Equity Market Liberalization in Emerging Markets

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September 23, 2002

Abstract

Equity market liberalizations, if effective, lead to important changes in both the financial and real sectors as the economy becomes integrated into world capital markets. The study of market integration is complicated because there are many ways one can liberalize and many countries have taken different routes. To study the effectiveness of particular liberalization policies, the sequencing of liberalizations, and the impact on the real economy, systematic methods must be developed to 'date' the liberalization of emerging equity markets. We provide a synthesis of the current methods, and also show the impact of liberalization on the real sector.

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1 Introduction

One of the most important national policy decisions of the past 25 years has been the financial liberalization of equity markets across the world. Equity market liberalizations give foreign investors the opportunity to invest in domestic equity securities and domestic investors the right to transact in foreign equity securities.

It is important to distinguish between the concepts of liberalization and integration. For example, a country might pass a law that seemingly drops all barriers to foreign participation in local capital markets. This is a liberalization – but it might not be an effective liberalization that results in market integration. Indeed, there are two possibilities in this example. First, the market might have been integrated before the regulatory liberalization. That is, foreigners might have had the ability to access the market through other means, such as country funds and depository receipts. Second, the liberalization might have little or no effect because either foreign investors do not believe the regulatory reforms will be long lasting or other market imperfections exist.

To study liberalizations, they must be dated. This is difficult because countries have pursued different liberalization strategies. Our paper begins by analyzing the progress that has been made on dating liberalizations. We examine regulatory changes, the ability of investors to access the local market via proxies like country funds and the behavior of foreign portfolio holdings.

If the liberalization is effective, it leads to market integration which has a fundamental impact on both the financial and real sectors of developing countries. Our paper analyzes the impact of liberalization on the real sector.

2 Financial Liberalization

2.1 Official Equity Market Liberalization

As a start, Bekaert and Harvey (2000) (BH) provide a detailed examination of the key economic events that could potentially impact the financial liberalization and reform process

in a large number of emerging countries.[1] Further, to explore the effects of foreign access to domestic equity markets, BH date an "official equity market liberalization" for each country; that is, a date of formal regulatory change after which foreign investors officially have the opportunity to invest in domestic equity securities, and domestic investors the right to transact in foreign equity securities abroad. As an example, Brazil rewrote its foreign investment law in May 1991. Resolution 1832 Annex IV stipulated that foreign institutions can own up to 49% of voting stock and 100% of non-voting stock. Similarly, January 1992 signified a partial opening of the Korean stock market to foreigners, after which foreigner investors could own up to 10% of domestically listed firms. In Table I, we present the BH official liberalization dates for 30 emerging equity markets. As can be observed, many liberalizations are clustered in the late 1980s or early 1990s. Based upon the chronologies presented in Bekaert and Harvey (2000), Table II provides a more detailed analysis describing the particular regulatory change that occured at the BH official liberalization date. Generally, as in the examples provided above, these reforms involved (for the first time) the removal of foreign restrictions on domestic equity holdings. Further, these dates generally correspond to the liberalization dates provided by the International Finance Corporation (IFC); however, there are other "equity market liberalization" dates provided in this literature which, employing somewhat different criteria, do differ significantly from those provided by BH for certain countries (see Henry (2000a), Kim and Singal (2000), and Levine and Zervos (1998b)).

To illustrate the difficulty associated with dating market integration, Table III presents chronologies of major economic events for two countries, Brazil and Korea. For example, over the 20-year period presented, Brazil, shown in Panel A, introduced insider trading laws, undertook macroeconomic reforms, employed several different exchange rate regimes, and gradually allowed increased foreign direct and portfolio investment. Additionally, these events were not one-directional, as exchange rate and trade restrictions were re-introduced over the reform time-line. Taken together, this multi-faceted reform effort makes the dating

[1]More detailed chronologies for each of the emerging market countries presented here are available on the Internet in the country risk analysis of http://www.duke.edu/~charvey/Country_risk/couindex.htm.

of economic and financial integration judgmental, particularly as this and previous work are interested in isolating the financial and real economy effects of an equity market liberalization (see Bekaert, Harvey, and Lundblad (2001, 2002)). Further, this chronology is by no means unique or unusual; in Panel B, we display the comparable chronology for Korea, which exhibits the same challenging features. For example, Korea was admitted into the United Nations and initiated a political rapprochement with the Democratic People's Republic of Korea in 1991, the same year to which BH ascribe the equity market liberalization; this makes the analysis somewhat challenging. Unfortunately, the simultaneity of macroeconomic, political, and financial reform is not the only factor potentially confounding an examination of a single reform's key economic effects. In practice, there are additional factors that may cloud the importance of the particular regulatory changes that BH (and others) document. First, it is possible that the investment restrictions were not binding prior to the reform. Second, the official regulatory changes permitting foreign investment are often implemented gradually. For instance, as can be observed in Table 3, the restrictions foreigners faced when investing in Korean securities were lifted only gradually throughout the 1990's. Hence, dating the "official liberalization" is not unambiguous. Third, although countries might undertake official regulatory reform efforts, foreign investors may still face significant liquidity costs; Chuhan (1992), for example, reports that market participants in many major industrialized countries mentioned liquidity concerns as one of the major impediments to investing in emerging markets.

2.2 Alternative entry: Country Funds and ADR's

Another challenge one faces when dating an equity market liberalization is that many of these emerging markets were already indirectly open to foreign investment prior to official reform by way of country funds and American Depositary Receipts (ADRs). A closed-end country fund is an investment company that invests in a portfolio of assets in a foreign country, but issues a fixed number of shares domestically. Closed-end mutual funds were the original vehicles for foreign investment in emerging financial markets. For example, the Korea Fund partially opened up the Korean equity market to foreign investors in 1984, long

before the capital market liberalizations of 1991. In contrast, ADRs are rights to foreign shares that trade in dollars on a U.S. exchange or over-the-counter. Further, since ADRs are treated as U.S. securities in most legal situations, they enable mutual funds, pension funds, and other U.S. institutions to hold securities that are fungible with foreign shares. Table I details the earliest country fund and ADR introduction for the emerging markets in our sample.

2.3 The Intensity of Liberalization

Market integration is usually a gradual process and the speed of the process is determined by the particular situation in each individual country. When one starts from the segmented state, the barriers to investment are often numerous. Bekaert (1995) details three different categories of barriers to emerging market investment: legal barriers, indirect barriers that arise because of information asymmetry, accounting standards and investor protection and risks that are especially important in emerging markets such as liquidity risk, political risk, economic policy risk and currency risk. These barriers discourage foreign investment. It is unlikely that all of these barriers disappear at a single point in time. Since reform is usually a gradual process, the usual 0/1 indicators variables are perhaps too coarse, failing to capture the intensity or comprehensiveness of the liberalization.

Empirical models have been developed that allow the degree of market integration to change through time. This moves us away from the static segment/integrated paradigm to a dynamic partial segmentation/partial integration setting. Whereas these models are indirect, relying on a model and econometric estimation to infer changes in the degree of integration, there are more direct measures available. Bekaert (1995) and Edison and Warnock (2002) propose a continuous measure of equity market "openness" designed to reflect the foreign investability of these markets. The measure is based on the ratio of the market capitalization of the IFC investable to the global stocks in each country. The IFC Global index, subject to some exclusion restrictions[2], is designed to represent the overall market portfolio for each

[2]For a more complete description of the methodology behind the construction of the SP/IFC indices, see Standard & Poors (2000).

country, whereas the IFC Investable index is designed to better represent a portfolio of domestic equities that are available to foreign investors. Hence, a ratio of one means that all of the stocks are available to foreign investors.

We present the "investability" measure in Figure I for two of the markets we consider, Brazil and Korea. As can be seen, for these countries, this measure increases over time, potentially reflecting the intensity of the liberalization. Indeed, the investability measure for Korea begins at 0 in 1989 and increases to just below 1 by 2001. For comparison, we also note for each country the BH official liberalization date. In each case, the (first) major regulatory reform is indeed associated with a significant increase in the investability measure; however, the move is certainly not suggesting full foreign access subsequent to the official date. Rather, the official liberalization date is generally associated with the first big jump in this measure, but large moves in the investability index may follow. For instance, foreign access to the Korean equity market increased significantly in 1997 and 1998 (see Table 3), and is associated with large jumps in the investability index. The corresponding intensity measures for other countries are very similar (see Edison and Warnock (2002) for a more detailed analysis of this measure across a large collection of emerging markets).

2.4 Foreign Equity Portfolio Holdings

A second alternative designed to measure the intensity or quality of reforms is to directly investigate changes in the level of foreign equity portfolio holdings in these countries. It makes sense that as barriers to entry decrease in emerging equity markets, foreign capital flows in. One would like to document the observable points at which foreign investors are significantly changing their portfolio holdings in these markets, but unfortunately, the data are somewhat limited along this dimension. The only high-frequency data available are net capital flows to emerging markets for the United States, published monthly in the U.S. Treasury Bulletin. If one is willing to take the US transactions as a proxy for more general foreign equity market activity in these countries, then an estimate of U.S. ownership can be obtained by cumulating the net equity flow data (adjusting for local equity market appreciation). United States presence in these markets is likely to be highly correlated with

the aggregate foreign presence.

Nevertheless, US holdings estimates based upon the net portfolio flow data are not without problems. First, foreign investors may not hold the precise equity portfolio employed to account for the value appreciation in the cumulation of the net flows. Second, the US data on cross border purchases and sales of securities indicate where US investors are purchasing foreign securities, but not the bona fide residence of the issuer of the foreign security. Hence, large observed net flows to financial centers may actually reflect emerging equity market investment through these intermediaries that one is unable to track, and estimates of US portfolio holdings are consequently understated. The Bureau of Economic Analysis (BEA) conducted benchmark surveys of actual US holdings of foreign securities in March 1994 and December 1997 (and 2000). Warnock and Cleaver (2002) show that estimated US equity portfolio holdings based upon the cumulated US net equity flows starting in 1994 differ significantly in many cases by 1997 from the benchmark survey amounts. They find that US holdings of foreign securities are indeed substantially underestimated, suggesting many US transactions in foreign securities are going through intermediaries in other countries, particularly the United Kingdom.

To deal with this shortcoming, Thomas and Warnock (2002) provide modified estimates of US equity portfolio holdings that employ the monthly net equity flow data, but are also anchored at the BEA survey US holdings amounts in 1994 and 1997. This methodology exploits the high-frequency feature of the US net flow data, but corrects for the documented underestimation by also employing the infrequent, but high-quality survey based US holdings data. Similar to Bekaert and Harvey (2000) and Bekaert, Harvey and Lumsdaine (2002a,b), they form baseline holdings estimates, denoted $Own_{i,t}$, at the end of a month by adjusting the previous months holdings for estimated price and exchange rate changes, and add the current months net purchases:

$$Own_{i,t} = Own_{i,t-1} * (1 + R_{i,t}) + Flow_{i,t} \tag{1}$$

where $Own_{i,t}$ is the estimated US holdings of country is securities at the end of month t, $Flow_{i,t}$ is the net US purchases of country is securities during month t, and $R_{i,t}$ is an

appropriate equity return (with dividends) required to revalue last periods holdings. They also make a correction for transaction costs and stock swaps. Recall, these unadjusted US holdings amounts will be understated; by December 1997, for example, this methodology results in a holdings estimate $Own_{i,12/1997}$ that differs significantly from the benchmark survey. Thomas and Warnock (2002) also employ a grid search methodology to adjust the net equity flows in each inter-survey month by an amount that will equate $Own_{i,12/1997}$ to its benchmark survey level.[3] For many countries, the estimates extend back to 1977, but some begin later as the equity price data necessary for the valuation adjustment are not uniformly available. In Figure 2, we display the estimated US holdings of Brazilian and Korean equities, along with the associated BH official equity market liberalization dates. As can be seen, the estimated holdings are effectively zero in dollar terms prior to the official liberalization, but subsequently explode reaching 24.3 and 24.8 billion US$, respectively, by the end of 2001.

2.4.1 Estimated Breaks in US Equity Portfolio Holdings

Bekaert and Harvey (2000) and Bekaert, Harvey, and Lumsdaine (2002a) employ similar estimates of US equity portfolio holdings to test for a structural break in the ownership series to econometrically identify the point at which the foreign presence in these market increases significantly. The idea is that a structural shift in the foreign presence in the markets may be a better indicator of the quality of equity market liberalization; however, it should be noted that foreign capital will also be attracted by strong growth opportunities in addition to considerations such as the comprehensiveness, quality, and stability of capital market reforms. Note, the holdings data reflect both increased US net transactions as well as the significant (and well documented) equity appreciation observed for these markets over the post-liberalization period (see Bekaert and Harvey (2000) and Henry (2000a)). Consequently, to control for the valuation component, they divide these figures by the domestic equity market capitalization. Bekaert and Harvey (2000) and Bekaert, Harvey, and Lumsdaine

[3]For seventeen of the emerging markets considered in this paper, Thomas and Warnock were kind enough to share their adjusted estimates of US equity holdings.

(2002a) employ the endogenous break point tests detailed in Bai, Lumsdaine, and Stock (1998), which searches for a break in the mean within the context of an autoregressive model for the US ownership series. Additionally, the procedure yields a break date with a 90 percent confidence interval. We report the BH estimated portfolio holdings break dates in the fourth column of Table I. As can be seen, there are several countries for which the official liberalization date and estimated break date are within a year or two of one another; see, for example, Turkey which has an official liberalization in August of 1989 and an estimate of the portfolio holding break date in December of that same year. In contrast, there are several countries for which the dates are quite different (see for example, Argentina, Portugal, and Venezuela). Taken together, the lack of uniformity across these dates presents a challenge to researchers in this area. For this reason, it is important to evaluate the robustness of any estimated liberalization effects to alternative dating schemes.

