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**Debt Relief: What Do the  
Markets Think?**

by

**Serkan Arslanalp\***  
**Peter Blair Henry\*\***

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Stanford University  
John A. and Cynthia Fry Gunn Building 366 Galvez Street |  
Stanford, CA | 94305-6015

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\*Serkan Arslanalp: Stanford University, Department of Economics; Stanford, CA 94305-6072; serkan@stanford.edu  
\*\*Peter Blair Henry: Stanford University, Graduate School of Business; Stanford, CA 94305-5015; and National Bureau of Economic Research; pbhenry@stanford.edu. We thank Jeremy Bulow, Steve Buser, Sandy Darity, Darrell Duffie, Paul Romer, Jeff Zwiebel and seminar participants at Columbia and Stanford for helpful comments. Rania A. Eltom provided able research assistance. Henry gratefully acknowledges financial support from an NSF CAREER Award and the Stanford Institute for Economic Policy Research (SIEPR).

## **Introduction**

Bono and Jesse Helms want debt relief for the highly indebted poor countries (HIPC) of the world. The Pope and 17 million people are behind them. On June 17, 1999, the lead singer of U2 presented 17 million signatures in support of the Jubilee 2000 Debt Relief Initiative to Chancellor Gerhard Schroeder at a meeting of G8 leaders in Cologne, Germany. In a Papal Bull on November 29, 1998, Pope John Paul II called on the wealthy nations to relieve the debts of developing nations in order to “remove the shadow of death.”

Opponents of debt relief occupy less hallowed ground but are no less zealous about their cause, citing at least three reasons why the debt relief campaign is misguided. First, debt relief alone cannot solve the problem of third-world debt. Even if all debt were forgiven, it will accumulate again if income does not grow faster than expenditure (O’Neill, 2002). Second, debt relief can create perverse incentives for debtor countries—by relaxing budget constraints, debt relief may induce governments into prolonging bad economic policies (Easterly, 2001a). Third, rewriting debt contracts may hurt a debtor’s reputation and hinder its ability to obtain future loans (Easterly, 2001b).

Does debt relief yield efficiency gains or is it a welfare-reducing market intervention? The stock market provides a natural place to search for answers. The stock market is forward looking. It asks what discount rates and cash flows lie ahead. Theoretically, the effect of debt relief on discount rates and cash flows follows from the collective action problem that debt relief is designed to solve. If each creditor would agree to forgive some of its claims, then the debtor country would be better able to service the debt owed to each creditor. Consequently, the expected value of all creditors’ claims would rise (Krugman, 1988; Sachs, 1989). Forgiveness will not happen without coordination, however, because any individual creditor would prefer to

have a free ride, maintaining the full value of its claims while others write off some debt.

By forcing all creditors to take a haircut, debt relief can solve the collective action problem and pave the way for profitable new lending (Cline, 1995). In this case, the new capital inflow may reduce the discount rate in the debtor country by relaxing the intertemporal budget constraint. To the extent that a country suffers from a “debt overhang” caused by the collective action problem, debt relief increases the incentive to undertake efficient investments and may raise expected future growth rates and cash flows (Froot, Scharfstein, and Stein, 1989; Krugman, 1989; Sachs, 1989).<sup>1</sup> On announcement, the stock market removes the temporal dimension of the analysis by collapsing the entire expected future stream of debtor-country discount rates and cash flows into a single summary statistic: the change in the value of the stock market.

This paper uses the stock market to evaluate the net wealth effects of debt relief in the context of a natural experiment—the Brady Plan. On March 10, 1989, the Secretary of the Treasury of the United States, Nicholas F. Brady, called for debt relief for third-world countries. Between 1989 and 1995, sixteen developing countries reached debt relief agreements under the Brady Plan. Figure 1 illustrates the central result of the paper. In the year preceding the official announcement of its Brady deal, a country’s stock market appreciates by an average of 60 percent in anticipation of the event. Stated in dollar terms, the market capitalization of debtor country stock markets rose by a total of 42 billion dollars in anticipation of the Brady Plan.

The wealth gains from debt relief were not limited to the debtors. The creditors also benefited. The Brady Deal drove up the stock market capitalization of U.S. commercial banks with LDC exposure by 22.4 billion dollars (Demirguc-Kunt and Huizinga, 1993). The Brady Deal cost 25 billion dollars to implement; adding the wealth increases and subtracting the cost

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<sup>1</sup> These papers build on the original formulation of debt overhang in a corporate context by Myers (1977).

gives a rough sense of the net societal benefit: 39.4 billion dollars.<sup>2</sup>

To be sure, changes in stock market capitalization measure net efficiency gains in a very narrow sense. Our welfare metric tells us only whether the wealth gain to shareholders outstripped the cost. In that narrow sense, the results suggest that debt relief may generate ex-post efficiency gains. Of course, debt relief may also induce ex-ante contracting inefficiencies (Shleifer, 2003) and our analysis provides no evidence on the size of those costs.<sup>3</sup> Nevertheless, it is important to understand whether debt relief generates any ex-post efficiency gains, because to the extent that debt restructurings induce ex-ante efficiency losses, the existence of some ex-post efficiency gains is a necessary condition for debt relief to be welfare improving.

In addition to the narrowness of our welfare metric, there are many other reasons to be concerned about using the stock market to evaluate debt relief. For example, it is important not to look at debtor-country stock market responses in isolation. If the Brady Plan coincides with a positive global economic shock that is unrelated to debt relief then debtor-country stock markets will rise, but so too will stock markets in countries that do not sign debt relief agreements. In order to distinguish the effect of debt relief from that of a common shock, we compare the stock market response of the Brady countries with the market response of a similar group of countries that did not sign Brady deals. Figure 1 shows that the control group does not experience a significant increase in stock prices.

A greater concern is that anticipated economic reforms drive the result. Countries receive Brady deals in return for committing to economic reforms that are designed to increase openness

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<sup>2</sup> Twenty five billion dollars was the cost of the U.S. Treasury Bill enhancements (collateral behind future debtor-country interest payments) that were needed to convince the commercial banks to write off some of the debt. The enhancements were paid for by an increase in the capital of the IMF, the World Bank, and the Japanese Export-Import bank. See Cline (1995) for details.

<sup>3</sup> There is, however, an alternative view that the ex-ante knowledge that debts may have to be restructured could raise efficiency by forcing lenders to be more careful (Darity and Horn, 1988; Fischer, 1987; Bolton and Skeel, 2003)

and raise productivity. So, it is possible that stock prices go up because debt relief signals future reforms. We attempt to distinguish the effects of debt relief from those of reform by making use of a key historical fact. On October 8, 1985, the Secretary of the Treasury of the United States, James A. Baker III, announced a plan for dealing with the Third World Debt Crisis. The Baker Plan called on the debtor countries to undertake extensive economic reforms—stabilization, trade liberalization, privatization, and greater openness to foreign direct investment—but deliberately excluded any plans for debt relief. In contrast, the Brady Plan explicitly called for debt relief in addition to the continuation of the reforms begun under the Baker Plan four years earlier.

The difference in focus of the two plans implies that the “news” in Baker was the official U.S. push for economic reforms while the “news” in Brady was the official U.S. push for debt relief. In other words, because economic reforms were enacted under the Baker Plan, their effects should already have been incorporated into stock prices when the Brady Plan was announced. If markets are efficient, then the market reaction to the Brady Plan should principally reflect the anticipated effect of debt relief.

Figure 2 is consistent with the view that market participants in debtor countries viewed the Baker Plan as a signal of future economic reforms—stock market values increased by an average of 22 percent in real dollar terms over a twelve-month period in anticipation of the Baker Plan. Hence, Figure 2 lends credibility to the argument that any news about future economic reforms was incorporated into stock prices long before the markets learned about the Brady Plan.

Figure 2 notwithstanding, it is still important to confirm that markets were not surprised by the economic reforms enacted around the time of the Brady Plan. Sections III and IV do just that and address other concerns about the robustness of our results as well. There, instead of assuming that the Brady agreement did not signal any new information about economic reforms,

we test this hypothesis directly. We do so by documenting the dates on which major reforms occurred and testing empirically whether the reforms had any effect on stock prices. While our tests are not definitive, the stock market increase associated with debt relief remains economically large and statistically significant in all regression specifications that include the economic reform variables.

After grappling with concerns about robustness, we turn to more primitive issues of interpretation in Section V: Why do stock prices rise? Is this a spurious result? Or, does the stock market rationally forecast future changes in the fundamentals? Again, theory points to the net resource transfer (NRT) and future growth. If market values rise because debt relief paves the way for profitable new lending, then the stock market responses should have some predictive power for future changes in the NRT. Similarly, if debt relief improves future growth prospects, then the stock market responses should have some predictive power for future changes in growth. While this approach does not provide definitive evidence, the stock market responses do help predict changes in the NRT and GDP growth for up to five years following the agreements.

Finally, back to Bono. Would debt relief for the HIPC countries produce the salutary effects achieved by the Brady Plan? The evidence we present in Section VI suggests not. The Brady Plan worked because debt relief was the appropriate policy response for a group of countries where the collective action problem genuinely stood in the way of profitable new lending. The primary obstacle to investment and growth in the HIPC countries is not debt overhang, but rather a lack of basic institutions and social infrastructure—problems that debt relief is unlikely to solve (Arslanalp and Henry 2002; Easterly 2001b).

## **I. Data and Descriptive Findings**

Table I provides a complete list of the countries in the treatment and control groups. The treatment group consists of all countries that received a Brady Plan. There are 16 such countries: Argentina, Bolivia, Brazil, Bulgaria, Costa Rica, the Dominican Republic, Ecuador, Jordan, Mexico, Nigeria, Panama, Peru, the Philippines, Poland, Uruguay, and Venezuela. The table also gives the announcement date of each country's Brady Plan. The principal source of dates is Table 5.3 on page 234 of *International Debt Reexamined* (Cline, 1995). However, the book does not provide announcement dates for Bolivia, Nigeria, Panama, Peru and the Philippines<sup>4</sup>. For these five countries we retrieved announcement dates using the Lexis-Nexis Academic Universe (<http://web.lexis-nexis.com/universe>).<sup>5</sup> We verified the accuracy of the search by matching the dates obtained from Lexis-Nexis with those in the Quarterly Economic Reports of the *Economist Intelligence Unit* (EIU).

Analyzing the universe of countries that received Brady Deals does not introduce any obvious selection bias into our treatment group. True, the countries that enter into Brady Deals are probably the ones that are most likely to benefit from debt relief. But that is precisely the point. We are not trying to estimate the average effect of debt relief on a randomly selected country. Doing so would be like trying to estimate the average effect of chemotherapy on a randomly selected person. Just as it would make no sense to try to estimate the average effect of chemotherapy on a non-cancer patient, it does not make sense to estimate the effect of debt relief on a country where debt overhang is not an issue.

## **IA. Selection of the Control group**

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<sup>4</sup> Cline (1995) provides only the year of the announcement for the Philippines and only the implementation date for Nigeria and Bolivia. It does not provide any dates for Panama and Peru because these countries were still negotiating their debt relief agreements at the time of the publication.

<sup>5</sup> A data appendix containing the complete list of articles that were uncovered by the Lexis Nexis search is available upon request.

The control group consists of all developing countries that: (1) Did not receive a Brady plan; and (2) Have stock market data in the International Finance Corporation (IFC) Emerging Market Data Base going back to at least 1994. There are 16 such countries: Chile, China, Colombia, the Czech Republic, Greece, Hungary, India, Indonesia, Korea, Malaysia, Pakistan, South Africa, Sri Lanka, Thailand, Turkey, and Zimbabwe.

Since the treatment group consists of countries whose stock markets respond to external shocks, it is crucial that the control group contains countries whose stock markets will also respond to such shocks. If the control group consists of countries in such an abject state of development that their economies lack basic institutions, then their stock markets may not respond positively no matter how favorable the external shocks. In other words, it is important to ask whether the selection of the control group introduces statistical bias into our findings. We address this concern by examining the characteristics of the treatment and control groups in some detail.

The treatment group and the control group display similar geographical dispersion. Both groups contain countries from Latin America, Asia, Africa, and Eastern Europe. One significant difference is that Latin American countries comprise the largest fraction of countries in the treatment group. The control group, however, consists mostly of Asian countries. History suggests that the relatively heavier weighting of Asian countries in the control group will make that group the stronger economic performer. We confirm this suspicion by comparing the treatment group and the control group using two standard measures of economic performance, growth and inflation.

The control group outperforms the treatment group on both measures. Table I shows that between 1980 and 1999 the median growth rate of per capita GDP for the control group was 3



percent. The treatment group grew by only 1 percent per year during the same time period. GDP growth was also less volatile in the control group. The standard error of GDP growth for the control group was 1 percent, as compared to 2 percent for the treatment group. Finally, the control group has a lower and less volatile rate of inflation: a median of 11 percent and a standard deviation of 3 percent. The corresponding numbers for the treatment group are 27 and 18.

To summarize, the median country in the control group has faster and less volatile growth together with lower and less volatile inflation than its treatment group counterpart. To the extent that superior long-run economic performance is positively correlated with better-managed economies, we would expect stock markets in the median control-group country to be more responsive to any auspicious common shock. If there is any selection bias, it works against finding a significantly large revaluation in the Brady countries. In other words, the bias, if any, strengthens our results.

## **IB. Stock Market Data**

The principal source of stock market data is the IFC's Emerging Markets Data Base (EMDB).<sup>6</sup> Stock price indices for individual countries are the dividend-inclusive, U.S. dollar-denominated and local currency-denominated IFC Global Indices. For most countries, EMDB's coverage begins in December 1975, but for others coverage only begins in December 1984. Each country's U.S. dollar-denominated stock price index is deflated by the U.S. consumer price index (CPI), which comes from the IMF's International Financial Statistics (IFS). The local currency-denominated index is deflated by the local consumer price index for each country, which is also obtained from the IFS. Returns and inflation are calculated as the first difference

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<sup>6</sup> For Ecuador, the source of stock market data is the Global Financial Data Base.

of the natural logarithm of the real stock price and CPI, respectively. All of the data are monthly.

