

# ***Confidence Building in Emerging Stock Markets***

*By: Enrico C. Perotti, Luc Laeven, and Pieter van Oijen*

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Enrico C. Perotti

University of Amsterdam and CEPR

Luc Laeven

World Bank

Pieter van Oijen

University of Amsterdam

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**Abstract:** Investor confidence is a major determinant of financial integration for emerging markets and their stock prices. We investigate whether privatization also has a significant effect on emerging stock market development through the resolution of policy risk. We argue that a sustained privatization program represents a major test of political commitment to market oriented reforms and to safer private property rights. The evidence suggests that progress in privatization gradually leads to increased confidence as measured by perceived policy risk. Moreover, increased confidence has a strong effect on local market development and excess returns. We conclude that, while liberalization is a necessary condition for market development, the resolution of policy risk resulting from successful privatization has been an important source for the rapid growth of stock markets in emerging economies.

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## Introduction

Stock markets in many emerging countries have developed rapidly during the last decade. Market capitalization in countries classified by the IFC as emerging markets has risen from \$488 billion in 1988 to \$2,439 billion by mid-1999, while annual trading on their exchanges has risen from \$411 billion in 1988 to \$2,486 billion by mid-1999 (IFC, 1999). Unquestionably, a major impulse to market development has come from financial integration (Stulz, 1999). There is now direct evidence that the onset of financial liberalization directly promotes market development and reduces the required cost of capital (Henry, 2000; Bekaert and Harvey, 2000). Yet liberalization is a necessary rather than a sufficient condition for integration; and there is some evidence that integration takes place gradually. Henry (2000) reports that the one-month excess return in response to the announcement of liberalization is around 6 %, while the cumulated excess is 26 % in a 8-month window. While these gains are significant, the increase in value and volume has been much larger; moreover, excess returns persist after the announcement. Additionally, some liberalized markets fail to attract much investment.<sup>1</sup>

This raises the question what brings about the evolution of confidence that leads investors to invest progressively more in emerging stock markets. This paper seeks to explore the importance of confidence building through the resolution of perceived policy risk as a determinant of capital market development, and the role of privatization in promoting such confidence.

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<sup>1</sup> Bekaert and Harvey (2000) indicate that foreign capital inflows are rather gradual around the date of liberalization; in the case of a crisis, outflows are much faster.

Privatization has well known direct benefits such as improved incentives and efficiency,<sup>2</sup> a reduction in public debt, better access to capital and technology, and increased integration of local firms in international trade patterns. Privatization sales may also produce benefits for local stock markets if new listings have substantial impact on local liquidity, and if new listings offer opportunities for local investors to diversify their portfolios (Pagano, 1989 and 1993b). These gains in market deepening and broadening could of course be the result of new private listings as well; hence, there is no specific role here of privatization.

Many emerging countries carried out privatization sales through public offerings on the local stock exchange, leading to significant increases in market capitalization. However, the direct effect of privatization (total sale revenue of \$154.5 billion in 1988-1996, inclusive of private sales) on stock market development represents only a small fraction of the increase in market capitalization over that period.<sup>3</sup> Thus, although privatization appears to be associated with stock market development, the recent magnitude of local market development by far exceeds their direct impact.

In this paper, we will argue that the **successful** transfer of important enterprises from state to private control has strong implications for the general perception of equity investment particularly in emerging economies, and that privatization thus indirectly promotes stock market development through a resolution of policy risk. Privatization, since it involves a retreat of political forces from the governance of economic activity, is an ideal test for political commitment to market-oriented reforms, as it severely tests the determination of policymakers to resist any political backlash after the sale (Perotti, 1995). Politicians, used to have discretionary control over the firm's activities, see their capacity to dictate policy and

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<sup>2</sup> For an assessment of welfare gains from privatization see Galal et al. (1994). For evidence on efficiency gains see Claessens and Djankov (1997) and Boubakri and Cosset (1998).

<sup>3</sup> In addition, many privatization transactions were not carried out through public share issues and some of them took place in countries not classified by the IFC as an emerging market.

reallocate resources to their preferred constituencies sharply curtailed. In this shift of control rights to private owners lies the main cause of improved performance of firms under private ownership.<sup>4</sup> Yet no sovereign government can credibly commit not to alter its policy after a sale. Therefore, only a sustained and consistent privatization policy establishes investors' confidence. In fact, recent theoretical work suggests that a maintained privatization program may by itself help to strengthen the political forces in favor of market-oriented reforms (Bias and Perotti, 2001; Schmidt, 1997).