In Figure III (panels a-q), we present the ratio of the estimated US equity portfolio holdings (from Thomas and Warnock (2002)) to the market capitalization of the Morgan Stanley Capital International (MSCI) indices for each country (which they use to make valuation adjustments). Below each estimate, we provide the BH (2000) official liberalization date, the date associated with either the first country fund or ADR, and the estimated break date. Additionally, we highlight key macroeconomic, trade, legal, and financial reforms that may impact foreign interest and/or access. As can be seen, across almost all of the countries considered, estimated US holdings of domestic equities in these countries comprised almost none of the domestic market capitalization; in contrast, by the end of 2001, the US equity holdings exceed 25%, on average, of the MSCI index capitalization across these markets, with several countries exceeding 50%. It is important to realize that these holdings do not reflect the percent of total market capitalization held by US residents because the MSCI indices only represent between 50 and 70% of the total market capitalization. Hence, a 25% holding translates approximately into a (0.25 times 0.6 =) 15% US holding. These figures, showing a strong upward trend in almost every case, demonstrate a dramatic change in the importance of foreign investors to the domestic equity markets in each of these countries over the last two decades. The more important question, however, is whether this increased

foreign presence has significantly altered or improved a) the level of financial development, and b) real economic development through growth. These questions are the subject of our recent work (see Bekaert, Harvey, and Lundblad (2001, 2002)).

3 Economic Effects of Financial Liberalization

There are a number of channels through which financial liberalization may affect the real economy. Once allowed access, foreign investors, exploiting the benefits of diversification, will drive up domestic equity market values; Bekaert and Harvey (2000) and Henry (2000a) demonstrate that the cost of capital falls subsequent to major regulatory reforms that permit foreign investors access to domestic equity markets. Second, Henry (2000b) and Bekaert, Harvey and Lundblad (2002) document that aggregate domestic investment increases significantly after liberalization, potentially stimulating economic growth. There is also a booming literature (see King and Levine (1993) and Levine and Zervos (1998) as examples) that now documents enhanced economic growth associated with deeper financial markets and banking sectors. As Bekaert, Harvey and Lundblad (2002) argue that equity market liberalization promotes financial development and liquidity, this may provide an additional channel through which liberalization stimulates growth. Finally, as foreign investors may demand improved corporate governance and transparency in these countries, this may reduce the wedge between costs of external and internal financing at the firm level, stimulating corporate investment (see Love (2002)). In this paper, we will summarize the liberalization effects on real GDP and investment growth for a collection of developing economies that house emerging equity markets.

For a collection of emerging and frontier markets over the 1980-1997 period, Bekaert, Harvey and Lundblad (2001) document that an "official equity market liberalization" leads to an increase in average annual per capita GDP between around 1% controlling for other macroeconomic, demographic, and financial factors that have been shown to predict cross-sectional variation in economic growth. We explore GDP and investment growth across a similar set of countries here, updating our data set to include the highly influential East

Asian crises, for which several countries in that region actually contracted by more than 10%. For example, in 1998, real per capita GDP growth was -12.1% in Thailand, -15.7% in Indonesia, and -7.8% in Korea according to the World Bank.

3.1 Summary Statistics

For the 30 emerging markets (excluding Taiwan due to World Bank data limitations) that we consider above, we collect annual data on real per-capita gross domestic product (GDP) and investment extending from 1980 to 2000 from the World Bank Development Indicators CD-Rom. Figures 4 and 5 present evidence on annually observed rates of economic and investment growth, respectively, both before and after the BH official liberalization date presented in Table 1. As can be seen from the graphs, the majority of these countries exhibit larger average economic growth after financial liberalization, even when the crisis years are included. With that in mind, the observed average difference across liberalization regimes is a remarkably robust feature of the data. Investment growth is similarly larger, on average, for most countries; however, there is a very large negative average investment rate post-liberalization for Zimbabwe. This is due to an extremely large investment contraction in 2000 (GDP also contracts but by a considerably smaller margin). This drop in investment is likely due to the extensive political turbulence exhibited in that country at the end of our sample.[4] Nevertheless, the broad pattern is similar across the remaining countries, on average, for investment growth.

3.2 Emerging Economies and Liberalization

Following Bekaert, Harvey, and Lundblad (2001,2002) we exploit the following regression specification:

$$y_{i,t+1} = \beta_{i,0} + \beta_1 \cdot \mathbf{Lib_{i,t}} + \epsilon_{i,t+1} \tag{2}$$

[4]Zimbabwe faced its worst economic crisis since independence with unemployment, interest rates and inflation all soaring to record highs in 2000.

where $y_{i,t}$ is the one-year growth rate in either real per capita GDP or investment, and $Lib_{i,t}$ denotes a liberalization indicator variable takes a value of one when the equity market is officially liberalized, and zero otherwise. BH official liberalization dates are presented in Table I. We estimate the pooled time-series cross-sectional regression by GMM (see Hansen (1982)), correcting for groupwise heteroskedasticity and SUR effects. We also employ a simple fixed effects estimator to directly soak up other country specific factors that might affect economic and investment growth. To conserve space, we do not present the fixed effects.

In Table 4, we present estimates of the relation between real economic growth rates and the BH official equity market liberalization indicator. Consistent with the evidence on the pre and post-liberalization average growth rates presented in Figures 4 and 5, these estimates demonstrate a positive and statistically significant relation between the BH official equity market liberalization and both GDP and investment growth. Specifically, consistent with Bekaert, Harvey and Lundblad (2001), the evidence implies that real GDP per capita growth rates increase following financial liberalization by 0.84% (standard error 0.16%), on average, across the countries considered here. Similarly, consistent with Henry (2000b), real investment growth increases by 2.2% (standard error 0.73%), on average. These differences suggest a significant economic affect associated with the introduction of foreign investors to the domestic equity market.

As emphasized above, the dating of an equity market liberalization is not a clear cut empirical exercise. Hence, when exploring the economic affects associated with the isolated regulatory reform, an examination of the robustness of these effects to alternative dating schemes is required. For this reason, as in Bekaert, Harvey, and Lundblad (2002), we reestimate the regressions presented above, using two alternative sets of equity market liberalizations. The first set of dates is what they refer to as first sign dates; that is, the earliest of the three dates presented in Table I: official liberalizations, first American Depositary Receipt (ADR) announcement and first country fund launch. The second line of Table suggests that the liberalization coefficients are robust to using the first sign dates, as the estimated effects for both GDP and investment growth are virtually identical.

Second, given the limitation of the 0/1 liberalization indicator employed above, we also reestimate the regressions above, employing the continuous investability measure from Edison and Warnock (2002). Recall, a ratio of one indicates that all of the domestic stocks are available to foreign investors. In Table 5, we call this the Intensity measure. The estimates reported in Table 5 can be interpreted as the liberalization effect for countries which are fully open. The effect is, not surprisingly, stronger than the coarse liberalization effect. For example, the GDP and investment growth effects of a full equity market liberalization are 1.1% and 3.3%, respectively, and both are highly significant. For a more elaborate analysis, including the growth effects for various horizons, the effect of control variables, and an exploration of the channels of growth, see Bekaert, Harvey, and Lundblad (2002).

4 Conclusion

The integration of emerging equity markets into world capital markets is best thought of as a structural change. Integration impacts the functioning of the equity market, the cost of capital, the diversification ability of local participants, the level of prices, the business focus of local companies, and foreign capital flows. The financial changes spill over into the real economy. It makes sense that a lower cost of capital is associated with increased investment and better prospects for GDP growth.

Our paper has focused on the different routes that a country can take to liberalize its equity market. We then explore the methods by which researchers can date the integration of world equity markets. The dating is a critical exercise. Only when dates are established can research begin to measure the impact of liberalizations. Given the considerable variation in liberalization initiatives, it is important for policy makers to know the impact of liberalizations and the sequencing of liberalizations.

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Table 1

Equity Market Opening in Emerging Countries

Country	Official Liberalization Date	First ADR Introduction	First Country Fund Introduction	Estimate of Increase in Net U.S. Capital Flows
Argentina (ARG)	89.11	91.08	91.10	93.04
Bangladesh (BGD)	91.06	n/a	n/a	n/a
Brazil (BRA)	91.05	92.01	87.10	88.06
Chile (CHL)	92.01	90.03	89.09	88.01
Colombia (COL)	91.02	92.12	92.05	93.08
Cote d'Voire (CIV)	95	n/a	n/a	n/a
Egypt (EGY)	92	96.11*	n/a	n/a
Greece (GRC)	87.12	88.08	88.09	86.12
India (IND)	92.11	92.02	86.06	93.04
Indonesia (IDN)	89.09	91.04	89.01	93.06
Israel (ISR)	93.11	87.08*	92.10	n/a
Jamaica (JAM)	91.09	93.06*	n/a	n/a
Jordan (JOR)	95.12	97.12*	n/a	n/a
Kenya (KEN)	95.01	n/a	n/a	n/a
Korea (KOR)	92.01	90.11	84.08	93.03
Malaysia (MYS)	88.12	92.08	87.12	92.04
Mexico (MEX)	89.05	89.01	81.06	90.05
Morocco (MAR)	88.06	96.04*	n/a	n/a
Nigeria (NGA)	95.08	98.05*	n/a	n/a
Pakistan (PAK)	91.02	94.09*	91.07	93.04
Philippines (PHL)	91.06	91.03	87.05	90.01
Portugal (PRT)	86.07	90.06	87.08	94.08
South Africa (ZAF)	96	94.06*	94.03	n/a
Sri Lanka (LKA)	90.10	94.03*	n/a	n/a
Taiwan (TWN)	91.01	91.12	86.05	92.08
Thailand (THA)	87.09	91.01	85.07	88.07
Trinidad & Tobago (TTO)	97.04	n/a	n/a	n/a
Tunisia (TUN)	95.06	98.02*	n/a	n/a
Turkey (TUR)	89.08	90.07	89.12	89.12
Venezuela (VEN)	90.01	91.08	n/a	94.02
Zimbabwe (ZWE)	93.06	n/a	n/a	n/a

The official liberalization dates, date of first ADR issuance, and first country fund are based on Bekaert and Harvey (2000), augmented here to include 10 additional emerging markets. The estimate of the break point in U.S. equity portfolio holdings is obtained from Bekaert and Harvey (2000), using the algorithm in Bai, Lumsdaine, and Stock (1998). For countries with a *, we obtain "effective dates" from the Bank of New York (http://www.adrbny.com). Note, the other "announcement" dates are from Miller's (1999); however, he notes that the announcement usually only preceeds the issue by 40 days, on average. For South Africa, the first ADR introduction date is associated with the post-apartheid period; there were many ADRs in the early 1980's which we ignore.
n/a represents not available.

Table 2

Classifying an Official Equity Market Liberalization

Country	Official Liberalization Date	
Argentina (ARG)	89.11	Free repatriation of capital, remittance of dividends and capital gains.
Bangladesh (BGD)	91.06	Purchases of Bangladesh shares and securities by nonresidents, including nonresident Bangladeshis, in stock exchange in Bangladesh were allowed, subject to meeting procedural requirements.
Brazil (BRA)	91.05	Foreign investment law changed. Resolution 1832 Annex IV stipulates that foreign institutions can now own up to 49% of voting stock and 100% of non-voting stock. Economy Ministers approved rules allowing direct foreign investments; 15% tax on distributed earnings and dividends but no tax on capital gains. Foreign investment capital must remain in country for 6 years as opposed to 12 years under previous law. Bank debt restructuring agreement.
Chile (CHL)	92.01	Liberalization of foreign investment, reducing the minimum holding period and tax on investment income.
Colombia (COL)	91.02	Foreigners have the same rights as domestic investors.
Cote d'Voire (CIV)	95	National Assembly approved a new Ivoirian Investment Code. For all practical purposes, there are no significant limits on foreign investment -- or difference in the treatment of foreign and national investors -- either in terms of levels of foreign ownership or sector of investment.
Egypt (EGY)	92	Capital Market Law 95 grants foreign investors full access to capital markets. There are no restrictions on foreign investment in the stock exchange.
Greece (GRC)	87.12	Liberalization of currency controls allowed foreigners to participate in the equity market and to repatriate their capital gains.
India (IND)	92.11	Government announces that foreign portfolio investors will be able to invest directly in listed Indian securities.
Indonesia (IDN)	89.09	Minister of Finance allows foreigners to purchase up to 49% of all companies listing shares on the domestic exchange excluding financial firms.
Israel (ISR)	93.11	Nonresidents allowed to deposit into nonresident accounts all incomes receive from Israeli securities and real estate even if these were purchased from sources other than nonresident accounts.
Jamaica (JAM)	91.09	All inward and outward capital transfers were permitted, except that financial institutions must match their Jamaica dollar liabilities to their clients with Jamaica dollar assets.
Jordan (JOR)	95.12	Foreign investment bylaws passed allowing foreign investors to purchase shares without government approval.
Kenya (KEN)	95.01	Restrictions on investment by foreigners in shares and government securities were removed. The Capital Market Authority Act was amended to allow foreign equity participation of up to 40% of listed companies, while individuals are allowed to own up to 5% of listed companies.
Korea (KOR)	92.01	Partial opening of the stock market to foreigners. Foreigners can now own up to 10% of domestically listed firms. 565 foreign investors registered with the Securities Supervisory Board.
Malaysia (MYS)	88.12	Budget calls for liberalization of foreign ownership policies to attract more foreign investors.
Mexico (MEX)	89.05	Restrictions on foreign capital participation in new direct foreign investments were liberalized substantially.
Morocco (MAR)	88.06	Foreigners were permitted to subscribe to two Treasury bond issues of June 1988; the repatriation of capital and income from the investment was granted.
Nigeria (NGA)	95.08	Nigerian market was open to foreign portfolio investment.
Pakistan (PAK)	91.02	No restriction on foreigners or nonresident Pakistanis purchasing shares of a listed company or subscribing to public offerings of shares subject to some approvals.
Philippines (PHL)	91.06	Foreign Investment Act is signed into law. The Act removes, over a period of three years, all restrictions on foreign investments.
Portugal (PRT)	86.07	All restrictions on foreign investment removed except for arms sector investments.
South Africa (ZAF)	96	Restrictions on foreign membership in the JSE (Johannesburgh Stock Exchange) lifted.
Sri Lanka (LKA)	90.1	Companies incorporated abroad were permitted to invest in securities traded at the Colombo Stock Exchange, subject to the same terms and conditions as those applicable to such investments by approved national funds, approved regional funds, and nonresident individuals.
Taiwan (TWN)	91.01	Implementation date of phase two of liberalization plan. Eligible foreign institutional investors may now invest directly in Taiwan securities subject to approval.
Thailand (THA)	87.09	Inauguration of the Alien Board on Thailand's Stock Exchange. The Alien Board allows foreigners to trade stocks of those companies which have reached their foreign investment limits.
Trinidad & Tobago (TTO)	97.04	Companies Act came into force. Under the Companies Ordinance and the Foreign Investment Act, a foreign investor may purchase shares in a local corporation. However, foreign investors currently must obtain a license before they can legally acquire more than 30 percent of a publicly-held company.
Tunisia (TUN)	95.06	Inward portfolio investment was partially liberalized.
Turkey (TUR)	89.08	Foreign investors were permitted to trade in listed securities with no restrictions at all and pay no withholding or capital gains tax provided they are registered with the Capital Markets Board and the Treasury.
Venezuela (VEN)	90.01	Decree 727 opened foreign direct investment for all stocks except bank stocks.
Zimbabwe (ZWE)	93.06	Zimbabwe Stock Exchange was open to foreign portfolio investment subject to certain conditions.