Reliable stock market data exist for only 10 of the Brady countries: Argentina, Brazil, Ecuador, Jordan, Mexico, Nigeria, Peru, the Philippines, Poland, and Venezuela. We bring Bolivia, Bulgaria, Costa Rica, Dominican Republic, Panama, and Uruguay back into the picture in Section V where we move the focus of analysis from financial to real data.

## **IC. Descriptive Findings**

This subsection presents descriptive evidence on how the stock market responds to news of a future debt relief agreement. For each country in the treatment group we calculate the average monthly stock return over the entire sample. The average monthly return is a proxy for the expected monthly return. Subtracting a country's expected return from its actual return gives the abnormal return.<sup>7</sup>

### **IC.1 Construction of the Event Window**

Let month [0] be the month in which a Brady debt relief announcement takes place for a given country. Similarly, let [-12] denote the 12<sup>th</sup> month before the debt relief announcement, so that [-12, 0] denotes the one-year window preceding the announcement. The cumulative abnormal return for a country is defined as the sum of its abnormal returns from month -12 to month 0. Using a twelve-month window provides a reasonable characterization of the data, because the announcement of a debt relief agreement is less a discrete occurrence than it is a series of events during which the public gradually learns the details of the government's

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<sup>7</sup> Alternative measures of abnormal returns are considered in Section III.

negotiations to reduce its external debt burden. Table II illustrates the point for three representative countries: Argentina, Nigeria and Venezuela.<sup>8</sup>

Argentina had a nine-month window of negotiations with its external creditors, extending from July of 1991 to the official announcement of an agreement in April of 1992. In July of 1991, the *Economist Intelligence Unit* reported, “The International Monetary Fund approves a 1 billion dollar stand-by loan.” On September 20 of 1991, the *Financial Times* reported “Domingo Cavallo, comes to Washington to jump-start negotiations on the country's \$61bn debt.” On March 31, 1992 the *Financial Times* reported, “Argentina secures a \$3.15bn extended facility fund loan from the IMF. Approval of the loan is important for securing a restructuring with the creditor banks.”

Nigeria had a ten-month window of negotiations with its external creditors, extending from May of 1990 to its official announcement in March of 1991. The window of public negotiations began with a *Financial Times* story on October 3, 1990, “The resolution of the five-month deadlock over rescheduling terms for Nigeria's \$5.5bn commercial bank debt appears likely.” The reference to a five-month deadlock suggests that the sequence of public events may actually have begun as early as May of 1990. Between October 1990 and March of 1991, the *Financial Times* ran at least two more stories about Nigeria’s negotiations with its creditors.

Finally, Venezuela had an eleven-month window of negotiations that began with the *Washington Post*’s declaration on July 25, 1989: “the Mexican deal will set a pattern for dealing with the debt problems of other nations. Brady puts the Philippines, Venezuela and Costa Rica at the head of the list.” On March 21, 1990 the *New York Times* reported “Venezuela and its creditor banks reach an agreement on the basic terms of a deal.”

The average length of the window of these three countries is 10 months. This estimate is

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<sup>8</sup>The full list of news announcements for all of the countries is available upon request.

based on the earliest reported news headlines that we could find through Lexis-Nexis. Even if these are, in fact, the earliest public releases of information, the possibility remains that the news was “leaked” to the markets prior to the news dates that we collected. Admittedly, this is as much art as it is science, but it would seem, all things considered, that a twelve-month announcement window does no obvious harm to the data. Of course, a long event window raises other concerns such as the potential for reverse causality and the occurrence of other reforms during the window. Reverse causality is discussed in the next subsection; reforms are addressed in Section II; Section III estimates results using 12-month, 9-month, 6-month and 3-month windows—the effect of debt relief on the stock market is positive and significant in all specifications.

## **IC.2 Stock Market Responses to Debt Relief Announcements**

Figure 1 plots the average cumulative abnormal return across all ten Brady countries in event time. The average Brady country stock market experiences cumulative abnormal returns of 60 percent in real dollar terms. In other words, the real dollar value of the stock market increases by 60 percent more than it does in a typical year. Now look at the graph for the control group.<sup>9</sup> If a common shock caused stock prices to go up in the Brady countries, then we should also see an increase in the stock prices of the control group. This is not the case. The average cumulative abnormal return for the control group is close to 0. The preliminary conclusion is

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<sup>9</sup>For a given Brady country, the control group abnormal returns are calculated as follows. Fix the announcement date [0] for the country in question. Next, for each of the 16 countries in the control group, calculate the abnormal returns for [-12, 0]. This calculation gives 16 sets of abnormal returns for the fixed Brady-country date. Next, calculate the average of these 16 sets of abnormal returns and you have the single series of abnormal returns for the control group associated with the first country. Now repeat the procedure for the other 9 Brady countries. Doing so yields 10 series of average abnormal returns for the months [-12, 0]. Finally, taking the average across all 10 series gives the average abnormal return for the entire Control group.

that the stock price increase in the debtor countries is not due exclusively to a common shock that has favorable effects on all emerging stock markets.

By constructing a control group of relatively strong economic performers, we are able to distinguish the effect of the Brady Plan from that of a common shock. But constructing the control group in this way raises the concern that we have not properly addressed the counterfactual: would stock prices have gone up in the Brady Countries if they did not receive debt relief? Addressing the counterfactual requires a control group that bears a greater resemblance to the treatment group. To do so, we replicated our experiment using two alternative control groups. The first consisted of the highly or moderately indebted countries of the original control group: Indonesia, Pakistan, Colombia, Malaysia, and Turkey; the second consisted of all the Brady countries that were still waiting to receive their Brady deals. The graphs were almost identical to Figure 1.<sup>10</sup> There was no significant increase in the stock market in either of the two alternative control groups in the 12-month period preceding debt relief announcements.

Figure 1 invites concerns about the potential for reverse causality. Is it possible that instead of debt relief generating a stock market boom, the causality runs the other way round: rising stock markets and improved economic prospects cause countries to try to negotiate a write-down of their debts with their creditors? In thinking about this question, it is important to remember that countries cannot simply decide that they want debt relief and make it so. This is because debt relief requires a mutual agreement between parties: The debtor requests a write down and the creditor agrees to forgive some of the debt. Reaching such agreements can take a long time because both the debtor country and the creditor banks want to exercise their bargaining power (Froot, Scharfstein, and Stein, 1989). Consequently, negotiations might reach a

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<sup>10</sup>These graphs are not shown but are available on request.

deadlock, which could take many months to resolve, as illustrated by the case of Nigeria in October 1990 (Table II). Given the length of time and the number of parties involved in sovereign debt restructurings, it is difficult to believe that a debtor country would be able to push through a debt relief agreement as a swift policy response to a rising stock market and improving economic prospects.<sup>11</sup>

Another concern is that the results may be sensitive to whether real returns are measured in dollars or local currency units. To address this concern, Figure 3 replicates Figure 1 using real local currency returns instead of real dollar returns. Figure 3 is virtually identical to Figure 1. Since the choice of currency makes little difference, the formal empirical analysis in Section III focuses on the dollar-denominated returns.

Outliers are yet another source of potential concern. Since there are only ten countries in the Brady stock market group, one country may dominate the results. To explore this possibility we conduct median tests in the following way. For each of the ten countries we compute the median annual stock return. The stock return in the 12-month period preceding the Brady announcement exceeds the median, annual return for every country except Peru. We also conducted median tests in local currency, and the results were the same. Peru is the only country whose stock return during the 12-month announcement window was less than its median 12-month return.

Four central facts (which we will confirm with econometrics in Section III) emerge from this section: (1) Stock markets in debtor countries rise by 60 percent in real dollar terms in response to news of debt relief; (2) The effect is not an artifact of the currency in which the

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<sup>11</sup>Negotiations during the debt crisis were made less unwieldy by proceeding in two steps. First, a select committee of the largest lenders and the debtor country agreed on the choice of menu options. Second, all of the banks then decided on the term sheet. Although, the two-step process made the negotiations less cumbersome, it also increased the time to reach a final agreement because it required meetings on two separate dates.

revaluation is measured; (3) The response is uniformly positive across debtor countries; (4) The control group never experiences a revaluation of greater than 10 percentage points, no matter which way the control group is constructed. Having eliminated currency concerns, outliers and common shocks as explanations for our result, there is another, much trickier, issue to address before estimating the formal statistical relationship between debt relief and the stock market suggested by Figure 1.

## **II. Are The Revaluations Driven By Debt Relief or Reforms?**

Countries receive debt relief in return for agreeing to commit to economic reforms that are designed to increase openness and raise productivity (Cline, 1995). Therefore, a central issue is whether the stock market revaluations in Figure 1 are driven by debt relief or by economic reforms. To help address the issue more thoroughly we conducted a search to pinpoint the dates on which the reforms occur. Broadly speaking, economic reforms fall into one of four areas: stabilization, privatization, trade liberalization, and capital account liberalization. The results of the search are outlined in Table III.

The stabilization dates come from the International Monetary Fund's Annual Reports and Henry (2002). We use the Economist Intelligence Unit's *Quarterly Economic Reports* to identify trade liberalization dates. We check the EIU dates against the trade liberalization dates in the World Bank publication, *Trends in Developing Economies* (1994) and those in Sachs and Warner (1995). The privatization dates come from the *World Bank Privatization Transaction Database*, which contains the names and dollar amounts of all privatizations occurring between 1988 and 1999. We use the privatization database to identify the first year in which there were recorded sales of state-owned enterprises. Once we know the year of the first sale, we search the

EIU's *Quarterly Economic Reports* for the month in which the start of the privatization program was announced. We also check the EIU to make sure that there were no privatizations preceding the starting date of the database. Finally, the capital account liberalization dates come from Henry (2000).

A close examination of Table III illustrates the point of the exercise. All of the debtor countries began implementing major economic reforms before the Brady deal and continued to do so after the deal was announced. For example, Column 3 of Table III shows that an official agreement with the IMF immediately precedes, or follows on the heels of every Brady deal. Since IMF programs follow all of the Brady agreements, Brady agreements may drive up stock prices because they signal future IMF agreements. Just as debt relief agreements may signal future IMF agreements, IMF agreements may in turn signal countries' commitment to future economic reforms (Williamson, 1994; Collins, 1990; Bruno and Easterly, 1996). By transitivity, debt relief may signal future economic reforms. If debt relief agreements are a signal of future productivity-enhancing reforms, then Figure 1 may erroneously suggest that debt relief drives the stock market revaluations when, in fact, it is the anticipation of future economic reforms that are instead responsible.

## **IIA. The Baker Plan Versus The Brady Plan**

We use the Baker Plan and the Brady Plan to distinguish the response of the stock market to reforms from the response of the stock market to debt relief.<sup>12</sup> Our identification strategy hangs on a key historical fact. The Baker Plan called on countries to undertake extensive reforms but deliberately excluded any plans for debt relief. In contrast, the Brady Plan called for

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<sup>12</sup>There were 17 countries included in the Baker Plan: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cote d' Ivoire, Ecuador, Jamaica, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and Yugoslavia. The 16 countries included in the Brady Plan are listed in Table 1.



the continuation of reforms begun under the Baker Plan in 1985, but also made an explicit call for debt relief.

The difference in focus of the two plans implies that the “news” in Baker was the official U.S. push for economic reforms while the “news” in Brady was the official U.S. push for debt relief. In other words, because economic reforms were enacted under the Baker Plan, their effects should already have been incorporated into stock prices when the Brady Plan was announced four years later. If markets are efficient, then the stock price reaction to the Brady Plan should principally reflect the anticipated effect of debt relief.

On October 8, 1985 the Secretary of the United States Treasury, James A. Baker III, unveiled his plan for dealing with the third-world debt crisis at the Annual International Monetary Fund World Bank Meeting in Seoul, Korea. Secretary Baker begins by stressing the importance of macroeconomic stabilization:

If the debt problem is going to be solved there must be a “Program for Sustained Growth”, incorporating... First and foremost, the adoption by principal debtor countries of comprehensive macroeconomic and structural policies, supported by the international financial institutions, to promote growth and balance of payments adjustment, and to reduce inflation (Baker, 1986, p. 308).

After spelling out the need for stabilization Baker called for structural reforms:

For those countries which have implemented reforms to address the imbalances in their economies, a more comprehensive set of policies can now be put in place...We believe that such institutional and structural policies should include: increased reliance on the private sector, and less reliance on government;...tax reform, labor market reform and development of financial markets;...market opening measures to encourage foreign direct investment and capital inflows, as well as to liberalize trade (Baker, 1986, p. 310).

The enumeration of desired reforms in Secretary Baker’s speech displays an attention to detail that underscores the importance of what he does not mention: Debt relief. Baker uses or alludes

to the word “reform” more than 25 times during the course of his speech. But the phrases “Debt Relief” and “Debt Reduction” do not appear.

While testifying before the House Committee on Banking, Finance and Urban Affairs, two weeks later, Secretary Baker erased any doubt that the absence of the phrase “debt relief” from his speech was an error of omission. Witness the interchange between Secretary Baker and Representative Bill McCollum of Florida.

McCollum: “Do you anticipate that there might have to be some forgiveness or moratorium on interest payments to some of these countries in the process by the commercial lending institutions in this country?”

Baker: “No, sir; I don’t contemplate that and I think that would be the wrong road for us to start down. . .I don’t think there should be any moratorium; I don’t think there should be any capitalization of interest proposals or anything like that...” (Baker, 1985, p. 26).

Roughly four years later, on March 10, 1989, Baker’s successor, Nicholas F. Brady revealed his plan for dealing with the debt crisis to the Brookings Institution and the Bretton Woods Committee Conference on Third World Debt. In no uncertain terms, Secretary Brady stated that the U.S. government was going to continue pushing the reforms that began under the Baker Plan:

In 1985 we paused and took stock of our progress in addressing the problem. As a result of that review, together we brought forth a new strategy, centered on economic growth. This still makes sense...The experience of the past four years demonstrates that the fundamental principles of the current strategy remain sound: Growth is essential to the resolution of debt problems. Debtor nations will not achieve sufficient levels of growth without reform (Brady, p. 116).

