of the resulting investment and the generation of higher exports that may result, and other such factors. Then, aid increases. The thing that has changed is *not* that the government could now productively hire, say, more nurses to fight HIV/AIDS. The difference is that, whereas before such additional expenditures would have caused too much inflation or an unfinancable deterioration of the current account through second-round increases in import demand, now the aid can be sold to sterilize the increase in money or to pay for the higher imports.

9. Of course, reserves accumulation can have important benefits. Some minimum level is appropriate as a resource for buffering shocks of various sorts. Moreover, where aid itself is highly volatile, some savings of aid in the form of reserve accumulation may be optimal. We return to this point below.

10. A short-run macroeconomic perspective on different policy responses to high aid inflows can be gained from looking at the behavior of output, net exports (or the non-aid current account), and private investment, in the context of the familiar definition of aggregate

⁶ The mechanisms whereby this happens, and the resulting issues, are known as “the transfer problem”, as in Keynes (1929). Keynes, however, was concerned with the problems involved for Germany in generating current account surpluses to pay reparations after World War I, rather than the problems involved absorbing these transfers. See Milesi-Ferreti and Lane (2000) for a recent general treatment.

⁷ To keep things simple, but also reflecting reality for most low-income countries, the possibility of foreign private financing of government deficits is ignored.

demand as $Y = C^P + I^P + G + (X-M)$, where Y is aggregate demand or output, C^P is private consumption, I^P is private investment, G is government consumption and investment, and $X-M$ is the trade balance.

11. Increases in aid flows can lead to increases in government expenditure (G) or private consumption (C^P) or investment (I^P). This implies an increase in the resources devoted to providing these goods and services. To the extent that these resources were previously unemployed, output (Y) can go up with G . However, it is likely that at least to some extent, and perhaps increasingly as fewer unemployed resources remain, the resources will have to come from elsewhere, in particular from those that had been producing exports and/or import competing goods, implying a fall in $X-M$.

12. Some combination of exchange rate appreciation and (if there is excess capacity) increased aggregate demand is necessary to generate the increased net imports that aid allows. Thus, some real exchange rate appreciation may be necessary and indeed appropriate, in response to a permanently higher level of aid. In the long run macroeconomic policy can only determine the channel—the domestic price level or the nominal exchange rate—through which this real appreciation occurs.

13. The degree of exchange rate appreciation required to absorb the aid will in general depend on the structural response of the economy and the uses to which the aid is put. For example, real appreciation would be higher if aid inflows mostly finance expenditures on non-traded goods, and lower if higher incomes feed strongly into higher import demand and if non-traded goods supply responds strongly to the increases in their relative price. In economies with significant unemployment and potential for a quick supply response, the additional demand for nontradeables could induce additional employment and production, with little increase in price level and limited real appreciation. In the longer run, investments that increase productivity in the non-tradable sector could reduce or even eliminate the real exchange rate appreciation.

14. The real exchange rate appreciation and resulting discouragement of exports may hurt long-run growth (Appendix 3). The mechanism, known “Dutch disease”, is that the decline in the export sector could impair productivity growth because such growth is particularly high in the non-traditional export sector. This in turn is attributed to particularly high rates of learning-by-doing in these non-traditional export sectors. For this argument to hold, dynamic externalities in the export sector would have to outweigh the benefits of capital accumulation associated with public investment (as well as any related productivity growth).

B. Policy Responses

15. How much aid is absorbed domestically, and which components of GDP increase the most, depend on three closely related policy decisions:

- Are the foreign exchange proceeds associated with the aid inflows kept in the central bank or sold?⁸
- Are aid inflows spent in the form of higher fiscal deficits (before aid) or saved by the recipient government?⁹
- How is monetary policy conducted to manage the monetary implications of the decisions with respect to foreign exchange accumulation and fiscal policy?

16. To organize thinking, it may be useful to consider how the answers to the first two questions frame the third. This implies four possibilities, which are discussed in turn.¹⁰

Aid neither absorbed nor spent

17. The government could choose to respond to the aid inflow by building international reserves, neither increasing government expenditures nor lowering taxes. In this case there is no expansionary impact on aggregate demand, and no pressure on the exchange rate or prices.¹¹

Aid absorbed and spent

18. This is the “classic” case, in that this is (explicitly or implicitly) the situation assumed in most discussions of the macroeconomic implications of aid inflows. The foreign exchange is sold by the central bank and absorbed into the economy, and the associated resources spent by the government. In this case, the challenge to monetary policy-makers is to manage the increase in the real exchange rate that may result.¹²

⁸ The fungibility of aid implies that the relevant question is not whether a particular flow of aid-related foreign exchange remained in the central bank but whether the overall level of foreign exchange rose by the amount of the aid inflow.

⁹ A similar fungibility point applies here. Even if the particular aid money is spent, if other spending is reduced so that the fiscal deficit does not change, the aid does not in the end result in higher spending.

¹⁰ Appendix 3 provides a numerical example showing how the central bank and financial accounting works in each of these four cases.

¹¹ There may be second order effects, e.g. expectations may change as a result of the central bank’s higher international reserve position, but again, this does not alter the main argument.

¹² Sahay et al. (2004) present a model in which reserve accumulation considered in terms of its benefits in reallocating a given aid flow intertemporally.

Aid absorbed and *not* spent

19. Increased aid inflows can be used to reduce inflation in those countries that have not yet achieved macro stabilization. In this case, the authorities can sell the foreign exchange associated with increased aid flows so as to sterilize the monetary impact of domestically-financed fiscal deficits. The result would typically be a more appreciated exchange rate and lower inflation. Aggregate demand may increase as the inflation tax declines, with the increase in private consumption and investment. The deterioration of the trade balance that often accompanies such a stabilization program is financed by the aid inflow.¹³

20. In countries that have already achieved inflation stabilization, taxes could be cut or monetary policy eased, perhaps through the government using the proceeds from aid to reduce the stock of local currency government bonds outstanding. Either would tend to result in increased private consumption and investment. This would raise net imports through the indirect effect of higher private after-tax income on import demand. Aid inflows could fill this gap.

Aid not absorbed but spent

21. A fourth possibility is that fiscal deficits would increase with the jump in aid, but that the authorities would not sell the foreign exchange required to finance additional net imports. In effect, the macroeconomic effects of the fiscal expansion are similar to increasing government expenditures in the absence of aid, except that reserves are higher. The increased deficits inject money into the economy. Absent foreign exchange sales, the monetary policy options are the same as with a non-aid-related fiscal expansion.

22. There are several monetary policy responses to this situation. One is to attempt to finance the increased deficits through the issuance of Treasury bills. This strategy would tend to “crowd out” private investment (I^P in the above equation.) In effect, there is a switch from private investment to government consumption or investment.¹⁴ A second response could be to allow the larger fiscal deficits to lead to money supply increases. This would tend to be inflationary. If the authorities were in the meantime pegging the nominal exchange rate, there would be an appreciation of the real exchange rate. This, in combination with the increase in aggregate demand associated with the fiscal expansion, could lead to an increase in net import demand that would, eventually, require sales of foreign exchange in order to defend the peg. In other words, over time the response might become one of absorbing and spending.

¹³ This is the case emphasized by Buffie et al. (2004).

¹⁴ Of course, private investment and government expenditure could have different import intensities, which would modify the details of the argument but not alter the main point. Similarly, the fiscal expansion may increase aggregate demand, so it is not the case that there need be a one-for-one tradeoff between government spending and private investment. But such an aggregate demand expansion could have been engineered without the aid.

If the first option is rejected because of a concern for private investment, and the second conflicts with objectives with respect to the real exchange rate and reserve accumulation, a final option would be to reduce the fiscal deficit, leading to the “neither absorbed nor spent” case.

Conclusion

23. There is no universally optimal approach to managing high aid inflows.
- Unless Dutch Disease is a major concern or the return to public expenditure low, to *absorb and spend* the aid would appear to be the most appropriate response.
 - To *neither absorb nor spend* is not an appropriate long-run strategy unless it is felt that Dutch disease concerns outweigh the benefits from the absorption of aid inflows. Even here, the best response might be to work to improve the quality of public expenditures and the “quality” of aid, specifically the ease with which it can be delivered and used well. However, where aid inflows are volatile or international reserves are too low, reserve accumulation may be the most reasonable short-run response.¹⁵
 - If resources are scarce for private investment, the rate of return on public expenditure is low, or fiscal policy is already too loose and inflation too high, *to absorbing and not spend* would make sense.
 - *To spend and not absorb* would appear to be the least attractive option, particularly when domestic sterilization domestic sterilization is used to avoid pressures for inflation and exchange rate appreciation. This is unlikely to be a sensible long-run strategy—it tends to shift resources from the private to the public sector and does not allow the country to benefit from the aid resources.

