**Siew Hong Teoh**
*University of Michigan*

**Ivo Welch**
*University of California, Los Angeles*

**C. Paul Wazzan**
*Law and Economics Consulting Group*

# The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott*

We study the most important legislative and shareholder boycott to date, the boycott of South Africa's apartheid regime, and find that corporate involvement with South Africa was so small that the announcement of legislative/shareholder pressure or voluntary corporate divestment from South Africa had little discernible effect either on the valuation of banks and corporations with South African operations or on the South African financial markets. There is weak evidence that institutional shareholdings increased when corporations divested. In sum, despite the publicity of the boycott and the multitude of divesting companies, political pressure had little visible effect on the financial markets.

> Trustees of public-employee pension funds have been throwing their weight around in corporate board rooms and annual meetings. How much they will press what are essentially political causes is a matter of some interest to corporate managers. (*Wall Street Journal,* August 8, 1989)

## I. Introduction

It seems that socially activist shareholder pressure on corporations has become a fact of life. In 1987, the American Medical Association called on medical schools and their parent universities to divest tobacco holding stocks. Reversing an earlier decision, the Securities and Exchange Commission required Philip Morris executives in February 1990 to include in proxy materials a motion brought by two religious groups to cease

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tobacco operations. The proposal was voted down by shareholders,[1] as was a proposal to establish a review committee to determine the effect of promotions and advertising on children's decision to smoke. In March 1990, an American Brands shareholder proposed a similar resolution calling smoking a health hazard, responsible for 2.5 million deaths and $22 billion in health care costs in the United States. In May 1990, Harvard President Derek Bok disclosed that the university had divested nearly $58 million of investments in tobacco companies, stating that "the divestment was prompted by recognition of the dangers of smoking and concern over aggressive marketing tactics to promote smoking among teenagers and in third-world countries."[2] It was widely anticipated that Harvard's move could trigger a wave of divestment of tobacco stocks, much like the movement to persuade universities and state governments to divest holdings in firms doing business in South Africa.

Other industries have also been affected. In May 1989, environmentalists and shareholders protested Exxon's handling of the Valdez oil spill, which induced Exxon to name an environmentalist to its board. Pressure on other oil and chemical companies to follow suit came from a letter signed by two leading members of the Council of Institutional Investors, which is engaged in pension fund activism and claims 68 members with $300 billion in assets. Pressure groups have also been trying to stop violence in songs and movies (most notably Warner Brothers' releases of "gangsta rap" albums), debt or liquor operations, corporate waste and managerial benefits, computerized index program trading, and trade with China, Israel, and Nigeria.

This article studies the financial effects of shareholder pressure in what activists consider to have been the most visible and successful instance of social activism in investment policies, the boycott of South Africa designed to speed the end of the apartheid regime. The U.S. pressure on firms with operations in South Africa to divest came primarily from three sources: (1) congressional legislation, primarily through the Comprehensive Anti-Apartheid Act of 1986; (2) private investors, primarily through the decisions by many universities and pension funds to divest themselves from companies with holdings in South Africa; and (3) withdrawing companies (among them such large U.S. corporations as IBM, GM, Ford, and Exxon), which is likely related to private investors.[3] We estimate the effects of these pressures

1. "Philip Morris Shareholders Snub Anti-tobacco Request," *Wall Street Journal* (April 27, 1990).

2. "Harvard and City University of New York Shedding All Tobacco Investments," *New York Times* (May 24, 1990).

3. The *Wall Street Journal* (June 13, 1986) and the *Washington Post* (August 17, 1986) reported that, at the time of the South-African boycott, the European Community, Japan, and Canada joined the United States in imposing sanctions on South Africa.

on U.S. firms and banks with operations in South Africa and the South African financial markets. More generally, our evidence may shed some light on the potential magnitude of the effects of social and political activism.

Our null hypothesis is that divestment and shareholder pressures had no effect. Divesting firms may have circumvented sanctions after divestment (e.g., servicing South Africa through a foreign holding company) or found alternative markets. The demand for stocks may be sufficiently elastic so that pressures by social activists merely redistribute ownership from socially active investors to other investors without affecting stock prices. South Africa itself may have switched to trading with other countries not participating in the boycotts at low cost. The alternative hypothesis is that activism and sanctions imposed measurable costs and constrained unique investment opportunities so that firm value was affected adversely. This alternative predicts that banks and corporations with South African operations and the South African financial markets experienced negative stock price reactions on the announcement of legislative and private investor sanctions. It also predicts that voluntarily divesting firms experienced positive stock price reactions on announcement of the divestment and renewed institutional investor ownership around voluntary divestment dates.

We test these hypotheses by examining the size and involvement of the set of boycott-targeted U.S. firms and by evaluating the stock price effect of announcements of legislative and private investor sanctions on banks and corporations with South African operations and on the South African financial markets as a whole. We also evaluate the stock price effect and institutional investor ownership changes on firms that announce voluntary divestments from South African operations. The null hypothesis predicts zero effects, whereas the alternative predicts adverse consequences from the announcement of sanctions and a positive effect on announcement of voluntary divestment.

Section II provides a discussion of the political and macroeconomic developments in South Africa in the 1980s, but our article attempts to quantify only the financial markets' responses to the political pressure, not the "real" macroeconomic responses. Because the anti-apartheid sanctions were aimed at applying economic pressure and because financial markets were a major target, our goal is to provide evidence on the extent to which the financial markets bore the burden of sanctions and activist pressures. The advantage of studying stock price effects is that stock prices quickly impound information about investors' perceptions of the consequences of these events (sanctions and divestments). Even if the stock market is not perfectly efficient, partial responses are likely to be visible soon after the announcements. An alternative approach is to study the effects of the sanctions on participants outside the financial markets, for example, the macroeconomic effects

of sanctions on South Africa (production and employment). Such a study has the disadvantage that macroeconomic variables respond more slowly to sanctions than stock prices (daily real data is not available). This makes it more difficult to ascribe observed changes in production and employment over a long time interval purely to the effect of sanctions and not to other forces occurring at the same time. The macroeconomic approach requires a model of how the South African economy would have performed in the 1980s had the sanctions not been imposed. Such an empirical model is unlikely to meet the consensus approval of macroeconomists, whereas the standard, well-accepted event-study methodology is available in the finance and accounting literature to measure the pure effect of events on stock prices.

By studying divestment pressures on the value of a firm's stock, we also contribute new evidence to the issue of whether demand curves for stocks slope down. For example, it is popularly believed that substantial changes in the supply of New York City bonds drove temporary changes in quoted yields (*Wall Street Journal,* July 21, 1991, p. C1). Harris and Gurel (1986) and Shleifer (1986) find that stock prices decreased (increased) when a stock was dropped from (added to) the Standard and Poor's (S&P) 500 basket. Shleifer further suggests a specific group of investors, index funds, that might have caused this stock price behavior.[4]

Because the public pressure for firms and institutional shareholders to divest from South Africa was perceived to have been especially strong, our study may also shed some light on the adequacy of the common presumption of asset-pricing models that investors care solely about the return characteristics of stocks, so that the firm's operations convey no differential benefits or costs other than those pertaining to stock returns on their investors.

Our article documents the size of the corporate involvement in South Africa and (more important) examines both how prices and institutional shareholdings changed in response to social and political pressures around the voluntary divestment decisions of U.S. firms with South African operations. We document that investments by public firms in South Africa were small and so were price reactions to the announcement of pressure and divestitures. Therefore, potential lost economic opportunities through the boycott were too small to be statistically or economically significant. Further, the demand for stocks is driven by many investors (and from many countries) with many different prefer-

4. Loderer, Cooney, and van Drunen (1991) find that, when new equity shares are issued, the value of outstanding equity declines while the value of outstanding, risky preferred stock does not. This opposite reaction may imply that firm value did not change unidirectionally and, thus, that the observed negative equity price reaction was due to downward-sloping demand curves.

ences, so that the withdrawal or return of even a large number of U.S. institutions from investing in large firms or in entire sectors seems to make very little difference to stock values. The results also indicate that any potential negative spillover effects from South African investments onto total profitability were likely small. Finally, throughout the period of most intense political pressure, the Johannesburg Stock Exchange reached new highs. Overall, the evidence indicates that it is unlikely that political shareholder activism has large wealth consequences.[5]

This article proceeds as follows: Section II describes the political and macroeconomic situation in South Africa in the 1980s, the period when the political pressure was most intense. In Section III, we briefly describe the data and the event-study methodology (standard in the finance and accounting literature). In Section IV, we describe the legislation leading to the Comprehensive Anti-Apartheid Act of 1986 and measure its effect both on U.S. banks (which were forced to curtail their South African operations) and on South African stock markets and exchange rates. In Section V, we follow the history of pension fund involvement and examine the effect of pension fund withdrawal on a portfolio of firms with operations in South Africa. In Section VI, we document changes in the institutional investor composition of firms that divested (more or less) voluntarily. In Section VII, we investigate the stock price reaction around these voluntary divestment announcements and relate them (among others) to institutional shareholder changes around the divestment date. In Section VIII, we plot the returns of the U.S. portfolios with involvement in South Africa throughout the 1980s to see if a casual observer could have concluded that involvement in or sanctions about South Africa hurt these firms. We summarize the findings and conclude in Section IX.

## II. Background

### A. *Political Events*

By the early 1970s an awareness of apartheid began to develop outside South Africa. Five major Protestant denominations in the U.S. (with 21 million members) began to exert pressure on U.S. companies operating in South Africa to improve the conditions of their black workers. In 1973, the Church of Christ proposed the first resolution at Mobil's annual shareholder meeting, demanding better working conditions for black employees. (It garnered only 2% of the vote.) In the same year, a number of banks began to restrict loans to South Africa, and

5. Other aspects of the pressure on South Africa may have been more successful. There were both cultural and sporting boycotts, and the anti-apartheid movement received direct infusions of capital from foreign sources.

some U.S. companies began to disclose their activities in South Africa. In South Africa itself, reports of lower pay for black miners in the international press helped in inducing Anglo American Corporation to improve the conditions for black workers. In 1975, black miners in South Africa's largest gold mine mounted the first strike to protest transfer of their wages back to their "black homelands." In 1976, Henry Kissinger announced that the United States would begin to use political and economic leverage to counter apartheid, although the United States had blocked a resolution demanding the ouster of South Africa from the United Nations as recently as 1974. Kissinger's announcement was followed by U.S. support for a UN weapons embargo that was enacted in 1977, but the United States continued to resist an economic embargo on South Africa. The year 1976 also saw the first large-scale violent race riots since 1960 in South Africa and a surge in strikes and demonstrations. In the following year, a number of U.S. firms adopted a set of principles aimed at fostering racially neutral policies in their South African operations. These principles were articulated by a Philadelphia Baptist minister and later came to be known as the Sullivan Principles. Also in 1977, Canada became the first major country to announce the phasing out of commercial operations in South Africa as a protest against apartheid. The late 1970s saw the beginnings of anti–South African union activism (the United Automobile Workers withdrew funds from banks providing loans to South Africa), more unsuccessful shareholder proposals at annual meetings, efforts by U.S. companies to racially integrate South African operations (e.g., Kodak, GM), and the withdrawals of university endowments from companies with South African operations, especially from those that would not sign on to the Sullivan Principles. In 1978, the House Banking Committee voted for legislative actions against South Africa, marking the first instance of anti-apartheid awareness in the legislative branches of the U.S. government. Racial unrest, strikes, and capital outflow in South Africa continued, and South Africa decided to float its previously fixed currency.

In 1980, Protestant and Roman Catholic churches (and some universities) continued to pledge to disinvest $250 million from banks with ties to South Africa. In South Africa itself, black workers mounted the first strike against the foreign subsidiary of Volkswagen. Still, overall, the early 1980s saw a general decline in shareholder activism and an attitude by the new Reagan administration more favorable toward trade with South Africa. In 1982, the International Monetary Fund (IMF) extended a loan to South Africa, overriding political objections. Internally, the South African government formalized and tightened its censorship of the press.

The political situation escalated dramatically during the years 1984–87. In 1984, Bishop Desmond Tutu received the Nobel Peace Prize

before a backdrop of domestic upheaval and violence (strikes, demonstrations, rioting, and arrests in Johannesburg, Soweto, and mining towns) and the beginnings of resistance against apartheid by white South African businessmen. This is clearly visible in the aggregate number of work stoppages (see fig. 1), which had averaged 200–400 per year from 1974 to 1985, tripled to 793 in 1986, and reached an all-time high of 1,148 in 1987. In the 2 "worst" years, 1986 and 1987, about half a million workers were involved in some labor action or another. (The unrest is not easily visible in the employment and wage data, however.) In the United States, increased news coverage of South African violence coincided with a surge in shareholder and policymaker activism. The Bank of Boston and Chase Manhattan halted new loan activities, and the Harvard and Columbia university endowments sold off shares in companies with operations in South Africa. The 1984–85 crisis also led European countries, who until then had either tacitly or actively (in the case of Great Britain) resisted economic sanctions against South Africa, to initiate trade restrictions. Denmark and France, followed by other European Economic Community countries (except Britain), and Canada banned investment in and oil trade with South Africa. (Japan followed in 1986–88, Israel in 1987.) In 1986, the United States enacted its major anti–South Africa legislation, the Comprehensive Anti-Apartheid Act of 1986, which restricted exports and loans to South Africa (see Section IV below). In the same year, the Reverend Leon Sullivan publicly renounced his own principles in favor of unequivocal divestment, and the pullout of U.S. and foreign corporations was in full swing, including such firms as PhibroSalomon, Revlon, Fluor, Dun and Bradstreet, Kodak, G.M., I.B.M., and Britain's Barclay's Bank. U.S. pension funds and universities continued to divest, and some Japanese and other foreign companies similarly began to pull out of South Africa.

In South Africa itself, the domestic situation continued to deteriorate with increasing rioting and demonstrations. South Africa's government asserted that it was "facing a revolutionary onslaught" and needed new powers to maintain security, including the right to detain people without trial for 180 days. On June 13, 1986, President P. W. Botha declared a state of emergency. Nevertheless, 1987 saw continued violence in South Africa. Police and protester clashes became an almost daily event. Protesters were attacking economic targets such as railways and trains, and fire bombings and grenade attacks became commonplace. Strikes continued, and U.S. and foreign corporations continued to leave South Africa.[6] By 1988, the daily violence in South Africa finally declined, and a dialogue between Pretoria and black leaders be-

6. Standard Chartered PLC sold its stake in Standard Bank Investment for $244 million, the largest divestment ever by a foreign company.

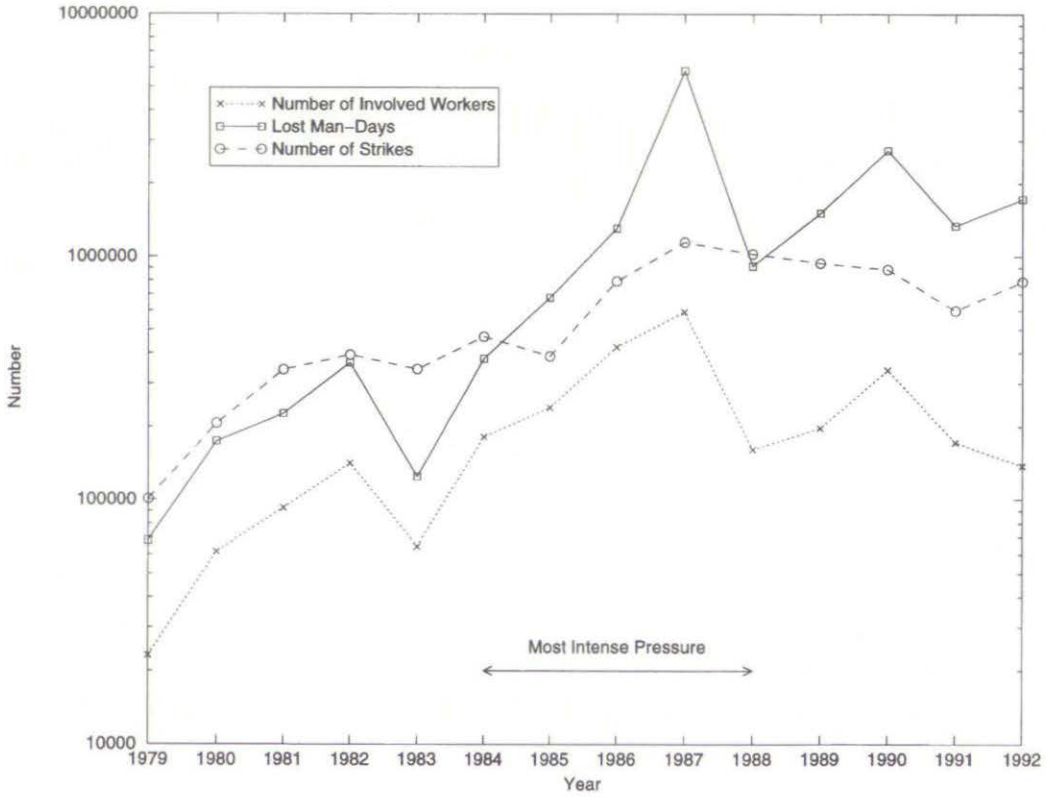


FIG. 1.—Social unrest. Data Source: International Monetary Fund (1979–92)

gan. Still, the (by now very few) remaining U.S. firms with South African operations continued to leave.

By 1989 and 1990, large nonviolent protests (under the leadership of Tutu and the white mayor of Cape Town) began to replace violent protests, F. W. De Klerk ousted the hardline P. W. Botha as prime minister, the African National Congress was legalized, and Nelson Mandela was freed. Apartheid came to an end, and Britain became the first country to lift all restrictions on new investment in South Africa in February 1990. In 1994, Mandela won the first democratic, nonracial elections, and remaining international sanctions were lifted.