But in addition to the reforms, Secretary Brady explicitly called for debt relief. In sharp contrast to the words of his predecessor in Seoul 4 years earlier, Brady explicitly used the phrase “debt

reduction” or “debt service reduction” eighteen times in his speech. For example:

Let me reiterate that we believe that the fundamental principles of the current [Baker] strategy remain valid. However, we believe that the time has come for all members of the international community to consider... debt and debt service reduction on a voluntary basis...The path toward greater creditworthiness and a return to the markets for many debtor countries needs to involve debt reduction (Brady, 1989, p. 117-118).

In a rare moment of consensus, U.S. politicians, the international banking fraternity, officials in debtor countries, and academics all agreed that the Brady Plan represented a continuation of the Baker Plan’s commitment to reforms, with the important change that debt relief now had the official support of the United States Treasury.<sup>13</sup> James D. Robinson III, Chairman and CEO of American Express best summarizes the consensus in his response to Brady’s speech:

In the next few days we will encounter statements to the effect that the Brady Plan means the death of the Baker Plan. My advice is to ignore these statements. The focus of both plans is on growth in the debtor countries. The principles of the Baker Plan have not been abandoned. They will have to be embodied in the Brady Plan as it is carried forward. What is new, of course, is the explicit recognition of debt reduction as an essential element in the search for solutions (Robinson, p. 101).

The historical record leaves little ambiguity about the fundamental similarity—reforms—and the key difference—debt relief—between the Baker Plan and the Brady Plan. Nevertheless, there are several potential concerns with our identification strategy. We will enumerate and attempt to address these concerns in Section IV. But, first things first. Before we can interpret the results, we need to know what they are. This is the topic to which we now turn.

### **III. Methodology and Formal Empirical Results**

We evaluate the statistical significance of the relationships apparent in Figure 1 by

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<sup>13</sup> For example, see the reactions of democratic senators Bill Bradley (1989) and Paul Sarbanes (1989); Former Mexican Finance Minister, Jesús Silva Herzog (1989), and Stanley Fischer (1989)

estimating the following regression:

$$R_{it} = \alpha_i + \gamma_1 BRADY_{it} + \gamma_2 CONTROL_{it} + \varepsilon_{it}. \quad (1)$$

Where  $R_{it}$  is the real return in dollars on country  $i$ 's stock market index in month  $t$ ,  $BRADY_{it}$  is a dummy variable that is equal to one in  $[-12, 0]$ .  $CONTROL$  is a dummy variable that is equal to one in all of the control countries in Brady-Announcement months  $[-12, 0]$ . We also estimate  $BRADY$  and  $CONTROL$  using nine-month  $[-9, 0]$ , six-month  $[-6, 0]$ , and three-month  $[-3, 0]$  windows. The country-specific intercepts allow for the possibility that average expected returns may differ across countries due to imperfect capital market integration.

Equation (1) constrains the coefficients on  $BRADY$  to be the same across all months, which means that the parameter  $\gamma_1$  measures the average monthly stock market response to all Brady Plan Announcements. Since the dummy variable for the event window is twelve months long, the total stock market response to debt relief for the Brady countries is given by twelve times the parameter estimate.

A different estimation technique would be to use a seemingly unrelated regression (SUR). This approach would have the advantage of providing a unique coefficient estimate for each country for each event. However, there are also disadvantages to this approach. The low power of hypothesis tests in unconstrained systems severely weakens the ability of the event study methodology to detect the impact of the event. Second, SUR requires a balanced panel. Due to the limited time series availability of stock market data, creating a balanced panel would result in discarding some of the 10 debt relief events. Given data limitations, the pooled cross-section time series framework seems appropriate.

With an unbalanced panel, it is not possible to relax the assumption of no contemporaneous correlation of the error term across countries. Therefore, we will take indirect

precautions. Specifically, three of the alternative regression specifications to equation (1) will estimate abnormal returns relative to the World stock market index, US stock market index, and finally IFC's emerging stock market index. Since all of the sample countries are emerging markets, the inclusion of a composite emerging market index as a right-hand-side variable will partially control for contemporaneously correlated disturbance terms. Including the emerging market index does not change the results.

### **IIIA. Basic Results**

The first row of Table IV (Panel A)—labeled 'Country-Specific Mean'—gives the results from the baseline specification in equation (1). White standard errors are reported in parentheses. Column (1a) shows that the coefficient on BRADY for the twelve-month window [-12, 0] is 0.05 and is statistically significant at the 1 percent level. Multiplying the coefficient by 12 gives the total effect, a 60-percent increase in the real dollar value of the stock market. Column (1b) gives the coefficient estimate for the CONTROL dummy. In contrast to the estimate for the BRADY countries, the revaluation effect associated with the control group is economically weak, 0.005, and statistically insignificant. Column (1c) provides the p-value from a two-sided F-test of the hypothesis that the coefficient estimate on BRADY is equal to the coefficient estimate on CONTROL. The p-value for this test is 0.001. The difference between the BRADY estimate and the CONTROL estimate is statistically significant. In other words, the stock market in BRADY countries rises by roughly 60 percentage points more than it does in the CONTROL group.

The results using nine-month, six-month, and three-month windows are all consistent with the 12-month estimates. The coefficient estimate of BRADY ranges from 0.048 to 0.052

and is statistically significant in every specification. Furthermore, the BRADY estimate is always significantly larger than the estimate of CONTROL. Row 2 of Table IV (Panel A)—labeled, ‘Constant Mean’—presents estimates of equation (1) using a constant intercept term,  $\alpha$ , instead of country-specific intercept terms. The results are almost identical to those in Row 1.

### IIIB. Controlling For World Stock Markets

Equation (1) provides a parsimonious baseline specification of abnormal returns, but it does not allow for the influence of world stock markets on local returns. In order to do so, we follow Kho, Lee and Stulz (2000) and use the international capital asset pricing model (ICAPM) to measure the expected return on each country’s stock market index. Specifically, we now estimate:

$$R_{it} = \alpha_i + \beta R_t^W + \gamma_1 BRADY_{it} + \gamma_2 CONTROL + \varepsilon_{it}, \quad (2)$$

Where  $R_t^W$  is the real return in dollars on the Morgan Stanley Capital Market Index (MSCI) in month  $t$ . While barriers to the international movement of capital may raise questions about the economic assumption of an ICAPM, as a purely statistical matter, returns on world stock market indices do have some predictive power for stock returns in the countries under consideration (Henry 2000a).<sup>14</sup>

Row 3 of Table IV (Panel A) presents estimates of *BRADY* and *CONTROL* using equation (2). Row 4 presents estimates that use real U.S. stock returns,  $R_t^{US}$ , in place of  $R_t^W$ . Row 5 presents estimates that use the real dollar return on the IFC Emerging Market index,

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<sup>14</sup> For conceptual discussions of the international capital asset pricing model see Frankel (1994); Stulz (1999a); Tesar (1999); Tesar and Werner (1995); and Tesar and Werner (1998). For empirical evidence on the real effects of increased capital market integration, see Henry (2000b).

$R_t^{LDC}$ , in place of  $R_t^W$ . Row 6 presents estimates that use all three sets of world stock returns simultaneously. The results in Rows 3 through 6 perfectly mirror those under the benchmark specification in Rows 1 and 2. The coefficient on BRADY is statistically significant under all four ICAPM specifications. The point estimate ranges from 4.9 to 3.9 percent per month, and the estimate of BRADY is significantly larger than the estimate of CONTROL in all but the three-month window estimates.

### **IIIC. Other Robustness Checks**

The estimates in Panel A of Table IV adjust for cross-country heteroscedasticity and cross-country correlation, but they do not account for potential serial correlation in the error terms. Hence, White standard errors may not be sufficient to ensure the reliability of the estimates in Panel A. To address this concern, Panel B of Table IV re-estimates all of the specifications in Panel A using Feasible Generalized Least Squares (FGLS). FGLS allows for the possibility of serial correlation, in addition to correcting for cross-country heteroscedasticity.

The estimations using FGLS yield the same conclusions as the OLS estimates in Panel A. Every FGLS point estimate of BRADY in Panel B of Table IV is statistically significant. The FGLS monthly point estimates of BRADY are smaller than those obtained using OLS, but they are still large. The smallest point estimate for the twelve-month window is 0.034— a total revaluation of greater than 40 percent. Furthermore, the coefficient on BRADY remains significantly larger than the coefficient on CONTROL in all of the specifications except for some of those that use 3-month windows.

### **IV. Alternative Explanations**

Section III establishes the statistical robustness of the central result. In anticipation of the announcement of debt relief agreements under the Brady Plan, there is a large and statistically significant increase in the stock market. The economic meaning of this fact, however, admits different interpretations. Section II argues that since markets are forward looking, stock prices in the debtor countries should have priced in the effect of economic reforms at the time of the Baker Plan. If the only “news” in the Brady Plan was the information about debt relief then debt relief may plausibly be viewed as the proximate cause of the revaluation, but our identification strategy is not airtight.

In order for the stock market response to the Brady Plan to embody only news about debt relief, three assumptions must hold: (1) The market anticipated that the Baker Plan would lead to reforms; (2) The depth and scope of reforms under Brady were the same as those under Baker; and (3) The reforms went through as expected. Figure 2 leaves little doubt that the market anticipated that the Baker Plan would bring reforms.<sup>15</sup> So, the two key questions are: were the depth and scope of the reforms the same under Baker and Brady? And did the reforms go through as anticipated? We now address each of these questions in turn.

#### **IVA. Do Differences in Depth and Scope of Reforms Drive the Results?**

If the Brady Plan called for structural changes that were not a part of the Baker Plan, then the Brady Plan could contain important new information about reforms. Therefore, a necessary condition for the estimates in Section III to be plausibly interpreted as the marginal effect of debt relief is that the reforms implemented under the Baker Plan not be radically different from those that continued under the Brady Plan.

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<sup>15</sup> The countries represented in Figure 2 match the countries represented in Figure 1 almost perfectly. Jordan is the only country represented in Figure 1 that is not represented in Figure 2. This is because Jordan was not a Baker country.



Consistent with the earlier quote by American Express CEO James D. Robinson III (see Section IIA), a careful reading of both speeches reveals no significant differences between the reforms advocated under each plan.<sup>16</sup> In fact, the overlap between the reforms in both plans was so great that the reforms came to be summarized as the Washington Consensus by John Williamson (1990)<sup>17</sup>. An exhaustive summary of the Washington Consensus is beyond the scope of this paper—see Williamson’s paper for details—but again, the central idea was that countries should stabilize inflation, privatize state-owned enterprises, liberalize trade, and permit greater foreign direct investment.

#### **IVB. Did the Reforms Go Through As Anticipated?**

There may have been a consensus about the desired set of reforms, but our identification strategy may still be problematic. The very need for a Brady Plan in addition to the Baker Plan would seem to suggest that at least some of the expected reforms did not go through as planned.<sup>18</sup> If the countries did not actually undertake the reforms they agreed to implement under the Baker Plan, then signing a Brady agreement could signal to the markets a new commitment to reform. Accordingly, the stock price increase in that case would reflect the expected effects of both reforms and debt relief.

If the Brady Plan contained new information about reforms, then a more accurate measure of the effect of debt relief might be the difference between the stock market reaction to

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<sup>16</sup> See also the remarks by Stanley Fischer (Fischer, 1989 and 1990).

<sup>17</sup> See also Fischer’s comments on Williamson’s paper (Fischer, 1990).

<sup>18</sup> This is a complicated issue. The Baker Plan called for three things: reforms, financial support from the International Financial Institutions (IFIs), and new money from the commercial banks. The Baker Plan assumed that the banks would be willing to lend new money as long as countries implemented reforms. This assumption turned out to be wrong. In spite of substantial—if not complete—reforms on the part of the debtors, the banks were unwilling to extend new loans. There is a widely held view that the banks were unwilling to do so because of the existing debt overhang (Cline, 1995).

the Brady Plan and the reaction to the Baker Plan. The reaction to the Brady Plan measures the effect of debt relief and reforms; the stock market reaction to the Baker Plan measures the effect of reforms only. Thus, in principle, the difference between the Baker revaluation depicted in Figure 2 (22 percentage points) and the Brady revaluation (60 percentage points) yields the marginal effect of debt relief: 38 percentage points.

But viewing the difference in the market's response to Baker and Brady as the marginal effect of debt relief is also not without problems. The expected effect of reform on the stock market is given by the benefit of reform conditional on success times the probability of success. Even assuming that the conditional benefit of a given reform for a given country was the same under Baker as it was under Brady, there may have been differing probabilities of success. For example, a common argument is that debt relief gave governments the additional capital they needed to push through further reforms with a populace that had grown weary with austerity measures and structural adjustment.<sup>19</sup> If this is the case, then the difference between the stock market response to Baker and Brady reflects both the effect of debt relief and the higher probability of successful reforms under Brady.

#### **IVC. Direct Controls for the Effect of Economic Reforms**

We deal directly with the concern that economic reforms implemented around the time of the Brady Plan may still have contained some “news” by including dummy variables for reforms in all of our earlier regressions. There is sufficient heterogeneity in the timing of the economic reforms (Table III) to allow us to control directly for their effect on stock prices. To do so, we construct a series of reform dummies for each country: *TRADE*; *PRIVATIZE*; *LIBERALIZE*. These variables take on the value 1 during the month a reform is announced and in each of the

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<sup>19</sup> See also the remarks by Herzog (1989) and Sarbanes (1989).

preceding 11 months. We then estimate the following regression:

$$R_{it} = \alpha_i + \beta R_t^W + \gamma_1 BRADY_{it} + \gamma_2 CONTROL_{it} + \gamma_3 TRADE_{it} + \gamma_4 PRIVATE_{it} + \gamma_5 LIBERALIZE_{it} + \varepsilon_{it}$$

(3)

Table V presents the results. The coefficient on BRADY is significant at the 1 percent or 5 percent level for every window, and is significantly different from the coefficient on CONTROL in every specification. The results are also consistent with the view that stock prices incorporated the effect of economic reforms long before the Brady Plan was announced. Stock market liberalizations are the only economic reform implemented around the time of the Brady Plan that have any effect on the markets. It is no coincidence that stock market liberalizations are also the only reform in our regression that was not a part of the Washington Consensus. The Baker Plan called for the liberalization of foreign direct investment; liberalization of portfolio equity investment is not directly mentioned. In other words, stock market liberalizations were a surprise. Consistent with a number of papers, the stock market liberalization dummy is significant for the [-6, 0] and [-3, -1] windows (Henry, 2000ab, 2003).