Table 3

Most Important Events

Date	Panel A: Brazil
7600	The introduction of the Insider Trading Laws.
7800	The first prosecution under the Insider Trading Laws.
8602	Cruzado plan (price and wage controls).
8609	Fixed nominal exchange rate abandoned.
8701	Major provisions of Cruzado plan abandoned.
8703	CVM Resolution 1289 Annex II limits foreign direct investment through special conditions.
8900	Deposit rates were fully liberalized. *Mehrez and Kaufmann Liberalization date.*
9003	Collor Plan introduced: introduced a new currency and taxed stock market transactions heavily.
9100	Brazil eliminates exclusive broker system and moves to system like the NYSE.
9105	Foreign investment law changed. Resolution 1832 Annex IV stipulates that foreign institutions can now own up to 49% of voting stock and 100% of non-voting stock. Economy Ministers approved rules allowing direct foreign investments; 15% tax on distributed earnings and dividends but no tax on capital gains. Foreign investment capital must remain in country for 6 years as opposed to 12 years under previous law. Bank debt restructuring agreement.
9105	**Bekaert/Harvey Official Liberalization date.**
920630	Foreign investors were authorized to operate in the options and futures markets related to securities, exchange, and interest rates.
9400	Banking crises (1994-1995).
9410	New 15% tax on all consumer loans and installment payments by banks and businesses.
950306	A new exchange rate system based on bands was introduced. The band was set at R$0.86-R$0.90 per US dollar until May 2, when it would be changed to R$0.86-R$0.98 per U.S. dollar.
9505	Trade policy turns inward as import quotas are introduced and tariffs are increased.
9710	Brazil stock market suffered from the domino effect caused by Hong Kong market crash. $5 billion of reserves were used to defend the currency.
9711	The approval by Brazil's legislature of an austerity package.

Date	Panel B: Korea
8704	Trade liberalization measures announced.
870701	Certain tax privileges granted to attract FDI were reduced and after-investment controls relaxed to put foreign-invested companies and local companies on the same basis.
871228	Overseas investments by Korean residents of less than US$1 million were to be automatically approved, and the upper limit on investment to be free from government screening was increased from US$3 million to US$5 million, regardless of purposes of investment.
8900	Foreign exchange controls phased out.
9011	First ADR is announced.
910103	Market opening to foreign investors.[v] Notification System makes authorization of foreign investment subject to approval or notification. Foreign participation will be easier under new law. Repatriation of capital freely permitted.
9109	Korea admitted into the United Nations.
9109	Announcement that stock market will open to investors in January of 1992.
9201	Partial opening of the stock market to foreigners. Foreigners can now own up to 10% of domestically listed firms. 565 foreign investors registered with the Securities Supervisory Board.
9201	**Bekaert/Harvey Official Liberalization date.**
9412	Limit of foreign ownership of domestically listed firms raised from 10% to 12%. Government announces its intention to raise the overall limit from 12% to 15% sometime in 1995.
9505	International financial institutions were permitted to issue won-denominated bonds in the domestic financial market.
9507	Government raised foreign stock ownership limit from 12% to 15% and raised the limit for single investors from 3% to 5%. The registration period for foreign investment will decrease from 14 to 5 days.
9509	Government announced that foreign firms will be able to list on the Korean Stock Exchange as of 1996.
960401	The ceilings on securities investments by residents were abolished.
9605	Limit of foreign ownership of domestically listed firms raised from 15% to 18%.
9609	Government relaxes foreign ownership restrictions from 18% to 20% and from 12% to 15% for state owned enterprises.
9705	Government raised foreign ownership restriction from 20% to 23%.
9711	Government would raise the foreign share-holding limit to 26% from 23% while state-run firms' limits would be raised to 21% from 18%
9712	The government announced a new 50% foreign investment ceiling
9805	Foreign investment limit on Korean securities was raised to 55%. Foreign investment ceiling on state-run corporations was boosted to 30% from 25% cap.
980525	(Controls on capital and money market instruments) Foreigners are free to purchase domestic collective investment securities without restriction. (Controls on direct investment) Foreign investors were allowed to take over corporations, except defense-related companies, and the ceiling on the amount of stock foreigners may acquire in all companies without the approval of the board of directors was abolished.

Table 4

Real Economy Effects of an Equity Market Liberalization

Sample: 30 Countries

Panel A: One-year GDP growth
Fixed Effects (not reported)

	Estimate	*Std Error*
Official Liberalization	0.0083	*0.0013*
First Sign	0.0082	*0.0014*
Investability	0.0108	*0.0022*

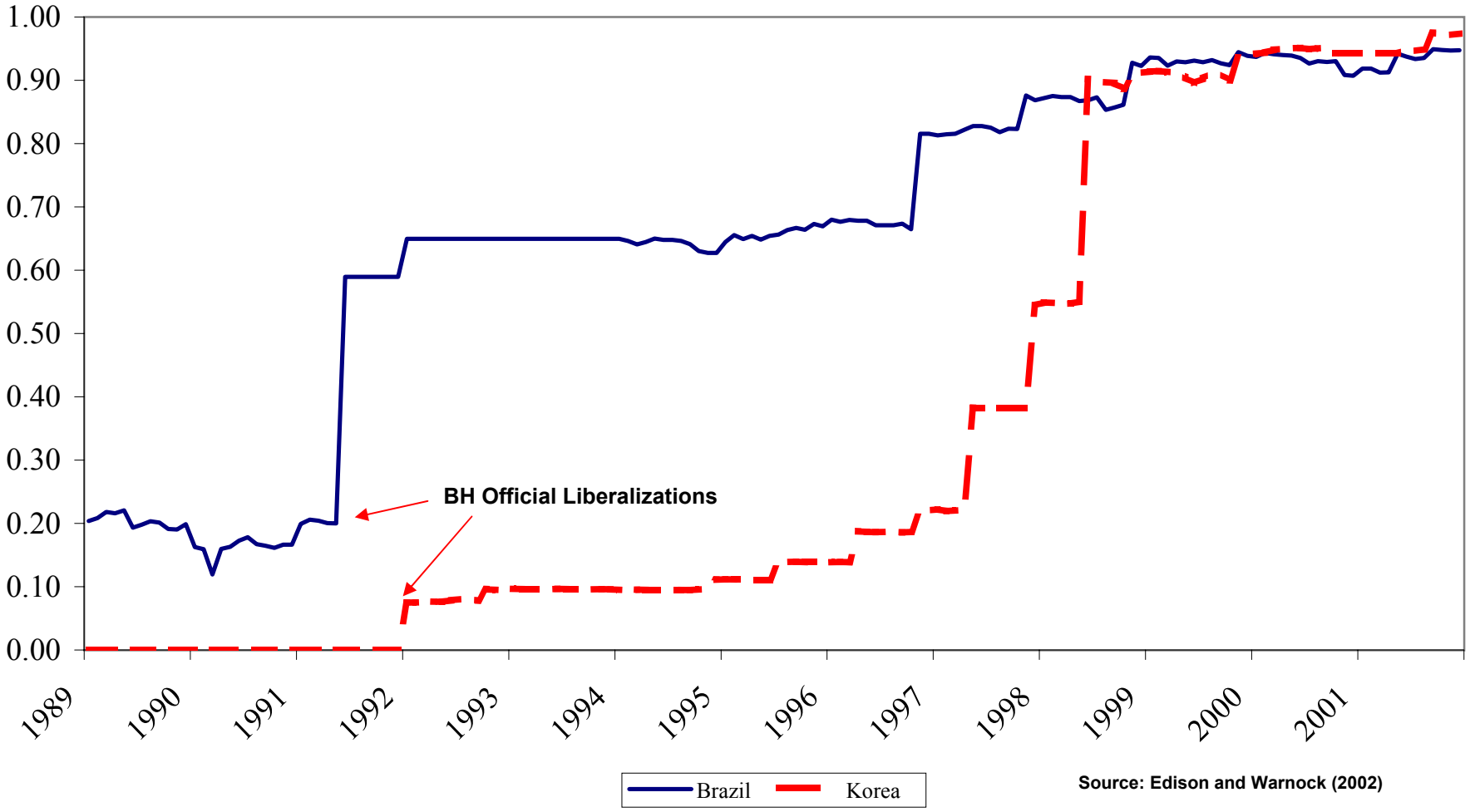
Panel B: One-year Investment growth
Fixed Effects (not reported)

	Estimate	*Std Error*
Official Liberalization	0.0232	*0.0057*
First Sign	0.0264	*0.0057*
Investability	0.0325	*0.0111*

The regression we perform include observations on 30 countries from 1980-2000. The dependent variable is either the one-year average growth rate of real per capita gross domestic product (Panel A) or real per capita domestic investment (Panel B). We include in the regressions, but do not report, country specific intercepts (fixed effects). We report the coefficient on the official liberalization variable that takes a value of one when the equity market is liberalized, and zero otherwise. The first sign liberalization indicator takes the value of one after the first of the following events: the officially liberalization date, the introduction of an ADR, or the introduction of a country fund. The Intensity measure is the ratio of IFC Investables to Global market capitalization from Edison and Warnock (2002). The weighting matrix we employ in our GMM estimation provides a correction for cross-sectional heteroskedasticity.

Figure 1

Equity Market Liberalization Intensity



Source: Edison and Warnock (2002)

Figure 2
Estimated U.S. Equity Portfolio Holdings
(US$ Billions)