### *B. Macroeconomic Performance*

South Africa had historically been the world's largest gold producer, accounting for about half of the world's output in the early eighties. The large inflow of foreign reserves must have somewhat alleviated South Africa's major economic and political difficulties for a long time. But the decline in the price of gold is generally perceived to have had a large economic effect on the South African economy throughout the 1980s. As figure 2 shows, gold hit its all-time high of $850/ounce in January 1980. The average gold price fell from US$613/ounce in 1980 to a low of $375 in 1982, briefly recovered to $424 in 1983, fell again to $317 in 1985, rose to $446 in 1987, and steadily declined to $340 by 1992. The U.S. Department of the Interior's 1988 *Minerals Yearbook* reports that the quantity of South African gold output remained steady at about 21.8 million ounces from 1980 through 1984 but then began to decline down to 19.9 million ounces in 1988 (perhaps associated with the mining strikes, bans on the trade of Krugerrands in the United States (and other countries) in 1984, and/or relatively high extraction costs at many South African mines).

Together, gold accounted for 36% of South Africa's exports in 1979, rose to 46% in 1980, kept at about 40% until the mideighties, and then dropped by about 2 percentage points per year down to 30% of exports by late 1990. With the price of gold falling to $334/ounce, South Africa was forced to withdraw the last of its foreign currency reserves lodged with the IMF, which further weakened the South African government's ability to withstand internal strife and international political and economic pressure.

The data indicate that world gold price decreases were associated with economic recessions in South Africa. Figure 3 plots real gross domestic production (GDP) for South Africa and three developed countries.[7] Unlike the developed Western nations that boomed after 1981, South Africa experienced significantly lower real GDP growth after

7. Each of the series are obtained in national currency units at 1990 prices, then divided by their base year 1975 GDP, and finally logged.

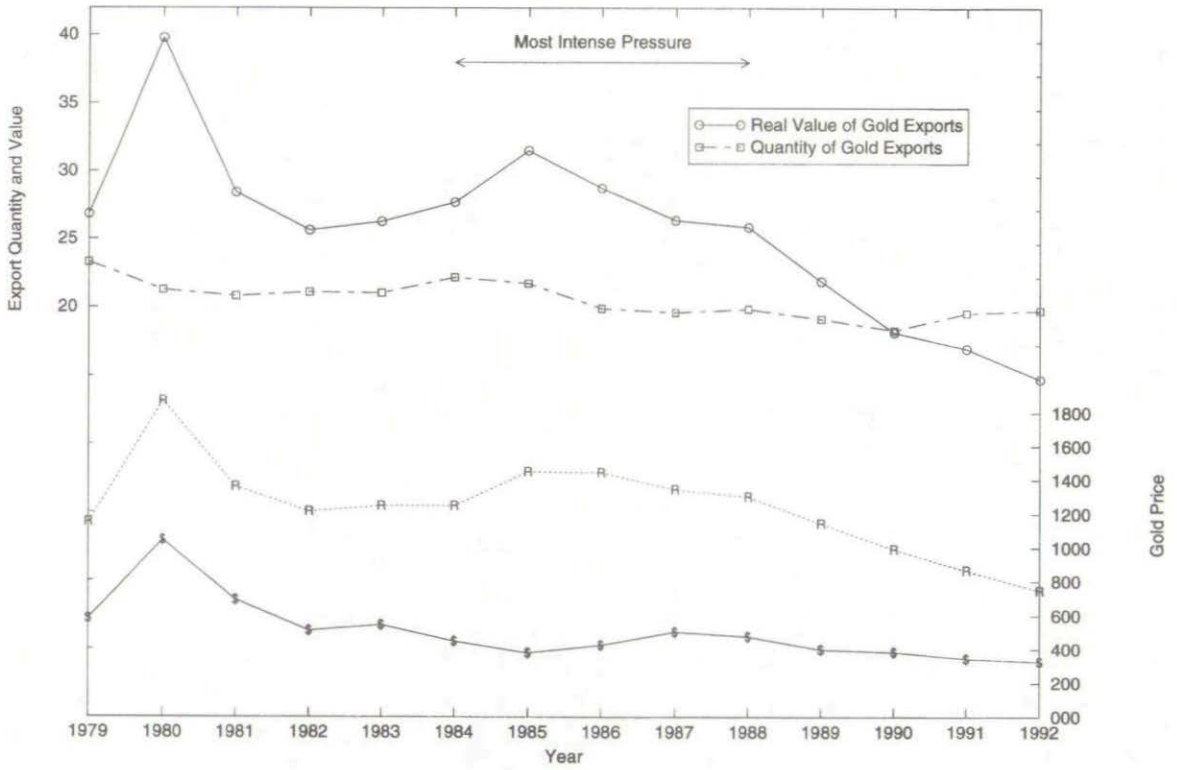


FIG. 2.—Gold related statistics. The quantity (in million ounces) and the revenues (in billion rand, adjusted to 1990 South African consumer price index terms) of gold exports from South Africa are graphed against the scale on the left axis. The prevailing real price per ounce of gold in rand and U.S. dollars (adjusted by 1990 local currency consumer price index terms) are graphed against the scale on the right axis. Data source: International Monetary Fund (1979–92).

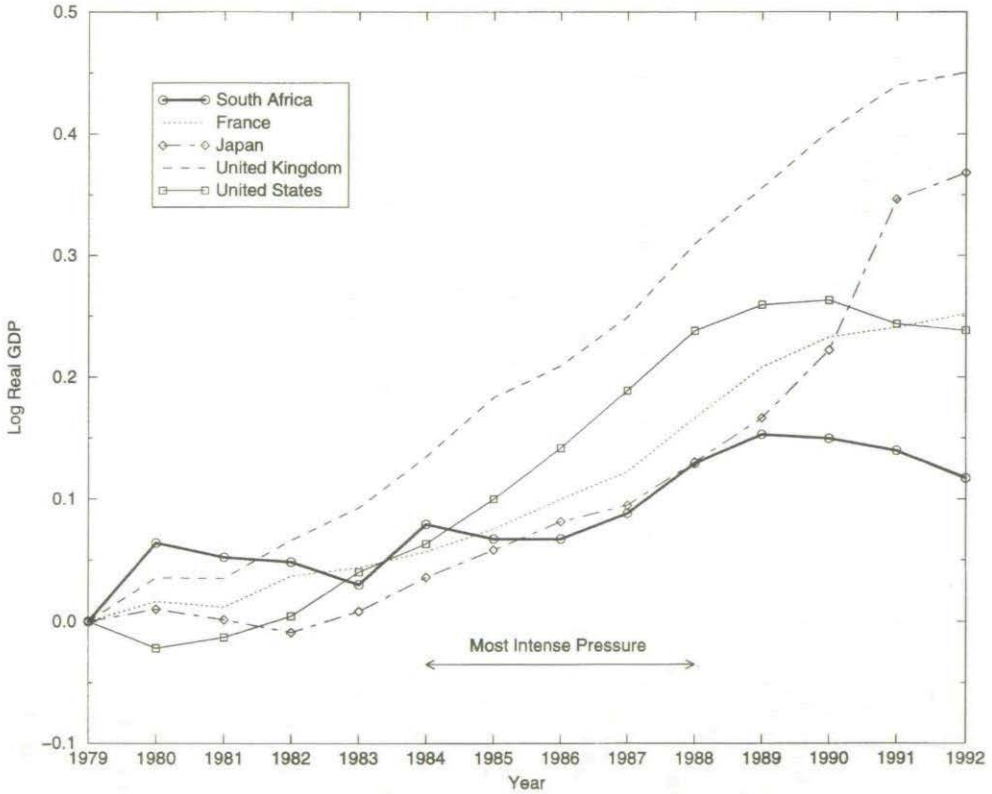


FIG. 3.—Gross domestic product. The log-GDP of South Africa and four developed nations minus the log-GDP in 1979 is graphed. Data source: International Monetary Fund (1979–92).

1981, when compared either to its own historical growth in the 1970s (not shown) or with the growths of these other nations. Although both the recession of 1981–83 and the recession of 1985–87 coincided with a decline in the world price of gold, only the latter recession occurred during a period of social unrest and international economic boycotts.

Political unrest and sanctions may have had a particularly large-scale effect on foreign trade statistics. Therefore, figure 4 graphs a measure of the openness of the economy (the sum of exports and imports divided by total GDP) for South Africa and five Organization for Economic Cooperation and Development countries. The years 1983 and 1987 saw relative declines in international trade in most countries, although South Africa's decline was unusually drastic from 1980 to 1983. More interesting, international trade appears to be somewhat "countercyclical" with respect to the political sanctions. The first foreign political pressure came on-line in the early 1980s, and the second in 1984–87, both periods of increasing international trade. The effects of the sanctions on either imports or exports are not visible, either. Exports were high in 1980, 1985, and 1986. Imports remained roughly stable from 1983 to 1989.

Figure 5 shows that South Africa experienced balance-of-payments current-account deficits during 1981–84, when South Africa was in a domestic expansion while its major trading partners (the United States and Great Britain) were in recessions. The reverse situation occurred in 1985–87, and thus it is difficult to ascertain whether it was the business cycle or the unrest and sanctions that caused exports to exceed imports. It is possible that the balance of payments reflected the difficulties of South Africa in obtaining imports from its trading partners. Similarly, net identified private capital suddenly began to leave South Africa in 1985, hitting an all-time high in 1985 of 6.5 billion rands (compared, e.g., to 15.5 billion rands in gold exports). In the third quarter of 1985, South Africa's total nongold reserves hit an all-time low of US$269 million, roughly one-half of its 1-year-prior equivalent and one-quarter of its 2-year-prior equivalent. Thus, South Africa withdrew its last reserves from the IMF in 1986. But this capital flight did not occur at "fire-sale" prices—the terms of trade held fairly steady after 1982 (fig. 5). Further, to combat capital flight, South Africa reinstated its system of dual exchange rates in September 1985 (after 2.5 years of one exchange rate), which in effect imposed a 10%–50% cost (depending on the prevailing relative exchange rates) for foreign capital to exit South Africa and an equivalent subsidy for foreign capital to enter.[8]

8. This presumes that the "commercial" rand rate was the "true" exchange rate, while the "financial" rand rate (applicable to foreigners) was an artificial rate. The percentage difference in exchange rates increased consistently after the dual exchange rate system was reinstated, starting at 10% in 1985 and reaching 50% by 1989.

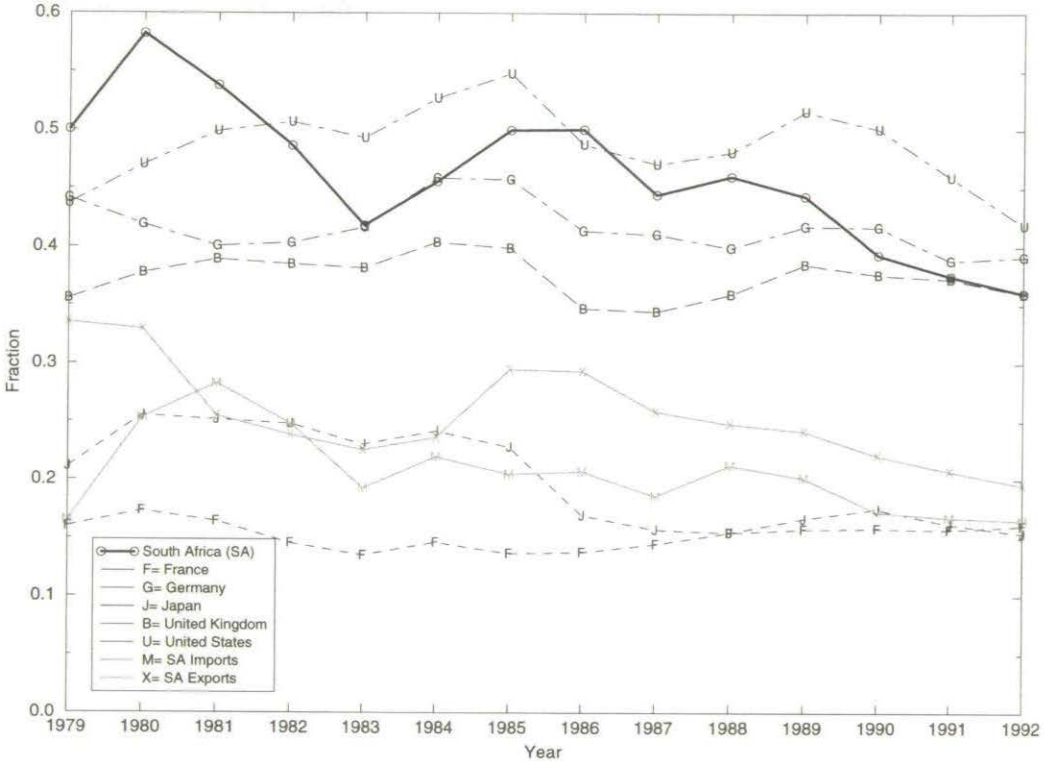


FIG. 4.—Economic openness. The sum of exports and imports, divided by GDP, is plotted for South Africa and five developed nations. South African series are plotted with thicker lines, and the South African export/GDP and import/GDP ratios are also graphed in lighter gray. Ratios are multiplied by 1 million.

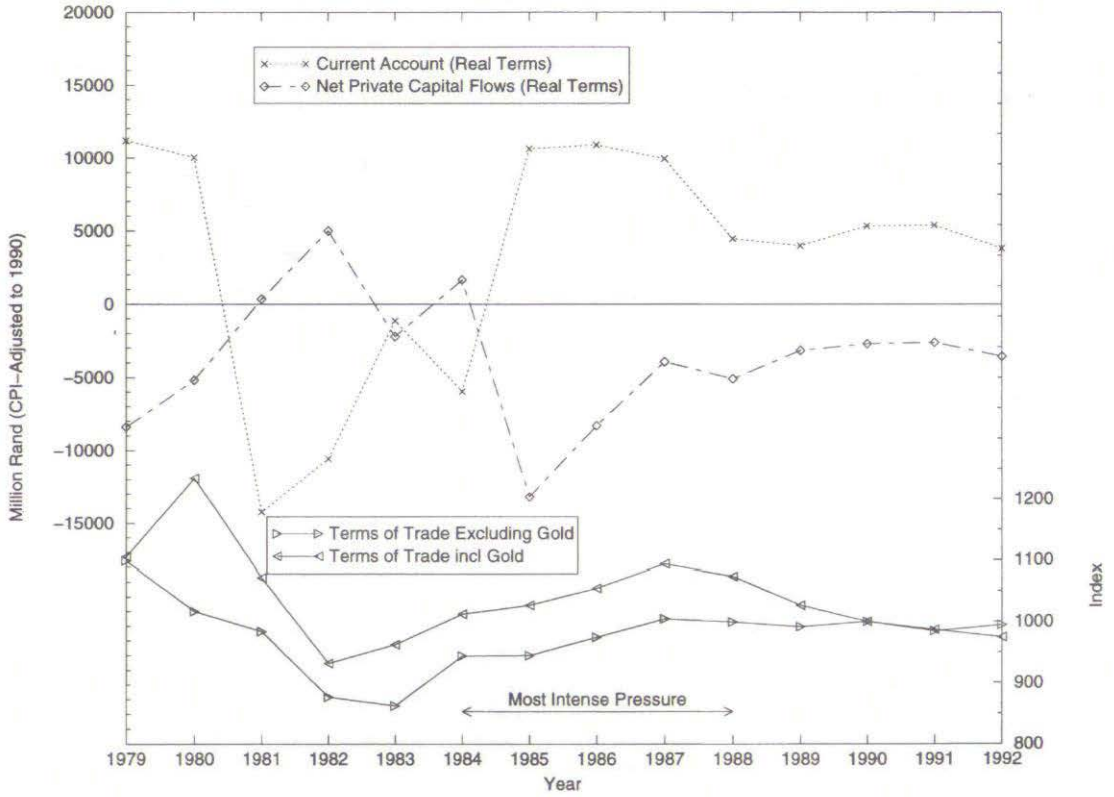


FIG. 5.—The current account and net private capital flows (both adjusted by 1990 South African consumer price index terms) are graphed against the scale on the left. The terms of trade, both with and without gold, are graphed against the scale on the right. The terms of trade are an index normalized to 1,000 in 1990.

Figure 6 plots the performance of the two main indices on the Johannesburg Stock Exchange (JSE). During most of the early period of intense pressure, both JSE indices actually rallied before dropping in the worldwide crash of 1987. The commercial rand, however, devalued in 1983 and 1984, declined from about 1.3 rand/U.S. dollar in late 1980 to 0.39 rand/U.S. dollar by late 1985.

In sum, during the years of intense political pressure (1984–88), the public could observe not only a large number of divesting firms and legislative foreign sanctions but also easily visible macroeconomic signs of flight of private capital from South Africa, measures by the South African government to combat capital flight, strikes and work stoppages, high inflation, and a recession. The media and the public could have interpreted this as evidence that the sanctions had an effect on South Africa. Yet an observer could equally well have noted that the recessions coincided with a decline in the world price of gold, that the stock market remained bullish, and that capital flight was not accompanied by a deterioration in the terms of trade.

## III. Data and Methods

We now proceed to the main part of this article, the announcement effect of the various sanctions on the financial markets. We begin with a brief description of the data and our event-study methodology, which tests if an event affects a firm (or portfolio), itself a variation of the methodology used in many previous studies.

### *A. Data Sources*

We obtained data on South African operations of American firms and on loans by American banks from the 1986, 1987, and 1989 annual editions of Bowers and Cooper's *U.S. and Canadian Investment in South Africa*, a publication of the Investor Responsibility Research Center, which was created to aid fund managers avoid firms with South African operations (see Bowers and Cooper 1986, 1987; Cooper 1987, 1989). Firms' voluntary divestment event dates and legislative event dates leading to the Comprehensive Anti-Apartheid Act of 1986 were collected from the Dow Jones News Retrieval service, which offers comprehensive coverage of historical broad tape, and the *Wall Street Journal*. Specific banks and firms, their characteristics, and dates used in this study are listed in three tables in appendix A.