III. AID INFLOWS TO GHANA: 1996-2003

A. Overview

24. Ghana has been a relatively strong performer compared to its regional peers in recent years. Per capita GDP growth averaged 1.6 percent in the 1990s. Following a period of

¹⁵ Recent cross-country evidence (Bulř and Hamann (2001), Pallage and Robe (2001)) indicates that aid inflows continue to be volatile, that commitments consistently exceed disbursements, and that aid disbursements are generally pro-cyclical—thereby increase volatility of public expenditures rather than lowering it

economic volatility around the turn of the millennium, Ghana has followed economic policies that have delivered a degree of fiscal consolidation, lower inflation, and steadily increasing real GDP growth. Together with the achievement of HIPC Initiative Decision Point debt relief in 2002, international support has recently jumped by several percent of GDP. Net aid averaged 7.3 percent of GDP in 2001-2003 compared to 2.8 percent of GDP from 1996 through 2000 (Table 1).

25. A challenge for the authorities has been managing the huge jump in aid inflows and their volatility. This case study assesses the years 1996-2003, a period during which the country was almost continuously engaged in ESAF/ PRGF supported programs. The key points that emerge are:

1. Ghana cumulatively saved *all* of the increase in aid observed in 2001-03 compared to 1996-2000, where we define the increase in aid as the actual aid flow over 2001-03 less the amount of aid that would have been received had flows continued at their 1996-2000 rate. The aid inflow was saved, from the point of view of the country as a whole, insofar as gross reserve accumulation over the period (US\$1.2 billion) was almost equal to the incremental aid inflow (US\$1.3 billion). The fact that the inflow was saved can be seen from another point of view: that the non-aid current account deficit (investment less non-aid savings) did not grow at all with the higher aid inflows. On the contrary, the non-aid current account deficit averaged around 3½ percent of GDP over 2001-03, down from around 11 percent over the preceding period.
2. Just as Ghana from a national point of view saved the aid inflows, the government also saved the aid inflows to the budget. The fiscal deficit (before grants) averaged 10 percent of GDP over 2001-03, almost equal to the average for the preceding three and five years.
3. Ghana has avoided Dutch disease, or real effective exchange rate appreciation; over 2001-03 the REER has changed by less than 1 percent.
4. This is a tale of three policy responses, reflecting the pattern of aid flows.
 - In 2001, the aid surge was largely sold into the foreign exchange market, to stabilize the currency (and inflation) after a negative terms-of-trade shock; it was partially spent by the government in the sense that the fiscal deficit before grants widened, though by somewhat less than the increase in aid.
 - During 2002, a planned fiscal consolidation, aimed at leading to a reduction in domestic public debt outstanding, fell short of compensating for an even larger negative aid shock. Reserves were accumulated, despite the aid shortfall.

- In 2003, aid surged again and this time the authorities responded cautiously. All of the aid (and more) was accumulated as reserves. The fiscal deficit before grants did not widen.

B. The Pattern of Aid Inflows

26. The pattern of aid flows is critical to understanding the policy response and economic outcomes of the aid over 2000-03. Net aid jumped in 2001, collapsed in 2002, and jumped again in 2003. Most of these changes were driven by changes in gross aid flows.¹⁶ As Table 2 illustrates, this volatility was unexpected and therefore required large and rapid policy adjustments. HIPC debt relief has also been a contributory factor; the value of HIPC assistance was around half that of loans and grants in 2002-03. Private flows, mostly transfers but also including unidentified items, have also been rising sharply, amplifying the effects of aid shocks.

Table 1. Net Aid Inflows and Selected Economic Indicators 1997 – 2004 (percent of GDP)

	1997	1998	1999	2000	2001	2002	2003	2004
Gross aid inflows	8.8	8.7	7.5	8.8	14.9	5.9	9.5	7.4
Project aid	7.8	6.9	5.6	5.0	9.3	3.4	4.4	3.3
Program aid	1.0	1.8	1.9	3.8	5.6	2.5	5.1	4.1
Debt service 1/	5.3	5.6	4.7	9.0	4.2	3.4	2.4	-0.6
Net aid inflows	3.5	3.2	2.8	-0.3	10.6	2.5	7.1	8.0
Private inflows 2/	14.0	6.5	12.9	14.8	12.7	13.9	13.7	8.5
<i>Memorandum items</i>								
GDP (real percent change)	4.2	4.7	4.4	3.7	4.2	4.5	5.2	5.2
Inflation (percent change)	18.4	16.3	13.1	39.3	23.5	14.1	24.0	...
Cedi per US dollar (average)	2050	2314	2669	5455	7170	7932	8677	9004
percent change	-20.1	-11.4	-13.3	-51.1	-23.9	-9.6	-8.6	-3.6
RER vs US dollar (percent change)	-7.6	1.5	-4.1	-34.0	-8.6	1.5	10.8	
REER (percent chg)	6.0	8.2	0.5	-35.5	0.6	-0.6	1.4	0.0

1/ Net of arrears and debt relief, including HIPC.

2/ Includes private transfers (largely remittances) that are reported in the current account.

¹⁶ Net aid flows are calculated as the sum of gross aid, less debt service adjusted for debt relief and changes in arrears. Gross aid flows are calculated as the sum of project and program loans and grants.

27. The policy response to, and the economic outcomes of aid inflows in Ghana in recent years is likely to have been strongly influenced by the volatile pattern of aid. This volatility was largely unexpected and required large policy adjustments. To illustrate this, Table 2 shows aid actually received less aid that was programmed around the start of that year (as reported in the closest IMF staff report). A positive number implies a surprisingly large amount of aid.¹⁷

Table 2. Aid Shocks in Ghana 1998-2003 (percent of GDP)

	1998 1/	1999 2/	2000 3/	2001 4/	2002 5/	2003 6/
Project grants	-0.1	-0.5	-0.7	1.8	-1.0	-0.2
Program grants	0.3	0.2	-0.6	2.0	-0.1	0.3
HIPC assistance	0.0	0.0	0.0	0.0	0.0	0.2
Project loans	1.9	1.1	-0.7	-0.1	-1.8	0.2
Program loans	0.2	-0.3	-3.9	1.0	-1.2	0.6
Gross aid shock	2.3	0.6	-6.0	4.7	-4.1	1.8
Net aid shock	0.5	0.0	-6.1	4.9	-4.5	1.3

1/ Program as detailed in April, 1999 staff report EBS/99/57.

2/ Program as detailed in April, 1999 staff report EBS/99/57.

3/ Program as detailed in August, 2000 staff report EBS/00/160.

4/ Program as detailed in August, 2000 staff report EBS/00/160.

5/ Program as detailed in March, 2002 staff report No. 02/38.

6/ Program as detailed in May, 2003 staff report no. 03/133.

C. The Use of The Aid Inflows

28. In this section, the macroeconomic response to the increased aid flows will be viewed from three, connected perspectives: (i) macroeconomic absorption; (ii) fiscal policy and; (iii) monetary policy.

Absorption

29. Over the entire 2001-03 aid surge period, Ghana's non-aid current account deficit narrowed, In other words, the aid was not used to increase net imports, or more generally raise investment relative to domestic savings. Overall, aid inflows were fully accumulated as

¹⁷ The source of most of these aid shocks is not clear; further investigation would be interesting. Almost half of the 2002 negative shock, however, reflected nondisbursement of a World Bank loan tranche owing to a delay in the divestiture of Ghana Commercial Bank.

reserves.¹⁸ The narrower non-aid current account deficit reflected stable or declining import volumes (see Table 3).

30. Consistent with the observation that much of the aid was saved as higher reserves, there is little direct evidence of Dutch Disease. The real effective exchange rate changed by less than 1 percent over the entire period and exhibited little volatility.¹⁹ In view of the absence of real appreciation, it may not be necessary to examine the performance of exports for Dutch Disease symptoms. Nonetheless, the decline in non-traditional export volumes during the period of higher aid represents a puzzle (Table 3).