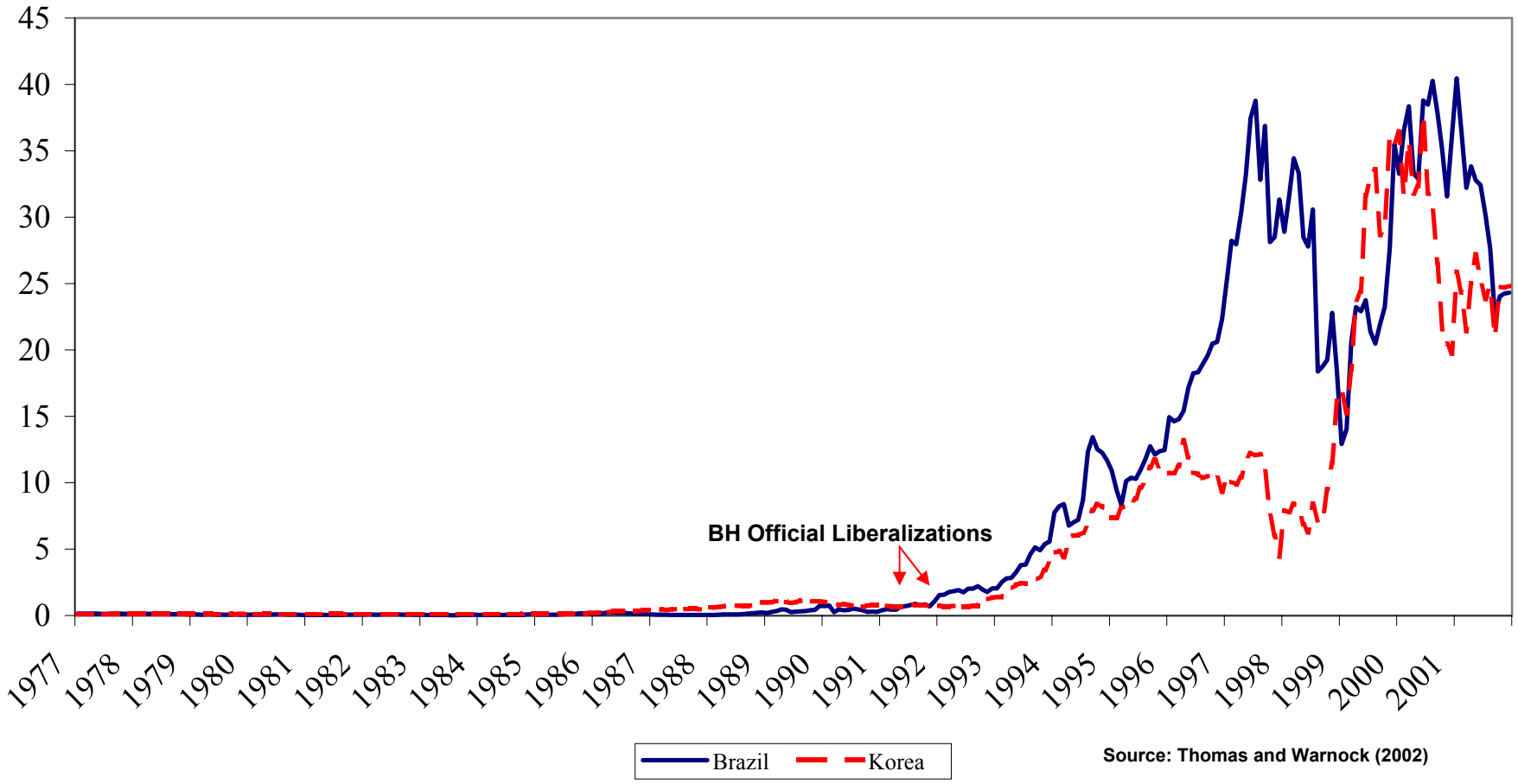


Figure 3a

U.S. Share of MSCI Market Capitalization in Argentina

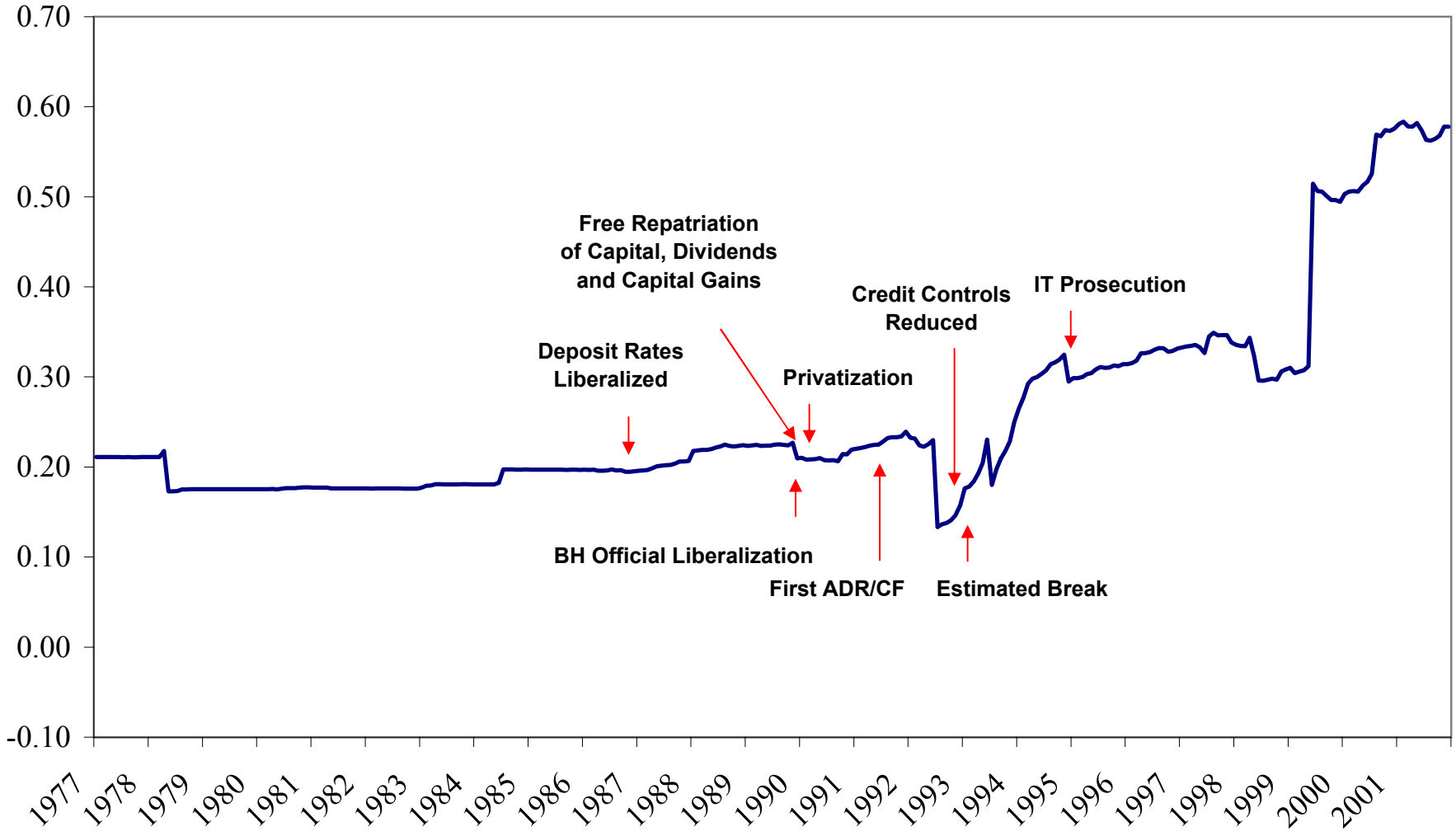


Figure 3b

U.S. Share of MSCI Market Capitalization in Brazil

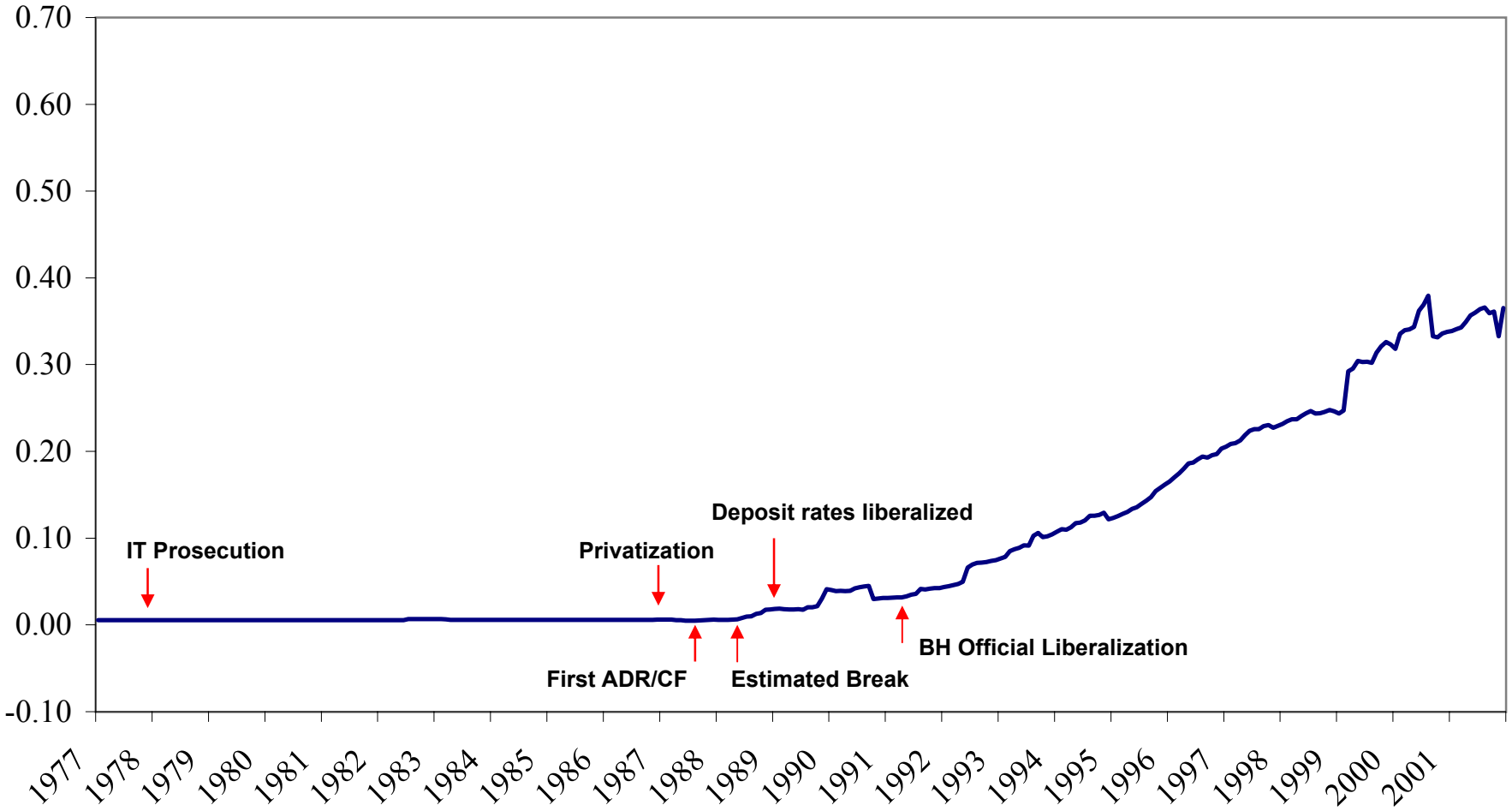


Figure 3c

U.S. Share of MSCI Market Capitalization in Chile

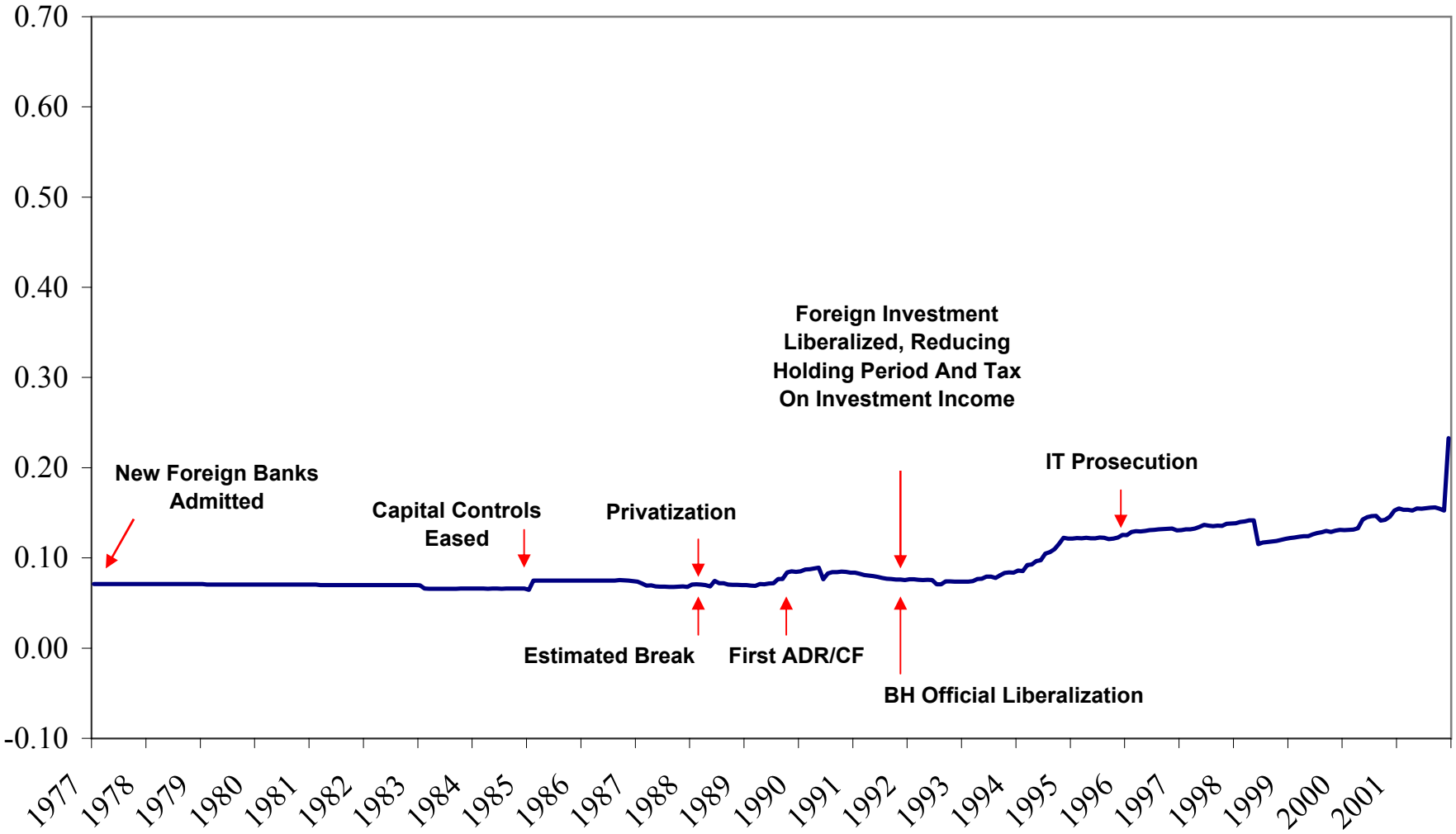


Figure 3d

U.S. Share of MSCI Market Capitalization in Colombia