The Center for Research in Security Prices (CRSP) provided all U.S. daily and monthly return data for firms, market, and industry. The market portfolio is the CRSP equally weighted portfolio. Industry portfolios are equally weighted portfolios of all firms with matching 4-digit standard industrial classification (SIC) codes, excluding the test firms. The market portfolio is substituted for the industry portfolio when no

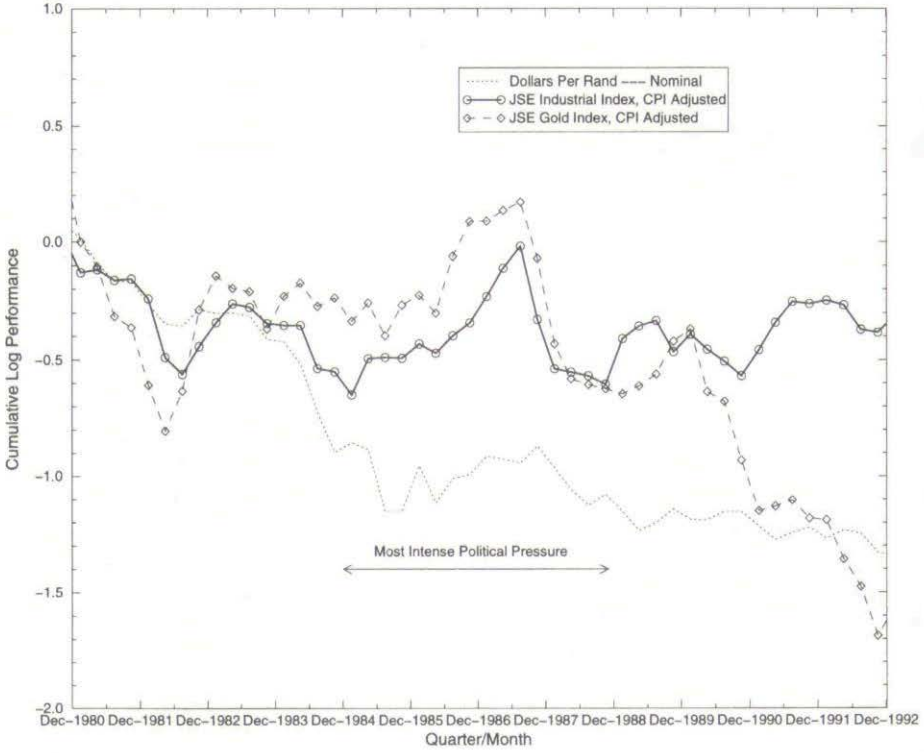


FIG. 6.—Period performance of South African financial series: inflation-adjusted Johannesburg Stock Exchange (JSE) indices and nominal U.S. dollar/commercial rand exchange rate. The figure plots cumulative log index returns net of equivalent log consumer price index rate differences. Data prior to 1989 are quarterly and from The International Monetary Fund (1979–88). The JSE Industrial Index and the JSE Gold Index are the two major South African stock indices. They are used in the event study in table 4. The exchange rate is the commercial rand/U.S. dollar rate and not adjusted for inflation. All series are normalized to a zero base in January 1980. The figure shows that neither the JSE gold index nor the JSE industrial index dropped during or before the period of most intense political pressure (1985–88). In contrast, the rand was devalued in 1983 and 1984, declining from about 1.3 rand/dollar in late 1980 to 0.39 rand/dollar by late 1985.

industry matches are found. Accounting data on sales, assets, and employees for individual firms are provided by Compustat. Institutional ownership data were hand-collected from the *Moody's Handbook of Common Stocks* (1985–86).

Daily interest rate data, used to construct a fixed-income factor, were collected from the Federal Reserve Historical Business Day Data. Interest rates are in daily and monthly yields in percent per annum for 1-year Treasury bills. Using 30-year Treasury bill data did not significantly alter the results, and so we do not report these results. For missing observations in the Federal Reserve data, which occur less than 1% of the time, we averaged the two surrounding days.

We hand-collected South African daily financial data from the *Financial Times*. The South African data consist of returns on the largest South African firm, Anglo-American Corporation, returns on two equity-based South African indexes (the Johannesburg Stock Exchange Industrial Index and the Johannesburg Stock Exchange Gold Index), and the commercial South African rand/U.S. dollar exchange rate.

### *B. Event-Study Methodology*

To measure the reaction of financial markets for a portfolio to an event of interest, we use a standard event-study methodology, described in detail in appendix B. Event studies assume primarily that financial markets update stock prices to reflect new information immediately, thereby preventing easy opportunities for market participants to trade profitably based on information released in the past. (If events are partially anticipated, the ultimate *resolution* of the residual uncertainty still provides a market response in the same direction, albeit of smaller magnitude.) Thus, researchers can interpret the market response at the announcement to be indicative of the influence of the event, and, by averaging multiple events, researchers can isolate the "signal" in the stock market "background noise."

Briefly, raw returns and abnormal returns are computed from a market-model type equilibrium model. This model uses three factors, a market return, an industry return, and a risk-free rate. Exposures to these factors are estimated from $-205$ to $-5$ days before each event date, and the model is fitted to event-day returns. For contemporaneous events, such as legislative events affecting many firms, computed standard errors derive from the model's time-series properties of the portfolio, not from the cross section. For asynchronous events, such as firm-specific voluntary divestment announcements, we compute standard errors in cross section (relaxing the time-series constant variance assumption). Results are reported for a 3-day window surrounding the event and, when space permits, for a 1-day event window.

The event-study method has been widely employed; it represents, perhaps, the most frequently used method in empirical corporate fi-

nance. But every event study faces information leakage, which reduces the power of the test. Our article considers two types of events—individual firm divestment announcements and legislative sanction announcements. For the former, leakage is unlikely because S.E.C. rule 10b-5 requires prompt disclosure by firms of any value-relevant information and we select only the earliest announcement of voluntary divestment. For the latter, protracted negotiations make prior anticipation of legislative sanctions more likely. However, the event-study method has been shown to be effective for investigating legislative events (e.g., Schipper, Thompson, and Weil 1987; Binder 1988; Prager 1989), even when published findings point at a statistically and economically insignificant financial market response to the imposition of sanctions. We were exceptionally careful to select the earliest disclosures of legislative events, using not only the traditional *Wall Street Journal* source but also other major newspapers (such as the *New York Times, Los Angeles Times,* and *Washington Post*) and the intraday Dow Jones broadtape. We also expanded the event window to include prior days (instead of merely the announcement day alone), and we went beyond a single legislative event-day to tracking the entire relevant legislative history. Therefore, the event-study method would likely be able to detect a significant effect, if any exists, because it is unlikely that all of the legislative events were fully anticipated.[9]

Ultimately, the only way to empirically accept or reject the view that the South African boycott had an effect on financial markets is to do the best possible job examining the data. In our view, finding either a significant or an insignificant response in this context should be of equal interest.

## IV. Political Pressure

### A. *Events Culminating in the Comprehensive Anti-Apartheid Act of 1986*

In 1985 and 1986, the U.S. government passed legislation imposing trade embargoes, currency sanctions, and lending restrictions. Specifically, it prohibited the import of South African uranium, coal, textiles, iron, steel, arms, ammunition, military vehicles, agricultural products, and foods. It transferred the South African sugar import quota to the

9. Specifically, in our context, the 1986 Anti-Apartheid Act was (1) passed by Congress, (2) vetoed by the president, and (3) passed over the president's veto. Even if there had been some degree of prior anticipation about the passage of the act, our approach is valid so long as financial markets were updating their priors at each stage in the process. Even if some legislative events were fully anticipated, and even if one quibbles with some of the individual events, it is unlikely that the overall legislative study would miss an important effect of sanctions.

Philippines and made the ban on gold Krugerrands permanent. It prohibited exporting to South Africa crude oil, petroleum products, ammunitions (enacting into U.S. law the UN-imposed international ban on arms exports), any nuclear materials or technology and to the South African military or police (or other agencies administering apartheid) the export of computers and computer services. It terminated landing rights for South African aircraft in the United States and barred U.S. airlines from South Africa. Perceived to be most important, though, was the act's prohibition on new public and private loans and investments (except reinvested profits) or other credits, except for educational, housing, or humanitarian purposes. The Comprehensive Anti-Apartheid Act of 1986 thus applied primarily to U.S. banks operating in South Africa.

We found 10 possibly important related legislative events from the Dow Jones News Retrieval. These 10 events were predicted to have affected the stock price reaction of publicly traded U.S. banks with South African loans either negatively (⊖) or positively (⊕), depending on whether an event raised or lowered the probability of ultimate sanction imposition.[10] The reader should note that classifying events required some judgment:

⊖ *March 10, 1985:* The White House imposed limited sanctions against South Africa and changed its stance from a policy of passive, sympathetic encouragement of change to one of active pressure on Pretoria. The sanctions would have banned the sale of computers to South African security agencies, barred most loans to the Pretoria government, proposed a ban on the importation of the Krugerrand, and prohibited most exports of nuclear technology.

⊕ *September 12, 1985:* The *Washington Post* reported that "the Senate, spurred by the Republican party, blocks a severe bill via filibuster that would have effectively banned all investment in South Africa. Democrats refuse to quit fighting against the 'racist' government of South Africa."

⊖ *June 19, 1986:* The House Foreign Affairs Committee approved sanctions aimed at limiting American business activity in South Africa by a 26-14 vote. This bill barred new loans and prohibited new investments by firms already operating in South Africa. The bill was presented to the House and approved. The *Wall Street Journal* reported that this bill was unlikely to be approved by the Senate, and President Reagan vowed to veto it.

10. Assume an act has an effect of +$100. An event that increases (decreases) the probability that the act will occur from 10% to 20% should increase (decrease) the stock market value by $10.

⊕ *July 23, 1986:* President Reagan opposed sanctions in a major televised speech, citing national security concerns and stating that "no single issue, no matter how important, can be allowed to override in this way all other considerations in our foreign policy." But the speech drew major bipartisan criticism, and many large newspapers, including the *Wall Street Journal,* the *Washington Post,* the *New York Times,* and the *Los Angeles Times,* reported that the speech did not appear to blunt the congressional drive for tough new sanctions.

⊕ *July 30, 1986:* President Reagan pledged to increase annual textile imports from South Africa by 4%.

⊖ *August 16, 1986:* The Senate passed legislation to impose sanctions on South Africa by a vote of 84-14. This bill would have barred new U.S. loans and investment in South Africa; banned imports of South African iron, steel, and agricultural products; and prohibited American firms from exporting crude oil to South Africa. To put this into perspective, the *Los Angeles Times* elaborated on this occasion that "the United States buys more than $118 million in rice, corn sugar and other agricultural products from South Africa each year, and Europeans spend about $450 million annually for South African fruits and vegetables. U.S. petroleum exports to South Africa account for an estimated $120 million in sales each year."

⊖ *September 13, 1986:* The *Los Angeles Times* reported that "the House gave final congressional approval Friday to legislation imposing economic sanctions on South Africa, and leaders of both parties pledged that Congress would override a threatened veto by President Reagan. By a vote of 308 to 77, the Democratic-controlled chamber approved the identical bill that the GOP-led Senate had passed . . . the margin of victory in both chambers far exceeded the two-thirds necessary to override a presidential veto."

⊕ *September 27, 1986:* President Reagan vetoed the bill, stating, "The sweeping and punitive sanctions are targeted at the labor intensive industries upon which the victimized people of South Africa depend for their very survival."

⊖ *September 30, 1986:* The House of Representatives voted decisively to override President Reagan's veto by a vote of 313-83.

⊖ *October 3, 1986:* The Republican-controlled Senate on Thursday overrode President Reagan's veto 78-21, and the sanctions became law. The *Los Angeles Times* printed, "The legislation bans all new U.S. investment in South Africa except in black-owned businesses; bars U.S. imports of iron, steel, coal, uranium, agricultural products and textiles from South Africa; transfers South Africa's sugar quota to the Philippines; revokes landing rights for South

African airliners; prohibits new bank loans to South Africa, and prohibits exports of oil or nuclear technology to South Africa, or computers to its military or police agencies. Many of these provisions will take effect immediately.''

### B. *The Impact of Legislative Events on U.S. Banks with Loans to South Africa*

We now examine the stock-price reaction on these 10 dates for a portfolio of nine banks with South African loans, listed in appendix table A1. If the sanctions reduced the value of these banks' outstanding loans (through an increase in defaults or a decrease in the value of the rand), future business opportunities (South Africa was considered to be a promising international growth market), or fixed investments in South Africa, financial markets should have appropriately reduced the value of these banks. Because some banks had a higher exposure to South African holdings, we examine not only the event reaction of an equally weighted bank portfolio but also a ''bank loan-weighted portfolio'' with each bank's weight in the portfolio determined by the 1985 ratio of its net loans made to South Africa over all its loans (from *Moody's Bank and Finance Manual;* see Moody's Investor Service 1984–87). For example, if 5% of bank A's loans were invested in South Africa while only 1% of bank B's loans were invested in South Africa, the weight of A would have been five times the weight of B in the portfolio.[11] When we are unable to determine the percentage of a bank's loans made to South Africa, the average from all remaining banks in the sample is used for that firm. The weights of individual banks in the portfolio are listed in table A1.

Table 1 shows the relevant stock price reactions to the 10 event dates and their statistical significances. The first three columns summarize the predicted return reactions, the event date, and an event mnemonic. The following four columns list portfolio mean abnormal raw and mean abnormal market-model adjusted returns and their $t$-statistics. (Significant $t$-statistics at the 10% level [two-sided] are shaded gray.) The remaining columns display results for variations on the event window length and the portfolio-type (equally weighted vs. bank-loan weighted).

The table shows that significant stock price reactions at the 10% level are scarce. They occur for the equally weighted bank portfolio

11. A weighted portfolio can be more efficient: consider two banks with \$100 in loans (or prospective business). Bank A holds all loans in South Africa, bank B holds only half of its loans in South Africa. Consider legislation that makes South African loans worthless. Bank A would drop 100% and bank B would drop 50%. The equal-weighted response would thus be $-75\%$, and the bank-weighted response would be a higher $2/3 \cdot (-100\%) + 1/3 \cdot (-50\%) = -83.3\%$. (By including both banks instead of only the bank with the highest holdings, other unrelated noise is reduced.)

**TABLE 1 The Impact of Legislative Events Related to South African Sanctions on U.S. Banks with South African Assets**

| | | | Equally Weighted | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | $t = 0$ | | | | $t = (-1, 0, +1)$ | | | |
| | | | Raw Returns | | Model Returns | | Raw Returns | | Model Returns | |
| Pred | Day | Action | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| − | March 10, 1985 | Reagan will impose loan currency sanction | −.208 | −.21 | .287 | .44 | −.427 | −.25 | .247 | .22 |
| + | September 12, 1985 | Senate Republicans block tough House bill | .646 | .67 | 1.318 | 2.02 | −1.156 | −.69 | .539 | .48 |
| − | June 19, 1986 | Senate approves trade embargo | −.595 | −.62 | −.712 | −1.09 | −.378 | −.23 | −.034 | −.03 |
| + | July 23, 1986 | Reagan opposes strict sanctions | .307 | .32 | .258 | .39 | .782 | .47 | 1.138 | 1.00 |
| + | July 30, 1986 | Reagan signs to increase South African textile imports | .107 | .11 | .001 | .00 | 1.411 | .84 | 2.492 | 2.20 |
| − | August 16, 1986 | Senate passes sanctions 84-14 | .145 | .15 | −1.122 | −1.72 | 1.368 | .82 | .976 | .86 |
| − | September 13, 1986 | House passes sanctions 308-77 | 1.551 | 1.60 | 1.510 | 2.31 | −.530 | −.32 | 1.243 | 1.10 |
| + | September 27, 1986 | Reagan vetoes bill | −1.064 | −1.10 | −.202 | −.31 | −2.079 | −1.24 | −2.345 | −2.07 |
| − | September 30, 1986 | House overrides veto 313-83 | −.400 | −.41 | −1.204 | −1.84 | −1.295 | −.77 | −2.002 | −1.77 |
| − | October 3, 1986 | Anti-Apartheid Act made law by Senate | .170 | .18 | .149 | .23 | 1.535 | .92 | .999 | .88 |
| Average, normalizing for "predicted" value | | | .067 | .22 | −.247 | −1.19 | .132 | .25 | −.039 | −.11 |

| | | | Bank Loan Weighted | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | $t = 0$ | | | | $t = (-1, 0, +1)$ | | | |
| | | | Raw Returns | | Model Returns | | Raw Returns | | Model Returns | |
| Pred | Day | Action | Returns | $t$-Statistics | Returns | $t$-Statistics | Returns | $t$-Statistics | Returns | $t$-Statistics |
| − | March 10, 1985 | Reagan will impose loan currency sanction | −.424 | −.40 | .102 | .14 | −.755 | −.41 | .009 | .01 |
| + | September 12, 1985 | Senate Republicans block tough House bill | −.269 | −.25 | .480 | .65 | −.772 | −.42 | 1.076 | .85 |
| − | June 19, 1986 | Senate approves trade embargo | −.493 | −.46 | −.639 | −.87 | −.416 | −.23 | .073 | .06 |
| + | July 23, 1986 | Reagan opposes strict sanctions | −.354 | −.33 | −.351 | −.48 | 1.551 | .84 | 1.977 | 1.56 |
| + | July 30, 1986 | Reagan signs to increase South African textile imports | −.428 | −.40 | −.538 | −.73 | .497 | .27 | 1.389 | 1.09 |
| − | August 16, 1986 | Senate passes sanctions 84-14 | −.344 | −.32 | −.418 | −.57 | .593 | .32 | .027 | .02 |
| − | September 13, 1986 | House passes sanctions 308-77 | 1.561 | 1.47 | 1.604 | 2.19 | .302 | .16 | 2.214 | 1.74 |
| + | September 27, 1986 | Reagan vetoes bill | −1.322 | −1.24 | −.354 | −.48 | −2.208 | −1.20 | −2.415 | −1.90 |
| − | September 30, 1986 | House overrides veto 313-83 | −.108 | −.10 | −.969 | −1.32 | −1.086 | −.59 | −1.804 | −1.42 |
| − | October 3, 1986 | Anti-Apartheid Act made law by Senate | .041 | .04 | .009 | .01 | .529 | .29 | −.165 | −.13 |
| Average, normalizing for "predicted" value | | | .261 | −.13 | .045 | .04 | .010 | −.13 | −.167 | −.00 |