31. This overall story for 2001-2003 hides three distinct episodes, mirroring the fluctuations in aid.

- About half of the 2001 aid jump of 5.1 percent of GDP (2.5 percent of GDP) stayed in reserves, while the rest financed a deterioration in the capital account (indeed more than the rest, as the non-aid current account strengthened).
- The 2002 aid collapse of 5.9 percent of GDP was more than outweighed by a strengthening of the non-aid current account.²⁰ This and some capital inflows permitted a further reserve accumulation of 3.3 percent of GDP.
- Finally, the 2003 aid jump of 6.5 percent of GDP and a further strengthening of the non-aid current account of 1 percent of GDP fed a further reserve build-up of 7.3 percent of GDP.²¹

32. GDP growth and the real exchange rate, on an average year-on-year basis, were remarkably steady through the entire period. The nominal exchange rate depreciated by nearly 50 percent in 2000, but the use of aid in 2001 helped to arrest the decline. Reserve

¹⁸ IMF support is generally intended to augment reserves. In our definition of net aid, IMF support is included. However, IMF disbursements are small part of aid flows to Ghana, averaging 1.1 percent of GDP (net of repayments to the IMF) during 2001 to 2003, for example.

¹⁹ The real exchange rate versus the US dollar appreciated by roughly 10 percent, mainly when the US dollar began to broadly depreciate.

²⁰ This was driven by a \$307 million narrowing of the trade balance, plus an \$80 million rise in the level of private transfers, largely made up of remittances.

²¹ In one sense, some of the aid could be said to have been absorbed, with the terms-of-trade-related increase in export proceeds going into reserves. However, the terms-of-trade-effect simply means that it would have taken a larger appreciation of the real exchange rate to absorb the aid than would otherwise have been the case.

accumulation after 2001 contributed to ongoing nominal depreciation (Table 2), a policy choice discussed in section below.

Table 3. Balance of payments 1997 – 2003 (percent of GDP)

	1997	1998	1999	2000	2001	2002	2003
Levels							
Aid and reserves	6.4	6.2	4.9	4.4	6.9	-2.2	-2.5
Net aid 1/	5.1	6.2	2.4	3.3	8.4	2.4	7.5
Δ gross reserves	1.3	0.0	2.5	1.1	-1.5	-4.6	-10.0
Non-aid BoP	-6.4	-6.2	-4.9	-4.4	-6.9	2.2	2.7
Non-aid current account	-15.2	-8.4	-11.7	-9.3	-8.3	-1.1	-1.0
Non-aid capital account 2/	8.8	2.2	6.8	4.9	1.4	3.2	3.6
Changes							
Aid and reserves (changes)	5.2	-0.2	-1.3	-0.5	2.5	-9.1	-0.3
Δ net aid 1/	2.0	1.2	-3.8	0.9	5.1	-6.0	5.1
ΔΔ gross reserves	3.2	-1.3	2.5	-1.4	-2.6	-3.1	-5.4
Non-aid BoP (changes)	-0.4	0.2	1.3	0.5	-2.5	9.1	0.5
Δ non-aid current account	-11.3	6.8	-3.4	2.5	1.0	7.3	0.1
Δ non-aid capital account 2/	10.9	-6.6	4.7	-2.0	-3.5	1.8	0.4
Memo items (percent change)							
GDP (US dollars million)	6,884	7,474	7,774	5,000	5,298	6,354	7,952
Real GDP growth	4.2	4.7	4.4	3.7	4.2	4.5	5.2
Gross reserves (US dollars million)	508	508	317	264	344	635	1,427
Cedi per US dollar (average)	-20.1	-11.4	-13.3	-51.1	-23.9	-9.6	-8.6
RER vs US dollar (average)	-7.6	1.5	-4.1	-34.0	-8.6	1.5	10.8
REER (average)	6.0	8.2	0.5	-35.5	0.6	-0.6	1.4
Trade balance (percent of GDP)	-17.9	-10.8	-16.0	-16.5	-18.2	-10.8	-12.0
Exports fob	0.0	15.6	-4.1	-3.5	-3.6	10.2	20.1
Export volume	-0.6	16.3	-2.8	2.2	-1.3	-2.1	-6.8
Non-traditional export volumes	2.6	-1.3	-18.2	5.8	6.3	-2.4	-32.9
Imports fob	32.4	-4.7	12.3	-15.2	2.6	-4.1	20.1
Import volumes	14.4	24.5	10.4	-24.9	10.0	-6.8	6.9
Non-oil import volumes	15.8	23.6	10.3	-30.3	8.6	-7.6	9.0
Terms of trade	-0.7	13.7	-8.7	-16.6	4.8	9.4	14.8
Import cover (months)	2.1	1.9	1.9	1.1	1.5	2.3	4.7

1/ This definition of net aid is taken from the balance of payments and may differ from the net aid inflows reported in the government's accounts and reported in Table 1.

2/ Includes unidentified capital flows and errors and omissions.

The Fiscal Policy Response

33. On a cumulative basis, none of the aid Ghana received was ‘spent’. Here we use the terminology that if aid is spent, it acts to widen the fiscal deficit (before grants). As mentioned above, this does not mean that aid money itself was not spent, but that if so other spending was reduced by the same amount.

34. Aid going to the budget followed the same pattern as aid measured through the balance-of-payments (Table 4). Over 2001-2002, fiscal policy was sensitive to aid flows. In 2001, the fiscal deficit widened by half of the increase in aid. The next year’s large and unexpected aid shortfall triggered a large fiscal consolidation, but not enough to close the shortfall. However, fiscal policymakers adopted a very cautious attitude to the 6 percent of GDP aid surge in 2003; the fiscal balance did not react at all. Although spending rose, this was fully financed by higher non-grant revenues. On a cumulative basis, aid had very little fiscal impact over 2001-03.

35. The surprise volatility of the aid flows seems to have complicated expenditure management and perhaps adversely affected the efficiency of spending (Figure 2). The increase in spending associated with the 2001 aid jump came mainly in the form of higher public capital expenditure, but also recurrent expenditure (Table 4). When aid declined by over 8 percent of GDP in 2002, capital expenditure declined by nearly 7 percentage points of GDP, as current expenditures continued to rise. In 2003, capital expenditures rose with higher domestic revenues, but to levels well below the average of the four pre-aid-boom years.

36. The volatile, but increasing, trend in net aid has not led to any apparent reduction in fiscal effort. Revenues excluding grants have been a larger share of GDP since 2001 than over 1997, rising 2.8 percent of GDP in 2003 to a high of 20.8 percent of GDP.

37. Why was the aid not spent? Three factors seem to have played important roles: a desire to resolve underlying fiscal problems and achieve disinflation, IMF conditionality on fiscal policy and its interaction with volatility; and an underlying concern for the implications of aid volatility

38. Throughout 2001-2003, IMF program targets implied that between 2 to 4 percentage points of the aid increment would not be spent, in view of a desire to reduce the large stock of domestic public debt, high domestic interest rates, and resulting large share of interest payments in expenditures.

39. Given the (unpredicted) volatility of aid to Ghana, the interaction between the surprise component to aid flows and the fiscal performance criteria is an important part of the story. The criteria were subject to “adjustors” to account for deviations between expected and realized aid flows. These adjusters were not symmetric. Positive aid shocks were to be saved and were not to be used to increase spending. Negative aid shocks were to be partially dealt with through a reduction in spending and hence a narrower deficit (before grants). Some cushion was built in, so that the adjustment was some proportion of the aid shortfall, but this

cushion was limited because of the program's focus on domestic financing restraint. If the criteria were binding shortfalls still implied a tightening of policy.²² Appendix 4 gives more details on these adjustors.