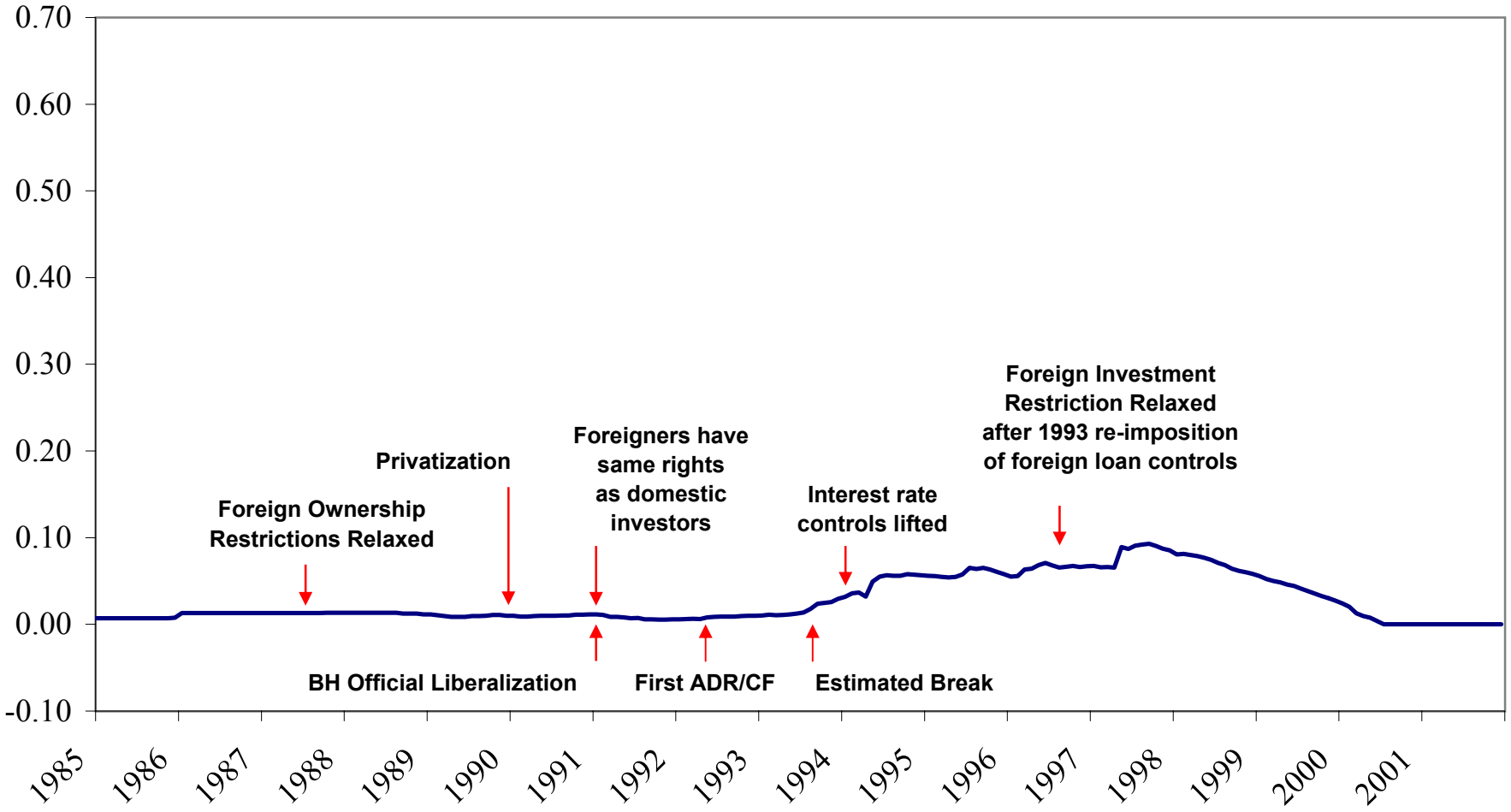


Figure 3e

U.S. Share of MSCI Market Capitalization in Greece

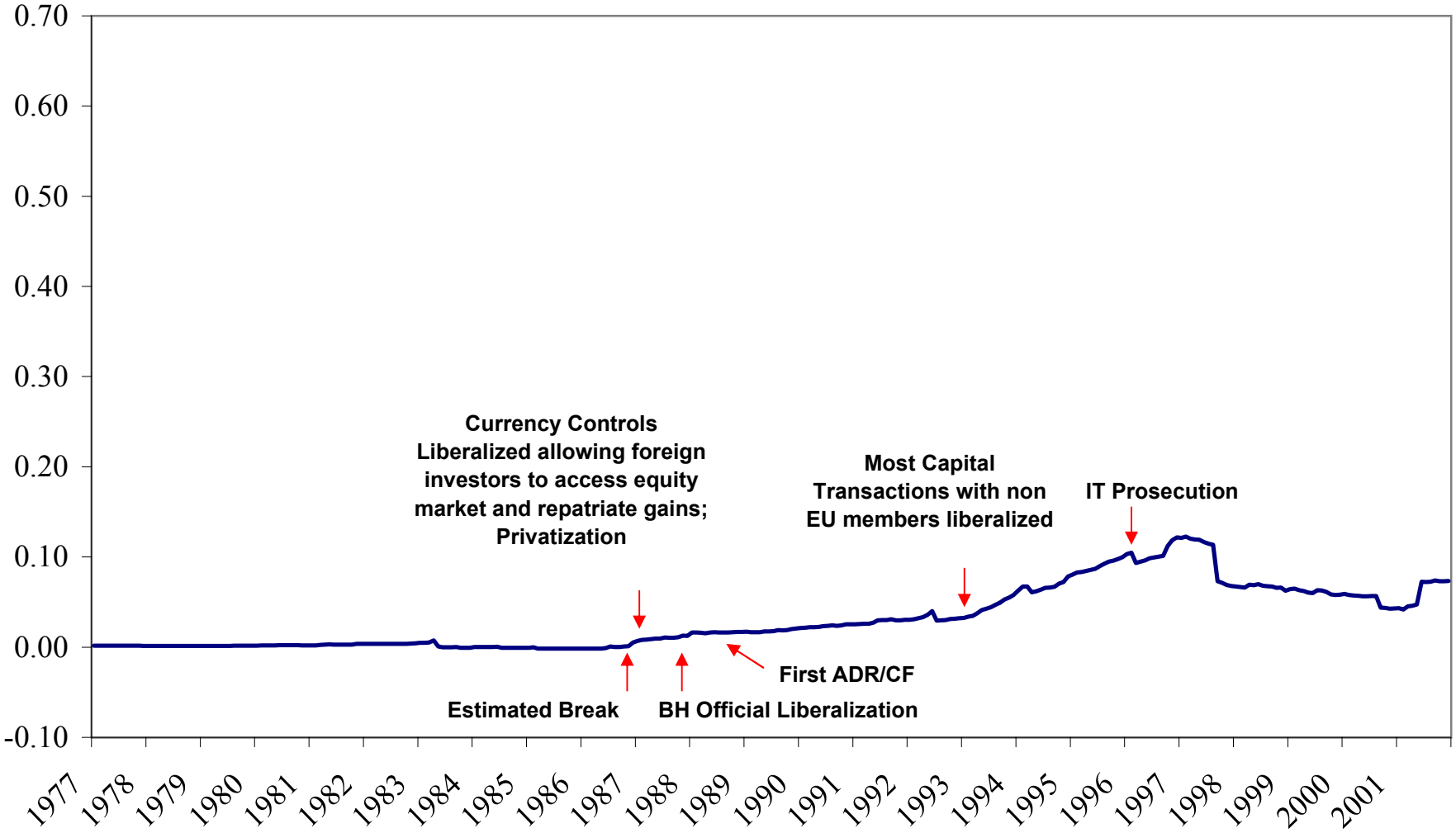


Figure 3f

U.S. Share of MSCI Market Capitalization in India

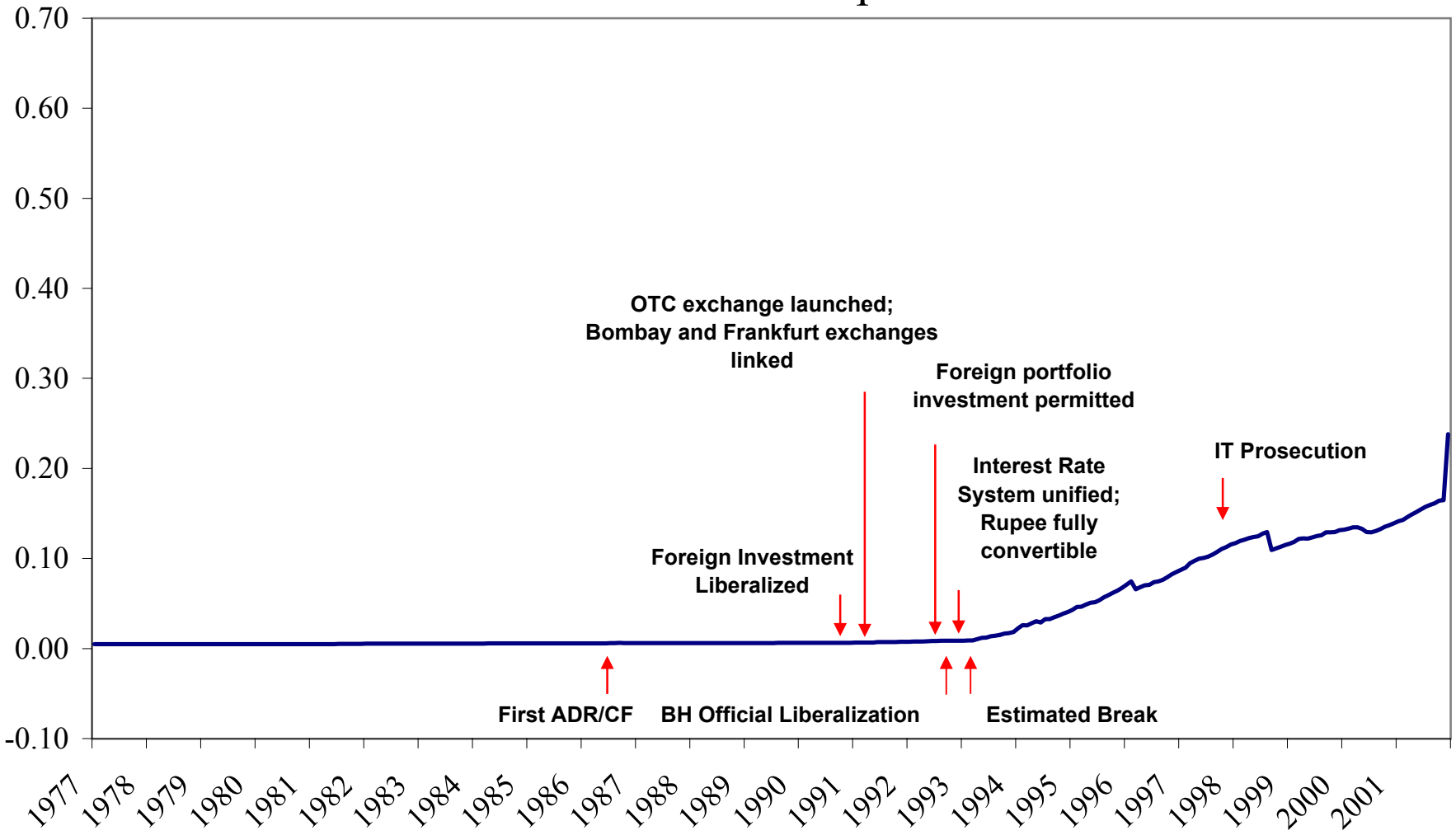


Figure 3g

U.S. Share of MSCI Market Capitalization in Indonesia

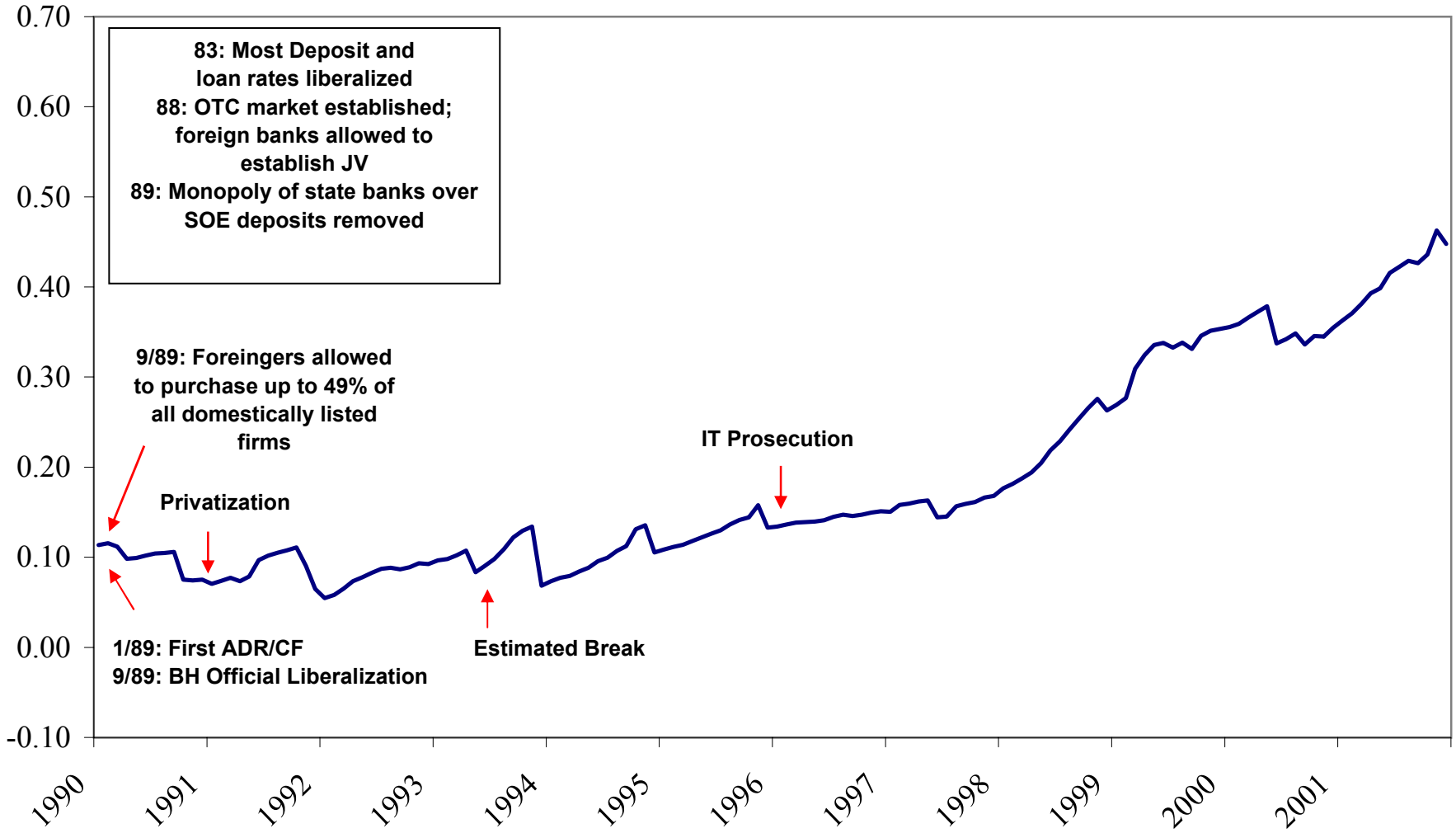


Figure 3h

U.S. Share of MSCI Market Capitalization in Korea