NOTE.—Abnormal stock price movements of U.S. banks with South African loans at legislative event-days leading to the 1986 Anti-Apartheid Act, which, among its provisions, restricted U.S. bank operations in South Africa. The "Pred" column specifies whether the predicted event effect was positive or negative under the hypothesis that banks were harmed by the act. The equally weighted portfolio consists of nine banks with loans to South Africa; the bank-loan weighted portfolio weighs banks according to their ratio of loans to South Africa over total loans. (For details on these portfolios, see table A1.) The "$t = 0$" columns use returns computed only for the event-day; the "$t = (-1, 0, +1)$" columns use returns computed for the 3 days around the event. The model return is computed from a market-model type regression,

$$A_{i,t} = R_{i,t} - \alpha_i - \beta_{1,i} - R_{m,t} - \beta_{2,i}R_{\text{industry},t} - \beta_{3,i}R_{\text{TB},t},$$

where $R_{i,t}$ is the firms' raw return (on the Center for Research in Security Prices [CRSP]), tapes, $R_{m,t}$ is the CRSP equally weighted portfolio, $R_{\text{industry},t}$ is the equally weighted portfolio of companies with the same 4-digit standard industrial classification code, and $R_{\text{TB}}$ is the daily yield in percent per annum for 1-year Treasury bills. The beta coefficients were estimated from 205 days to 5 days prior to the event. The final row computes a sign-weighted sum of returns from the previous rows, in which events classified to be positive were multiplied by −1. The $t$-statistic is computed by taking the sign-weighted sum of the $t$'s divided by the square root of the number of event dates. Under the hypothesis that banks were hurt by legislative sanctions, the expected sum would be negative. All returns are quoted in percent. Shaded $t$-statistics are significant at the 10% level or better.

only for 1-day model returns on four of the 10 event dates (September 12, 1985; August 16, 1986; September 13, 1986; and September 30, 1986) and for 3-day model returns on three of the 10 event dates (July 30, 1985; September 27, 1986; and September 30, 1986). For the portfolio of banks weighted according to South African holdings, reactions at the 10% level are also infrequent. They occur only on September 13, 1986 for the 1-day window and on September 13, 1986, and September 27, 1986 for the 3-day event window. Significant stock price reactions at the 5% level are even less frequent, occurring for approximately half of the above mentioned dates. Presumably, bank-loan weighted portfolios are the more appropriate indicators of the effect of legislative events, so more credence might be given to the evidence from the bank-weighted results. However, only September 13, 1986 and September 27, 1986 appear significant for bank-weighted results, but the estimated coefficients are of the wrong signs from those expected under the alternative hypothesis. Given the generally weak and sometimes opposing results, we conclude that there is no evidence that the market perceived any individual event date leading to the Comprehensive Anti-Apartheid Act of 1986 to have had a significantly adverse effect on banks with South African operations.

The final row of table 1 examines the hypothesis that the 10 event dates together had a consistent effect. Thereto, we consider the returns for all event dates, multiplying returns expected to be negative ($\ominus$) by $-1$. Under the alternative hypothesis that banks were hurt by the act, we expect a negative reaction (multiplied by the expected sign, we expect positive totals). Again, we are unable to detect an overall significant reaction at conventional levels, and thus we conclude that the legislative events as a whole did not seem to affect the bank portfolios.

The lack of significance can be rationalized ex post by the small size of the loan portfolios held by these banks, with the most involved bank holding only about 1.6% of all its loans in South Africa. Thus, the results are surprising only to the extent that legislators, bankers, and the public paid such close attention to this issue. The Comprehensive Anti-Apartheid Act of 1986 was not of significant consequence as far as the U.S. banking sector was concerned.

### C. *The Effect of Legislative Events on South African Financial Markets*

The purpose of the sanctions was, of course, not to hurt U.S. banks but the South African economy. With scarce capital providers, the relatively smaller South African economy,[12] and the possibility that other countries were about to follow the U.S. lead, there may have been a

12. Loans to South Africa by the U.S. banks in our sample were approximately $1.3 billion in 1985. This represented about 5.7% of South Africa's $23 billion external debt.

negative effect on the South African financial series, even though there was none for U.S. banks. To determine the effect, if any, we examine the event reactions on (i) the largest South African firm, Anglo-American Corporation; (ii) two stock-based indexes, the Johannesburg Stock Exchange Gold Index and Industrial Index;[13] and (iii) the U.S. dollar/South African commercial rand exchange rate. As to the first two, if U.S. sanctions had a negative predicted effect on South African future earnings or an increasing effect on the South African real interest rates, we would observe an adverse response (by a forward-looking stock-market capitalizing future earnings) to an increase in the probability of sanctions. Similarly, if sanctions limited the use of South African rands, we would also predict a deterioration of the exchange rate on days on which the probability of sanctions increased.

Table 2 describes the reaction of the South African series to the U.S. legislative events. Anglo-American's market-model abnormal returns responded significantly to four of the 10 event dates, but the estimated coefficients have signs opposite to those hypothesized under the alternative hypothesis in all four cases. Similarly, the gold index responded significantly on three dates, and again opposite to those hypothesized under the alternative hypothesis on all three dates. The industrial index responded significantly positively to Reagan's opposition of the South Africa sanctions (July 23, 1986) and also positively (though less significantly) to the Senate trade embargo proposition, contrary to the alternative hypothesis. Finally, the exchange rate responded negatively (as predicted) only to the House vote on September 13, 1986.

As in the previous table, the last row in table 2 summarizes all 10 event dates, multiplying the returns on negative events by $-1$. Again, taking returns from all 10 event dates, Anglo-American Corporation and the Gold Index show an inconsistent statistically significant positive reaction to increases in the likelihood of sanctions. If we had wanted to conclude that U.S. legislative sanctions helped Anglo-American or the South African Gold Index, ironically we would have had the statistical evidence. This can possibly be rationalized by a hypothesis that sanctions not only restricted South African firms' access to foreign markets but that they also limited potential entry of foreign companies into the South African market. Consequently, although the sanctions would have negatively affected South Africa as a whole, corporations might have been among the winners. Another ex post hypothesis consistent with the evidence would be that sanctions hurt the intended target (the firm) less and the firms' employees more. The reduction in firms' wage bills (through higher aggregate unemploy-

13. Model returns are not given for the JSE Industrial Index because this index is used as a proxy for the South African market. We did not include industry or fixed-income factors for lack of data.

**TABLE 2 The Impact of Legislative Events Related to South African Sanctions on South African Financial Series**

| | | | Anglo American Corp. | | | | JSE Gold Index | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mean Adjusted | | Market Model | | Mean Adjusted | | Market Model | |
| Pred | Date | Action | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| − | March 10, 1985 | Reagan will impose loan currency sanction | −1.012 | −.35 | −1.068 | −.37 | 6.247 | 2.12 | 5.910 | 2.01 |
| + | September 12, 1985 | Senate Republicans block tough House bill | 1.758 | .61 | 1.459 | .51 | 1.567 | .53 | 1.303 | .44 |
| − | June 19, 1986 | Senate approves trade embargo | 10.57 | 3.69 | 9.853 | 3.45 | 4.637 | 1.57 | 3.988 | 1.36 |
| + | July 23, 1986 | Reagan opposes strict sanctions | −6.072 | −2.12 | −5.934 | −2.08 | −2.543 | −.86 | −2.414 | −.82 |
| + | July 30, 1986 | Reagan signs to increase South African textile imports | 1.168 | .41 | .719 | .25 | 3.977 | 1.35 | 3.577 | 1.22 |
| − | August 16, 1986 | Senate passes sanctions 84-14 | 2.818 | .98 | 2.842 | 1.00 | 5.397 | 1.83 | 5.296 | 1.80 |
| − | September 13, 1986 | House passes sanctions 308-77 | 5.298 | 1.85 | 4.951 | 1.73 | 4.787 | 1.62 | 4.479 | 1.52 |
| + | September 27, 1986 | Reagan vetoes bill | −4.812 | −1.68 | −4.594 | −1.61 | −3.273 | −1.11 | −3.072 | −1.04 |
| − | September 30, 1986 | House overrides veto 313-83 | −4.812 | −1.68 | −4.541 | −1.59 | −.893 | −.30 | −.644 | −.22 |
| − | October 13, 1986 | Anti-Apartheid Act made law by Senate | 5.048 | 1.76 | 4.936 | 1.73 | 8.607 | 2.92 | 8.511 | 2.89 |
| Average, normalizing for "predicted" value | | | 2.587 | 2.86 | 2.532 | 2.81 | 2.905 | 3.11 | 2.815 | 3.02 |

| | | | JSE Industrial Index | | | | Rand/Dollar Exchange Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mean Adjusted | | Market Model | | Mean Adjusted | | Market Model | |
| Pred | Date | Action | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| − | March 10, 1985 | Reagan will impose loan currency sanction | −.205 | −.18 | N.A. | N.A. | −2.593 | −1.24 | −2.540 | −1.22 |
| + | September 12, 1985 | Senate Republicans block tough House bill | −.375 | −.34 | N.A. | N.A. | −3.213 | −1.54 | −2.945 | −1.42 |
| − | June 19, 1986 | Senate approves trade embargo | 1.995 | 1.80 | N.A. | N.A. | −1.033 | −.49 | −.387 | −.19 |
| + | July 23, 1986 | Reagan opposes strict sanctions | 3.915 | 3.53 | N.A. | N.A. | .027 | .01 | −.092 | −.04 |
| + | July 30, 1986 | Reagan signs to increase South African textile imports | −1.565 | −1.41 | N.A. | N.A. | −.813 | −.39 | −.412 | −.20 |
| − | August 16, 1986 | Senate passes sanctions 84-14 | −1.035 | −.93 | N.A. | N.A. | −.243 | −.12 | −.261 | −.13 |
| − | September 13, 1986 | House passes sanctions 308-77 | −.755 | −.68 | N.A. | N.A. | −4.613 | −2.21 | −4.302 | −2.07 |
| + | September 27, 1986 | Reagan vetoes bill | .045 | .04 | N.A. | N.A. | −1.963 | −.94 | −2.153 | −1.04 |
| − | September 30, 1986 | House overrides veto 313-83 | .185 | .17 | N.A. | N.A. | −1.293 | −.62 | −1.530 | −.74 |
| − | October 13, 1986 | Anti-Apartheid Act made law by Senate | .325 | .29 | N.A. | N.A. | −1.243 | −.59 | −1.141 | −.55 |
| Average, normalizing for "predicted" value | | | −.151 | −.30 | N.A. | N.A. | −.506 | −.72 | −.456 | −.68 |

NOTE.—Abnormal stock price movements of South Africa's largest firm (Anglo-American Corporation), two indexes (Johannesburg Stock Exchange Gold Index and Industrial Index), and the South African commercial rand/U.S. dollar exchange rate at legislative event-days leading to the 1986 Anti-Apartheid Act. The "Pred" column specifies whether the predicted event effect was positive or negative under the hypothesis that the act harmed the South African economy. Returns are computed for the 3 days "$t = (-1, 0, +1)$" around the event, Market model returns are computed from a standard market model regression

$$A_{i,t} = R_{i,t} - \alpha_i - \beta_i R_{m,t},$$

where $R_{m,t}$ is the JSE Industrial Index. For this reason, market model returns are not available for the industrial index. The beta coefficients were estimated from 205 days to 5 days prior to the event. The final row computes a weighted sum of returns from the previous rows, in which events classified to be positive were multiplied by −1. The average *t*-statistic is computed by taking the weighted sum of the *t*'s and dividing by the square root of the number of event dates. Under the hypothesis that indexes and exchange rates were hurt by U.S. legislative sanctions, the expected sum would be negative. All returns are quoted in percent. Shaded *t*-statistics are significant at the 10% level or better. N.A. = not available.

ment) could have outweighed the loss of product sales. In sum, there is little evidence that South African financial markets or its exchange rate were *adversely* affected by legislative events leading to the passage of the Comprehensive Anti-Apartheid Act of 1986.

## V. Private Pressure from Investors on Corporations

If government pressure to divest was not effective, perhaps private pressure by pension funds played a more significant economic role. We discuss pressure from private investors next.

### *A. The History of Pension Fund Involvement*

In the spring of 1980, the Protestant and Roman Catholic Churches threatened to divest $250 million from banks doing business in South Africa in reaction to the continued apartheid policies of the South African government. The Catholic, Episcopal, Lutheran, and Methodist churches subsequently divested themselves of firms with operations in South Africa or firms not adhering to anti-apartheid principles.[14] Similar actions by stockholders led to the rapid adoption of socially activist investment policies. In May 1984, the first iteration of the Sullivan Principles were published. Companies operating in South Africa without observing these principles became subject to civil sanctions. The Sullivan Principles were a set of criteria, devised by the Reverend Leon Sullivan, by which firms were ranked based on their operating procedures with regard to apartheid. These principles were divided into six categories. Higher levels subsumed previous levels:

1. nonsegregation of the races in all eating, comfort and work facilities;
2. equal and fair employment practices;
3. equal pay for all employees doing equal or comparable work for the same period of time;
4. initiation of and development of training programs that would prepare, in substantial numbers, blacks and other nonwhites for supervisory, administrative, clerical, and technical jobs;
5. increases in the number of blacks and other nonwhites in management supervisory positions; and
6. improvements in the quality of employees' lives outside the work environment in such areas as housing, transportation, schooling, recreation, and health facilities.

14. "Baltimore Church Plans to Divest: Anti-Pretoria Action Would Be First by a Catholic Diocese (Archdiocese of Baltimore Will Divest Itself of Holdings in South Africa)," *New York Times* (August 28, 1986); "Divestment Plan Approved by Episcopal Church Group," *New York Times* (September 13, 1985); "Church to Divest Millions in Apartheid Protest," *New York Times* (August 30 1989); "Divestment Plan is Approved (United Methodist Board of Pensions to Sell Businesses in South Africa), " *New York Times* (July 11, 1987).

Sullivan himself rejected these principles in August 1986, and many funds began to divest themselves even of companies following the Sullivan Principles. The pressure by pension funds and other shareholders on firms to divest was seen to be substantial. For example, the State of California Pension Fund divested itself of $9.5 billion worth of shares in companies holding South African subsidiaries. Such pressure and a continuously worsening institutional environment for U.S. companies' South African subsidiaries seemed to have had an effect on companies doing business in South Africa, as evidenced by a long list of companies eventually divesting themselves from South Africa (see app. A, table A3), including major U.S. corporations such as IBM, Exxon, Ford, GM, and Chrysler.

### *B. The Effect of Pension Fund Divestment Announcements on U.S. Firms with Large South African Operations in 1985*

We examine the effect of 16 pension fund divestments, which yield a total of 25 daily and monthly events with 21 distinct dates, on a portfolio of the firms with the highest exposure (relative operations) in South Africa in 1985. Following the Investor Responsibility Research Center data in *U.S. and Canadian Investment in South Africa* (see Bowers and Cooper 1986, 1987; Cooper 1987, 1989), the portfolio consists of 17 companies that satisfy one of the following criteria as of 1985:[15] (1) more than $100 million in South African sales; (2) generated more than 2% of their total sales in South Africa; (3) owned assets valued at more than $50 million in South Africa; (4) held more than 2% of their total assets in South Africa; or (5) had more than 2,000 employees in South Africa.[16]

As before, we compute an equal-weighted and three weighted portfolios using as weights the U.S. firms' relative percentage of sales, assets, and employees in South Africa. (The U.S. totals to compute the worldwide sales, assets, and employees were obtained from Compustat.) When we are unable to compute the fraction of sales, assets, or employees generated in South Africa, we substitute the average from the remaining firms. Furthermore, weights are normalized for ownership. For example, if firm A owned 50% of a South African subsidiary, and the subsidiary had sales of $10 million, then for the purposes of our study we let firm A show sales of $5 million. Appendix table A2 describes these 17 firms and their portfolio weights.

Table 3 describes the portfolio price response to the divestment announcements by nine pension funds for which we could ascertain a single publicly announced event day (panel A) and for an additional

15. Coca-Cola divested on September 17, 1986, before the California pension fund divestment. Consequently, we reduced the portfolio to 16 firms for this event.