Because every debt relief agreement closely coincides with an IMF agreement, we cannot disentangle the debt relief effect by inserting into equation (3) a dummy variable for IMF programs that coincide with debt relief announcements. An IMF dummy constructed in that way would be collinear with the BRADY dummy and present the attendant econometric problems. Therefore, we adopt a different tack. We examine whether the stock market responds to IMF agreements that are not accompanied by debt relief.

We do this by constructing for each country a list of all IMF programs that did not occur within a year (before or after) of the announcement of its Brady debt relief agreement. We then create a dummy variable, IMFPROGRAM, which takes on the value one for all such programs, and estimate the following regression:

$$R_{it} = \alpha + \beta R_t^W + \gamma_1 IMFPROGRAM_{it} + \varepsilon_{it} \quad (4)$$

Following the earlier specifications, we estimate twelve-month, nine-month, six-month, and three-month windows. If the stock market responds positively to IMF agreements that are not accompanied by debt relief, then the estimate of  $\gamma_1$  should be positive and significant.

There is no evidence that the stock market responds positively to IMF agreements that are not associated with a Brady debt relief agreement. The coefficient estimate of *IMFPROGRAM* is negative and statistically insignificant in every specification. The estimate for the twelve-month window is  $-0.016$ ; the estimate for the nine-month window is  $-0.011$ ; the estimate for the six-month window is  $-0.004$ ; the estimate for the three-month window is  $-0.027$ .<sup>20</sup>

#### **IVD. Do the Results Reflect Irrational Exuberance?**

It is important to ask whether the documented rise in stock prices associated with the Brady Deal is spurious. In other words, is there a temporary halo effect associated with Brady countries, a kind of irrational exuberance about the efficacy of debt relief that is not justified by subsequent changes in the fundamentals? Two pieces of evidence suggest that this is not the case.

First, although the point estimates of the market responses to reforms are not significant, it does not follow that economic reforms are unimportant. On the contrary, economic reforms are an essential complement, which help ensure the viability of debt relief agreements. Figure 4 illustrates the point. In the three countries in which reforms stalled temporarily— Jordan, Nigeria, and the Philippines— the initial rise in valuations is completely wiped out. In other words, debt relief does little good unless it is accompanied by real changes that alter a country's

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<sup>20</sup> The insignificance of the *IMFPROGRAM* variable is consistent with evidence that the market responds positively to IMF agreements, only when they are announced in the midst of high inflation (Henry, 2002).

underlying economic fundamentals.

Second, ex-post evidence suggests that the stock market revaluations are not simply a halo effect. Specifically, the next section of the paper demonstrates that the stock market accurately forecasts changes in real fundamental variables such as GDP growth and the Net Resource Transfers (NRT). In particular, high GDP growth, and positive NRTs follow after all stock market revaluations.

## **V. Exploring the Fundamentals: Why Do Market Values Rise?**

If the stock market increases are not spurious, they should reflect a fall in future discount rates and or a rise in cash flows. Accordingly, this section of the paper examines the extent to which the ex-ante changes in market valuation rationally forecast ex-post changes in discount rates and cash flows.

The effect of debt relief on discount rates follows from the collective action problem that debt relief is designed to address. To understand the collective action problem it is useful to introduce the idea of the net resource transfer (NRT). The NRT is the net flow of real resources into a country, and therefore has direct implications for discount rates.<sup>21</sup>

As rich countries with high capital to labor ratios will export capital to poor countries where the rate of return is higher, poor countries typically experience positive NRTs. However, the NRT may suddenly turn negative when collective action problems arise— adverse shocks or poor economic management may drive risk averse creditors to call in existing loans and make potential new creditors unwilling to lend. Since lending would be profitable if not all creditors

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<sup>21</sup> Discount rates in developing countries are notoriously hard to measure. Financial repression and other market distortions, which characterized these countries prior to the Brady Plan, make it difficult to assess the true change in the risk-free rate from official interest rates. Instead of looking at official interest rate measures, which may not reflect the true scarcity of capital, we use the change in the NRT as a proxy.

tried to get their money at once, the negative NRT outcome is inefficient. By forcing all creditors to take a haircut, debt relief solves the collective action problem and paves the way for profitable new lending (Cline, 1995). The new capital inflow reduces discount rates in the debtor country by relaxing the intertemporal budget constraint (Obstfeld and Rogoff, 1996).

The effect of debt relief on cash flows also follows from the theory. If a country suffers from a debt overhang, then debt relief may increase the incentive to invest and raise expected future growth rates (Krugman, 1989; Sachs, 1989). To the extent that corporate cash flows are positively correlated with GDP, a higher GDP growth rate implies a faster growth trend for cash flows.

#### **VA. Is There a Change in Net Resource Transfers?**

Since debt relief may reduce discount rates by restoring positive net resource transfers to countries where it had turned negative, the large positive ex-ante changes in market valuation should be associated with positive changes in the NRT. Panel A of Table VI presents data on the Net Resource Transfer in event time. The table shows a clear pattern. The sign of the NRT changes twice for the Brady countries. In every one of the years from [-18, -9] the median net resource transfer is positive for the Brady countries. In year -8, roughly the time of the debt crisis, the NRT turns negative and remains so until after the Brady Plan. After the Brady Plan, net resource flows become positive for the rest of the sample.

Again, it is important to ask whether the reversal in the sign of the NRT in the Brady countries can be explained by a common shock. The evidence from the control group in Panel B of Table VI suggests that this is not the case. The median level of NRT to the countries in the control group was positive for all but two years from 1970 to 2000.

Panel B of Table VI shows that the reversal in the direction of the net resource transfer is particularly striking for some individual Brady countries. In Brazil, for instance, after 10 consecutive years of negative resource transfers, the NRT turns positive in the year of the announcement of the Brady plan and remains positive for the rest of the sample. In 5 of 10 Brady countries with stock market data—Brazil, Jordan, Mexico, Philippines, and Venezuela—the NRT becomes positive within the first year of the Brady plan<sup>22</sup>. In Argentina and Ecuador, the NRT turned positive in the year preceding the plan. In Poland, the NRT turned positive in 1991, admittedly long before its debt relief plan was unveiled. However, following Poland's plan, there was a three-fold increase in the level of NRT. In fact, Peru is the only country from this group, which did not experience a change in NRT concomitant with its Brady plan. Peru is also the only country in the group, which did not experience a positive and significant stock market revaluation in anticipation of the plan.

The numbers in Panel B also demonstrate that debt relief without economic reform has only ephemeral success in restoring positive NRTs. After initially turning positive, the NRT becomes negative in 3 out of the 10 Brady countries with stock markets: Nigeria, Philippines, and Venezuela. Section IVD identifies Nigeria and the Philippines as non-reformers at the time of their Brady Plan. And Venezuela, according to Sachs and Warner (1995), significantly reversed its reforms after two years of successful implementation.

On the other hand, economic reform without debt relief is not sufficient to restore positive NRTs. We checked to see whether the NRT to Brady countries became positive following the economic reform dates in Table III. None of these reforms by themselves are successful in reversing the sign of the NRT. Only after the implementation of debt relief does the NRT turn positive. Again, this fact should not be interpreted to mean that economic reforms

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<sup>22</sup> In Nigeria, the NRT turned positive two years after the Brady plan.

are unimportant. Indeed, the NRT remains positive only as long as countries sustain their economic reforms. Here is the point: While economic reforms are important for raising the productivity of capital, reforms by themselves may not be sufficient to overcome collective action problems.

Turning to Panel B, we see that Brady countries without stock markets do not systematically experience the reversal in the NRT that we see in the Brady stock market countries. The median NRT for the non-stock market Brady countries turned negative only once between [-18, 0]. Although Panama and Uruguay have certainly experienced changes in the NRT following their Brady Plans, it is harder to make that assessment for the other countries. The net resource transfers to Bolivia, Bulgaria, Costa Rica, and the Dominican Republic have almost always been positive, even during the debt crisis years.

This pattern may suggest that debt relief for these poorer countries was not as effective as it was for the other countries for which dependable stock market data were available. Section VI explores why this may be the case, but before doing so we now examine whether debt relief is associated with changes in growth.

## **VB. Is There a Change in Growth?**

Since debt relief may increase expected future growth rates, positive ex-ante changes in market valuation should be associated with higher than normal future GDP growth. Figure 5 shows that countries grow faster following the Brady Plan. The graph plots the average deviation of the growth rate of per capita GDP from its country-specific mean in event time for all 16 Brady countries versus that of the control group. The message is clear. The Brady



countries experience abnormally high growth rates in each of the five years following the Brady plan. There is no significant change in the growth rates of the control group.

### **VC. Does the Stock Market Rationally Forecast the Changes?**

Table VII shows that the stock market revaluations appear to rationally forecast higher future NRTs. There is a strong correlation between the sign of the cumulative abnormal return on the stock market and the change in the sign of the NRT. In 9 of 10 countries, stock markets correctly predict the change in the sign of the NRT within the two years following the Brady Plan.

Next, Table VII shows that the stock market revaluations, which occur in anticipation of the Brady Plan, also appear to forecast higher future GDP growth outcomes. There is a strong correlation between the sign of the cumulative abnormal return on the stock market and the sign of the deviations of output growth from its long-run mean. In 9 of 10 countries, markets predicted the abnormal GDP growth in the year following the Brady Plan. In 9 of 10 countries, the markets predicted the positive cumulative abnormal GDP growth for the next two years, and similarly in 8 of the 10 countries for the next five years after the Brady Plan.

### **VI. Do the Results Suggest that the HIPC Initiative Will Work?**

Easterly (2001b) argues that debt relief is unlikely to promote investment, reform or growth in the HIPCs. We think that he is right. Yes, markets rise in anticipation of the Brady Plan. And ex-post data on net resource transfers and growth confirm the rationality of the markets' forecast. But there are vast differences between the Brady countries and the HIPCs.

Theory suggests that in order for a country to be a legitimate candidate for debt relief, it

must satisfy two necessary (but not sufficient) conditions. First, the collective action problem must stand in the way of net capital inflows to that country. Second, the country must have a social infrastructure that is sufficiently well developed to ensure that net capital inflows will be channeled into growth-generating investment.

The data in Sections I through V suggest that the Brady countries meet both necessary conditions. In contrast, this section argues that the HIPC countries do not satisfy either. Specifically we demonstrate that: (1) Capital flows to the HIPC countries are not deterred by the collective action problem; (2) There has never been significant scope for profitable lending to the HIPC countries; and (3) The absence of profitable investment opportunities stems from a lack of social infrastructure.

#### **VIA. The Collective Action Problem Does Not Deter Capital Flows to the HIPCs**

The Brady Plan worked because it alleviated the collective action problem, clearing the way for renewed and profitable lending to the Brady countries. In contrast, HIPC countries have never suffered from a negative NRT. Panel A of Table VI (column 5) shows that the NRT to the HIPC countries has always been positive. If the goal of debt relief is to restore positive NRTs, then it is not clear how this policy will help a set of countries that have experienced an uninterrupted stream of positive net resource flows since 1971.

#### **VIB. There is Little Scope for Profitable Lending to the HIPC Countries**

Although things went sour in 1982, international lenders had expected to make money by lending to the Brady countries. Presumably, this is why they did so in the first place. In contrast, there has never been any such expectation for the HIPCs. Table VIII throws the

contrast into relief. As early as 1974, loans to the private sector (private debt + foreign direct investment + portfolio equity) comprised almost half of the total net resource flow to the Brady stock market countries. On the other hand, international lending to the private sector has never been a significant fraction of the total net resource flows into HIPC countries. As a fraction of total inflows, loans to the private sector in the HIPC countries have never exceeded 10 percent and have been as low as 4 percent.<sup>23</sup>

Furthermore, there has also been a shift in the composition of international lending to the Brady countries, away from the public sector and toward the private sector. Table VIII shows that at the peak of the debt crisis (1985-89) grants plus public and publicly guaranteed debt accounted for 73 percent of the net resource transfer to the Brady countries. By 1994, lending to the private sector— foreign direct investment (FDI), portfolio equity, and private debt— constituted the chief source of net resource flows. No such shift has taken place in the HIPC countries. In fact, the opposite has occurred—official flows and flows to the public sector have become more, not less, important. The role of grants has increased to the point where they now constitute the majority of the net resource flows to the HIPC countries.

### **VIC. Poor Social Infrastructure Explains the Absence of Profitable Investment**

Recent advances in law and finance help explain the virtual absence of private capital flows to the HIPCs. The degree to which a country's law protects the legal rights of minority shareholders exerts a significant influence on that country's access to external finance, (La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV) 1997, 1998, 2002; Shleifer and Vishny, 1997). If investors get poor protection they will stay away. Outside finance will dry up, and fewer resources will be available for growth (Dornbusch, 2000). This insight is germane to the present

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<sup>23</sup> Table IX provides a complete list of all the HIPC countries.

discussion. The median Brady country ranks lower than the median G7 country on every component of the LLSV index of investor protection: shareholder rights, creditor rights, efficiency of judicial system, rule of law, and rating of the accounting system.

Shleifer and Wolfenzon (2002) show that weaker investor protection lowers the marginal product of capital and can eliminate the incentive for capital to flow from rich to poor countries. According to their argument, the capital, which does flow to the Brady countries, pales in comparison to what we would see in a world where minority shareholders in the Brady countries enjoyed the same legal protection as their U.S. counterparts.

While the Brady countries rank low on the LLSV index, the HIPC countries do not even make the list. If private capital trickles to Brady countries because they fare poorly on the LLSV index, then woe to the HIPCs whose capital markets and investor protection laws are not sufficiently developed to even merit a ranking.