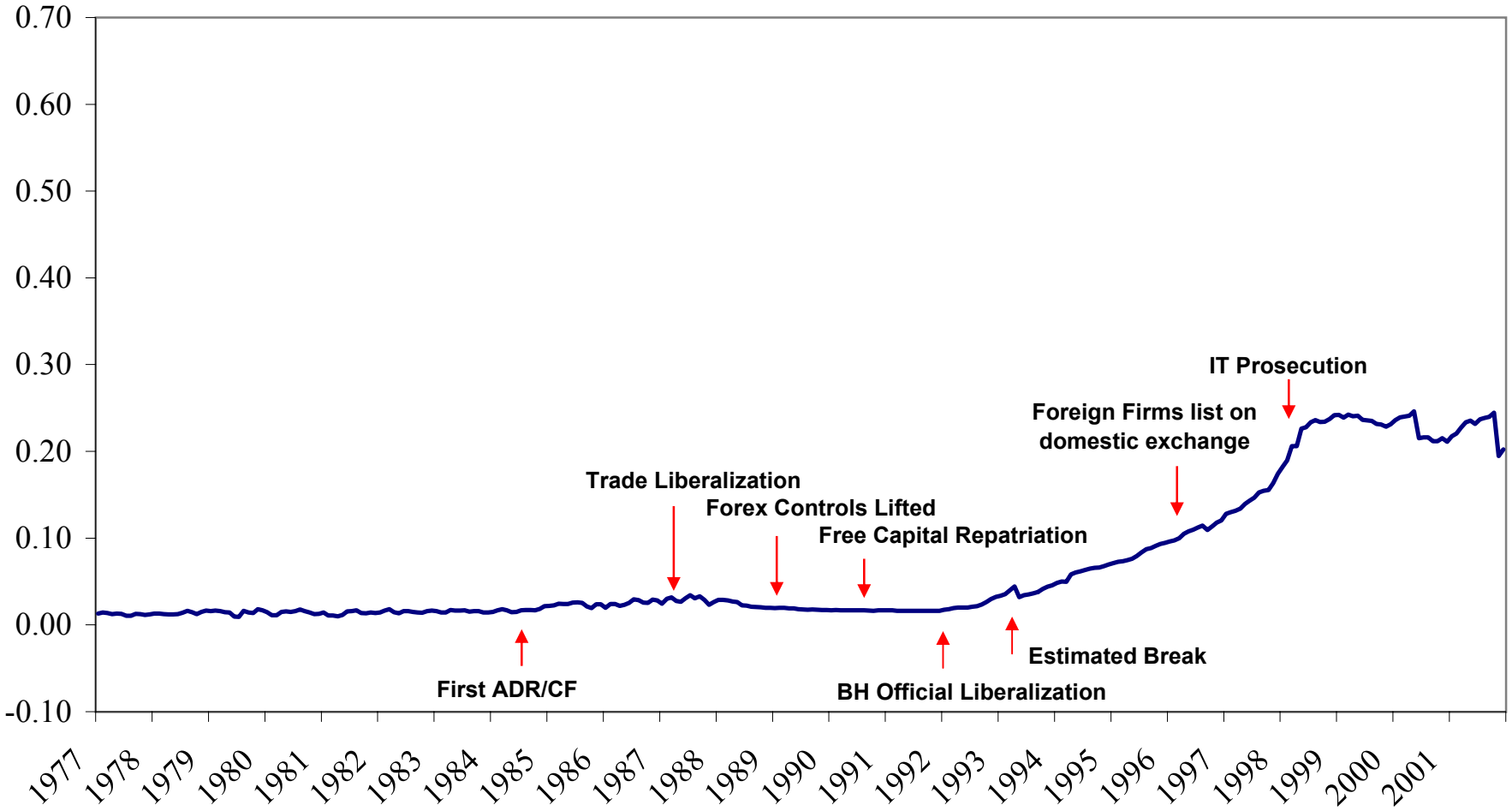


Figure 3i

U.S. Share of MSCI Market Capitalization in Malaysia

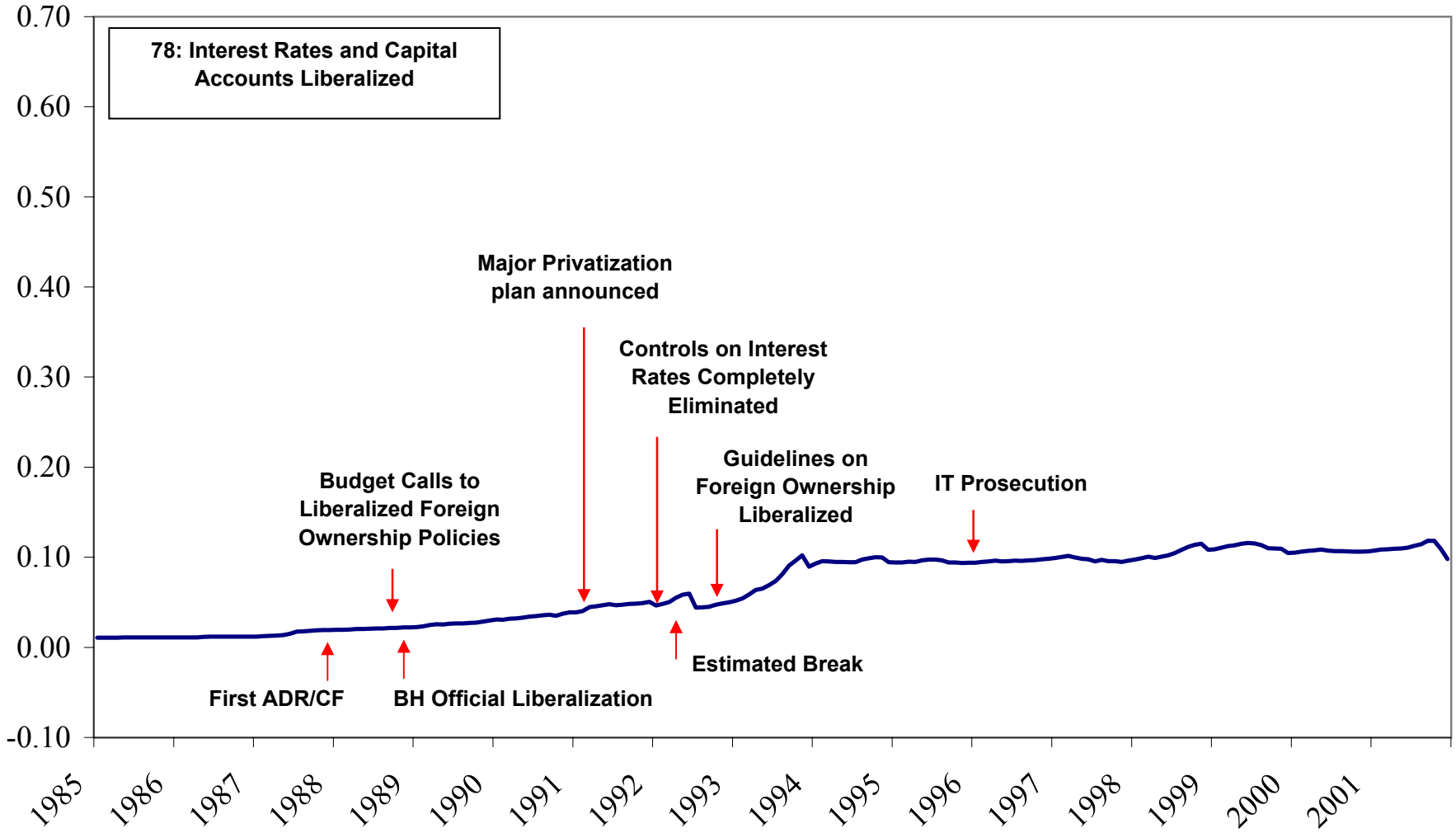


Figure 3j

U.S. Share of MSCI Market Capitalization in Mexico

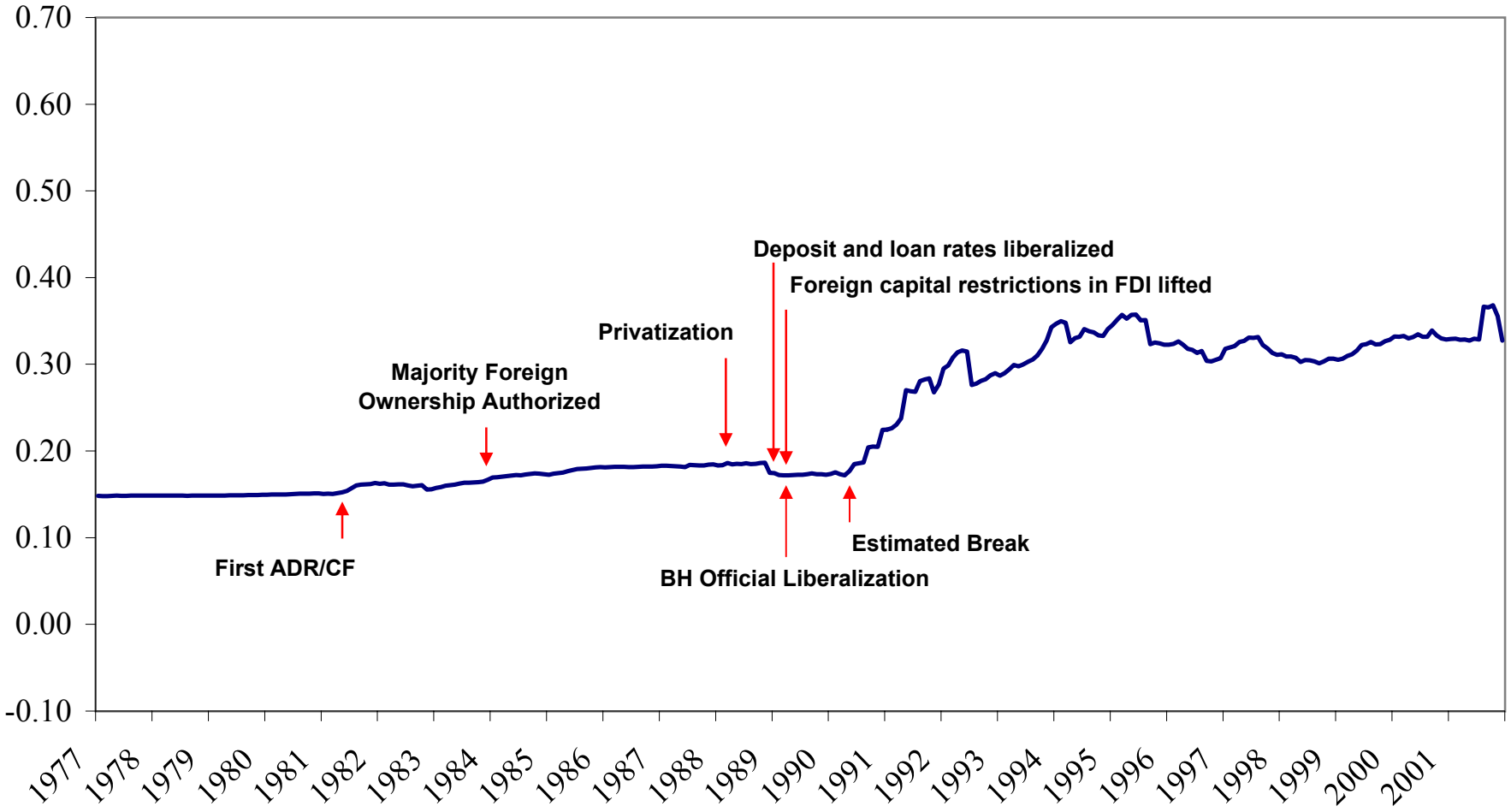


Figure 3k

U.S. Share of MSCI Market Capitalization in Philippines

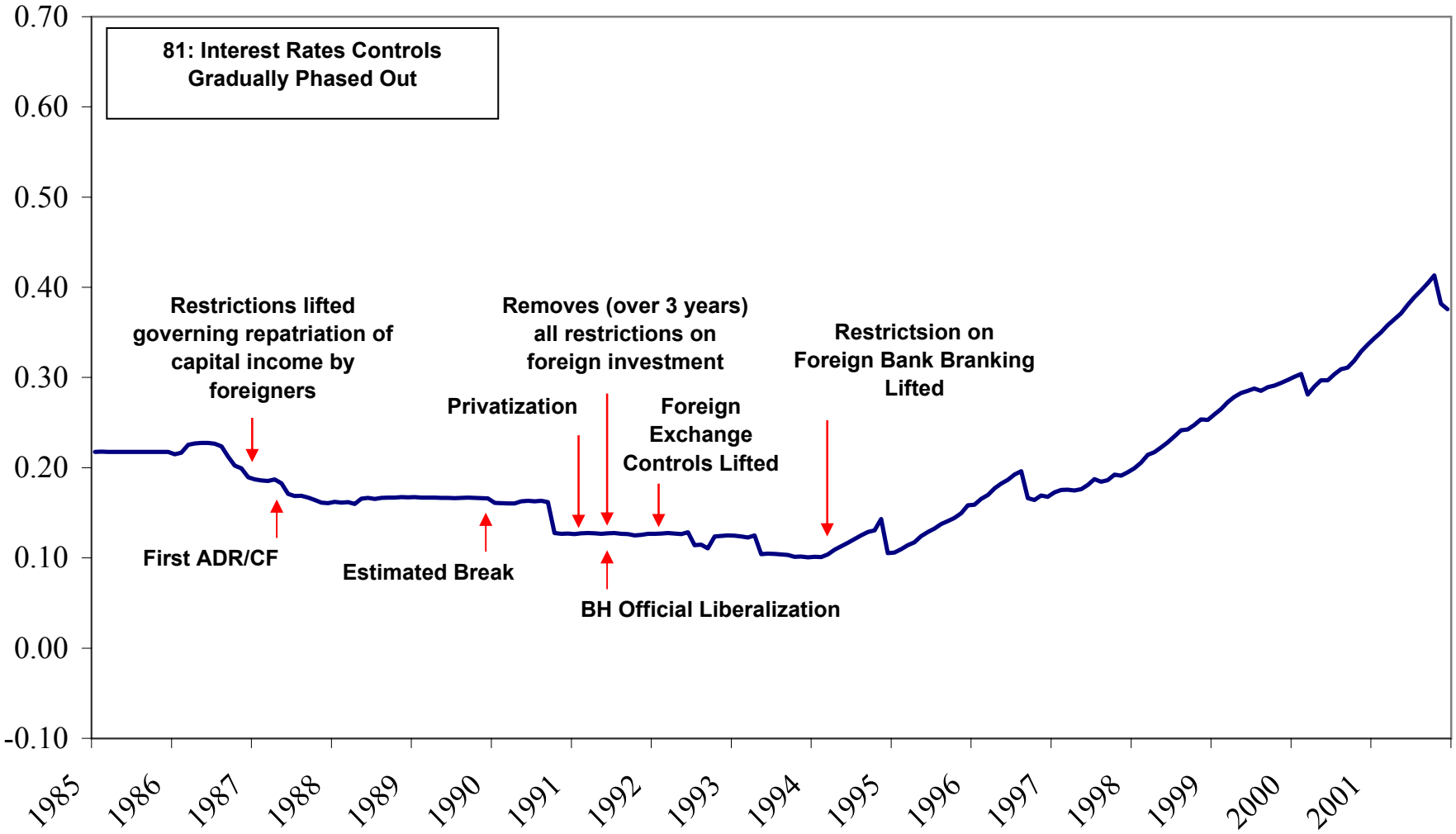


Figure 3m