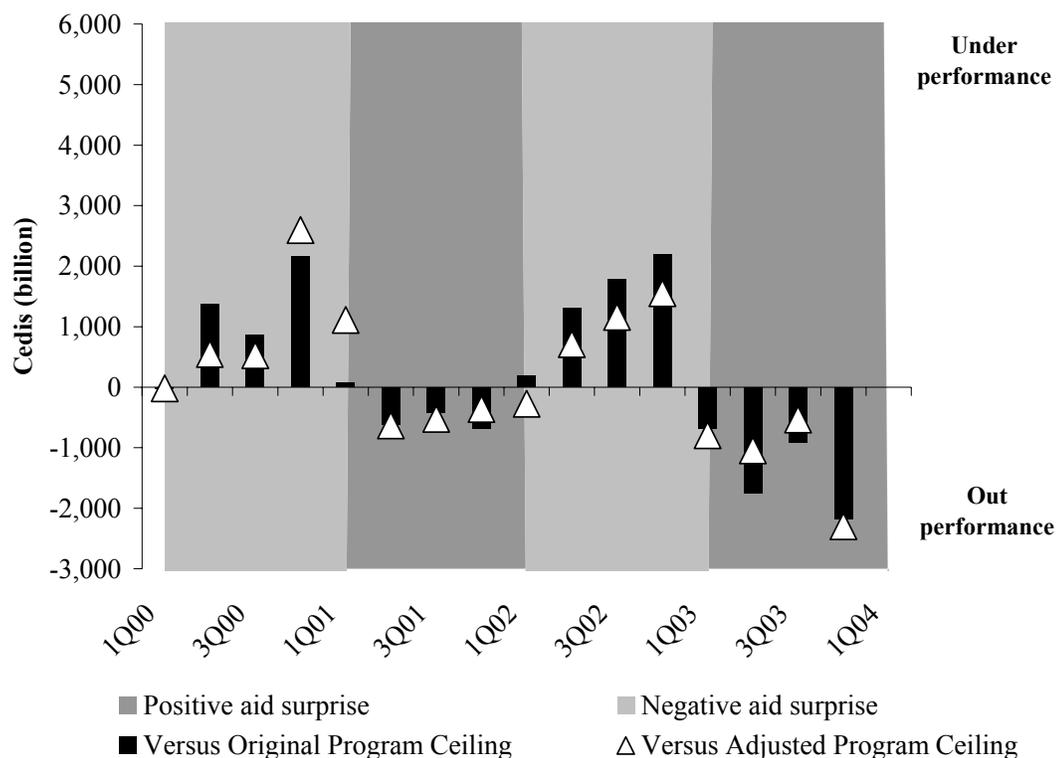
40. As discussed above, roughly half of each aid jump during 2001-03 was unexpected. In 2001, the increase in domestic credit roughly matched the expected component of the aid inflow. Correspondingly, the actual size of the primary deficit and domestic financing of the budget were close, though somewhat below, the adjusted program targets. This small degree of outperformance implies that the program was almost binding; there was little room to increase expenditure and this directed the authorities to save almost all of the aid surprise. Figure 1 illustrates this point for domestic financing, which implies the same constraints applied to the fiscal deficit.

41. In 2002, the program again called for a large reduction in domestic financing in view of the need to begin to reduce the large stock of domestic debt, which had reached 20 percent of GDP, and high real interest rates (see figure 4). In the event, the substantial 6.5 percent of GDP fiscal consolidation that was achieved did not even fully compensate for the huge aid shortfall. The adjustors allowed for some rise in domestic financing, but despite this the program's targets were breached. As a result of these fiscal slippages, the final review under the 1999-2002 PRGF program could not be completed and the program was essentially suspended. In May 2003, Ghana began another PRGF-supported economic program.

42. In 2003, however, even the expected component of the surge was not spent; in this case the targets were clearly not a binding constraint on fiscal policy. This is clearly shown by the large degree of outperformance against the domestic borrowing criteria in figure 1, indicating that the authorities had room to increase expenditure under the program. Increases in expenditure were largely financed by terms-of-trade related increases in tax revenues.

Figure 1. Ghana's Performance Against Domestic Financing Targets 2000-03

²² Initially, from 1999 to mid-2001, this proportion was set at one half; the remainder of the deficit financing shortfall was to be met by domestic borrowing. In later program reviews, this proportion approach was replaced by a US dollar cap on additional domestic borrowing.



43. The absence of spending of the aid jump of 2003 requires further explanation. One obvious inference is that the (largely unexpected) aid volatility of the previous few years dictated caution, particularly in view of the impact of aid and hence fiscal volatility on capital expenditures.

44. The fiscal caution in 2003 is consistent with the policy on reserve accumulation. The authorities saved the entire 2003 aid jump (and more) in reserves. A policy that spent the aid in a fiscal sense in the face of reserve accumulation would have been equivalent of a domestically-financed fiscal expansion, as discussed in Section II. Thus, the reserve accumulation policy made the fiscal savings more advisable. It may be that the reserve accumulation itself was driven partly by the desire to fiscally save the aid jump. In either case, the two policies were of a piece designed to save the aid inflows.

45. Finally, the lack of fiscal expansion in 2003 despite the aid jump gave the authorities room to use the aid inflows to stabilize the exchange rate and inflation, which had increased sharply in late 2002/early 2003. In order to understand this factor, we now turn to the monetary policy response to the aid inflows.

Figure 2. Ghana - Aid Flow and Public Expenditure Patterns 1997-2003

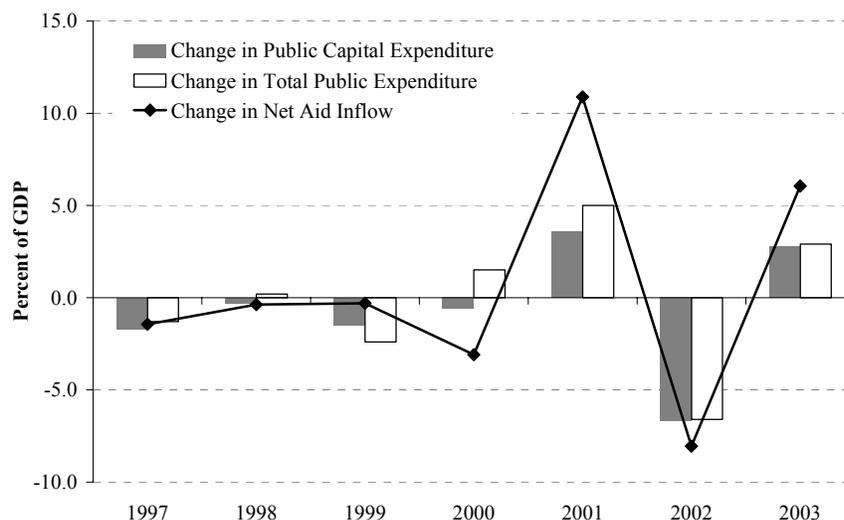


Table 4. Net aid flows and the fiscal response 1997 – 2003 (percent of GDP)

Net aid shock							
	1997	1998	1999	2000	2001	2002	2003
Δ Financing	-0.7	-0.5	0.7	-0.8	4.5	-5.6	1.3
Δ net aid	-1.4	-0.4	-0.3	-3.1	10.9	-8.1	6.1
Of which: unexpected		0.5	0.0	-6.1	4.9	-4.4	2.3
Δ domestic financing 1/	0.7	-0.1	1.0	2.3	-6.4	2.5	-4.8
Δ Balance (before grants)	1.0	0.9	0.4	-0.2	-4.6	6.5	-0.1
Δ expenditure	-1.3	0.2	-2.4	1.5	5.0	-6.6	2.9
Δ revenue ex-grants	-0.3	1.1	-2.0	1.3	0.4	-0.1	2.8
Memo items							
Revenue and Grants	19.2	20.5	18.0	19.8	25.0	21.1	25.5
Revenue	17.3	18.4	16.4	17.7	18.1	18.0	20.8
Grants	1.9	2.2	1.7	2.1	6.9	3.1	4.7
Expenditure	28.4	28.6	26.2	27.7	32.7	26.1	29.0
Recurrent exp. (excl. interest) 2/	10.3	10.3	10.8	11.1	12.1	13.8	13.8
Wages and salaries	5.3	5.5	5.6	5.2	6.1	8.5	8.4
Capital expenditure	11.6	11.3	9.8	9.2	12.8	6.1	8.9
Poverty expenditure	4.5	4.8	6.5
Overall balance	-9.2	-8.1	-8.2	-7.9	-7.7	-5.0	-3.5
excl Grants	-11.1	-10.2	-9.8	-10.0	-14.6	-8.1	-8.2
Debt service (% of rev excl grants)	37.6	38.0	34.1	42.4	43.1	33.9	29.8
Debt service (% exports) 3/	24.7	25.0	21.7	19.4	22.1	19.9	19.8
Interest payments	6.5	7.0	5.6	7.5	7.8	6.1	6.2

- 1/ Net domestic financing, given by the period's change in the domestic net credit to government.
- 2/ From 2001 on a cash basis
- 3/ Includes subventions in separate line items from 2002 onwards

The Monetary Policy Response

46. The monetary policy response to the aid surges is conditioned by whether it is absorbed and spent, as discussed in the two previous sections. Table 5 summarizes where Ghana stands in these terms, in the context of four other countries in Africa that received large increases in aid inflows over roughly the same period. (These countries are case studies in a broader paper.) Overall and in a cumulative sense, the aid surge was neither used nor spent.²³

Table 5. Classification by Aid Use and Expenditure – Ghana in a Regional Context

	Not Spent 2/	Partly Spent	Mostly Spent	Fully Spent
Not Used 1/	Ghana (0 , 7)		Tanzania (0 , 92)	
Partly Used	Ethiopia (22 , 0)		Uganda (25, 78)	
Mostly Used				Mozambique (64 , 100)
Fully Used				

1/ “Use” variable = Non-Aid Current Account Deterioration as % of Incremental Aid Inflow. Truncated at 0 and 100.