16. Of 27 initial candidates, 10 firms had to be removed for lack of CRSP data.

**TABLE 3 The Impact of U.S. Pension Fund Divestment Announcements on U.S. Firms with High South African Exposure**

| | | | Equal Weighted | | | | Sales Weighted | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Raw Returns | | Model Returns | | Raw Returns | | Model Returns | |
| $ | Date | Divestor | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| A. Single publicly announced event-day: | | | | | | | | | | |
| 105 | January 4, 1983 | Massachusetts | .102 | .06 | −1.867 | −2.21 | .162 | .09 | −1.612 | −1.54 |
| 900 | August 30, 1984 | New York City | .536 | .31 | .117 | .14 | .654 | .36 | .202 | .19 |
| 335 | April 30, 1985 | San Francisco | −1.763 | −1.01 | −.095 | −.11 | −.919 | −.51 | .818 | .78 |
| 150 | July 23, 1985 | Oakland, Calif. | −.891 | −.51 | −.045 | −.05 | −.725 | −.40 | .188 | .18 |
| 600 | August 16, 1985 | Los Angeles | −.757 | −.43 | −.120 | −.14 | −1.127 | −.62 | −.374 | −.36 |
| 513 | May 15, 1985 | West Virginia | −1.797 | −1.03 | −.851 | −1.01 | −1.227 | −.68 | −.390 | −.37 |
| 700 | May 30, 1986 | Chicago | .598 | .34 | 1.045 | 1.24 | .756 | .42 | 1.170 | 1.12 |
| 225 | August 18, 1986 | Santa Barbara | −.433 | −.25 | −.633 | −.75 | −.137 | −.08 | −.155 | −.15 |
| 9,500 | September 27, 1986 | California | 1.528 | .88 | 1.317 | 1.56 | 1.559 | .86 | 1.506 | 1.44 |
| Equally weighted | | | −.320 | −.55 | −.126 | −.44 | −.112 | −.19 | .150 | .43 |
| Value weighted | | | .113 | .20 | .106 | .38 | .121 | .20 | .128 | .37 |

B. Monthly event date:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | June 1982 | Connecticut | .876 | .23 | 3.760 | 2.40 | −.666 | −.14 | 3.347 | 1.59 |
| 105 | January 1983 | Massachusetts | 2.189 | .56 | −1.847 | −1.18 | 3.314 | .72 | −1.106 | −.53 |
| 900 | August 1984 | New York City | 12.916 | 3.32 | 2.240 | 1.43 | 13.498 | 2.92 | .522 | .25 |
| 150 | January 1985 | Cincinnati | 6.348 | 1.63 | −4.715 | −3.01 | 6.001 | 1.30 | −6.036 | −2.87 |
| 335 | April 1985 | San Francisco | −.635 | −.16 | 1.937 | 1.24 | −.933 | −.20 | 2.485 | 1.18 |
| 141 | June 1985 | Rhode Island | 1.672 | .43 | −.300 | −.19 | 2.033 | .44 | −.073 | −.03 |
| 150 | July 1985 | Oakland, Calif. | .272 | .07 | −1.584 | − 1.01 | 1.718 | .37 | −.476 | −.23 |
| 600 | August 1985 | Los Angeles | −1.518 | −.39 | −.683 | −.44 | −2.180 | −.47 | −.602 | −.29 |
| 100 | | Colorado | | | | | | | | |
| 2,700 | | New Jersey | | | | | | | | |
| 1,100 | October 1985 | Minnesota | 1.617 | .42 | −2.650 | −1.69 | .902 | .19 | −3.660 | −1.74 |
| 513 | May 1986 | W. Virginia | 6.522 | 1.68 | 2.267 | 1.45 | 4.705 | 1.02 | .416 | .20 |
| 700 | | Chicago | | | | | | | | |
| 225 | August 1986 | Santa Barbara | 8.954 | 2.30 | 3.723 | 2.38 | 6.284 | 1.36 | .811 | .39 |
| 800 | | New York City | | | | | | | | |
| 9,500 | September 1986 | California | −2.772 | −.71 | 1.561 | 1.00 | −1.505 | −.33 | 4.535 | 2.16 |
| Equally weighted | | | 3.037 | 2.71 | .309 | .69 | 2.764 | 2.07 | .014 | .02 |
| Value weighted | | | .002 | .00 | .083 | .18 | .023 | .02 | .179 | .30 |

**TABLE 3** *(Continued)*

| | | | Asset Weighted | | | | Employee Weighted | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Raw Returns | | Model Returns | | Raw Returns | | Model Returns | |
| $ | Date | Divestor | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| A. Single publicly announced event-day: | | | | | | | | | | |
| 105 | January 4, 1983 | Massachusetts | .069 | .04 | −1.622 | −1.32 | .241 | .13 | −1.514 | 1.59 |
| 900 | August 30, 1984 | New York City | .808 | .41 | .373 | .30 | .902 | .50 | .498 | .52 |
| 335 | April 30, 1985 | San Francisco | −.849 | −.43 | 1.003 | .81 | −1.062 | −.59 | .715 | .75 |
| 150 | July 23, 1985 | Oakland, Calif. | −.781 | −.40 | .188 | .15 | −.999 | −.56 | .005 | .01 |
| 600 | August 16, 1985 | Los Angeles | −1.130 | −.58 | −.312 | −.25 | −.907 | −.51 | −.094 | −.10 |
| 513 | May 15, 1985 | West Virginia | −1.266 | −.65 | −.390 | −.32 | −1.553 | −.87 | −.618 | −.65 |
| 700 | May 30, 1986 | Chicago | .680 | .35 | 1.140 | .93 | 1.326 | .74 | 1.813 | 1.91 |
| 225 | August 18, 1986 | Santa Barbara | −.079 | −.04 | −.002 | .00 | −.701 | −.39 | −.733 | −.77 |
| 9,500 | September 27, 1986 | California | 1.450 | .74 | 1.445 | 1.17 | .931 | .52 | .927 | .98 |
| Equally weighted | | | −.122 | −.19 | .203 | .49 | .202 | −.57 | .111 | .33 |
| Value weighted | | | .113 | .17 | .125 | .30 | .073 | .95 | .086 | 1.15 |

B. Monthly event date:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | June 1982 | Connecticut | −1.254 | −.25 | 3.458 | 1.36 | −.664 | −.16 | 2.824 | 1.61 |
| 105 | January 1983 | Massachusetts | 3.037 | .62 | −1.259 | −.50 | 2.665 | .64 | −.684 | −.39 |
| 900 | August 1984 | New York City | 14.052 | 2.85 | 1.028 | .41 | 13.486 | 3.25 | 1.900 | 1.08 |
| 150 | January 1985 | Cincinnati | 5.932 | 1.20 | −5.885 | −2.32 | 5.950 | 1.43 | −5.106 | −2.90 |
| 335 | April 1985 | San Francisco | −1.528 | −.31 | 2.608 | 1.03 | −.788 | −.19 | 2.854 | 1.62 |
| 141 | June 1985 | Rhode Island | 1.677 | .34 | −.009 | .00 | 2.521 | .61 | 1.053 | .60 |
| 150 | July 1985 | Oakland, Calif. | 1.992 | .40 | −.349 | −.14 | 1.073 | .26 | −.441 | −.25 |
| 600 | August 1985 | Los Angeles | −2.067 | −.42 | .220 | .09 | −1.272 | −.31 | .397 | .23 |
| 1,100 | October 1985 | Minnesota | .159 | .03 | −3.844 | −1.52 | .916 | .22 | −3.624 | −2.06 |
| 513 | May 1986 | W. Virginia | 4.473 | .91 | .422 | .17 | 6.378 | 1.54 | 2.679 | 1.52 |
| 225 | August 1986 | Santa Barbara | 5.823 | 1.18 | 1.668 | .66 | 7.193 | 1.73 | 2.526 | 1.44 |
| 9,500 | September 1986 | California | −.729 | −.15 | 5.505 | 2.17 | −1.537 | −.37 | 4.122 | 2.34 |
| Equally weighted | | | 2.631 | 1.85 | .297 | .41 | 2.993 | 2.50 | .708 | 1.40 |
| Value weighted | | | .052 | .04 | .240 | .33 | .049 | .04 | .205 | .40 |

NOTE.—Abnormal stock price movements of 17 U.S. firms satisfying at least one of the following criteria as of 1985. (The Coca-Cola Co. divested itself of South African assets on September 17, 1986, prior to the California pension fund divestment; hence, it is not included in the California event, and the sample size for that event is 16): (1) more than $100 million in South African sales; (2) generated more than 2% of their total sales in South Africa; (3) owned assets valued at more than $50 million in South Africa; (4) held more than 2% of their total assets in South Africa; (5) had more than 2,000 employees in South Africa, at pension fund event dates. (When the description was "less than" for these criteria, we subtracted 10%). The "$" column gives U.S. dollar values in millions divested by each pension fund. The sales-, asset-, and employee-weighted portfolios weigh firms according to their ratio of sales, assets, and employees in South Africa to their net total. Panel A uses returns computed 3 days ($t = -1, 0, +1$) around the event. Panel B uses returns computed for the month during which the divestment occurred. The model return is computed from a market-model type regression,

$$A_{i,t} = R_{i,t} - \alpha_i - \beta_{1,i} - R_{m,t} - \beta_{2,i}R_{\text{industry},t} - \beta_{3,i}R_{\text{TB},t},$$

where $R_{i,t}$ is the firms' raw return (on the Center for Research in Security Prices [CRSP], tapes), $R_{m,\,t}$ is the CRSP equally weighted portfolio, $R_{\text{industry},\,t}$ is the equally weighted portfolio of companies with the same four digit standard identification classification code, and $R_{\text{TB}}$ is the daily yield in percent per annum for 1-year Treasury bills. Beta coefficients for the 3-day returns were estimated from 205 days to 5 days prior to the event. Beta coefficients for the 1-month returns were estimated from 13 months to 1 month prior to the event. The final two rows in each panel compute an equally weighted and "$ divested"-weighted sum of returns from the previous rows. The average $t$-statistic is computed by taking the weighted sum of the $t$'s divided by the square root of the number of event dates. Under the hypothesis that U.S. firms with South African assets were harmed by U.S. pension fund divestment, the expected sum would be negative. Returns quoted in percent. Shaded $t$-statistics are significant at the 10% level or better.

7 pension funds for which we could ascertain only a monthly event date (panel B), bringing the total number of pension funds and events to 16 and 25 (21 distinct), respectively.

Regarding the results for daily returns, the equal-weighted portfolio shows a significant −1.9% response to the first divestment (January 4, 1983) for which we had a single day announcement (albeit a small divestment of only $105 million by the Massachusetts pension fund). In the sales-weighted, asset-weighted, or employee-weighted portfolios, we could not detect statistical significance on January 4, 1983, but the point estimate was −1.6%, which is close to borderline statistically significant, with $t$'s ranging from −1.3 to −1.6. However, table 3 also shows there is no reliable reaction on any of the other divestment dates, even when the large $9.5 billion dollar Californian fund announced its divestment.

The last two rows of panel A consider the equally weighted average return on the divestment days across all divestment days and a value-weighted average return, where the weight is the ratio of each day's divestment amount divided by the total divestment amount. (For example, the weight given to January 4, 1983 was $105/$13, 208.) Overall, regardless of the weighting scheme, there is no evidence that on these 9 days, the overall response was systematically and reliably negative.

Panel B displays the monthly reaction to the divestment announcements of all 16 pension funds. We now find some significant reactions, but they are mostly positive, except for the divestment by the economically insignificant small Cincinnati pension fund ($105 million) and the relatively late $1,100 million Minnesota pension fund. Consequently, we can conclude that the monthly evidence does not indicate that the pension fund divestment announcement significantly hurt firms with major South African operations.[17]

### C. *The Impact of Pension Fund Divestment Announcements on the South African Financial Markets*

Although U.S. firms with South African operations were not significantly affected, it is possible that private fund pressures were more effective than government sanctions in lowering the expectations of the South African financial markets—which again was after all the original purpose of the funds' activism. Consequently, table 4 examines the event-day reaction of the South African financial series. A familiar pat-

17. Unfortunately, we do not have data on the individual holdings of these funds to confirm whether there is an observable reliable decline in the institutional shareholdings after the event date. However, we examine institutional ownership changes in divesting companies in the next section.

tern emerges: there is no reliable negative reaction on any individual financial series at individual fund divestment dates or in the "all-days" divestment statistics. The only statistically significant negative response occurred on July 23, 1985, when the economically insignificant small Oakland pension fund divested. Taking all 9 pension divestment days into account, we cannot detect a significant negative response in the South African financial series. (A similar picture emerges for the unreported monthly fund event dates.)

## VI. The Institutional Response to Divestment Announcements

With no measurable negative effect of either legislative sanctions event dates or pension fund divestments on U.S. firms with South African operations or on the South African financial series, the remaining questions center on the *voluntary* divestment decisions by U.S. firms of their South African subsidiaries. We found 54 instances of firms divesting themselves of their South African assets, of which 46 had CRSP data. Appendix table A3 describes the 46 divesting firms for which we found institutional shareholdings data and both global and South African data on sales, assets, and employees.

Institutional investors are generally thought to have been especially interested in divesting, perhaps because they had easier access to lists of "black-listed" companies and because special interest lobbies could more easily target large funds than individual investors. Table 5 details the year-to-year and month-to-month percent changes in the *number* of institutional shareholders around the divestment event.[18] Under the alternative hypothesis that institutional shareholders had a preference for firms without South African operations, we would expect to see a negative abnormal change in institutional shareholdings before the divestment date and a positive abnormal change on and after the divestment date. Because we do not have a model of "normal" institutional changes, we control for "normal changes" using institutional changes from a size/SIC matched control set of firms.[19] The divesting firms'

18. We collected aggregate data on institutional shareholders from the monthly S&P stock guide. This gives us the total number of institutional investors as well as the number of shares they hold. Unfortunately, the S&P guide is not completely reliable. In some instances, we could identify the causes of outliers in the data (such as failure to adjust for splits or new issues). Furthermore, a few issues and data were not available. To compensate for clear errors in the S&P stock guide, we chose to code clear outliers as missing observations.

19. Because the companies divesting were often the largest U.S. firms, size and industry matching is difficult. When a straightforward closest-size match with a nondivesting firm in the same industry was not possible, we expanded the definition of industry and looked for a firm of close size and institutional shareholdings not different by one order of magnitude (factor 10) 1 year prior to the divestment. In total, we had 31 four-digit matches, 3 three-digit matches, 10 two-digit matches, and 2 one-digit matches.

**TABLE 4 The Impact of U.S. Pension Fund Divestment Announcement, on South African Financial Series**

| | | | Anglo American Corporation | | | | JSE Gold Index | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mean Adjusted | | Market Model | | Mean Adjusted | | Market Model | |
| $ | Date | Action | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| 105 | January 4, 1983 | Massachusetts | 1.093 | .26 | .241 | .06 | .078 | .02 | −.962 | −.24 |
| 900 | August 30, 1984 | New York City | 1.193 | .28 | .759 | .18 | −3.572 | −.87 | −3.933 | −.99 |
| 335 | April 30, 1985 | San Francisco | −2.357 | −.55 | −2.264 | −.54 | −2.832 | −.69 | −2.735 | −.69 |
| 150 | July 23, 1985 | Oakland, Calif. | −8.587 | −2.02 | −6.738 | −1.62 | −9.122 | −2.22 | −6.912 | −1.73 |
| 600 | August 16, 1985 | Los Angeles | 3.613 | .85 | 3.015 | .72 | 7.608 | 1.85 | 6.873 | 1.73 |
| 513 | May 15, 1985 | West Virginia | 1.053 | .25 | 1.539 | .37 | −1.922 | −.47 | −1.352 | −.34 |
| 700 | May 30, 1986 | Chicago | .903 | .21 | 1.338 | .32 | 1.548 | .38 | 2.057 | .52 |
| 225 | August 18, 1986 | Santa Barbara | 3.273 | .77 | 3.296 | .79 | 9.328 | 2.27 | 7.151 | 1.79 |
| 9,500 | September 27, 1986 | California | −4.357 | −1.03 | −3.687 | −.89 | −3.152 | −.77 | −2.529 | −.63 |
| Equally weighted | | | −.464 | −.33 | −.278 | −.20 | −.226 | −.17 | −.260 | −.19 |
| Value weighted | | | −.326 | −.23 | −.271 | −.20 | −.245 | −.18 | −.197 | −.15 |

| | | | JSE Industrial Index | | | | Commercial Rand/$ | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mean Adjusted | | Market Model | | Mean Adjusted | | Market Model | |
| $ | Date | Action | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics | Returns | *t*-Statistics |
| 105 | January 4, 1983 | Massachusetts | 1.325 | .97 | N.A. | N.A. | −.384 | −.06 | −.321 | −.05 |
| 900 | August 30, 1984 | New York City | .665 | .49 | N.A. | N.A. | 1.046 | .17 | 1.085 | .18 |
| 335 | April 30, 1985 | San Francisco | −.165 | −.12 | N.A. | N.A. | 1.436 | .24 | 1.422 | .24 |
| 150 | July 23, 1985 | Oakland, Calif. | −2.935 | −2.16 | N.A. | N.A. | .546 | .09 | .354 | .06 |
| 600 | August 16, 1985 | Los Angeles | .925 | .68 | N.A. | N.A. | 6.946 | 1.16 | 7.002 | 1.17 |
| 513 | May 15, 1985 | West Virginia | .915 | .67 | N.A. | N.A. | 1.446 | .24 | 1.501 | .25 |
| 700 | May 30, 1986 | Chicago | −.705 | −.52 | N.A. | N.A. | 2.616 | .44 | 2.567 | .43 |
| 225 | August 18, 1986 | Santa Barbara | −.055 | −.04 | N.A. | N.A. | .226 | .04 | .219 | .04 |
| 9,500 | September 27, 1986 | California | −.855 | −.63 | N.A. | N.A. | −1.494 | −.25 | −1.552 | −.26 |
| Equally weighted | | | −.098 | −.22 | N.A. | N.A. | 1.376 | .69 | 1.364 | .69 |
| Value weighted | | | −.063 | −.14 | N.A. | N.A. | −.051 | −.03 | −.055 | −.03 |

NOTE.—The 3-day impact of U.S. pension fund divestments on South Africa's largest firm (Anglo-American Corporation), two indexes (Johannesburg Stock Exchange [JSE] Gold Index and Industrial Index), and the South African commercial rand/U.S. dollar exchange rate. The "$" column gives U.S. dollar values in millions divested by each pension fund. Returns are computed for the three days "$t = (-1, 0, +1)$" around the event. Market model returns are computed from a standard market model regression

$$A_{i,t} = R_{i,t} - \alpha_i - \beta_i R_{m,t},$$

where $R_{m,t}$ is the JSE Industrial Index. For this reason, market model returns are not available for the industrial index. The beta coefficients were estimated from 205 days to 5 days prior to the event. The final two rows in each panel compute an equally weighted and $-weighted sum of returns from the previous rows. The average *t*-statistic is computed by taking the weighted sum of the *t*'s divided by the square root of the number of event dates. Under the hypothesis that South African firms, indexes, and exchange rate were harmed by U.S. pension fund divestment, the expected sum would be negative. All returns are quoted in percent. Shaded returns are significant at the 10% level or better.