U.S. Share of MSCI Market Capitalization in Portugal

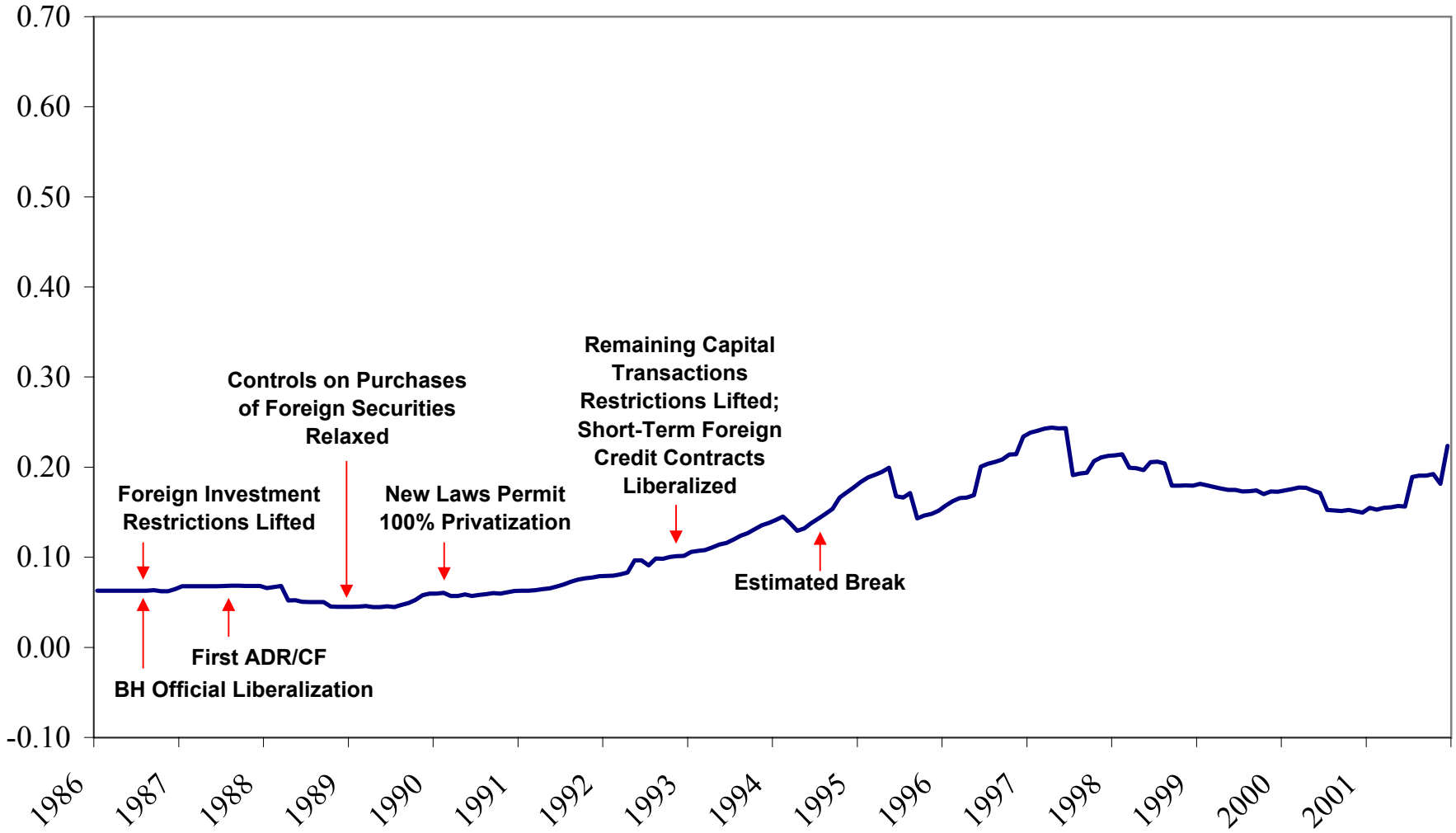


Figure 3n

U.S. Share of MSCI Market Capitalization in Taiwan

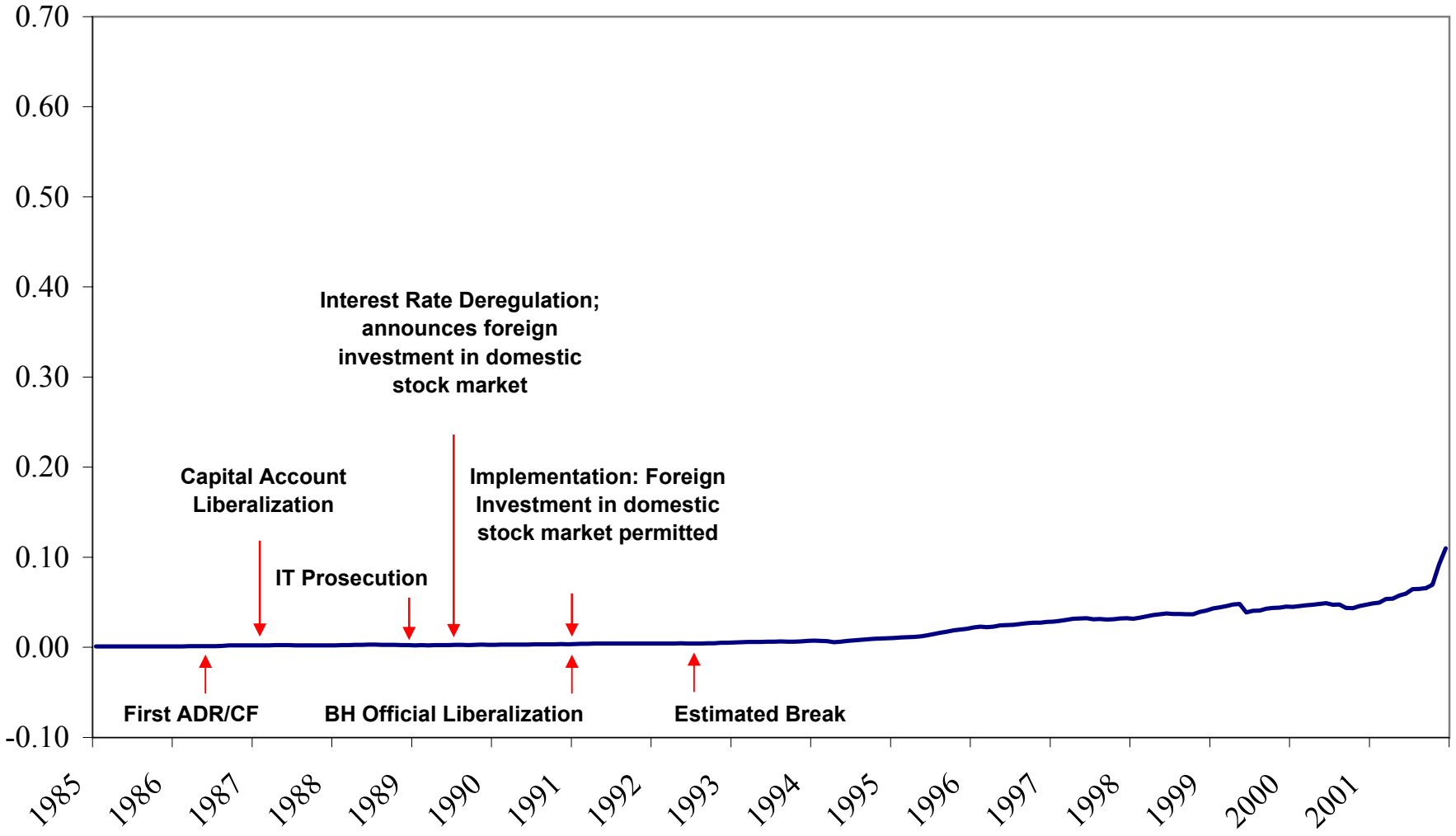


Figure 3o

U.S. Share of MSCI Market Capitalization in Thailand

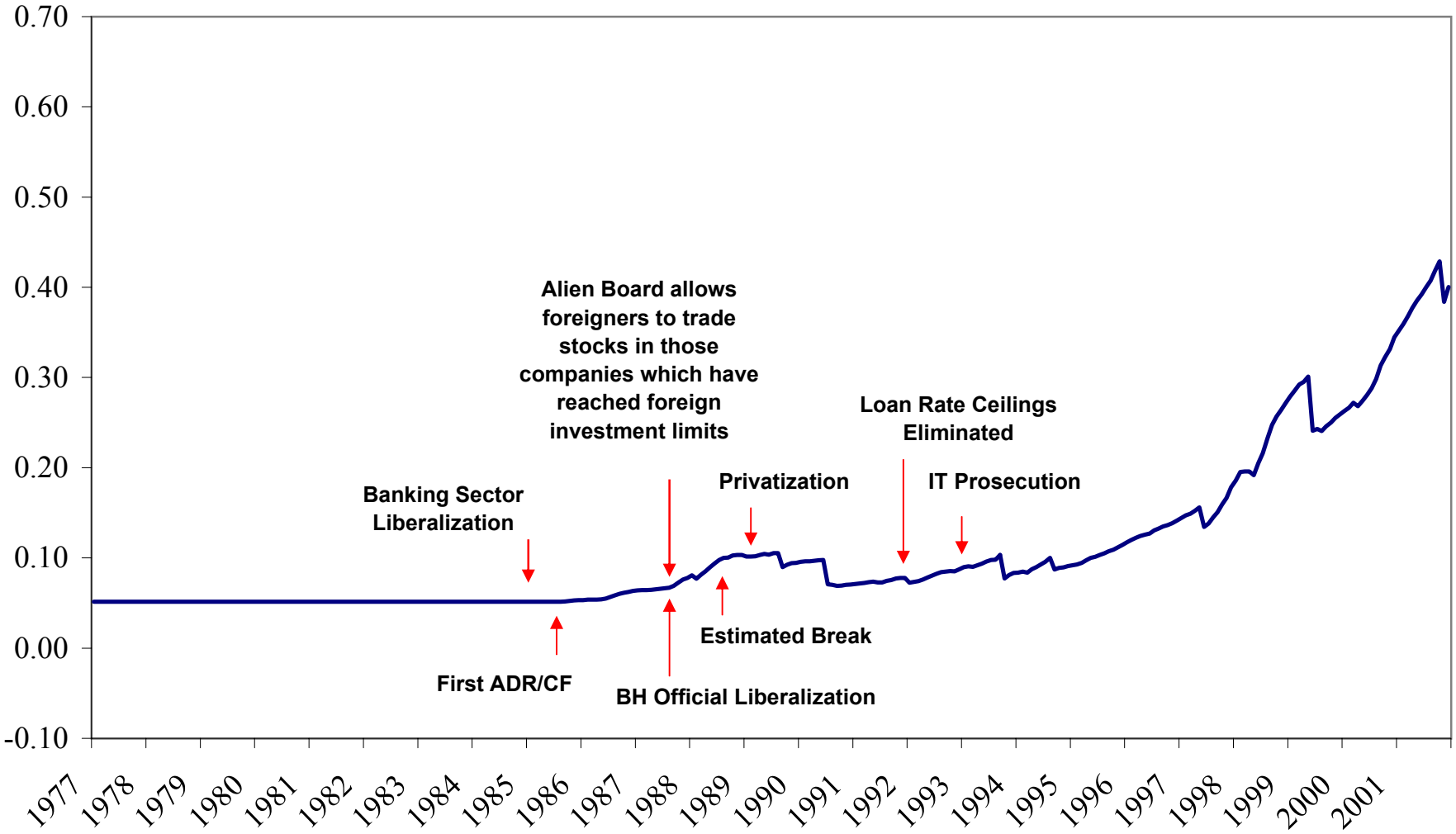


Figure 3p

U.S. Share of MSCI Market Capitalization in Turkey

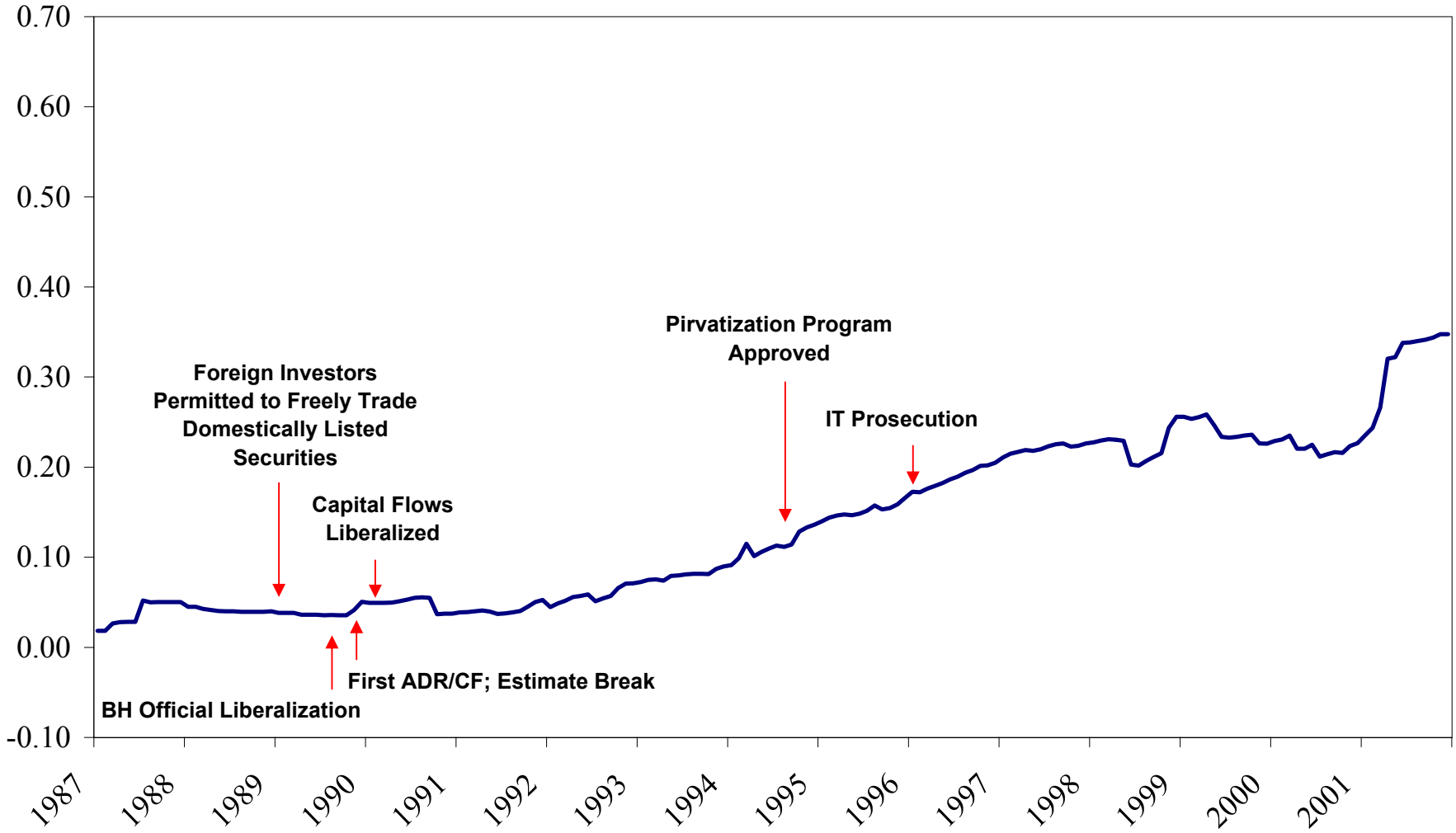


Figure 3q