2/ “Spent” variable = Non-Aid Fiscal Balance Deterioration as % of Incremental Aid Inflow. Truncated at 0 and 100.

47. The implication of this pattern for absorption and fiscal response is that the aid inflows in and of themselves had no overall impact on monetary policy. In effect, the aid left the country in the form of higher reserves, and the government compensated for any aid-related expenditure increase through expenditure reductions elsewhere. This is in contrast to the strategy outlined in the PRGF-supported program, which was rather to mostly absorb and partly spend the expected aid increments, in order to reduce the burden of domestic debt on the economy.

48. As usual this overall picture hides some interesting and informative year-by-year variations. There were two major surges of inflation during the period, in 2000-2001 and again in 2002-2003. Each followed sharp and unexpected aid declines, and in the first case a major terms-of-trade decline as well, and was accompanied by a loosening of domestic monetary and fiscal policy, or in the case of 2002 excessive recourse to domestic borrowing. In the first case, the authorities used the aid to help stabilize; in the second they did not.

²³ Again, it is important to caveat that accumulating reserves may have been the appropriate response, given the potential value of reserves for buffering shocks, including to aid.

49. The first aid surge came when the economy was still reeling from a terms-of-trade decline of 25 percent over 1999-2000 (see Appendix 4).²⁴ In response to this shock, and with foreign reserves equal to one month of imports at the end of 2000, the authorities failed to sufficiently tighten fiscal policy, increased domestic borrowing, and ran up domestic arrears to plug the shortfall. Reserve money growth took off and the result was a 50 percent loss in the currency's nominal effective value and a rapid rise in inflation to around 40 percent.

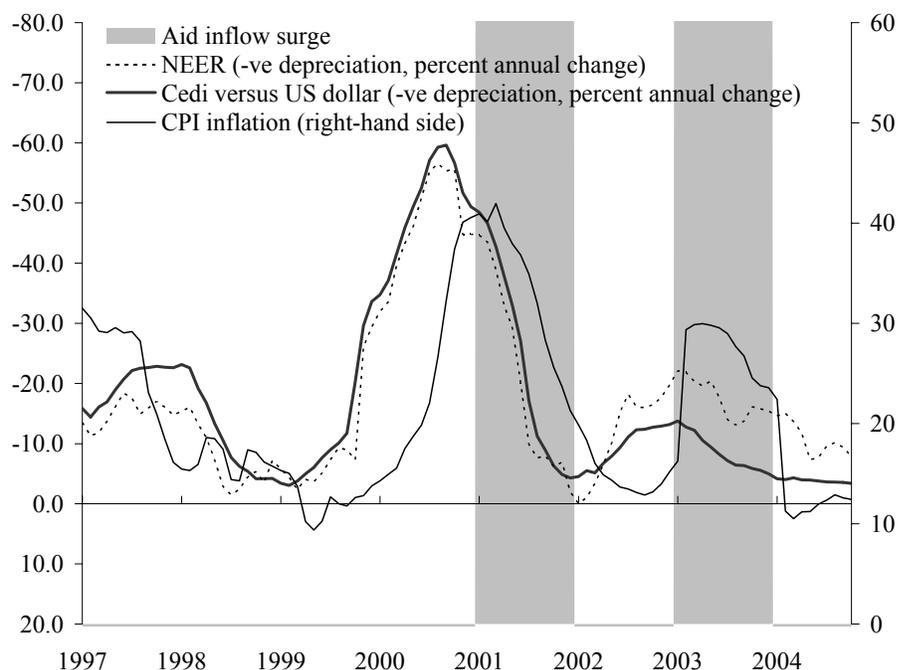
50. The aid surge in 2001 was partially sold into the foreign exchange market, strengthening the currency and helping reduce money growth. Given the worsening capital account, it is likely that in the absence of the aid surge there would have been much larger nominal exchange rate declines in 2001 than the modest 5 percent experienced.

51. During 2001, IMF staff supported the strategy of the monetary authorities, effectively advising that aid flows be used in supporting the currency as way of reducing inflation.²⁵ The IMF-supported program specified a floor for NIR accumulation and a ceiling for NDA expansion of the central bank. Both targets were generally met in 2001; targets on NDA were waived as money demand increased more than forecast at the same time as inflation came down.

²⁴ Compounding the effect of the terms-of-trade shock was a decline in net aid inflows of 0.3 percent of GDP, as against IMF staff expectations of a 5.8 percent-of-GDP *increase* in aid flows in 2000 (Table 1).

²⁵ "Ghana: 2001 Article IV Consultation and Third Review Under the PRGF Facility and Request for Waiver of Performance Criteria – Staff Report" EBS 01/141. Paragraph 33 notes that 'the [May 2001] mission emphasized the need for significantly positive real interest rates, to reduce credit demand, strengthen the incentive to save, and support the exchange rate'. Paragraph 70 notes that 'the staff encourages the authorities to allow the value of the cedi to be market determined, with intervention being limited to achieve the government's target for foreign reserves'.

Figure 3. Ghana – Exchange Rates, Inflation and Aid Inflows



52. As the aid shortfall hit in 2002, monetary policy was eased. The fiscal contraction was less than the aid decline, and the government borrowed directly from the central bank to partially cover the resulting financing gap. There was little sterilization of these liquidity injections during this period, either domestically or in terms of foreign exchange as reserves continued to be accumulated.²⁶ In part, reserve accumulation was programmed, because import cover at the start of 2002 remained fairly low (at just 2.3 months). The nominal exchange rate depreciation accelerated, and inflation began to pick up by the end of 2002.²⁷

53. The monetary and fiscal targets in the IMF-supported program were overshoot by the end of 2002. While adjusters in the program allowed for some loosening in response to the surprise aid decline, and there was a substantial contraction, it was not as sharp as called for by the program, given the aid decline.²⁸ Despite a reasonably large increase in the NIR floor

²⁶ . In effect, the policy response in 2002 corresponded to the case in which aid inflows are spent and partly used. The fiscal deficit was larger than the decline in aid flows would imply had the deficit moved one-for-one with aid, while reserves did not fall with the decline in aid.

²⁷ In early 2003, inflation pressures were exacerbated by one-off petroleum price hikes linked to the removal of subsidies.

²⁸ See Appendix 5 for a description of the “adjuster” mechanism.

for 2002, there was still substantial room under the program to sell reserves, as reserves ended the year \$80m above the adjusted program floor. This would have reduced monetary expansion without a need for further contraction of domestic credit by the central bank.²⁹ These slippages prevented the final review of 2002 from being completed.³⁰

54. During 2003, the authorities needed to stabilize. One approach might have been to sell some reserves to reduce money growth and stabilize the exchange rate. The rate of nominal exchange rate depreciation was in fact brought steadily down from an annualized quarterly 24 percent at the start of the year to an unchanged rate by the end, contributing to the inflation stabilization. However, the authorities could have made much more aggressive use of the aid inflows. Indeed, as discussed above, the authorities continued to accumulate more reserves. One motivation, emphasized above, was the need to create a buffer for volatile aid flows. A desire to keep the real exchange rate from appreciating may have also played a role, however, as the authorities actually bought reserves in the foreign exchange market and accumulated more than would be implied by the aid jump.

55. In order to reduce inflation, the authorities conducted policy through domestic monetary operations, selling Treasury bills for local currency and increasing reserve requirements for domestic banks to reduce money supply growth and raise interest rates. In the event, inflation fell below 5 percent on a six-month annualized basis by the end of 2003.

56. IMF staff urged the authorities to avoid further reserve accumulation and once again use the aid to allow the currency to adjust, in order to slow down the pace of monetary expansion, restrain inflation expectations and avoid the crowding-out effects of domestic sterilization.³¹ Reserve accumulation exceeded the program floor by \$310 million, approximately \$200 million more than the positive aid surprise. Despite this, high-powered money was just 7 percent above its indicative target as a result of the aggressive tightening of domestic monetary policy.

57. The potential costs of domestic sterilization were twofold: the possible effect on private investment and the quasi-fiscal costs of the higher domestic debt level. Excluding the

²⁹ The monetary performance criterion was changed from reserve money to net domestic assets in June, 2001. Reserve money became an indicative target.