Having capital markets that are not sufficiently developed to make the LLSV ranking is probably correlated with having weak social institutions in general. In turn, social infrastructure can be a crucial factor in determining the level of human capital accumulation and the marginal product of capital (Kremer 1993). In other words, the rate of return to private lending in HIPC countries is low because they lack the institutional development that is necessary to create an environment where: (1) entrepreneurs can earn an economically fair rate of return on capital; and (2) lenders have an incentive to extend capital to the private sector.

We investigate this claim by using the Hall and Jones (1999) measure of social infrastructure to compare the HIPC and Brady countries. Hall and Jones construct their measure for 130 countries. The median G7 country ranks 14<sup>th</sup>; the median Brady country ranks 63<sup>rd</sup>; the median HIPC country ranks 102<sup>nd</sup>. Moreover, all of the G7 countries are in the highest 20<sup>th</sup>

percentile; all of the Brady countries, except for Nigeria and Dominican Republic, are in the highest 70<sup>th</sup> percentile; 27 of the 38 HIPC countries with available data are in the lowest 30<sup>th</sup> percentile.

We also compared HIPC and Brady countries using the average value of their score on the Heritage House Index of Economic Freedom from 1995 to 2002. The results are similar. Out of 161 countries, the median G7 country ranks 14<sup>th</sup>; the median Brady country ranks 59<sup>th</sup>; the median HIPC country ranks 110<sup>th</sup>. Moreover, all of the G7 countries are in the highest 20<sup>th</sup> percentile; all the Brady countries, except for Bulgaria, are in the highest 60<sup>th</sup> percentile; 24 of 39 HIPC countries with available data are in the lowest 40<sup>th</sup> percentile over the same period.

It is interesting to note that a number of highly or moderately indebted countries closely resemble the Brady countries, but have received no consideration for debt relief. For example, consider Indonesia, Pakistan, Colombia, Jamaica, Malaysia, and Turkey. The median LLSV score for this group of six countries is 4.6 out of 10. The median LLSV score for the Brady countries is 4.9. Similarly, the median country in the group of 6 ranks 61<sup>st</sup> on the Hall and Jones (1999) measure of social infrastructure; the median Brady country ranks 63<sup>rd</sup>. Finally, the median country in the group of six ranks 58<sup>th</sup> on the Heritage House Index of Economic Freedom; the median Brady country ranks 59<sup>th</sup>. While we do not suggest that countries should receive debt relief based solely on their resemblance to Brady countries, the analysis suggests that debt relief for the group of six would constitute a much more efficient use of resources than debt relief for the HIPCs.

## **VII. Conclusion**

“Unresolved debt problems, not debt *per se*, are an obstacle to investment. It is hard for a man to establish a relationship with a lender if the estranged wife keeps barging in claiming

alimony” (Dornbusch, 1993, p. 103). The evidence in this paper does not permit a definitive interpretation of the role of debt relief in alleviating the debt overhang problem, but neither does it dissuade one from Dornbusch’s point of view. Rising stock markets, larger net resource transfers, and faster economic growth all suggest that debt relief played a significant role in restoring confidence to third-world capital markets.

In June of this year, the G8 Heads of State will meet in Evian to discuss debt relief for the highly indebted poor countries of the world. Three months later, policy makers from rich and poor nations will convene at the Annual IMF World Bank Meetings to debate the pros and cons of Anne Krueger’s proposal for a Sovereign Debt Restructuring Mechanism (SDRM). It is useful to think about the potential implications that the results in this paper may have for these upcoming discussions.

For a cost of 25 billion dollars, the Brady Plan increased world-wide shareholder value by roughly 39.4 billion dollars. Contrary to the criticism of some observers, our analysis shows that not all of these gains were captured by the U.S. commercial banks—the stock market capitalization of the debtor countries rose by 42 billion dollars. Furthermore, because the stock market measures only the wealth increase of the publicly traded corporate sector, 42 billion dollars probably understates the total efficiency gain that accrued to the debtors.

The numbers suggest that there can be large ex-post efficiency gains to debt restructuring in countries where debt overhang genuinely stands in the way of efficient investment. Hence, the key questions for the SDRM debate would seem to be: (1) How do you determine if a country is suffering from debt overhang; and (2) Will allowing debtors to trigger an involuntary restructuring procedure yield the same kinds of efficiency gains that were achieved under the largely voluntary restructuring framework of the Brady Plan?

Although there are scenarios in which debt relief can be welfare improving, the evidence here does not suggest that debt relief for the highly indebted poor countries (HIPCs) would achieve efficiency gains. Debt relief is unlikely to stimulate investment in the HIPCs because, unlike the Brady countries, they lack the basic social infrastructure that forms the basis for profitable economic activity. Well-targeted aid is likely to be more efficient for them. There are, however, a number of highly indebted, middle-income, developing countries that are similar to the Brady countries and therefore viable candidates for efficiency-improving debt relief. Yet, these middle-income debtors are not part of the debt relief conversation. The debt relief debate focuses myopically on the HIPCs, whose problems debt relief cannot solve. Countries that might actually benefit from debt relief receive precious little consideration.

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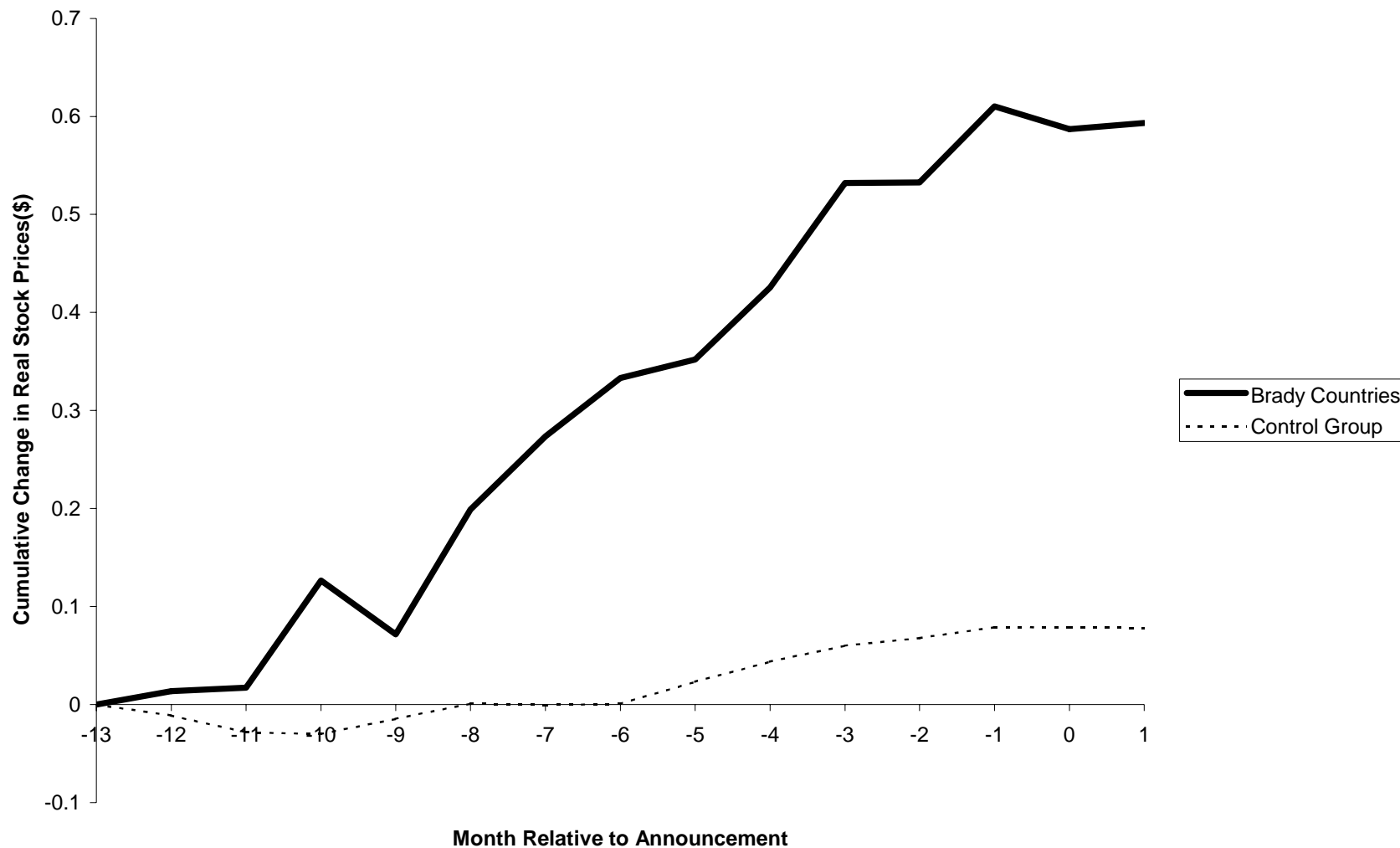
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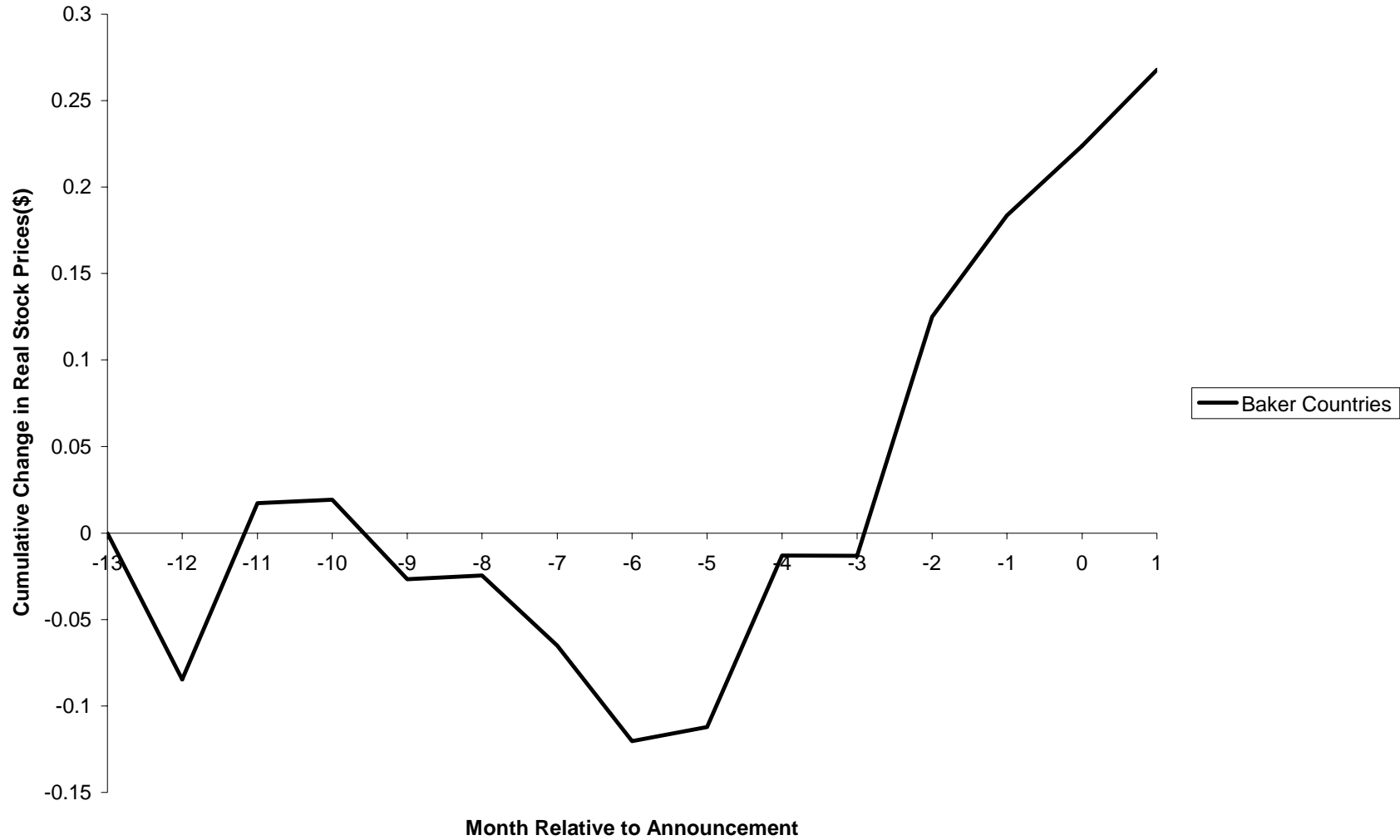
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**Figure 1. Stock Prices Rise in Anticipation of Debt Relief**