U.S. Share of MSCI Market Capitalization in Venezuela

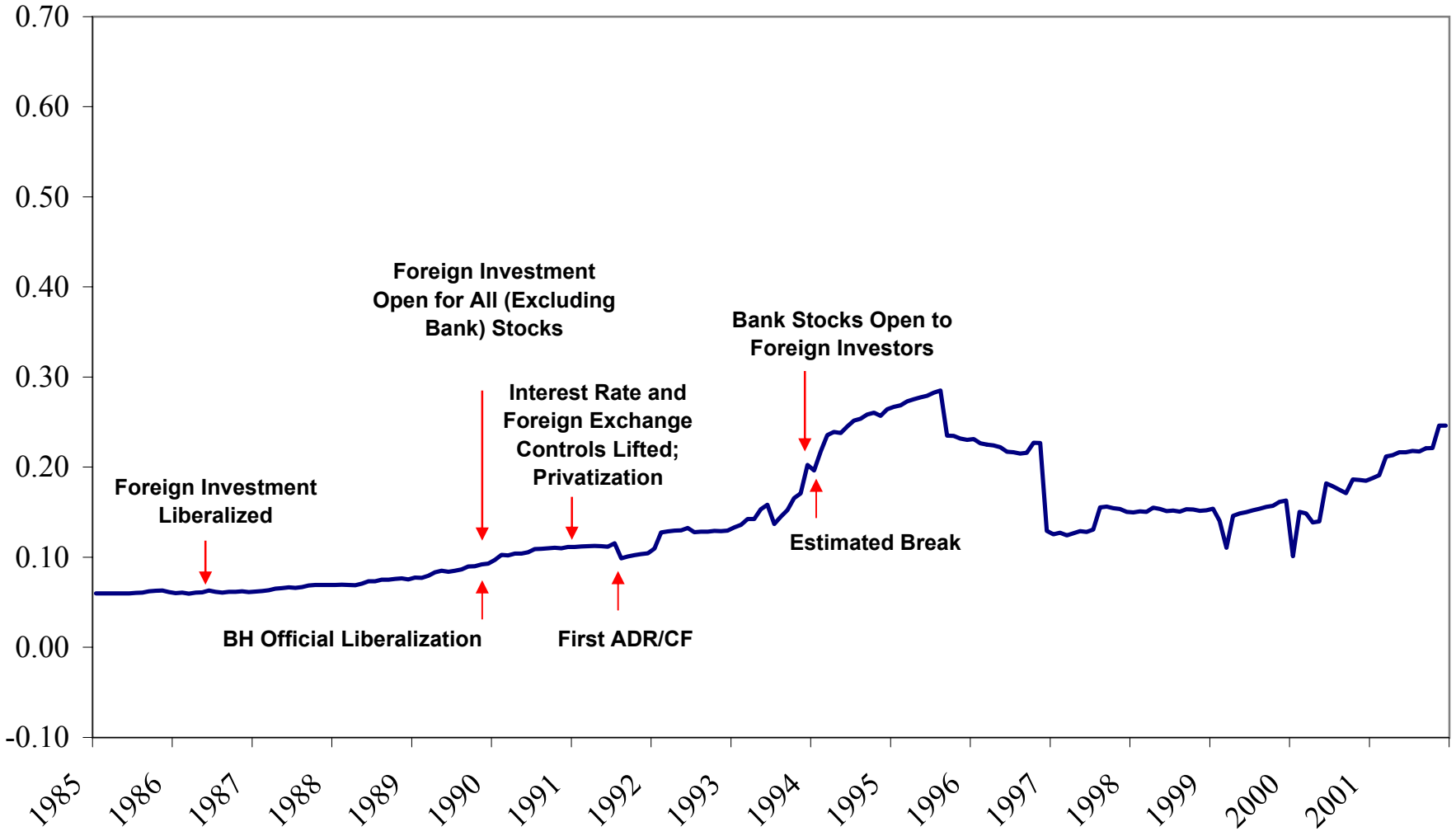
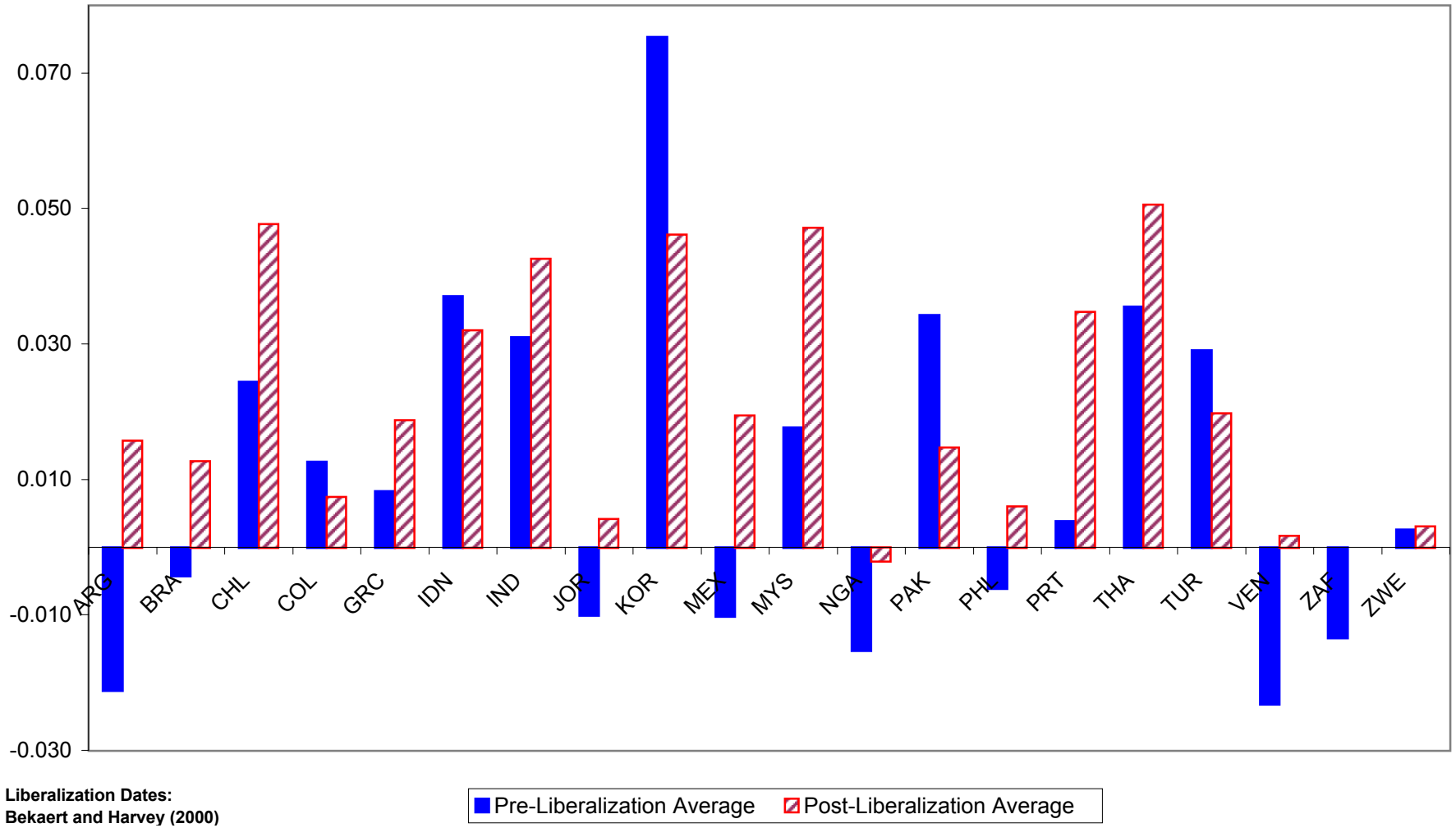


Figure 4

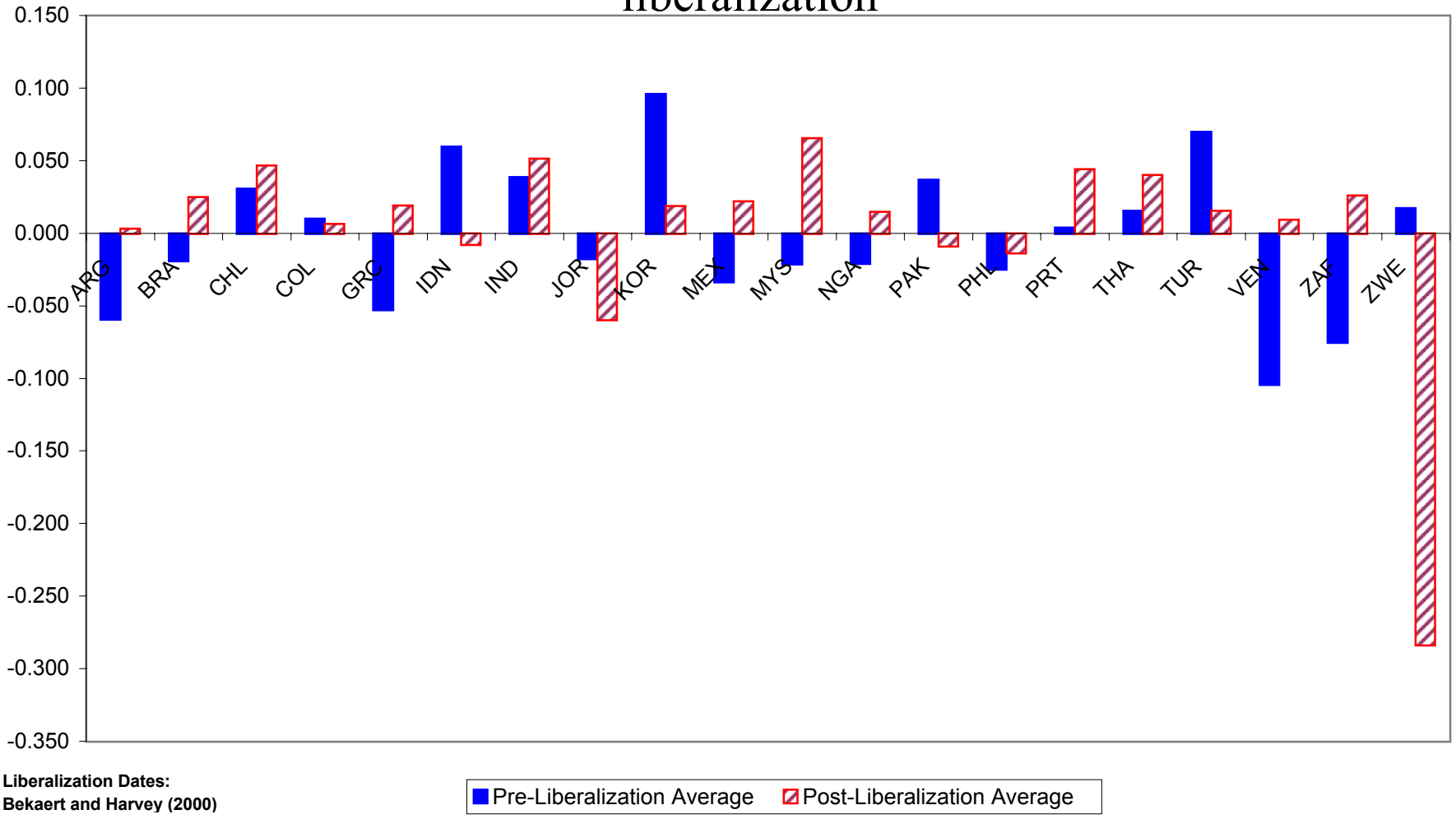
Real GDP growth before and after financial liberalization



Liberalization Dates:
Bekaert and Harvey (2000)

Figure 5

Real investment growth before and after financial liberalization



Liberalization Dates:
Bekaert and Harvey (2000)