³⁰ It would seem unlikely that this event contributed much to the shortfall in aid, which had already mostly emerged by then.

³¹ Ghana: 2003 Article IV Consultation and Requests for a Three-Year Arrangement Under the Poverty Reduction and Growth Facility and for Additional Interim Assistance under the Enhanced HIPC Initiative – Staff Report” EBS 03/133. Paragraph 52 notes that, “given the positive terms of trade outlook, the market may seek a strengthening of the exchange rate this year. The staff believes that this could be accommodated in the interests of helping to bring down inflation without unduly affecting external competitiveness”.

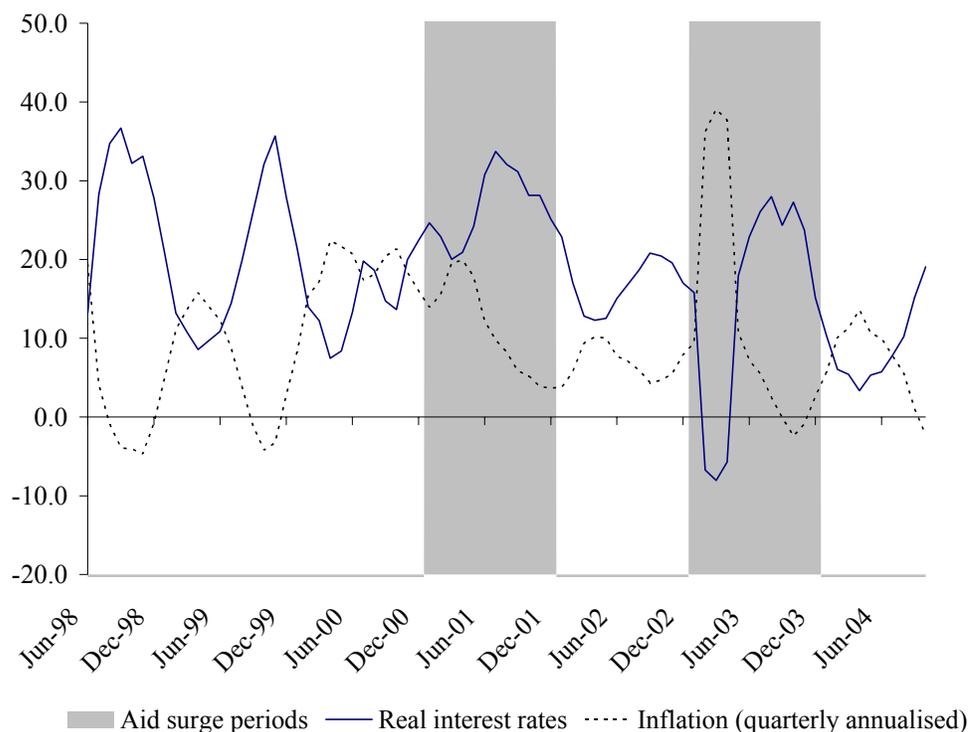
early part of the year when petrol prices affected inflation, real interest rates in Ghana tended to rise from already high levels in 2003, as figure 3 shows using real rates based on annualized quarterly changes in consumer prices. Private investment has remained stable at around the 14 percent of GDP since 2001. Meanwhile, domestic debt remained high at 20 percent of GDP, and with interest rates high, domestic debt service continued to absorb 5 percent of GDP, or 17 percent of total public expenditures.

58. One aim of policy over this period was to reduce the domestic debt burden, in order to lower real rates, stimulate private investment, and reduce the burden of domestic interest payments on the budget. A number of factors supported higher private investment after 2001, including improving terms-of-trade, recovering GDP growth, and fiscal consolidation. In this context, it is possible that the domestic sterilization policy may have kept real interest rates higher, the domestic debt burden higher, and private investment lower, than otherwise would have been the case (Table 6). While this was appropriate in view of the need to reduce inflation, a more aggressive use of aid might have mitigated some of these problems.

Table 6. Monetary conditions 1997 – 2003 (Cedis, million except where indicated)

	1997	1998	1999	2000	2001	2002	2003
Δ Reserve money	301	315	584	1,145	1,333	2,116	1,882
Δ NFA	111	294	-550	-930	1,405	1,752	6,115
Δ NDA	189	21	1,133	2,076	-72	364	-4,233
Memo items							
Net aid flows US\$ millions	243	236	221	-13	563	157	566
Δ gross reserves US\$ million	-91	0	-62	-182	80	291	792
Δ NEER percent change (average)	-16	-5	-21	-49	-5	-18	-16
Δ REER percent change (average)	6	8	1	-36	1	-1	1
Inflation percent change (average)	18	16	13	39	23	14	24
Treasury bills (average nominal rate)	43	27	30	41	33	26	22
Treasury bills (average real rate)	25	11	17	2	10	12	2
Reserve money (percent change)	33	26	38	55	41	46	28
Broad money (percent change)	44	17	25	54	32	49	34
Velocity	4.9	4.2	4.4	4.2	3.6	3.8	3.1
Private investment (percent of GDP)	12	12	13	15	14	14	14
Private investment (percent of inv.)	49	52	58	62	52	69	60

Figure 4. Real Treasury Bill Rates Using Annualized Quarterly Inflation 1998-2004



IV. CONCLUSIONS

59. Ghana avoided real exchange rate appreciation and Dutch disease during a three year period in which aid flows were 4.4 percentage points of GDP higher than during the previous five years. This can not be put down to offsetting forces; the terms-of-trade improved and private inflows rose significantly during the same period. The fact that the country effectively saved all of the aid and prevented it from having a cumulative impact upon the economy explains the lack of a real exchange rate effect.

60. The aid inflows and policy response consist of three phases.

- In 2001, aid inflows jumped unexpectedly. Fiscal policy was restrained, along the lines of the Fund-supported program, which did not allow the spending of aid surprises. Much of the extra aid was used in the sense that it was sold in the foreign exchange market, putting this episode in the category of **not spent but mostly used**. The sale of foreign exchange and associated policies allowed the exchange rate and inflation to stabilize from high levels.
- In 2002, aid inflows fell just as unexpectedly. Fiscal policy contracted but not proportionally, leaving a net increase in domestic financing of the deficit. Reserves were further accumulated, in excess of the actual aid flows. The combined impact of the less-than full fiscal adjustment and accumulation of reserves was a loose monetary policy that contributed to an increase in inflation by the end of 2002.

- In 2003, aid again surged unexpectedly. This time, the authorities more than accumulated the jump in reserves and avoided any increase in the deficit before grants. **Aid was neither spent nor used.** Inflation was stabilized, in part through sale of government paper that contracted the money supply, contributing to high interest rates and a large stock of domestic public debt. On opportunity to stabilize through more aggressive foreign exchange sales, a more appreciated real exchange rate, and a reduction in the level of domestic public debt was not taken.

61. A number of questions emerge. Most are best answered in the context of the broader study, of which this case study is only a part.

62. First, why did policymakers decide to limit the impact of aid on the economy? The answer does not generally seem to be the strictures of the IMF-supported program. Most notably, the lack of fiscal and exchange rate reaction to the 2003 aid inflow expansion cannot be ascribed to program fiscal and reserve accumulation targets.

63. Part of the reason for the reserve accumulation was presumably a desire to rebuild from low initial levels. And part of the reason for the lack of proportionate increase in the fiscal deficit was a desire to “crowd in”, that is to reduce the large stock of domestic public debt that was causing high real interest rates and large interest costs to the budget

64. However, these explanations are perhaps not the full story. The clearest indication of this is that Fund floors for reserve accumulation and ceilings on domestic financing of the deficit were substantially exceeded in 2003. In addition to the above motivations, the policy may have reflected a desire to avoid real exchange rate appreciations. In this sense, perhaps we are observing Dutch Disease in the same way that one may observe the effects of crime, even in the absence of a break-in, in the form of armed guards and barbed wire on top of walls. However, there is little direct evidence on this point.