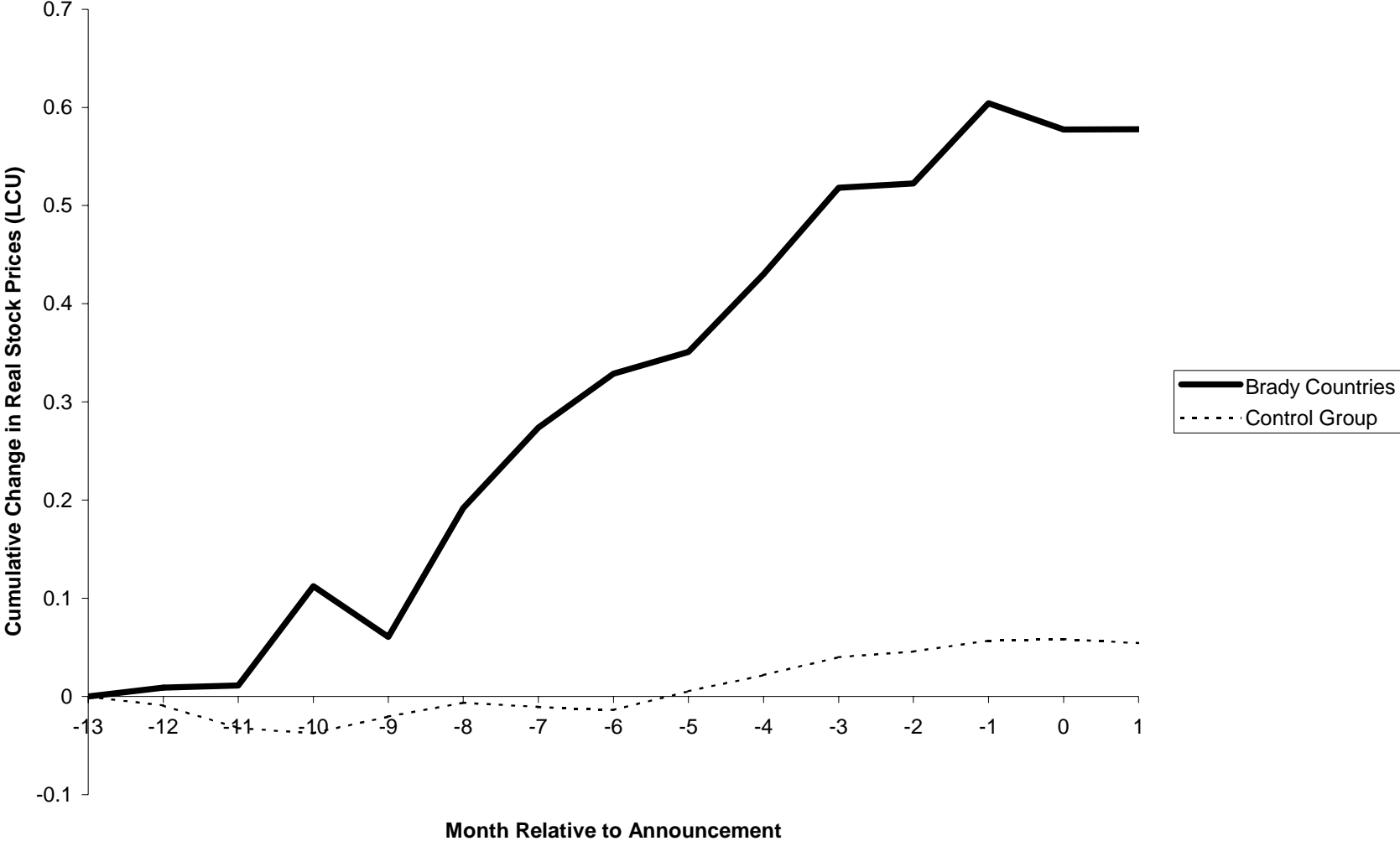
**Figure 1. Stock prices rise in anticipation of debt relief.** The variable on the y-axis is the continuously compounded abnormal percentage change. 0 is the month in which the debt relief plan was announced. The solid line is a plot of the cumulative residuals from a panel regression of the real dollar return from 10 Brady countries with stock market data available on a constant and 9 country-specific dummies. The dashed line is a plot of the cumulative residuals from a panel regression of the real dollar return from 16 control group countries on a constant and 15 country-specific dummies.

**Figure 2. Stock Prices Rise in Anticipation of Economic Reforms Under the Baker Plan.**



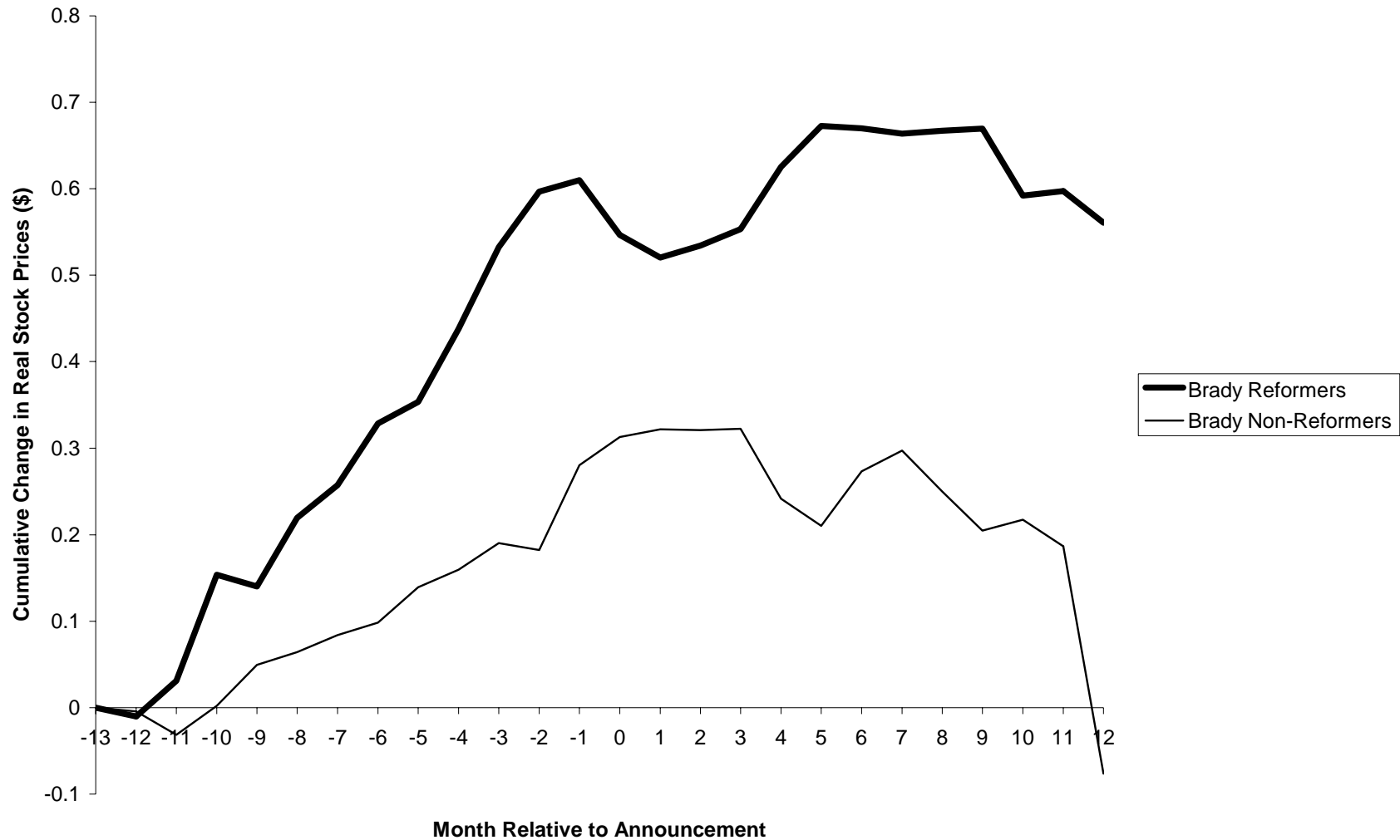
**Figure 2. Stock prices rise in anticipation of economic reforms under the Baker Plan.** The variable on the y-axis is the continuously compounded abnormal percentage change. 0 is the month in which the Baker Plan was announced. The series in bold color is a plot of the cumulative residuals from a panel regression of the real local currency return on a constant and 10 country-specific dummies (for the 11 Baker countries that later became Brady countries).

**Figure 3. Stock Prices Rise in Anticipation of Debt Relief**



**Figure 3. Stock prices rise in anticipation of debt relief.** The variable on the y-axis is the continuously compounded abnormal percentage change. 0 is the month in which the debt relief plan was announced. The series in bold color is a plot of the cumulative residuals from a panel regression of the real local currency return from 10 Brady countries with stock market data available on a constant and 9 country-specific dummies. The series in light color is a plot of the cumulative residuals from a panel regression of the real local currency return from 16 control group countries on a constant and 15 country-specific dummies.

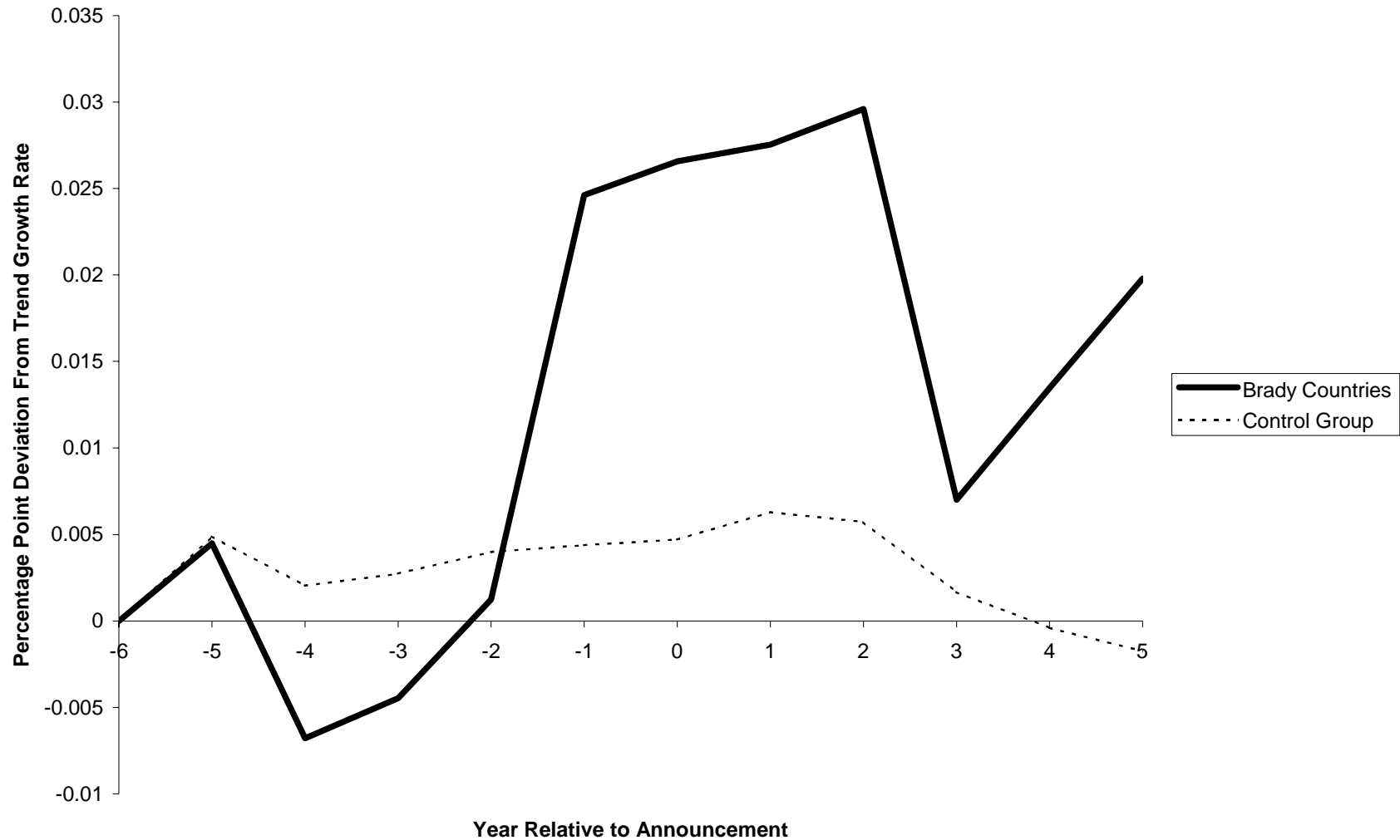
**Figure 4. The Stock Market and Brady Reformers vs Non-Reformers**



**Figure 4. The stock market and Brady reformers versus non-reformers.** The variable on the y-axis is the continuously compounded abnormal percentage change. 0 is the month in which the debt relief plan was announced. The series in bold color is a plot of the cumulative residuals from a panel regression of the real dollar return from 7 reformer Brady countries with stock market data available (Argentina, Brazil, Ecuador, Mexico, Peru, Poland, and Venezuela) on a constant and 6 country-specific dummies. The series in light color is a plot of the cumulative residuals from a panel regression of the real dollar return from 3 non-reformer Brady countries with stock market data available (Jordan, Nigeria, and Philippines) on a constant and 2 country-specific dummies.



**Figure 5. GDP Growth Increases Following Debt Relief**



**Figure 5. GDP growth increases following debt relief.** The variable on the y-axis is the abnormal percentage deviation from the trend growth rate. 0 is the year in which the debt relief plan was announced. The series in bold color is a plot of the residuals from a panel regression of the real GDP growth rate from all 16 Brady countries on a constant and 15 country-specific dummies. The series in light color is a plot of the residuals from a panel regression of the real GDP growth rate from 16 control group countries on a constant and 15 country-specific dummies.

**Table I. Universe of Countries in the Sample**

Brady Plan Countries: Date of Announcement	Stock Market Data Available?	Control Group Countries	Stock Market Data Available?
Argentina: April 1992	Yes	Chile	Yes
Brazil: August 1992	Yes	China	Yes
Ecuador: May 1994	Yes	Colombia	Yes
Jordan: June 1993	Yes	Czech Republic	Yes
Mexico: September 1989	Yes	Greece	Yes
Nigeria: March 1991	Yes	Hungary	Yes
Peru: October 1995	Yes	India	Yes
Philippines: August 1989	Yes	Indonesia	Yes
Poland: March 1994	Yes	Korea	Yes
Venezuela: June 1990	Yes	Malaysia	Yes
Bolivia: March 1993	No	Pakistan	Yes
Bulgaria: November 1993	No	South Africa	Yes
Costa Rica: November 1989	No	Sri Lanka	Yes
Dominican Republic: May 1993	No	Thailand	Yes
Panama: May 1995	No	Turkey	Yes
Uruguay: November 1990	No	Zimbabwe	Yes
Median growth	0.01 (0.02)	Median growth	0.03 (0.01)
Median inflation	0.27 (0.18)	Median inflation	0.11 (0.03)

The first column lists all the countries in the Treatment group, i.e., the countries that signed Brady deals. The next column identifies the countries for which stock market data are available from the IFC Emerging Market Data Base or the Global Financial Data Base. In contrast, the last two columns list all the countries in the Control group, i.e., the countries that did not sign Brady deals and have had stock market data available as of 1994 from the IFC Emerging Market Data Base. The last two rows compare the Treatment and Control groups in terms of their historical GDP per capita growth and inflation rates from 1980 to 1999. The standard deviation of each rate is given in parenthesis.