**TABLE 5 Changes in the Number of Institutional Shareholders**

| | Sample Firms | | Control Firms | | Sample − Control | | |
|---|---|---|---|---|---|---|---|
| Year | *N* | ASPC | *N* | ACPC | *N* | ANPC | CANPC |
| A. Yearly changes: | | | | | | | |
| −3 | ... | .0 | ... | .0 | ... | .0 | .0 |
| −2 | 45 | 9.5 | 44 | 28.6 | 43 | −3.2 | −3.2 |
| −1 | 46 | 9.3 | 45 | 12.1 | 45 | −1.7 | −4.9 |
| 0 | 45 | 13.0 | 46 | 15.4 | 45 | −2.9 | −7.8 |
| 1 | 43 | 13.9 | 45 | 11.8 | 42 | 2.7 | −5.1 |
| 2 | 42 | 10.1 | 43 | 10.8 | 39 | 2.9 | −2.2 |
| 3 | 36 | 4.6 | 38 | 1.2 | 33 | 5.0 | 2.8 |
| B. Monthly changes: | | | | | | | |
| −12 | ... | .0 | ... | .0 | ... | .0 | .0 |
| −11 | 45 | −.4 | 43 | 1.3 | 42 | −1.6 | −1.6 |
| −10 | 46 | 1.4 | 43 | 1.2 | 43 | .3 | −1.4 |
| −9 | 46 | 1.5 | 43 | 3.2 | 43 | −2.1 | −3.5 |
| −8 | 46 | 1.1 | 44 | .7 | 44 | .3 | −3.2 |
| −7 | 46 | 1.5 | 45 | 1.5 | 45 | .1 | −3.1 |
| −6 | 46 | 1.1 | 44 | 1.1 | 44 | −.1 | −3.2 |
| −5 | 46 | 1.5 | 45 | 1.4 | 45 | −.2 | −3.4 |
| −4 | 46 | .9 | 44 | .2 | 44 | .4 | −3.1 |
| −3 | 46 | .5 | 45 | .9 | 45 | −.7 | −3.7 |
| −2 | 45 | .5 | 46 | 1.7 | 45 | −.4 | −4.1 |
| −1 | 45 | .6 | 45 | .0 | 44 | .9 | −3.3 |
| 0 | 45 | 1.2 | 45 | −.4 | 44 | 1.2 | −2.0 |
| 1 | 44 | .1 | 45 | .6 | 44 | −.7 | −2.7 |
| 2 | 44 | .7 | 45 | 1.2 | 44 | −.5 | −3.3 |
| 3 | 44 | 1.2 | 46 | .2 | 44 | 1.0 | −2.3 |
| 4 | 43 | 1.0 | 46 | 2.6 | 43 | −1.4 | −3.7 |
| 5 | 43 | 1.6 | 45 | .2 | 43 | .8 | −2.9 |
| 6 | 43 | 1.2 | 45 | 2.4 | 43 | −.4 | −3.3 |
| 7 | 43 | 2.0 | 46 | 1.7 | 43 | −.2 | −3.4 |
| 8 | 44 | 1.3 | 45 | 1.5 | 43 | −.3 | −3.8 |
| 9 | 44 | .5 | 44 | 1.4 | 42 | −.4 | −4.2 |
| 10 | 44 | .5 | 41 | −.2 | 40 | .4 | −3.9 |
| 11 | 44 | .8 | 42 | .0 | 41 | 1.2 | −2.7 |
| 12 | 44 | 1.4 | 42 | −.5 | 40 | 1.7 | −1.0 |

NOTE.—ASPC: average sample percentage change; ACPC: average control percentage change; ANPC: average net percentage change; CANPC: cumulative average net percentage change. Reported in % form. This table presents yearly and monthly average and cumulative changes in the number of institutional shareholders. Provided in the table are changes to the portfolio of firms with assets in South Africa, changes to a matching control portfolio, and the net difference between the two portfolios. (Let S1 be a sample firm with month 9 missing and C1 be the control firm with no data missing. Let S2 be another sample firm with complete data, and let the control firm C2 have month 9 missing. Then, the size for the sample group will be 45, and the size for the control group will also be 45, but the size for the sample − control group would be 44.) The year or month during which firms divested themselves of their South African assets is defined as year or month 0. *t*-statistics for the column denoted "ANPC" indicate whether the net change for a particular period was significantly abnormal; *t*-statistics for the column denoted "CANPC" indicate whether the cumulative change for a particular period was significantly different from the period 0 change. Shaded regions denote significance at the 10% level or better.

institutional shareholder changes (first set of columns) minus the control firms' institutional shareholder changes (second set of columns) gives the "abnormal" institutional shareholder changes (third set of columns). The test firms' percentage change less the control firm's percentage change is also calculated and then averaged across the sample in the "Sample-Control" columns. These latter numbers are cumulated over time in the CANPC column.

More formally, we define the sample percentage change, $\mathrm{SPC}_{i,t}$, and control percentage change, $\mathrm{CPC}_{i,t}$, to be

$$\mathrm{SPC}_{i,t} = \frac{S_{i,t} - S_{i,t-1}}{S_{i,t-1}}, \qquad \mathrm{CPC}_{i,t} = \frac{C_{i,t} - C_{i,t-1}}{C_{i,t-1}}, \tag{1}$$

where $S_{i,t}(C_{i,t})$ refers to either the number or the percentage of shares owned by institutional shareholders of sample (control) firm $i$ (of $N$ firms) at time $t$. We define the net percentage change to be

$$\begin{aligned} \mathrm{NPC}_{i,t} &= \mathrm{SPC}_{i,t} - \mathrm{CPC}_{i,t} \\ &= \frac{S_{i,t} - S_{i,t-1}}{S_{i,t-1}} - \frac{C_{i,t} - C_{i,t-1}}{C_{i,t-1}}. \end{aligned} \tag{2}$$

We then aggregate these net percentage changes across all firms to obtain an average percentage change. Abbreviating the discussion now to the net changes only (we present equivalent numbers for sample and control changes), we define average net percentage change to be

$$\mathrm{ANPC}_t = \frac{\sum_{i=1}^{N} \mathrm{NPC}_{i,t}}{N}. \tag{3}$$

Finally, we cumulate average net percentage changes over time to obtain a cumulative average net percentage change:

$$\mathrm{CANPC}_T = \left[ \prod_{t=1}^{T} (1 + \mathrm{ANPC}_t) \right] - 1. \tag{4}$$

In contrast to the earlier results, there is now some evidence consistent with the alternative hypothesis. There is a detectable (but small) change in the composition of shareholders: table 5 shows that the number of institutional shareholders increased by 1.2% (statistically significant at the 10% level) in the divestment announcement month, whereas control firms lost 0.4%. (Because there are missing months

in both the sample and in the control, the net is not 1.6%!) There is a pronounced negative trend in abnormal institutional shareholdings before the divestment date, and an overall positive (albeit meandering) institutional change in the number of institutional shareholdings after the event date. This pattern is visible both in the monthly and yearly data.

An even more pronounced pattern emerges in table 6, where we examine changes in the percentage of shares held by investors. The percent of shares held by institutional investors shows an abnormal increase of 20% in the divestment month (significant at the 10% level). There is a generally negative trend prior to the divestment and a generally positive trend for up to 2 years after the divestment.

In sum, there is some mild evidence that pension funds in the aggregate withdrew from companies before their South African divestment and returned when these companies announced their divestment.

## VII. Private Pressure from and on Divesting Corporations

### *A. Voluntary Divestment Announcement Mean Abnormal Returns*

The final question concerns the valuation response of markets to the voluntary divestment announcement of corporations with operations in South Africa. Divestment is generally perceived to have been taken in response to stockholder pressure, public pressure, media exposure, and legislative changes, all of which made the continued operation of subsidiaries in South Africa a difficult proposition. When pension funds announced divestment, firms with South African holdings risked having large amounts of their shares flood into the market.[20] If bidders were scarce, because pressure mounted not only in the United States but also in the European community and Japan,[21] the sale of South African assets might have had to be made at fire-sale prices. In reality, U.S. firms often sold their subsidiaries to their South African employees or to South African firms. The essential question is thus whether this "voluntary," although possibly coerced, divestment had an effect on returns.

HYPOTHESIS A. Is political or social preference an additional attribute of investments so that investor preference creates downward sloping demand? In other words, is the elasticity of demand for divesting firms' stock low enough so that regaining the approval by "social activists" can increase the firm's share price?

20. We examine the announcement, not the execution date, for two reasons: (1) we do not have execution dates (funds may have sold their holdings over time); and (2) in an efficient market, the announcement day effect should incorporate the expected pressure on the execution dates.

21. "South Africans Say Sanctions Packaged: U.S., Japan and EC Said to Coordinate," *Washington Post* (August 17, 1986).

**TABLE 6 Changes in the Proportion of Shares Held by Institutional Shareholders**

| | Sample Firms | | Control Firms | | Sample − Control | | |
|---|---|---|---|---|---|---|---|
| Year | *N* | ASPC | *N* | ACPC | *N* | ANPC | CANPC |
| A. Yearly changes: | | | | | | | |
| −3 | . . . | .0 | . . . | .0 | . . . | .0 | .0 |
| −2 | 45 | 5.1 | 44 | 19.4 | 43 | −3.7 | −3.7 |
| −1 | 46 | 14.0 | 45 | 13.0 | 45 | 4.8 | 1.1 |
| 0 | 45 | 8.9 | 46 | 7.0 | 45 | 2.0 | 3.1 |
| 1 | 44 | 4.8 | 45 | 4.6 | 43 | 4.3 | 7.4 |
| 2 | 43 | 2.2 | 42 | .7 | 39 | 3.5 | 10.9 |
| 3 | 36 | 0.9 | 37 | 9.4 | 32 | −8.7 | 2.3 |
| B. Monthly changes: | | | | | | | |
| −12 | . . . | .0 | . . . | .0 | . . . | .0 | .0 |
| −11 | 44 | .1 | 43 | −.4 | 41 | .3 | .3 |
| −10 | 45 | .2 | 43 | .3 | 42 | −.1 | .1 |
| −9 | 45 | −.2 | 43 | 1.3 | 42 | −.8 | −.7 |
| −8 | 45 | 1.3 | 44 | 1.4 | 43 | −.1 | −.8 |
| −7 | 46 | 1.1 | 45 | .9 | 45 | −.3 | −1.1 |
| −6 | 46 | −.2 | 44 | 1.5 | 44 | .2 | −.9 |
| −5 | 46 | .3 | 45 | .8 | 45 | −1.9 | −2.9 |
| −4 | 46 | .7 | 44 | .8 | 44 | −.2 | −3.0 |
| −3 | 46 | 2.3 | 45 | 1.5 | 45 | −.6 | −3.6 |
| −2 | 45 | −.1 | 46 | −1.4 | 45 | .6 | −3.0 |
| −1 | 45 | −.4 | 45 | −.3 | 44 | −.7 | −3.7 |
| 0 | 45 | 1.2 | 45 | −.9 | 44 | 2.0 | −1.7 |
| 1 | 44 | .3 | 45 | .8 | 44 | −.6 | −2.3 |
| 2 | 42 | .7 | 45 | 1.3 | 42 | −.2 | −2.4 |
| 3 | 41 | .4 | 46 | −.6 | 41 | 1.7 | −.7 |
| 4 | 42 | −.6 | 46 | .4 | 42 | −.7 | −1.5 |
| 5 | 42 | 1.4 | 45 | .1 | 42 | 1.6 | .1 |
| 6 | 42 | .0 | 44 | .0 | 41 | .1 | .2 |
| 7 | 42 | 1.8 | 45 | −.3 | 41 | 3.0 | 3.2 |
| 8 | 43 | .0 | 45 | .4 | 42 | −.5 | 2.7 |
| 9 | 43 | −1.3 | 43 | .7 | 40 | −1.1 | 1.6 |
| 10 | 43 | 1.2 | 41 | .5 | 39 | .1 | 1.8 |
| 11 | 44 | 1.1 | 42 | −.3 | 41 | 1.6 | 3.4 |
| 12 | 44 | .4 | 42 | .1 | 40 | .2 | 3.6 |

NOTE.—ASPC: average sample percentage change; ACPC: average control percentage change; ANPC: average net percentage change; CANPC: cumulative average net percentage change. Reported in % form. This table presents yearly and monthly average and cumulative changes in the proportion of shares held by institutional shareholders. Provided in the table are changes to the portfolio of firms with assets in South Africa, changes to a matching control portfolio, and the net difference between the two portfolios. (Let S1 be a sample firm with month 9 missing and C1 be the control firm with no data missing. Let S2 be another sample firm with complete data, and let the control firm C2 have month 9 missing. Then the size for the sample group will be 45, and the size for the control group will also be 45, but the size for the sample − control group would be 44.) The year or month during which firms divested themselves of their South African assets is defined as year or month 0. *t*-statistics for the column denoted "ANPC" indicate whether the net change for a particular period was significantly abnormal; *t*-statistics for the column denoted "CANPC" indicate whether the cumulative change for a particular period was significantly different from the period 0 change. Shaded regions denote significance at the 10% level or better.

**TABLE 7 Firms Abnormal Announcement Returns to Voluntary Announcements of Divestment of South African Operations**

| Weighting | +/− | Raw Returns | $t$ | +/− | Model Returns | $t$ |
|---|---|---|---|---|---|---|
| A. Return period: (−15, −2): | | | | | | |
| Equal | 28/18 | 1.627 | 1.31 | 22/24 | −.721 | −.66 |
| Sale | 28/18 | .872 | .60 | 22/24 | −.659 | −.54 |
| Asset | 28/18 | .967 | .56 | 22/24 | −.686 | −.48 |
| Employee | 28/18 | 1.216 | .87 | 22/24 | −.906 | −.76 |
| B. Return period: (−1, +1): | | | | | | |
| Equal | 27/19 | .588 | 1.02 | 23/23 | .068 | .14 |
| Sale | 27/19 | .590 | .88 | 23/23 | .027 | .05 |
| Asset | 27/19 | .599 | .75 | 23/23 | .025 | .04 |
| Employee | 27/19 | .396 | .61 | 23/23 | −.155 | −.28 |
| C. Return period: (+2, +15): | | | | | | |
| Equal | 29/17 | 1.047 | .84 | 22/24 | −1.447 | −1.33 |
| Sale | 29/17 | 1.538 | 1.06 | 22/24 | −.840 | −.69 |
| Asset | 29/17 | 1.727 | 1.00 | 22/24 | −.561 | −.39 |
| Employee | 29/17 | 1.055 | .76 | 22/24 | −1.567 | −1.31 |

NOTE.—$N = 46$ for all groups. This table presents abnormal stock price movements of 46 U.S. firms with operations in South Africa at the firm's voluntary divestment announcement date. The sales-, asset-, and employee-weighted portfolios weigh firms according to their ratio of sales, assets, and employees in South Africa to their net total. (For details on these portfolios, see table A2.) Panel A lists returns computed two weeks ($t = -15, -2$) prior to the divestment date. Panel B lists returns computed for the 3 days ($t = -1, 0, 1$) surrounding the divestment date. Panel C lists returns computed 2 weeks ($t = 2, 15$) following the divestment date. The model return is computed from a market-model type regression,

$$A_{i,t} = R_{i,t} - \alpha_i - \beta_{1,t} - R_{m,t} - \beta_{2,t} R_{\text{industry},t} - \beta_{3,t} R_{\text{TB},t},$$

where $R_{i,t}$ is the firms' raw return (on the Center for Research in Security Prices [CRSP] tapes), $R_{m,t}$ is the CRSP equally weighted portfolio, $R_{\text{industry},t}$ is the equally weighted portfolio of companies with the same four-digit standard industrial classification code, and $R_{\text{TB}}$ is the daily yield in percent per annum for 1-year Treasury bills. The beta coefficients for the three return periods were estimated from 220 days to 20 days prior to the event. All returns are quoted in percent.

HYPOTHESIS B. Does socially activist investing require forgoing profitable investment opportunities? In other words, was there a lack of perfect substitutes for South African investments? If divestment reduced unique investment opportunities, divestment announcements would show a negative valuation response.

NULL HYPOTHESIS. There is no abnormal stock price reaction to divestment announcements, either because hypothesis A and hypothesis B balance or because the market considered South African divestment to have relatively unimportant valuation consequences.

Table 7 examines the stock price effect of voluntary divestment for the 46 firms in appendix table A3. As before, we examine the equally weighted, sale-weighted, asset-weighted, and employee-weighted portfolios of divesting companies.

Panel A shows the average abnormal returns for a 15-day pre-event window, panel B for the 3-day event window, and Panel C for a 15-day post-event window. Although the event return reaction is positive, the average equally weighted portfolio shows only a small 0.6% raw return and a trivial 0.07% model-adjusted return. Neither number is statistically significant. The three operations-weighted portfolios display similarly insignificant mean reactions to the divestment announcements. Moreover, a simple nonparametric sign-based statistic (on the number of positive vs. the number of negative returns) is exactly balanced at 23/23 for model-adjusted returns. Panel A shows that information leakage immediately prior to the divestment announcement is unlikely: the 13-day mean event-window reaction ranges from a small −0.7% to a small −0.9% for the four portfolios.

In sum, there is no evidence that firms were either negatively or positively affected by their divestment announcement.[22] This evidence supports the null hypothesis that divestment resulting from social activist pressure was neither detrimental nor helpful to existing shareholders. The reappearance of institutional shareholders on the announcement date, as documented in the earlier section, was either balanced by the negative divestment effects (sale of profitable operations at too-low prices) or was simply not important enough for valuation purposes, with the loss in demand from socially activist groups neutralized by increased demand from indifferent institutional or noninstitutional investors.