Our argument has various testable implications. First, large privatization sales in some developing countries should have improved their perceived policy risk both in absolute terms and relatively to non-privatizing emerging markets. Second, such shifts in policy risk would affect the attractiveness of equity investments and therefore be related to stock market development. Third, stock markets in countries which pursued consistent privatization policies would exhibit excess stock returns, earning ex post “peso premium” as a result of the favorable news that drove the confidence building process, which is a form of learning.

We first show that in a dynamic model of policy risk resolution, stock prices rise gradually in parallel with investor confidence; the excess returns gained represent the compensation for the risk of a large capital loss in case of a policy reversal.<sup>5</sup> This resolution of policy uncertainty due to privatization may occur even if sales do not take place through public share offerings.

Secondly, we document how policy risk has developed over the different stages of the privatization programs of 22 emerging economies. We hereby focus on countries that have privatized extensively over a number of years after 1987, using different proxies of policy risk.

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<sup>4</sup> The constitutional guarantee of property rights makes them residual with respect to contractual and legal obligations; thus, legislation may chip away at the owner's entitlement, but it can never fully expropriate them (Perotti, 1995).

<sup>5</sup> For a related approach to foreign investment, see Cheriau and Perotti (2000).

We contrast their stock market development with a control sample of non-privatizing markets. We find that many emerging countries have gradually reduced their policy risks during the course of sustained privatization. Privatization often starts at a time of declining credibility. Thereafter, perceived policy uncertainty is resolved only upon actual implementation of privatization, as opposed to its announcement. In fact, much risk resolution seems to take place as privatization proceeds to its later stage. This suggests that a sustained privatization policy represents a major political test which gradually resolves uncertainty over the political commitment to a market-oriented policy.

We then assess the importance of policy risk for stock market development in emerging economies by relating changes in stock market development proxies to liberalization and to changes in policy risk. Changes in policy risk are strongly associated with growth in stock market capitalization, traded value and excess returns, even more than the onset of financial liberalization. The economic impact of changes in policy risk on stock market development appears to be very large. Taken together, these results suggest that the resolution of policy risk through sustained privatization has been an important factor in the recent emergence of the stock markets of developing countries.

In an earlier paper, Perotti and van Oijen (2000) have already established the empirical regularity that the resolution of political risk contributes to stock market development. This paper expands on the work by Perotti and van Oijen (2000) in a number of ways. First of all, we explicitly model the confidence building that arises from a sustained privatization program and show how this promotes stock market development. We therefore more clearly describe the fundamental link between privatization, policy risk and stock market development. Secondly, we introduce a number of refinements in analyzing the empirical relation between policy risk and stock market development. These refinements include the use of instrumental

variables to deal with potential endogeneity problems in the estimation of the empirical relationship between policy risk and stock market development, the use of an indicator of policy risk that conforms more closely to our specific notion of policy risk, and the inclusion of financial liberalization as a control variable that has been shown to contribute to stock market development as well.

The relevance of policy risk for privatization that we document is consistent with results reported by Jones et al (1999). They show that the share allocation and sale price in IPOs from privatizations are sensitive to political considerations. Our result that policy risk resolves gradually is also consistent with the puzzling findings that privatization IPOs appear to outperform matched control groups (Megginson et al 1998).<sup>6</sup>

Our analysis on the influence of policy risk on stock market development is closely related to recent research on the link between the legal institutional framework and corporate finance. LaPorta et al (1997, 1998) find that countries with lower quality of legal rules and law enforcement have smaller and narrower capital markets and that the listed firms on their stock markets are characterized by more concentrated ownership. Demirgüç-Kunt and Maksimovic (1998) show that firms in countries with high ratings for the effectiveness of their legal systems are able to grow faster by relying more on external finance. By looking at the relation between stock market development and policy risk (in itself an element of the quality of the institutional framework that supports the viability of external finance), our analysis contributes a dynamic element to this cross-country approach.

The result that policy risk has strong implications for stock market development is an important finding from the perspective of economic growth. A growing empirical literature suggests that the development of financial markets support economics growth. Levine and

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<sup>6</sup> In related research, de Jong and Perotti (2000) attribute this result to the greater sensitivity of these stocks to policy risk. They confirm that this effect vanishes after the IPO, as policy risk gradually declines.