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**Table II. News About Debt Relief Diffuses Slowly**

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**Argentina**

July 23, 1991: The International Monetary Fund approves a 1 billion dollar stand-by loan (Economist Intelligence Unit, QER).

September 20, 1991: Argentina's economy minister, Domingo Cavallo, comes to Washington to jump-start negotiations on the country's \$61bn debt. (Financial Times, September 20, 1991). Argentina's main creditors agree to a restructuring of \$ 1.5 billion in debt. (Washington Post)

March 31, 1992: Argentina secures a \$3.15bn extended facility fund loan from the IMF. Approval of the loan is important for securing a restructuring with the creditor banks. Some \$900m of the funds can be set aside for use as enhancements. (Financial Times, April 1, 1992)

April 7, 1992: Argentina and its creditor banks reach an agreement. Banks will forgive about \$8 billion of the \$23 billion they are owed and Argentina will repay its past-due interest and begin repayment of its remaining debt. (New York Times, April 8, 1992)

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**Nigeria**

October 2, 1990: The resolution of the five-month deadlock over rescheduling terms for Nigeria's \$5.5bn commercial bank debt appears likely. (Financial Times, October 3, 1990)

November 2, 1990: Nigeria and its creditor banks fail to agree on a rescheduling package after a three-day meeting in London. (Financial Times)

February 26, 1991: Talks between Nigeria and its creditor banks begin in London. The Nigerian military government plans to restructure the country's estimated \$35bn external debt before next October's return to civilian rule. (Financial Times, February 26, 1991)

March 2, 1991: Nigeria and its commercial bank creditors agree in principle on a rescheduling and buy-back agreement covering \$5.8bn of debt. (Financial Times, March 4, 1991) (EIU Country Report – No:2 1991, page 1 and 12)

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**Venezuela**

July 25, 1989: Nicholas Brady says that the Mexican deal will set a “pattern” for dealing with the debt problems of other nations. Brady puts the Philippines, Venezuela and Costa Rica at the head of the list. (July 25, 1989, Washington Post)

March 21, 1990: Venezuela and its creditor banks reach an agreement on the basic terms of a deal. This is the fourth such deal under the Brady Plan. (New York Times)

June 29, 1990: Venezuela finalizes negotiations with its creditor banks. The deal includes more options than any other Brady deal so far. (Financial Times)

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**Table III. IMF Programs and Major Economic Reforms in Brady Countries**

Country	Brady Plan	Stabilization (IMF Program)	Trade Liberalization	Privatization	Capital Account Liberalization
Argentina	April 1992	March 1992 (EFF)	April 1991	February 1988	November 1989
Bolivia	March 1993		1985	1992	NA
Brazil	August 1992	January 1992 (SB)	April 1990	July 1990	March 1988
Bulgaria	November 1993	NA	NA	1991	NA
Costa Rica	November 1989	NA	1986	1988	NA
Dominican Republic	May 1993	NA	Closed	1999	NA
Ecuador	May 1994	May 1994	January 1991	February 1993	January 1993
Jordan	June 1993	May 1994 (EFF)	1965	January 1995	January 1978
Mexico	September 1989	May 1989 (EFF)	July 1986	November 1988	May 1989
Nigeria	March 1991	January 1991 (SB)	Closed	July 1988	Closed
Panama	May 1995		NA	1990	NA
Peru	October 1995	March 1993 (EFF)	March 1991	March 1991	NA (Open Before 95) Investibility index
Philippines	August 1989	May 1989 (EFF)	November 1988	June 1988	May 1986
Poland	March 1994	August 1994 (SB)	1990	1990*	1990
Uruguay	November 1990		1990	1990	NA
Venezuela	June 1990	June 1989 (EFF)	May 1989**	April 1991	January 1990

This table lists the announcement dates of major economic events for the countries in the Treatment group. The first column identifies these countries. The second column lists the month and year of each country's Brady Plan. These dates are obtained from Cline (1995), Lexis/Nexis, and various issues of the Economist Intelligence Unit. The third column lists IMF plans that are announced shortly preceding or following Brady Plans. These dates are obtained from Henry (2002) and various issues of the IMF Annual Reports. A Standby agreement with the IMF is noted as SB and an Extended Fund Facility agreement is noted as EFF. The next three columns list the dates of the beginnings of major economic reforms. The trade liberalization dates are obtained from Sachs and Werner (1995). The privatization dates are obtained from the Privatization Data Base maintained by the World Bank. The capital account liberalization dates are obtained from Henry (2000). \*Poland switched to a market economy in 1990, simultaneously setting up a stock market and opening up to foreign investment. \*\*Venezuela reversed its trade liberalization reforms in 1993.

**Table IV. Brady Countries Experience a Significant Increase in Market Valuation Before Debt Relief Announcements. The Control Countries Do Not. Panel A: White-Corrected OLS Estimates**

	Twelve-Month Window			Nine-Month Window			Six-Month Window			Three-Month Window		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)
Right-Hand-Side Variables	Brady	Control	Brady>Control?	Brady	Control	Brady>Control?	Brady	Control	Brady>Control?	Brady	Control	Brady>Control?
Country-Specific Mean	.050*** (.014)	.004 (.004)	0.001	.050*** (.015)	.010** (.005)	0.011	.048*** (.016)	.014*** (.005)	0.041	.048* (.026)	.009 (.007)	0.15
Constant Mean	.049*** (.013)	.005 (.004)	0.001	.051*** (.015)	.009** (.004)	0.005	.049*** (.016)	.013*** (.0045858)	0.022	.045* (.025)	.006 (.007)	0.13
World	.047*** (.014)	.002 (.005)	0.002	.047*** (.016)	.009* (.005)	0.023	.045*** (.016)	.014*** (.005)	0.080	.049* (.025)	.004 (.007)	0.09
US	.046*** (.013)	-.000 (.005)	0.001	.046*** (.016)	.007 (.005)	0.018	.043*** (.016)	.014*** (.005)	0.076	.048* (.026)	.004 (.007)	0.10
LDC	.046*** (.014)	-.008 (.006)	0.000	.043*** (.016)	.001 (.005)	0.011	.039** (.016)	.005 (.005)	0.0480	.052** (.024)	.010 (.007)	0.10
ALL	.047*** (.014)	-.007 (.006)	0.000	.044*** (.016)	.002 (.005)	0.011	.039** (.016)	.005 (.005)	0.0451	.052** (.025)	.009 (.007)	0.09

The estimation procedure used is Ordinary Least Squares. The stock market data are monthly from December 1979 to July 1999 for all the countries in the Treatment and Control groups. Stock market data are unavailable before December 1984 for Nigeria, Philippines, Venezuela, Columbia, Malaysia, Pakistan; before December 1986 for Turkey; before December 1989 for Indonesia; before December 1992 for Peru, Poland, China, Hungary, South Africa, Sri Lanka; before September 1993 for Ecuador; and before December 1993 for the Czech Republic. The left-hand-side variable is real, dollar-denominated stock returns. Brady is a dummy variable that takes on the value one for each month during a particular event window preceding a Brady plan. Control is a dummy variable that takes on the value one for each country in the control group during the months preceding Brady Plans. The column labeled ‘Twelve-month Window’ presents estimates of Brady and Control using an event window that begins twelve months prior to the announcement of the Brady Plan and ends with the announcement month. The analogous definition applies to the columns labeled ‘Nine-month Window,’ ‘Six-Month Window’ and ‘Three-Month Window.’ For each event window, six regression specifications are estimated. The first row presents estimates of Brady and Control using the benchmark specification that allows for country-specific intercept terms. Row 2 presents estimates using an alternative specification that allows for only a single intercept term. Row 3 presents estimates using the ICAPM specification that introduces the World stock return index as an additional explanatory variable. Row 4 presents estimates using the US stock return index instead of the World stock index. Row 5 presents estimates using the LDC stock return index instead. Finally, row 6 presents estimates that use all three sets of indices simultaneously. The column labeled Brady>Control shows the p-value for a test that the coefficient on Brady is statistically larger than the coefficient on Control. White-corrected standard errors are given in parenthesis. The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

**Table IV. Brady Countries Experience a Significant Increase in Market Valuation Before Debt Relief Announcements. The Control Countries Do Not. Panel B: FGLS Estimates**

	Twelve-Month Window			Nine-Month Window			Six-Month Window			Three-Month Window		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)
Right-Hand-Side Variables	Brady	Control	Brady>Control?	Brady	Control	Brady>Control?	Brady	Control	Brady>Control?	Brady	Control	Brady>Control?
Country-Specific Mean	.041*** (.010)	.007 (.004)	0.003	.046*** (.011)	.012** (.005)	0.005	.051*** (.013)	.015*** (.005)	0.01	.040* (.019)	.014** (.006)	0.20
Constant Mean	.038*** (.010)	.008* (.004)	0.003	.044*** (.011)	.011*** (.004)	0.005	.049*** (.013)	.015*** (.006)	0.01	.039** (.019)	.014** (.006)	0.21
World	.033*** (.011)	.003 (.005)	0.015	.039*** (.013)	.009* (.005)	0.026	.045*** (.015)	.013*** (.005)	0.04	.042** (.022)	.012** (.006)	0.17
US	.032*** (.011)	.002 (.005)	0.013	.038*** (.013)	.008 (.005)	0.023	.045*** (.015)	.013*** (.005)	0.03	.042** (.022)	.010* (.006)	0.14
LDC	.034*** (.012)	-.005 (.005)	0.002	.037*** (.013)	.001 (.005)	0.010	.043*** (.015)	.005 (.005)	0.01	.043** (.021)	.007 (.006)	0.11
ALL	.034*** (.012)	-.005 (.005)	0.002	.036*** (.013)	.001 (.005)	0.011	.043*** (.015)	.005 (.005)	0.02	.042** (.022)	.006 (.006)	0.10

The estimation procedure is Feasible Generalized Least Squares. The stock market data are monthly from December 1979 to July 1999 for all the countries in the Treatment and Control groups. Stock market data are unavailable before December 1984 for Nigeria, Philippines, Venezuela, Columbia, Malaysia, Pakistan; before December 1986 for Turkey; before December 1989 for Indonesia; before December 1992 for Peru, Poland, China, Hungary, South Africa, Sri Lanka; before September 1993 for Ecuador; and before December 1993 for the Czech Republic. The left-hand-side variable is real, dollar-denominated stock returns. Brady is a dummy variable that takes on the value one for each month during a particular event window preceding a Brady plan. Control is a dummy variable that takes on the value one for each country in the control group during the months preceding Brady Plans. The column labeled 'Twelve-month Window' presents estimates of Brady and Control using an event window that begins twelve months prior to the announcement of the Brady Plan and ends with the announcement month. The analogous definition applies to the columns labeled 'Nine-month Window,' 'Six-Month Window' and 'Three-Month Window.' For each event window, six regression specifications are estimated. The first row presents estimates of Brady and Control using the benchmark specification that allows for country-specific intercept terms. Row 2 presents estimates using an alternative specification that allows for only a single intercept term. Row 3 presents estimates using the ICAPM specification that introduces the World stock return index as an additional explanatory variable. Row 4 presents estimates using the US stock return index instead of the World stock index. Row 5 presents estimates using the LDC stock return index instead. Finally, row 6 presents estimates that use all three sets of indices simultaneously. The column labeled Brady>Control shows the p-value for a test that the coefficient on Brady is statistically larger than the coefficient on Control. Standard errors are given in parenthesis. The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

**Table V. After Controlling for Other Reforms, Brady Countries Experience a Significant Increase in Market Valuation Before Debt Relief Announcements. The Control Countries Do not. Panel A: White-Corrected OLS Estimates**

	World-Return Model				Constant-Mean Return Model			
	Twelve-Month Window	Nine-Month Window	Six-Month Window	Three-Month Window	Twelve-Month Window	Nine-Month Window	Six-Month Window	Three-Month Window
Brady	.048*** (.012)	.049*** (.013)	.047*** (.016)	.054** (.023)	.048*** (.012)	.048*** (.013)	.046*** (.015)	.053** (.022)
Control	.003 (.005)	.008 (.005)	.012** (.006)	.009 (.008)	.005 (.005)	.009** (.005)	.013*** (.005)	.010 (.007)
P-Value of Brady > Control?	0.000	0.003	0.03	0.07	0.000	0.004	0.040	0.070
Privatize	.005 (.014)	.011 (.016)	.011 (.018)	.022 (.028)	.005 (.014)	.010 (.015)	.012 (.018)	.023 (.027)
Trade	-.013 (.016)	-.004 (.018)	-.006 (.022)	-.052 (.033)	-.011 (.016)	-.001 (.018)	-.002 (.021)	-.048 (.032)
Liberalize	.009 (.016)	.025 (.018)	.051** (.021)	.094*** (.033)	.013 (.016)	.029 (.018)	.057*** (.021)	.101*** (.032)

The estimation procedure is Ordinary Least Squares; White-corrected standard errors are given in parenthesis. The stock market data are monthly from December 1979 to July 1999 for all the countries in the Treatment and Control groups. Stock market data are unavailable before December 1984 for Nigeria, Philippines, Venezuela, Columbia, Malaysia, Pakistan; before December 1986 for Turkey; before December 1989 for Indonesia; before December 1992 for Peru, Poland, China, Hungary, South Africa, Sri Lanka; before September 1993 for Ecuador; and before December 1993 for the Czech Republic. The left-hand-side variable is real, dollar-denominated stock returns. Brady is a dummy variable that takes on the value one for each month during a particular event window preceding a Brady plan. Four different event windows are utilized. The column labeled 'Twelve-month Window' presents estimates of Brady and Control using an event window that begins twelve months prior to the announcement of the Brady Plan and ends with the announcement month. The analogous definition applies to the columns labeled 'Nine-month Window,' 'Six-Month Window' and 'Three-Month Window.' Control is a dummy variable that takes on the value one for each country in the control group during the months preceding Brady Plans. Privatize, Trade, and Liberalize are dummy variables that take on the value one during the event window preceding a privatization, trade liberalization and stock market liberalization, respectively. For each event window, two regression specifications are estimated. The World column presents estimates of Brady, Control, Privatize, Trade, and Liberalize using the ICAPM specification that introduces the World stock return index as an additional explanatory variable. The Constant Mean column presents estimates using the specification that allows for only a single intercept term. The column labeled Brady>Control shows the p-value for a test that the coefficient on Brady is statistically larger than the coefficient on Control. . The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