### *B. Voluntary Divestment Announcement Abnormal Return Influences*

Although the mean abnormal return to voluntary divestment announcements is insignificant, a reasonable explanation is that the positive hypothesis A effect and the negative hypothesis B effect neutralized each other. Consequently, we now attempt to decompose the cross-sectional announcement return variance into two factors: under hypothesis A—that the divestment announcement triggered a beneficial return of institutional shareholders—we try to explain stock returns with the actual observed institutional shareholder changes net of their control around the divestment dates. Because firms with abnormal decreases in institutional shareholders before and abnormal increases in institutional shareholders after the announcement date should have experienced the most positive stock price reaction, we expect negative coefficients on preannouncement ANPC coefficients and positive coefficients on announce-

22. Meznar, Nigh, and Kwok (1994) detect negative divestment announcement effects, but in a broad examination of event studies, McWilliams and Siegel (1997) attribute their findings to problematic study design.

ment and postannouncement ANPC coefficients. Similarly, firms following the Sullivan Principles may have retained some socially activist investors and thus gained less when full divestment was announced. Under hypothesis B—that the divestment announcement presented a loss of investment opportunities—we expect a less negative reaction for firms with lower relative sales in South Africa and for firms with assets that are relatively easy to transfer at equal value to other users, such as firms in the industrial machinery group.

Table 8 presents the results of eight regressions. The dependent variable remains the 3-day model-adjusted abnormal announcement return in all regressions. Panels A and B consider monthly and yearly changes, respectively, in the number of and percentage owned by institutional investors. Panels C and D are equivalent, but include at- and post-divestment information.

There is no statistically significant evidence that predivestment ANPC coefficients are negative in either panel A or B. Panel C weakly indicates a positive coefficient around the announcement month (which is the month where we found the most significant mean institutional shareholder change), but it is still not statistically significant at conventional levels with its $t$-statistic of 1.5. (Both are also followed by an ANPC coefficient in month $+1$ that is also positive.) However, the other evidence is weak: overall, the preannouncement coefficients on ANPC are not negative, and the postannouncement coefficients are not positive. In panel D, there is a positive announcement ANPC coefficient only for the annual change in the number but not in the percentage of shares held by institutional shareholders. Furthermore, firms following the Sullivan Principles show a no-more-or-less positive reaction to their divestment.

There is also no evidence consistent with hypothesis B that firms with high relative South Africa sales reacted more negatively. The point estimate on sales is positive in most regressions. Firms in industrial and mining activities had no significantly better or worse response, either.

In sum, there is little evidence that the divestment of firms from their South African operations was regarded as major news by financial markets. We find no significant abnormal announcement reaction, and the reaction is estimated not to have been significantly related to the relative size of the firms' South African holdings or the relative disappearance and reappearance of institutional shareholders.

## VIII. Real Time Performance of U.S. Firms

One question remains: Could the American public have perceived the boycott to have "worked" despite the lack of strong evidence on the

announcement dates? One answer could be that the civil unrest in South Africa and some of the macroeconomic problems (e.g., gross national product), as described in Section II*B*, led the U.S. public to associate sanctions with success. Could the American public have perceived the sanctions to have had an effect because the U.S. firms with investments in South Africa studied in our article performed poorly?

Figure 7 plots the real-time performance of the three main portfolios used in our article (banks, highly exposed firms, and divesting firms). These returns are first adjusted with the Moskowitz (1998) method for industry momentum and Fama-French factors, then portfolios are formed, and the cumulative performance of these portfolios is tracked over time. The portfolio of banks with South African operations was flat during the 1985–86 period when the U.S. Congress enacted the Comprehensive Anti-Apartheid Act of 1986. In the period of most intense pressure (1984–88), the portfolio of the firms with the largest operations in South Africa first declined slightly (but not unusually so) and then rallied. Finally, divesting firms performed normally after their divestment, but somewhat better before their divestment. This could either point to leakage of information or to an ability of firms to "afford" divestment only after they had performed well. In the month of the divestment itself, early divestors, however, performed relatively poorly while late divestors performed relatively well.[23]

In sum, there is little evidence that the firms with operations in South Africa that were hit by the sanctions and legislative actions performed unusually poorly in the 1980s. The public may have had the impression that the shareholder or legislative sanctions hurt these firms, but this is not visible in their real-time returns.

## IX. Summary

This article has presented a post mortem analysis of an unusual historic event. It investigated the effect of the most important legislative and shareholder boycott to date: the boycott of South Africa's apartheid regime. Despite heated public debate over divestment, there has been little formal empirical evidence brought on this issue. We find no support for the common perception—and often vehement rhetoric in the financial media—that the anti-apartheid shareholder and legislative boycotts affected the financial sector adversely: the announcement of legislative or shareholder pressure had *no* discernible effect on the valuation of banks and corporations with South African operations or on

23. In the announcement month itself, (a small number of) divestors experienced generally negative returns before 1985, positive returns post-1985.

**TABLE 8 Variance Decomposition of Voluntary Divestment Announcement Stock Price Reactions**

Dependent Variable: 3-Day Model Returns ($t$ = 1, 0, 1)

| | Predicting 3-Day Announcement Returns with Changes in: | | | |
|---|---|---|---|---|
| | No. of Institutional Shareholders | | Percentage of Shares Held by Institutional Investors | |
| | Coefficient | $t$ | Coefficient | $t$ |
| Predivestment South African sales | .011 | .31 | .024 | .57 |
| Industry | −.005 | −.49 | .004 | .38 |
| Sullivan | .017 | .99 | −.011 | −.72 |
| A. Using preannouncement monthly institutional shareholdings: | | | | |
| ANPC(−11) | .114 | 1.16 | −.153 | −1.71 |
| ANPC(−10) | −.094 | −.62 | .010 | .85 |
| ANPC(−9) | .042 | 1.01 | −.034 | −.46 |
| ANPC(−8) | −.085 | −.71 | .071 | .98 |
| ANPC(−7) | −.139 | −.78 | −.049 | −1.08 |
| ANPC(−6) | −.120 | −1.24 | .084 | .92 |
| ANPC(−5) | .024 | .22 | −.015 | −.22 |
| ANPC(−4) | .103 | .74 | .105 | 1.31 |
| ANPC(−3) | .011 | .75 | −.015 | −.40 |
| ANPC(−2) | .259 | 1.56 | −.002 | −.23 |
| ANPC(−1) | .131 | .88 | −.180 | −1.18 |
| Intercept | −.009 | −.56 | .005 | .41 |
| $F$-statistic,* ANPC(−11, −1) | | .88 | | .73 |
| B. Using annual institutional shareholdings, pre-announcement only: | | | | |
| Sale | .006 | .19 | .000 | .11 |
| Industry | .001 | .10 | −.002 | −.22 |
| Sullivan | .001 | .70 | −.002 | −.14 |
| ANPC(−2) | −.019 | −1.09 | .039 | 1.85 |
| ANPC(−1) | −.005 | −.26 | .005 | .77 |
| Intercept | −.001 | −.12 | .004 | .37 |
| $F$-statistic,† ANPC(−2, −1) | | .71 | | 2.66 |
| C. Using monthly institutional shareholdings, both pre- and postannouncement: | | | | |
| Sales | .054 | .99 | .074 | 1.13 |
| Industry | −.016 | −1.14 | −.007 | −.51 |
| Sullivan | .031 | 1.51 | −.029 | −1.36 |
| ANPC(−11) | .129 | 1.09 | −.180 | −1.55 |
| ANPC(−10) | −.300 | −1.53 | −.035 | −.21 |
| ANPC(−9) | .234 | 1.22 | −.029 | −.24 |
| ANPC(−8) | −.388 | −1.91 | −.039 | −.37 |
| ANPC(−7) | −.075 | −.31 | −.005 | −.83 |
| ANPC(−6) | .224 | 1.07 | .136 | 1.09 |
| ANPC(−5) | .035 | .19 | .004 | .53 |
| ANPC(−4) | .064 | .24 | .127 | 1.10 |
| ANPC(−3) | .015 | .66 | −.017 | −.38 |
| ANPC(−2) | .442 | 1.88 | .078 | .74 |
| ANPC(−1) | .016 | .67 | −.016 | −.92 |

**TABLE 8** *(Continued)*

| | Predicting 3-Day Announcement Returns with Changes in: | | | |
|---|---|---|---|---|
| | No. of Institutional Shareholders | | Percentage of Shares Held by Institutional Investors | |
| | Coefficient | *t* | Coefficient | *t* |
| ANPC(0) | .319 | 1.54 | .182 | 1.58 |
| ANPC(1) | .120 | .77 | .017 | .14 |
| ANPC(2) | .063 | .32 | −.047 | −.39 |
| ANPC(3) | .055 | .28 | −.071 | −.45 |
| ANPC(4) | −.389 | −1.63 | −.029 | −.27 |
| ANPC(5) | −.461 | −1.33 | .052 | .44 |
| ANPC(6) | −.029 | −.11 | −.249 | −1.80 |
| ANPC(7) | .044 | .20 | −.220 | −1.41 |
| ANPC(8) | .103 | .40 | −.226 | −1.52 |
| ANPC(9) | .151 | .81 | −.009 | −.74 |
| ANPC(10) | −.508 | −2.24 | .081 | .80 |
| ANPC(11) | −.063 | −.36 | .089 | .83 |
| ANPC(12) | −.035 | −.30 | .144 | .91 |
| Intercept | −.010 | −.55 | .026 | 1.19 |
| *F*-statistic,‡ ANPC(−11, −1) | | .86 | | .65 |
| *F*-statistic,§ ANPC(1, 12) | | 1.10 | | .71 |
| D. Using annual institutional shareholdings, both pre- and postannouncement: | | | | |
| Sale | .018 | .58 | −.008 | −.23 |
| Industry | .003 | .29 | −.001 | −.13 |
| Sullivan | .004 | .35 | −.002 | −.12 |
| ANPC(−2) | −.016 | −.95 | .040 | 1.70 |
| ANPC(−1) | −.005 | −.24 | .009 | .91 |
| ANPC(0) | .027 | 1.72 | −.011 | −.57 |
| ANPC(1) | −.020 | −1.01 | −.001 | −.59 |
| ANPC(2) | .013 | .49 | .011 | .53 |
| ANPC(3) | .030 | .86 | .017 | .74 |
| Intercept | −.006 | −.50 | .005 | .38 |
| *F*-statistic,‖ ANPC(−2, −1) | | .52 | | 2.24 |
| *F*-statistic,‖ ANPC(1, 2) | | .55 | | .16 |

NOTE.—These regressions relate the 3-day ($t = -1, 0, 1$) explanatory model returns, presented in table 7, to (1) changes in the average net percentage change in the *number* of institutional shareholders and to (2) changes in the average net percentage change in the *proportion of shares* held by institutional shareholders. ANPC = average net percentage change, and it is computed by subtracting the changes in matching four-digit standard industrial classification code control firms from changes in the sample firms. "Sales" are computed as the ratio of South African sales to net sales in the period prior to divestment. "Industry" is a dummy where all firms engaged in heavy industrial activities such as mining, metals, oil, and machinery are coded one. Other firms, including processed foods and entertainment, are coded zero. "Sullivan" is a dummy where firms adhering to Sullivan Principle 3 or higher are coded one; all other firms are coded zero. The last row(s) in each panel computes a standard *F*-test indicating whether the coefficients for the indicated subset of independent variables are jointly different from zero.

* With 11 and 31 df. The cutoff for significance at the 5% level is 2.16.
† With 2 and 40 df. The cutoff for significance at the 5% level is 3.23.
‡ With 11 and 18 df. The cutoff for significance at the 5% level is 2.54.
§ With 12 and 18 df. The cutoff for significance at the 5% level is 2.54.
‖ With 2 and 36 df. The cutoff for significance at the 5% level is 3.32.

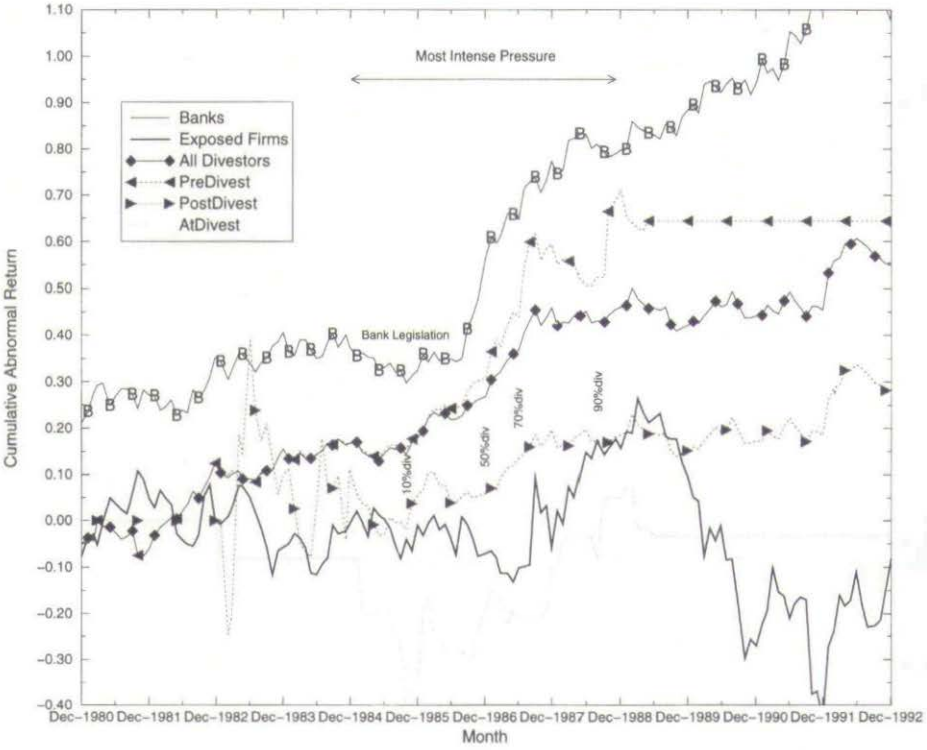


FIG. 7.—Real-time abnormal performance of U.S. firms with operations in South Africa. The figure plots cumulative abnormal log returns in "real time." The bank portfolio is described in tables 1 and A1. The high-exposure-firms portfolio is described in tables 3 and A2. The divesting-firm portfolio is described in tables 7 and A3. Each divesting firm also enters an "already divested," a "not yet divested," or a "divesting this month" portfolio. (The "already divested" portfolio contains very few firms before 1985, the "not yet divested" portfolio contains very few firms after December 1988.) All returns are first adjusted for each firm using the Moskowitz (1998) method (which adds industry momentum to the Fama-French factors), then weight-averaged over firms for each portfolio for a given month, and finally summed over months. All series are normalized to a zero base in January 1973 (to offset visually the banking series). The figure shows that the large banks in our sample did not experience a decline before or while Congress enacted South African lending restrictions, and firms with large operations in South Africa were mostly unaffected by the boycott. Voluntary divestors performed better before their announcement of divestiture but not thereafter.

the South African financial markets. There is weak evidence that institutional shareholdings increased when corporations divested, that is, that divesting firms' investor clienteles changed, and that divesting firms with more returning institutional shareholders received a perhaps slightly more positive but insignificant valuation response. One explanation may be that the boycott primarily reallocated shares and operations from "socially responsible" to more indifferent investors and countries. Our findings are consistent with the view that demand curves for stocks are highly elastic and so have little downward slope.

In all, the evidence from both individual and legislative actions, taken together, suggests that the South African boycott had little valuation effect on the financial sector. Despite the prominence and publicity of the boycott and the multitude of divesting companies, the financial markets' valuations of targeted companies or even the South African financial markets themselves were not easily visibly affected. The sanctions may have been effective in raising the public moral standards or public awareness of South African repression, but it appears that financial markets managed to avoid the brunt of the sanctions. This may be an important point for future activists who are considering using the tools of the boycott for other causes.

## Appendix A

## Portfolios

**TABLE A1 Banks with Outstanding Loans to South Africa as of 1985**

| | Loans to South Africa, 1985 ($ Million) | Net Loans, 1985 ($ Million) | Loans to South Africa as % of Net | Portfolio Weights |
|---|---|---|---|---|
| American Express | 85 | 7,089 | 1.20 | .219 |
| Bank of New York | 34 | 12,000 | .28 | .052 |
| Bank of America | 65.7 | 73,000 | .09 | .017 |
| Citicorp | 800 | 115,000 | .70 | .127 |
| Interfirst International | 67.5 | 15,000 | .45 | .082 |
| Irving Bank Corp. | 195 | 12,000 | 1.63 | .297 |
| Marine Midland | 40 | 14,000 | .29 | .052 |
| Mellon Bank Corp. | 1 | 19,000 | .01 | .001 |
| Texas Commerce Bancshares | 33.5 | 4,000 | .84 | .153 |
| Average | 147 | 30,121 | .61 | . . . |
| Total | 1,322 | 271,089 | 5.49 | 1.00 |

NOTE.—The bank sample is determined to be all publicly traded, U.S.-based banks with outstanding loans to South Africa as of 1985. (Bank loans to South Africa were collected from Bowers and Cooper [1986, 1987] and Cooper [1987, 1989]. Net bank loans were collected from Moody's Investors Service [1985]. Some firms were removed from the sample owing to lack of CRSP return data.) The portfolio weights are computed from loans to South Africa as a % of net loans.