65. Clearly, aid volatility, particularly unexpected and large swings, has contributed to policy difficulties and probably to the authorities’ caution in taking advantage of the 2003 aid jump. There were other costs of the volatility. It is surely more difficult to contract back to a given level of expenditure after an increase than to simply maintain a level of spending. In this sense, the volatility in 2001-2002 surely contributed to the fiscal and then monetary policy relaxation, and high inflation, observed in 2002. Moreover, there is some sign that recurrent expenditures were harder to restrain than capital expenditures during the 2002 downturn, implying that spending the aid as it comes in could contribute to a decline in the share of capital expenditures over time. Recent improvements in donor co-ordination in Ghana should limit future volatility of aid flows.³²

³² The government takes the overall lead in coordinating external assistance and has introduced a “mini-Consultative Group” process, in which it meets with external partners on
(continued)

66. IMF-supported program targets, with their asymmetric adjusters, may significantly affect how aid surprises are absorbed. The system of adjusters in Ghana were, in part, designed to reduce the risks of excessive public domestic borrowing and facilitate “crowding in”. With these objectives in mind, although the asymmetric adjusters may have appeared excessively tight *ex ante*, in the event, they turned out to be useful. Had the aid jump of 2001 been fully spent, the collapse of 2002 would have been even harder to manage.³³ Had the aid collapse effect on policy been fully smoothed by domestic borrowing, the public debt stock would have risen from already high levels, while the emerging inflation problem of 2003 would have been worse.

67. There is no universally optimal approach to managing high aid inflows. Unless Dutch Disease is a major concern or the return to public expenditure low, to *absorb and spend* the aid would appear to be the most appropriate response. However, if resources are scarce for private investment, the rate of return on public expenditure is low, or fiscal policy is already too loose, to *absorb and not spend* would make sense. To *spend and not absorb* would appear to be the least attractive option, particularly when domestic sterilization domestic sterilization is used to avoid pressures for inflation and exchange rate appreciation. This cannot be a sensible long-run strategy for an aid recipient -- it does not allow the country to benefit from the aid resources.

68. The lack of consensus in the theoretical and empirical literature indicates that there is no easy “cookie cutter” response to high aid inflows; in each economy the response should be dictated by the particular circumstances. In the case of Ghana, the volatility of the aid inflows was clearly a central factor.

a quarterly basis. The World Bank has stepped back from its traditional role to leave space for the government to lead external partner co-ordination.

³³ The maintained assumption is that the aid collapse of 2002 was not a result of donor or recipient dissatisfaction with the partial failure to spend the aid in 2001.

Appendix 1. “Absorption” Defined

Increased aid implies an increase in some combination of reserve accumulation, non-aid capital outflows, and the non-aid current account. From the balance of payments identity $\text{Current Account Balance} + \text{Capital Account Balance} = \Delta\text{Reserves}$, it follows that:

$$\text{Aid Inflows} = \Delta\text{Reserves} - (\text{Non-Aid Current Account Balance} + \text{Non-Aid Capital Account Balance}),$$

where non-aid capital outflows and non-aid current account are simply the capital account and the current account with all aid items (grants, loans, debt relief, arrears clearance) excluded. Thus, an increase in aid can serve some combination of three purposes: an increase in the rate of reserve accumulation, an increase in non-aid capital outflows, or an increase in the non-aid current account deficit.

The term “absorption” is used to characterize the use of aid to finance non-aid current account deficits. Thus, an increase in aid is “absorbed” to the extent that there is a corresponding deterioration in the non-aid current account deficit.

“Absorption” in this sense should not be confused with the idea of “absorptive capacity,” which is related but which also involves questions about the rate of return to investments that might be financed by aid. Rather, it is related to the national income identity $Y = C^P + I^P + G + (X-M)$. Absorption has a traditional definition as $A \equiv C^P + I^P + G$ (see for example [some textbook]). Thus absorption in the sense used here is closely related: aid is “absorbed” to the extent that it allows an increase in A , for a given total output Y .

Of course, output is not fixed. As discussed in the text, aid may well increase output, both in the short run through the effects of associated spending on aggregate demand and in the long run through the increase in the capital stock permitted by the associated investment. To the extent that it does so without a deterioration in the non-aid current account, however, these increases in aggregate demand and investment could have been undertaken without the aid flows. Aid absorption refers to the use of aid to finance the non-aid current account deficit associated with these increases in aggregate demand, investment, and output in general.

This definition of “absorption” excludes the use of aid to finance capital outflows. From the point of view of the central bank balance sheet and the budget, there is no difference between capital outflows and imports. Economically, the situation is more complicated. Unlike higher net imports, capital outflows are not a typical counterpart to higher aggregate demand. However, the alternative to the use of aid resources to finance capital outflows may be some combination of a more depreciated exchange rate and/or tighter domestic monetary policy. In this case, the use of aid to finance of capital outflows may be expansionary.

Appendix 2. Spending, Absorption, and Central Bank and Fiscal Accounting

Measures of NDA and domestic financing of the budget have to be interpreted with care. Depending on whether aid is absorbed or not, they can have very different economic implications.

An increase in aid is “**spent**”, as defined in this paper, when the deficit before grants increases by the amount of the increase in aid. The interpretation of the financing associated with this spending depends critically on whether the aid is “absorbed” in the sense used in Appendix 1. Appendix Table 1 illustrates a numerical example in which budgetary aid increases by 100 and, to keep things simpler, any aid-related expenditure is on domestic goods. To illustrate the accounting, it is assumed that money demand and output remain unchanged and that the authorities adjust domestic credit to keep the money supply constant as well. Richer policy responses are discussed in the text.

In the first instance, the government sells the foreign exchange to the central bank and receives a local currency deposit at the central bank in return. Reserves go up by 100 and NDA falls by 100. What happens next depends on whether the central bank sells the foreign exchange and whether the government increases the deficit. There are four cases:

1. **neither spent nor absorbed.** The aid is saved in the form of reserves. Because the government builds up a deposit at the central bank as a counterpart to the higher reserves, NDA and net domestic financing of the budget fall. However, there has in fact been no change in the stance of monetary or fiscal policy (beyond possible implications of a higher reserve level for expectations).
2. **both spent and absorbed.** The fiscal deficit before grants increases by the amount of the aid, with an equal increase in foreign financing and no change in domestic financing. The monetary implications of the higher deficit are sterilized by the sale of foreign exchange.
3. **absorbed but not spent.** External financing increases and domestic financing decreases by the amount of the aid flow. The central bank increases net credit to the private sector to keep the money supply unchanged.
4. **spent but not absorbed.** The deficit and external financing increase. Because the foreign exchange is not sold, the central bank reduces credit to the private sector to keep the money supply unchanged. Such a policy is similar to an expansionary fiscal policy in the absence of aid. This is true even though the budgetary accounts may, by construction, show stable or declining domestic financing.

Appendix Table 1. Central Bank and Fiscal Accounts

Example With Aid Inflow of 100

	Don't Absorb				Absorb			
Don't Spend	Central Bank Balance Sheet				Central Bank Balance Sheet			
	NIR	+100	M	0	NIR	0	M	0
	NDA	-100			NDA	0		
	NCG	-100			NCG	-100		
	NCP	0			NCP	+100		
	Fiscal Accounts				Fiscal Accounts			
	Ext. Fin.	+100	Deficit	0	Ext. Fin.	+100	Deficit	0
	Dom. Fin.	-100			Dom. Fin.	-100		
Spend	Central Bank Balance Sheet				Central Bank Balance Sheet			
	NIR	+100	M	0	NIR	0	M	0
	NDA	-100			NDA	0		
	NCG	0			NCG	0		
	NCP	-100			NCP	0		
	Fiscal Accounts				Fiscal Accounts			
	Ext. Fin.	+100	Deficit	+100	Ext. Fin.	+100	Deficit	+100
	Dom. Fin.	0			Dom. Fin.	0		

Notes:

NIR is net international reserves and M is reserve money.

NDA is net domestic assets, of which NCG is net credit to the government and NCP is net credit to the private sector.

Ext. Fin is external financing, and Dom. Fin is domestic financing of the deficit.

Appendix 3. Dutch Disease

Dutch disease is related to the idea that productivity growth is particularly high when resources are devoted to exports, particularly of non-traditional products, because of learning-by-doing in these relatively competitive and technologically advanced industries. The decline of the export sector, mediated by an increase in the demand for and price of nontradables, may lower the attainable growth path of the economy. For this argument to hold, dynamic externalities in the export sector would have to outweigh the benefits of capital accumulation associated with aid-financed investment (as well as any related productivity growth).