**Table V. After Controlling for Other Reforms, Brady Countries Experience a Significant Increase in Market Valuation Before Debt Relief Announcements. The Control Countries Do Not. Panel B: FGLS Estimates**

	World-Return Model				Constant-Mean Return Model			
	Twelve-Month Window	Nine-Month Window	Six-Month Window	Three-Month Window	Twelve-Month Window	Nine-Month Window	Six-Month Window	Three-Month Window
Brady	.033*** (.011)	.039*** (.012)	.046*** (.014)	.045** (.021)	.037*** (.010)	.042*** (.011)	.048*** (.013)	.039** (.019)
Control	.004 (.004)	.009** (.004)	.0127*** (.004)	.012** (.006)	.008* (.004)	.012*** (.004)	.015*** (.005)	.014** (.006)
Brady > Control?	0.012	0.014	0.022	0.130	0.01	0.01	0.01	0.206
Privatize	-.001 (.012)	-.002 (.014)	.002 (.016)	.002 (.024)	-.002 (.012)	-.003 (.013)	.001 (.016)	.002 (.023)
Trade	-.011 (.020)	-.001 (.022)	-.005 (.026)	-.068* (.039)	-.005 (.020)	.006 (.023)	.002 (.027)	-.061 (.040)
Liberalize	.0138 (.020)	.021 (.022)	.040 (.026)	.078** (.039)	.021 (.020)	.029 (.023)	.049* (.027)	.089** (.040)

The estimation procedure used is Feasible Generalized Least Squares. . The stock market data are monthly from December 1979 to July 1999 for all the countries in the Treatment and Control groups. Stock market data are unavailable before December 1984 for Nigeria, Philippines, Venezuela, Columbia, Malaysia, Pakistan; before December 1986 for Turkey; before December 1989 for Indonesia; before December 1992 for Peru, Poland, China, Hungary, South Africa, Sri Lanka; before September 1993 for Ecuador; and before December 1993 for the Czech Republic. The left-hand-side variable is real, dollar-denominated stock returns. Brady is a dummy variable that takes on the value one for each month during a particular event window preceding a Brady plan. Four different event windows are utilized. The column labeled 'Twelve-month Window' presents estimates of Brady and Control using an event window that begins twelve months prior to the announcement of the Brady Plan and ends with the announcement month. The analogous definition applies to the columns labeled 'Nine-month Window,' 'Six-Month Window' and 'Three-Month Window.' Control is a dummy variable that takes on the value one for each country in the control group during the months preceding Brady Plans. Privatize, Trade, and Liberalize are dummy variables that take on the value one during the event window preceding a privatization, trade liberalization and stock market liberalization, respectively. For each event window, two regression specifications are estimated. The World column presents estimates of Brady, Control, Privatize, Trade, and Liberalize using the ICAPM specification that introduces the World stock return index as an additional explanatory variable. The Constant Mean column presents estimates using the specification that allows for only a single intercept term. The column labeled Brady>Control shows the p-value for a test that the coefficient on Brady is statistically larger than the coefficient on Control. . The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.



**Table VI. The Brady Plan Reverses the Sign of the Net Resource Transfer (Millions of US\$) in the Brady Stock Market Countries. Panel A: Group Medians**

Year in Event Time	Brady Stock Market Countries	Control Group	Brady Non-Stock Market Countries	Highly-Indebted Poor Countries
-18	87	91	58	13
-17	10	143	69	19
-16	123	116	142	25
-15	382	104	87	25
-14	285	124	27	61
-13	495	220	152	65
-12	1371	100	129	53
-11	1063	347	155	78
-10	847	505	54	103
-9	297	648	237	151
-8	-43	594	100	134
-7	146	403	103	119
-6	-419	330	78	123
-5	-1679	529	87	119
-4	-833	189	37	118
-3	-228	84	-40	117
-2	-767	-71	49	143
-1	-578	-10	80	171
0	-283	187	58	202
1	-54	366	-46	223
2	2372	998	188	252
3	1216	1173	48	259
4	1124	2675	197	262
5	2267	2197	407	229

Net resource transfers are equal to net resource flows minus interest payments on long-term loans and foreign direct investment profits. The first column lists the years in event time. The number '0' represents the year in which its Brady Plan was announced. For Control group countries and Highly-Indebted Poor Countries (HIPC), 0 represents 1989. The next four columns show the progression of net resource transfers in event time to the following groups of countries: the Control group, the Brady Stock market group, the Brady Non-Stock market group, and the HIPC countries. The Control group countries are displayed in Table I. The Brady Stock market countries are the countries in the Treatment group with available stock market data as displayed in Table I. The Brady Non-Stock market countries are the remaining countries of the Treatment group. The HIPC countries are displayed in Table IX. The data on NRT are obtained from World Bank's Global Development Finance Data Base.

**Table VI. The Net Resource Transfer (Millions of US\$). Panel B: Individual Brady Stock Market Countries.**

Year Event		Argentina	Brazil	Ecuador	Jordan	Mexico	Nigeria	Peru	Philippines	Poland	Venezuela
-18	Time	-86	5586	10	466	100	-725	211	-42	NA	-535
-17		-568	3968	484	471	132	-519	-328	123	NA	-1036
-16		613	4618	382	490	1188	-468	-406	-20	NA	-1760
-15		-358	4572	285	547	1747	-640	-580	295	NA	-527
-14		495	6869	349	1342	2418	-411	-479	510	NA	-428
-13		3372	1858	704	1348	3112	1303	712	986	2346	1393
-12		1593	-844	-905	1272	3285	830	854	807	1500	1442
-11		4436	1867	-432	1055	2433	-1354	440	639	213	2700
-10		3231	-410	-207	997	1136	758	-84	547	-546	47
-9		-1197	-3614	-399	777	3043	1445	167	489	-324	-253
-8		-3454	-1074	28	687	7490	700	263	729	-317	-1475
-7		-1330	-6550	85	867	542	-1426	153	561	-1437	-923
-6		-2971	-7100	-63	745	-5658	-2290	203	865	-1067	-2550
-5		-2629	-7066	18	496	-8666	-514	243	72	-1152	-2486
-4		-1729	-7229	-251	808	-9452	95	-206	224	-202	-3856
-3		-1412	-8948	-354	853	-6443	-1180	228	-263	2753	-4276
-2		-2571	-3952	-377	410	-1485	1414	2155	-779	1163	-3483
-1		528	-496	231	-70	-7443	-1799	4460	-655	2180	-1927
0		2917	5026	67	-222	-7553	-1473	3723	-175	2176	-2283
1		11975	10913	144	39	5364	-2277	3946	51	6437	797
2		7794	3469	278	333	4798	351	2080	-272	4804	206
3		6122	7217	555	70	1699	631	1618	-844	6169	-1280
4		13205	18474	-169	610	13114	-372	2160	2374	7943	-1836
5		12793	24250	156	208	11235	-691	550	2293	8317	-1811

The net resource transfer (NRT) to individual Brady Stock market countries in event time. The Brady Stock market countries are the countries in the Treatment group with available stock market data as displayed in Table V, Panel A. The data on NRT are obtained from World Bank's Global Development Finance Data Base.

**Table VI. The Net Resource Transfer (Millions of US\$). Panel C: Individual Non-Stock Market Brady Countries**

	Bolivia	Bulgaria	Costa Rica	Dominican Republic	Panama	Uruguay
-18	167	NA	42	58	168	11
-17	213	NA	45	69	417	-14
-16	300	NA	58	142	41	213
-15	214	NA	87	88	-174	-19
-14	151	NA	163	27	-140	21
-13	214	NA	152	267	119	66
-12	147	350	244	111	-59	99
-11	44	495	152	157	-126	390
-10	-112	374	110	-1	-269	395
-9	-94	740	234	240	-349	254
-8	-166	746	137	161	-224	63
-7	244	1277	49	-21	-42	156
-6	223	1026	-131	92	63	-254
-5	186	364	10	95	80	-264
-4	270	245	41	34	-44	-113
-3	199	-434	-76	64	-167	-5
-2	614	144	97	-35	1	-252
-1	492	100	61	-51	236	-165
0	349	108	36	-32	79	-396
1	454	441	-21	-129	-71	-164
2	853	-64	105	271	1509	103
3	912	-68	-90	-108	1320	165
4	1212	147	-104	163	852	232
5	1196	331	0	608	482	65

The net resource transfer (NRT) to Brady Non-Stock market countries in event time. The Brady Non-Stock market countries are the countries in the Treatment group without available stock market data as displayed in Table V, Panel; B. The data on the NRT are obtained from the World Bank's Global Development Finance Data Base.

**Table VII. The Stock Market Forecasts Future Changes in the Net Resource Transfer and GDP Growth**

	Stock Market Deviation Anticipating Debt Relief	Change in the Net Resource Transfer	Growth Deviation: Year [0]	Growth Deviation: Year [+1]	Growth Deviation: Year [+2]	Cumulative Growth Deviation Year [0, +2]	Cumulative Growth Deviation: Year [0, +5]
Argentina	+	+	+	+	+	+	+
Brazil	+	+	-	+	+	+	+
Ecuador	+	+	+	+	+	+	-
Jordan	+	+	-	+	+	+	+
Mexico	+	+	+	+	+	+	+
Nigeria	+	+	+	+	+	+	+
Peru	-	No change in sign	+	+	+	+	+
Philippines	+	+	+	+	-	+	+
Poland	+	No change in sign*	+	+	+	+	+
Venezuela	+	+	+	+	+	+	+

This table presents the correlation between increases in market valuation before Brady Plan announcements and changes in net resource transfers and GDP growth afterwards. The first column lists the Brady Stock market countries. The Brady Stock market countries are the countries in the Treatment group with available stock market data as displayed in Table I. The second column identifies the countries that experienced abnormal stock market returns over the 12 months preceding their Brady Plan announcements. The third column identifies the countries that experienced changes from negative NRT to positive NRT in the year preceding or during the two years following the announcement. The fourth column identifies the countries that experienced abnormal GDP growth in the year of the announcement. The fifth and sixth columns identify those that experienced abnormal cumulative GDP growth during the two and five years following the announcement of the Brady Plan. The + sign denotes positive identification of a country. \* Following the Brady Plan in Poland there is no change in the sign of NRT, but the level of NRT almost triples.

**Table VIII. The Composition of Net Resource Flows into HIPC, Brady, and Control Group Countries: 1970-1994.**

	1970-74		1975-79		1980-84		1985-89		1990-94	
	Millions of US\$	Percent of Total	Millions of US\$	Percent of Total	Millions of US\$	Percent of Total	Millions of US\$	Percent of Total	Millions of US\$	Percent of Total
<b>HIPC</b>										
Net Resource Flows	61	100.0	172	100.0	269	100.0	305	100.0	412	100.0
Public Debt	39	64.6	111	64.5	176	65.4	158	51.9	120	29.2
Private Debt	3	4.2	3	1.8	5	1.9	-1	-0.3	0	-0.1
FDI	4	5.9	12	7.0	11	4.0	14	4.4	50	12.2
Portfolio Equity	0	0.0	0	0.0	0	0.0	0	0.0	5	1.1
Grants	15	25.2	46	26.7	77	28.7	134	44.0	237	57.6
<b>Brady</b>										
Net Resource Flows	530	100.0	1562	100.0	1938	100.0	722	100.0	2645	100.0
Public Debt	264	49.8	1045	66.9	1346	69.4	443	61.4	309	11.7
Private Debt	133	25.1	219	14.0	212	11.0	-177	-24.5	466	17.6
FDI	116	21.9	253	16.2	305	15.7	365	50.6	982	37.1
Portfolio Equity	0	0.0	0	0.0	2	0.1	6	0.9	708	26.8
Grants	17	3.3	46	2.9	74	3.8	83	11.6	180	6.8
<b>Control Group</b>										
Net Resource Flows	356	100.0	825	100.0	1612	100.0	1693	100.0	4853	100.0
Public Debt	242	67.9	556	67.3	1055	65.4	1012	59.8	1278	26.3
Private Debt	42	11.8	104	12.6	236	14.6	62	3.7	736	15.2
FDI	35	9.9	91	11.0	206	12.8	443	26.2	1981	40.8
Portfolio Equity	0	0.0	0	0.0	3	0.2	47	2.8	665	13.7
Grants	37	10.4	75	9.0	113	7.0	129	7.6	193	4.0

This table presents data on the composition of net resource flows for different groups of countries from 1970 to 2000. The first column lists the components of net resource flows. Net resource flows are the sum of net resource flows on public debt, private debt, foreign direct investment, portfolio equity, and official grants. The following columns display the data as averaged over intervals of five years. The HIPC countries are displayed in Table IX. The Brady and Control group countries are displayed in Table I. The data on net resource flows and its components are obtained from World Bank's Global Development Finance Data Base.

**Table IX. The Highly Indebted Poor Countries (HIPC)**

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Angola	Cote d'Ivoire	Madagascar	Sierra Leone
Benin	Ethiopia	Malawi	Somalia
Bolivia	The Gambia	Mali	Sudan
Burkina Faso	Ghana	Mauritania	Tanzania
Burundi	Guinea	Mozambique	Togo
Cameroon	Guinea-Bissau	Myanmar	Uganda
Central African Republic	Guyana	Nicaragua	Vietnam
Chad	Honduras	Niger	Yemen
Comoros	Kenya	Rwanda	Zambia
Democratic Republic of Congo	Lao PDR	Sao Tome and Principe	
Republic of Congo	Liberia	Senegal	

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Groupings of HIPCs under the enhanced HIPC Initiative: Status as of September 2002. Source: [http://www.worldbank.org/hipc/progress-to-date/HIPC\\_Grouping\\_Sept02.pdf](http://www.worldbank.org/hipc/progress-to-date/HIPC_Grouping_Sept02.pdf)