**TABLE A2 Highest Exposure to U.S. Firms in South Africa in 1985**

| | Ownership (%) | Sales to South Africa ($ Million) | Sales as % of Total | Sales Weight | Assets in South Africa ($ Million) | Assets as % of Total | Asset Weight | Employment in South Africa | Employment as % of Total | Employment Weight | Sullivan Rating |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bandag | 100 | 22 | 7.1 | .117 | 9.2 | 4.9 | .171 | 149 | 7 | .098 | Yes |
| Coca-Cola | 66 | 260 | 5 | .054 | 60 | 2.4 | .055 | 4,288 | 11 | .101 | II |
| Emhart | 100 | 39 | 2.2 | .036 | 23 | 1.5 | .052 | 1,159 | 4 | .056 | V |
| Exxon | 90 | 206 | .2 | .003 | 7 | .01 | .000 | 216 | 4 | .050 | II |
| Firestone | 25 | 120 | 3 | .012 | 2.6 | .1 | .001 | 2,500 | 5 | .017 | II |
| Ford Motor | 92 | 435.8 | .75 | .011 | 150 | .75 | .024 | 7,174 | 2 | .026 | V |
| General Motors | 100 | 310 | .4 | .007 | 1.8 | .3 | .010 | 4,307 | 1 | .014 | I |
| Goodyear | 100 | N.A. | N.A. | .036 | N.A. | N.A. | .056 | 2,471 | 2 | .028 | II |
| Interpublic Group | 96 | 11 | 1.9 | .030 | 16 | 2.3 | .077 | 260 | 2 | .027 | III |
| Joy Manufacturing | 100 | 45 | 7 | .115 | 40 | 8 | .280 | 1,000 | 12 | .167 | II |
| Kimberly Clark | 39 | 104.6 | 2.2 | .014 | 8.8 | .3 | .004 | 1,672 | 5 | .027 | V |
| Mobil | 100 | N.A. | N.A. | .036 | 400 | 1.1 | .038 | 3,182 | 2 | .028 | I |
| Newmont Mining | 100 | N.A. | 2.4 | .039 | 50.4 | 2.4 | .084 | 3 | 4 | .056 | Yes |
| Norton | 97 | 32.3 | 2.7 | .430 | 14.9 | 1.4 | .047 | 1,228 | 7 | .095 | I |
| RJR | 100 | 28.5 | .22 | .004 | 30.3 | .33 | .012 | 2,772 | 2 | .028 | II |
| Rexnord | 100 | 24.84 | 2.7 | .044 | 15.5 | 1.8 | .063 | 618 | 5 | .070 | II |
| USG | 68 | 26.2 | 1 | .011 | 28.1 | 1 | .024 | 2,631 | 12 | .114 | II |
| Average | 87 | 97 | 2.54 | ... | 54 | 1.78 | ... | 2,095 | 5 | ... | ... |
| Total | ... | 1,362 | ... | 1.00 | 858 | ... | 1.00 | 35,630 | ... | 1.00 | ... |

NOTE.—The sample is determined to be all publicly traded firms with operations in South Africa as of 1985 that satisfy the following criteria as of 1985 (when the description was "less than" for the following criteria, we subtracted 10%): (1) more than $100 million in South African sales; (2) generated more than 2% of their total sales in South Africa; (3) owned assets valued at more than $50 million in South Africa; (4) held more than 2% of their total assets in South Africa; or (5) had more than 2,000 employees in South Africa, at pension fund event dates. (South African data were collected from Bowers and Cooper (1986, 1987) and Cooper (1987, 1989). U.S. data for the purpose of computing percents of total are collected from Compustat. Some firms are removed from the sample because of lack of Center for Research in Security Price return data). Weights are computed as an ownership-weighted percentage. For example, the sales weight of Coca-Cola is (66%)(5%)/(the ownership-weighted sum of all sales as % of total). For the purpose of computing weights, missing data items were replaced with the sample average. The Sullivan Principles are a set of criteria on which firms may be ranked based on their operating procedures with regard to apartheid. These principles are divided into six categories: (I) nonsegregation of the races in all eating, comfort, and work facilities; (II) equal and fair employment practices; (III) equal pay for all employees doing equal or comparable work for the same period of time; (IV) initiation of and development of training programs that prepare, in substantial numbers, blacks and other nonwhites for supervisory, administrative, clerical and technical jobs; (V) increasing the number of blacks and other nonwhites in management supervisory positions; and (VI) improving the quality of employees' lives outside the work environment in such areas as housing, transportation, schooling, recreation, and health facilities. The column marked "Sullivan Rating" indicates at what level each firm is operating. Higher levels subsume previous levels. A rating of "yes" indicates that firms are following the principles but were unable to be assigned a rating. N.A. = not available.

**TABLE A3 Voluntary Divestment Announcement Dates for U.S. Firms with Operations in South Africa**

| | Event Date | Ownership (%) | Sales to South Africa ($ Million) | Sales % of Total | Sales Weight | Assets in South Africa ($ Million) | Assets % of Total | Asset Weight | Employment in South Africa | Employment % of Total | Employment Weight | Sullivan Rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acco World | May 1, 1987 | 100 | 5.2 | 1.5 | .031 | .73 | .57 | .012 | 185 | 1 | .014 | No |
| Alcan Aluminum | March 20, 1986 | 100 | 150 | 2 | .041 | 10 | .14 | .003 | 3,606 | 5 | .068 | No |
| Gallaher | April 30, 1987 | 100 | N.A. | N.A. | .023 | 4.1 | .5 | .014 | N.A. | N.A. | .027 | No |
| Bausch & Lomb | February 19, 1988 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 25 | 1 | .014 | V |
| Bell & Howell | February 6, 1986 | 100 | 13 | 1.8 | .037 | 5 | 1 | .021 | 166 | 2 | .027 | V |
| Black & Decker | January 16, 1987 | 100 | 8.3 | .48 | .010 | 3.5 | .24 | .005 | 75 | <1 | .012 | V |
| Bundy Co. | December 8, 1986 | 28 | 2 | <1 | .005 | .15 | .2 | .001 | 212 | 1 | .004 | No |
| CPC International | April 2, 1987 | 100 | 43.7 | 1 | .023 | 26.8 | 1 | .021 | 1,108 | 3 | .041 | II |
| Chrysler | January 27, 1983 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | N.A. | N.A. | .027 | No |
| Citicorp | June 16, 1987 | 100 | N.A. | N.A. | .023 | 332 | .24 | .005 | 256 | <1 | .012 | II |
| Coca-Cola | September 17, 1986 | 66 | 260 | 5 | .068 | 60 | 2.4 | .034 | 4,288 | 11 | .099 | II |
| Dow Chemical | March 4, 1987 | 100 | 60 | .5 | .010 | 19.6 | .2 | .004 | 200 | <1 | .012 | II |
| Dun & Bradstreet | February 9, 1986 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 550 | 1 | .014 | V |
| Eastman Kodak | November 19, 1986 | 100 | 106 | 1 | .021 | 18.6 | 1 | .014 | 654 | 1 | .014 | I |
| Emhart | December 7, 1987 | 100 | 39 | 2.2 | .045 | 23 | 1.5 | .014 | 1,159 | <1 | .012 | V |
| Exxon | December 30, 1986 | 100 | 206 | .2 | .004 | 7 | .01 | .000 | 216 | <1 | .012 | II |
| Federal Mogul | September 15, 1988 | 100 | 18.2 | 2 | .041 | 12.6 | 2 | .043 | 200 | 1 | .014 | II |
| Ford Motor | November 25, 1987 | 100 | 435.8 | .75 | .021 | 150 | .75 | .021 | 7,174 | 2 | .027 | V |
| General Electric | November 14, 1985 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | N.A. | N.A. | .027 | No |
| General Motors | October 20, 1986 | 100 | 310 | .4 | .008 | 150 | .3 | .006 | 4,307 | 1 | .014 | I |
| Goodyear | June 7, 1989 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 2,471 | 2 | .027 | II |
| Hertz Co. | August 24, 1987 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 1,035 | 2 | .027 | V |
| Hewlett Packard | March 21, 1989 | 100 | 52 | .8 | .017 | 57 | 1 | .021 | 292 | <1 | .012 | I |
| Honeywell | December 22, 1986 | 100 | 61 | 1 | .021 | 48 | 1 | .021 | 176 | <1 | .012 | I |
| IBM | October 21, 1986 | 100 | 460 | 1 | .021 | .00 | <.1 | .014 | 1,914 | <1 | .012 | I |
| Johnson Controls | November 21, 1986 | 100 | 2.5 | .1 | .002 | 1.5 | .1 | .002 | 120 | 1 | .014 | III |
| McGraw Hill | February 26, 1987 | 100 | 3 | .23 | .005 | 3.2 | .3 | .006 | 42 | <1 | .012 | I |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Measurex | December 18, 1986 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 40 | 2 | .027 | No |
| Merck | November 30, 1987 | 100 | 29 | .8 | .017 | 21 | .4 | .009 | 296 | 1 | .014 | II |
| Mobil Co. | November 18, 1986 | 100 | N.A. | N.A. | .023 | 400 | 1.1 | .023 | 3,182 | 2 | .027 | I |
| Moore Co. | February 6, 1987 | 100 | 22.5 | 1.1 | .023 | 12.7 | 1.1 | .023 | 538 | 2 | .027 | No |
| Motorola | October 8, 1985 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | N.A. | N.A. | .027 | No |
| Newmont Mining | March 30, 1988 | 100 | N.A. | 2.4 | .050 | 50.4 | 2.4 | .051 | 3 | 4 | .027 | Yes |
| Norton | March 4, 1987 | 100 | 32.3 | 2.7 | .056 | 14.9 | 1.4 | .030 | 1,228 | 2 | .027 | I |
| Pepsi Co. | February 18, 1987 | 100 | 28.5 | .22 | .005 | 30.3 | .33 | .007 | 688 | 1 | .014 | No |
| Perkin-Elmer | February 25, 1985 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | N.A. | N.A. | .027 | No |
| Phibro-Salomon | August 22, 1985 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | N.A. | N.A. | .027 | No |
| Phillips Petroleum | March 12, 1986 | 50 | 15 | .1 | .001 | 9 | .05 | .001 | 166 | 1 | .007 | II |
| Procter and Gamble | September 26, 1986 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 290 | 1 | .014 | II |
| RJR | January 19, 1989 | 100 | 28.5 | .22 | .005 | 30.3 | .33 | .007 | 916 | 1 | .014 | II |
| Tambrands | January 27, 1987 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 52 | 2 | .027 | II |
| The Stanley Works | May 2, 1986 | 100 | 2.8 | .1 | .002 | N.A. | N.A. | .014 | N.A. | N.A. | .027 | II |
| Union Carbide | January 1, 1986 | 100 | 58.7 | <1 | .023 | 56 | <1 | .014 | 1,299 | 1 | .014 | II |
| Unisys | August 19, 1988 | 100 | N.A. | N.A. | .023 | N.A. | N.A. | .014 | 695 | 1 | .027 | No |
| Warner Comm. | October 22, 1986 | 100 | 20 | 1 | .021 | 18 | 1 | .021 | 181 | 1 | .014 | II |
| Xerox | March 19, 1987 | 51 | 71.8 | .80 | .008 | 26.5 | .30 | .326 | 790 | 1 | .007 | I |
| Average | ... | 95 | 89 | 1.09 | ... | 50 | .67 | ... | 1,076 | 2 | ... | ... |
| Total | ... | ... | 2,486 | ... | 1.00 | 1,500 | ... | 1.00 | 39,810 | ... | 1.00 | ... |

NOTE.—This table shows U.S. firms that announced they would divest themselves of all assets in South Africa. Firms that subsequently did not divest are not included in the sample. The event date is taken to be the initial announcement date. (Announcement dates of divesting firms are collected from the *Wall Street Journal*.) Portfolio weights are computed as an ownership-weighted percentage. For example, the sales weight of Coca-Cola is (66%)(5%)/(the ownership-weighted sum of all sales as % of total). For the purpose of computing weights, missing data items were replaced with the sample average and items reported as "less than" were reduced by 10%. The Sullivan Principles are a set of criteria on which firms may be ranked based on their operating procedures with regards to apartheid. These principles are divided into six categories: (I) nonsegregation of the races in all eating, comfort and work facilities; (II) equal and fair employment practices; (III) equal pay for all employees doing equal or comparable work for the same period of time, (IV) initiation of and development of training programs that will prepare, in substantial numbers, blacks and other nonwhites for supervisory, administrative, clerical, and technical jobs; (V) increasing the number of blacks and other nonwhites in management supervisory positions; and (VI) improving the quality of employees' lives outside the work environment in such areas as housing, transportation, schooling, recreation, and health facilities. The column marked "Sullivan Rating" indicates at what level each firm is operating. Higher levels subsume previous levels. A rating of "yes" indicates that firms are following the principles but were unable to be assigned a rating.

## Appendix B

### Event Study Test Methods

For each security, the effect of the event in question on returns is estimated using some or all of the following: (1) mean adjusted return, (2) ordinary least squares (OLS) market-model return, or (3) explanatory model return. The daily prior estimation period used is 200 days preceding the first event where $n = (-205, -5)$. The monthly prior estimation period is 12 months preceding the first event where $n = (-13, -1)$.

For each firm or portfolio, the three measures of excess return are estimated as follows: (1) mean adjusted returns (used in tables 2 and 4):

$$A_{i,t} = R_{i,t} - \bar{R}_i \tag{B1}$$

and

$$\bar{R}_i = \frac{1}{n} \sum_{n} R_{i,n}, \tag{B2}$$

where $R_i$ is the simple average of security $i$'s daily returns in the estimation period; (2) OLS "market-model" returns (used in tables 2 and 4):

$$A_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t}, \tag{B3}$$

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are OLS values from the estimation period (200 days, ending 5 days before the event); and (3) (explanatory) "model returns" (used in tables 1, 3, 7, and 8):

$$A_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_{1,i} R_{m,t} - \hat{\beta}_{2,i} R_{\text{industry},t} - \hat{\beta}_{3,i} R_{\text{TB},t}, \tag{B4}$$

where $\hat{\alpha}_i$ and $\hat{\beta}_{1,i}$, $\hat{\beta}_{2,i}$, $\hat{\beta}_{3,i}$ are OLS coefficients from the estimation period (200 days, ending 5 days before the event). The value $R_{\text{TB}}$ is the yield in percent per annum for 1-year Treasury bills. "Industry" encompasses other firms with the same 4-digit SIC code. Test statistics for any event date $t$ under the null hypothesis are defined as

$$\frac{\bar{A}_t}{S(\bar{A}_t)}, \tag{B5}$$

where

$$\bar{A}_t = \frac{1}{N_t} \sum_{i=1}^{N_t} A_{i,t}, \tag{B6}$$

$$S(\bar{A}_t) = \sqrt{\frac{\left(\sum_t (\bar{A}_t - \bar{\bar{A}})^2\right)}{t}}, \tag{B7}$$

$$\bar{\bar{A}} = \frac{1}{t} \sum_t \bar{A}_t, \tag{B8}$$

and $t$ is the $(-205, \ldots, -5)$ estimation period. Test statistics for periods longer than 1 day are defined as

$$T = \frac{\sum_t \bar{A}_t}{\sqrt{\sum_t S^2(\bar{A}_t)}}, \tag{B9}$$

where $t$, for example, would be an interval of $-1$ to $+1$.

## References


Binder, J. J. 1988. The Sherman Antitrust Act and the railroad cartels. *Journal of Law and Economics* 31, no. 2 (October): 443–68.

Bowers, C., and Cooper, A. 1986. *U.S. and Canadian Investment in South Africa and Namibia*. New York: Investor Responsibility Research Center.

Bowers, C., and Cooper, A. 1987. *U.S. and Canadian Investment in South Africa, 1986*. New York: Investor Responsibility Research Center.

Cooper, A. 1987. *U.S. and Canadian Business in South Africa, 1987*. New York: Investor Responsibility Research Center.

Cooper, A. 1989. *U.S. and Canadian Business in South Africa, 1989*. New York: Investor Responsibility Research Center.

Harris, L., and Gurel, E. 1986. Price and volume effects associated with changes in the S&P 500: New evidence for the existence of stock price pressures. *Journal of Finance* 41, no. 4 (September): 815–29.

International Monetary Fund. 1979–92. *International Financial Statistics*. Washington, D.C.: International Monetary Fund.

Loderer, C.; Cooney, J. W.; and van Drunen, L. D. 1991. The price elasticity of demand for common stock. *Journal of Finance* 46, no. 2 (June): 621–51.

McWilliams, A., and Stegel, D. 1997. Event studies in management research: Theoretical and empirical issues. *Academy of Management Journal* 40, no. 3 (June): 626–57.

Meznar, M. B.; Nigh, D.; and Kwok, C. C. Y. 1994. Effect of announcements of withdrawal from South Africa on stockholder wealth. *Academy of Management Journal* 37, no. 6 (December): 1633–48.

Moody's Investors Service. 1985. *Moody's Bank Report*. New York: Moody's Investors Service.

Moody's Investors Service. 1984–87. *Moody's Bank and Finance Manual: Banks, Insurance and Finance Companies, Investment Trusts, Real Estate. American and Foreign*. New York: Moody's Investors Service.

Moody's Investors Service. 1985–86. *Moody's Handbook of Common Stocks*. New York: Moody's Investors Service.

Moskowitz, T. 1998. Industry factors as an explanation for momentum. Working paper. Los Angeles: University of California, Los Angeles, Anderson Graduate School of Management.

Prager, R. A. 1989. Using stock price data to measure the effects of regulation: The Interstate Commerce Act and the railroad industry. *Rand Journal of Economics* 20, no. 2 (Summer): 280–93.

Schipper, K.; Thompson, R.; and Weil, R. L. 1987. Disentangling interrelated effects of regulatory changes on shareholder wealth: The case of motor carrier deregulation. *Journal of Law and Economics* 30, no. 1 (April): 67–100.

Shleifer, A. 1986. Do demand curves for stocks slope down? *Journal of Finance* 41, no. 3 (July): 579–90.

U.S. Department of the Interior, Bureau of Mines. 1988. *Minerals Yearbook*. Washington, D.C.: Government Printing Office.