The theoretical case for Dutch disease is ambiguous. For example, when learning-by-doing externalities can take place also in the non-tradable sector, the long-run adverse impact will be limited, even if real exchange rate appreciates in the short-term.³⁴ In the longer run, the investments in physical and human capital, both in the government and in the private sector, begin to bear fruit and productivity increases not only in the tradable sector but also in the nontradable sector potentially, offsetting the initial loss of competitiveness.³⁵

The effects of Dutch disease would be enhanced if the aid-recipient economy has weak financial markets. For example, in thin foreign exchange market, volatile and lumpy aid disbursements can cause overshooting in exchange rate or interest rate. Similarly, in the short-term, when the real exchange appreciation due to excess demand for non-tradeables is not yet compensated by the increase in productivity, firms may be forced out of business if they have access to adequate credit to smooth out the shock. Temporary overshooting of the actual real exchange rate after an increase in aid may therefore be more damaging than the longer-term shift in the equilibrium real exchange rate.

Despite a substantial body of theoretical research on Dutch disease implications of aid inflows, there is limited empirical work to establish these adverse effects of large aid inflows – particularly in low income countries. Recent cross-countries studies find some evidence for the real appreciation effect. For example, Elbadawi (1999) finds that a 10 percent increase in the aid-to-GDP ratio appreciates the real exchange rate by about one percent.³⁶ Individual country studies, however, offer mixed results. Some (e.g., Sri Lanka and Malawi) find that

³⁴ Torvik (2001).

³⁵ Nkusu (2004a) discusses of the theoretical determinants of Dutch disease and emphasizes the mitigating role of excess domestic capacity. Adams and Bevan (2003) describe a non-monetary theoretical model and calibrate it for Uganda.

³⁶ Prati, Sahay and Tressel (2003) finds that increases in aid inflows have significant, strong, and permanent effects.

aid inflows cause real appreciation, but others (e.g., for Nigeria, Tanzania, Ghana) find that aid flows are related to real depreciations.³⁷

In a related literature, some papers find evidence of a significant detrimental impact of real appreciation on exports—particularly non-traditional exports.³⁸ Empirical evidence also suggests that real appreciation contributed to the widening trade deficits in four African economies.³⁹

The risks of Dutch disease need to be balanced against the potential benefits from the investment that aid can finance. Here, the evidence is also mixed. The benefits of public investment are not clearly established empirically,⁴⁰ though a strong case can be made for a higher level in poor countries.⁴¹ While the systematic evidence for a positive growth impact of private investment is stronger, it is less clear that aid can be effectively channeled into higher private investment.

More broadly, a huge literature asks directly whether aid affects growth, with somewhat mixed conclusions.⁴² However, there is substantial cross-country evidence that exchange rate overvaluations are one of the few policy variables that matter once institutions are controlled for, as well as substantial micro-based evidence on the benefits of trade and, to some extent, learning-by-doing associated with exports. Weak exchange rates may also help predict the incidence of episodes of growth acceleration.⁴³ Case studies that examine the entire chain from aid through export performance to final outcomes include Nkusu (2004a), who finds little sign of Dutch disease in Uganda.

On balance, the evidence on Dutch disease is mixed. Presumably, the seriousness of the problem depends on the particular circumstances of each country. It can safely be concluded, however, that the risk of Dutch disease raises the stakes: if aid-financed investments have poor rates of return, not only is the aid wasted, but there is a risk that overall growth may be impaired.

³⁷ Wignaraja (1992, Sri Lanka), Ogun (1995, Nigeria), Nyoni (1998, Tanzania), Sackey (2001, Ghana), and Ouattara and Strobl (2004, CFA countries), Fanizza (2001, Malawi).

³⁸ Sekkat and Varoudakis (2000), Elbadawi (2002).

³⁹ Adenauer and Vagassky (1998).

⁴⁰ Leite (2005).

⁴¹ Millennium Project Report, UN (2005)

⁴² See Radelet and Clements (2004) for recent results and a literature survey, as well as Easterly and Roodman (2004) for a somewhat more skeptical view.

⁴³ Acemoglu et al. (2002) present important evidence on overvaluation and growth, while Easterly and Levine (2003) summarize the literature. Hausmann et al. (2004) discuss the role of depreciated real exchange rates in sparking growth accelerations. Berg and Krueger (2004) summarize some of the literature on learning-by-doing and exports.

Appendix 4. Terms of Trade Shocks and Aid Flows

Appendix Table 2 illustrates the relative importance of net aid flows, private flows and the trade balance for overall foreign exchange flows to Ghana between 1998-2003. The existence of significant terms of trade volatility is the most difficult complicating factor in the analysis of aid flows. Three commodities dominate the terms of trade: gold and cocoa exports, and oil imports.⁴⁴ Price volatility in these commodities can greatly influence the flow of foreign exchange into the economy and either exacerbate, or ameliorate, the potential for net aid flows to induce real exchange rate appreciation. A summary of the approximate effect of the terms of trade and net aid on Ghana's foreign exchange flows is presented in table 3.

In 2000, there was a large negative terms of trade shock which amplified the impact of the aid decline. During 2001-2003, terms-of-trade effects not as large as aid movements but were important: in 2002 they counteracted some of the decline and in 2003 they went in the same direction as the large jump in aid, driven largely by export price increases.

Appendix Table 2. Net aid and Terms-of-Trade effects compared 1998 – 2004 (US\$ millions)

	1998	1999	2000	2001	2002	2003
Exports (+ve = higher export values)	282	-86	-70	-69	190	414
Of which: price effects	-11	-28	-112	-44	234	594
Imports (+ve = lower import values)	144	-355	493	-72	117	-545
Of which: price effects	714	-49	-422	185	-81	-335
Trade balance (+ve = narrower deficit)	426	-441	423	-141	307	-131
Of which: terms of trade effect	703	-77	-534	141	153	259
Net aid (+ve = higher net aid flows)	-7	-15	-233	576	-406	409
Private capital (+ve = higher inflows)	-350	405	-305	132	10	285
Total	69	-51	-115	567	-89	563

Memorandum items

⁴⁴ In 1996 two commodities, gold and cocoa, accounted for roughly equal shares of 74 percent of exports; by 2003, this had declined modestly to roughly equal shares of 64 percent (i.e. one-third each). Price independence provides some diversification (the correlation of annual prices since 1996 is not statistically significant from zero), but overall exposure to prices remains high. Between 10-20 percent of imports are accounted for by oil.

	1998	1999	2000	2001	2002	2003
Change in gross reserves (US dollar millions)	-62	-62	-182	80	291	792
Terms of trade (annual percent change)	14	-9	-17	5	9	15

1/ Positive (negative) numbers refer to an inflow (outflow) of foreign currency relative to the previous year in all cases.

2/ These items correct the approximations made in the individual price and volume effects

Appendix 5. Program Adjusters for Aid Surprises

The two basic policy choices available to the authorities when faced with a net aid inflows, whether to accumulate as reserves or use the foreign exchange, and whether to save or fiscally spend, may be affected by the performance criteria of the IMF-supported economic program. See Appendix 2 for more details on performance criteria.

The criteria in Ghana were subject to “adjustors” to account for deviations between expected and realized aid flows. These adjusters were not symmetric. Positive aid shocks were to be saved in higher NIR and lower NDA, while negative aid shocks were to be partially dealt with through a reduction in NIR and some increase in NDA. Some cushion was built in, so that the adjustment was some proportion of the aid shortfall, but if the criteria were binding shortfalls still implied a tightening of policy.

Table 3. IMF Program Aid-Flow Relevant Performance Criteria

	Positive aid shock (actual higher than programmed)	Negative aid shock (actual lower than programmed)
Performance criteria		
Net domestic financing of government (ceiling) 1/	Lowered by full amount of the aid shock	Raised by some proportion of the aid shock
Net domestic assets of the central bank (ceiling) 1/ 2/	Lowered by full amount of the aid shock	Raised by some proportion of the aid shock
Net international reserves (floor) 3/	Raised by full amount of the aid shock	Lowered by some proportion of the aid shock
Indicative targets		
Domestic primary fiscal balance (floor) 4/	No effect	Implicitly raised by some proportion of the aid shock
Reserve money (stock) 2/	No effect	Implicitly lowered by some proportion of the aid shock

1/ The adjustor allowing for a higher ceiling to account for unexpected aid shortfalls changed from 50 percent of the shortfall to a fixed \$50 million cap in June, 2001. This cap was raised to \$75 million in March, 2002.

2/ The performance criteria was changed from reserve money to net domestic assets in June, 2001. Reserve money became an indicative target.

3/ The adjustor allowing for a lower floor to account for unexpected aid shortfalls changed from 50 percent of the shortfall to a fixed \$50 million in June, 2001. This limit was raised to \$75 million in March, 2002. Aid shortfalls could therefore only be partially financed by drawing down reserves.

4/ Excludes grants and foreign-financed capital expenditure.

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