Zervos (1998) find that stock market variables such as market capitalization over GDP, traded value over GDP, and various measures of asset mispricing help predict economic growth.<sup>7</sup>

Our results have direct implications for the analysis of international financial integration as well. Bekaert (1995) provides evidence that higher levels of policy risk are related to higher degrees of market segmentation. Erb, Harvey and Viskanta (1996a) show that in both developing and developed countries, the lower the level of policy risk, the lower are required stock returns. Together with our results, it appears that policy risk is a priced factor; a fall in such a risk encourages financial integration and reduces the local cost of equity.

We should stress that we take a broad notion of policy risk, which includes the earlier notion of expropriation risk (Eaton and Gersowitz, 1984), the notion of policy risk in the privatization and regulation literature, and the notion of protection of investor rights implicit in the work by LaPorta et al. (1997, 1998). All these risk factors are included in our proxies.

The outline of the paper is as follows. In Section I we discuss the argument for a fundamental link among privatization, policy risk and stock market development. In Section II we present suggestive evidence that successful privatization gradually reduces policy risk. Section III documents the empirical relation between policy risk and stock market development in emerging economies. We offer some concluding remarks at the end.

## **Section I Privatization, Policy Risk and Stock Market Development**

While a successful privatization program requires institutional changes that contribute to the strengthening of the legal framework underlying equity investment, private control and policy reforms must be maintained during a political backlash. As a consequence, market deepening will occur only as confidence builds up over time as a result of the actual

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<sup>7</sup> See Pagano (1993a) and Levine (1997) for an overview of the literature.



progress of privatization and not upon its announcement. Thus our conjecture is that only a steady **actual implementation** of the program contributes to the a build up of confidence in a an environment with less state interference, leading to higher investment and trading. This may explain why privatization may even precede successful stock market development. Alternative benefits of privatization, such as improved risk sharing and increased liquidity of the market as a result of new listings, would cause an immediate and discrete effect on market indicators.

There is a tradition of policy risk even in developed economies;<sup>8</sup> but policy risk represents a particular dilemma for investors in emerging economies. For these countries, contractual and institutional uncertainty is greater, due to less established institutions and policies often subject to major discrete changes. The temptation to reverse policy changes after privatization sales is particularly steep because many areas of traditional public ownership represent (traditional) natural monopolies such as utilities and infrastructure. Private investment in infrastructure has always been hindered by the high risk of ex post expropriation. Such industries possess major fixed sunk investments, which produce a steady cash flow from users. Thus the profits represent considerable rents or quasi rents, whose allocation to shareholders may arouse strong political opposition from insiders or users. These examples suggest that a privatization sale by itself does not resolve the question of policy risk, but does accelerate the process of learning about the government's policy commitment.

We sketch in this paper a simple model of how the privatization process can progressively establish the credibility of announced reform policy, and thus lead gradually to financial development. In our model, we assume a gradual progress of sales, which is in accordance with the facts. Perotti and Guney (1993) document that sale programs are initially gradual, even when retained stakes are explicitly targeted to be sold over a few years. Proceeds from privatization increase over time, suggesting gradual selling calibrated to build investors

confidence. As policy credibility increases, larger initial sales become more common. Perotti (1995) presents the argument that privatization sales need to be gradual (while securing an immediate transfer of control) so that confidence on a stable policy towards privatized companies can be firmly established, thus enhancing future revenues. Underpricing may also serve as a complementary signal of commitment.

A successful privatization program also leads to a resolution of contractual and legal uncertainty and often include greater protection of minority shareholders.<sup>9</sup> While there may be resistance from established interests to improvements in such rules, as they may enhance entry (Rajan and Zingales, 2000), the necessity to attract investors often leads to more reliable supervision, the promotion of better accounting standards and transparent disclosure rules, the support of procedures to contest managerial decisions. Additional steps often involve removing restrictions on dividend repatriation, foreign ownership and competitive entry, and a reduction in the legal and fiscal bias historically favorable to public sector borrowing.<sup>10</sup>

In the next sections we explore empirically whether the progress of privatization is associated with a reduction in policy risk and whether such policy risk is important for market development. As we expect policy risk resolution to be particularly relevant for developing countries, we focus on emerging markets, in part to understand to what extent risk resolution resulting from sustained privatization may have contributed to the recent boom in emerging stock markets. In Section II we sketch a basic model on how a maintained privatization program results in confidence building; we then discuss the relevance of policy risk and liberalization for emerging market development. Section III analyses the empirical impact of

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<sup>8</sup> See Jones et al, 1999, on NTT in Japan, and Grandy (1989) for the US.

<sup>9</sup> La Porta et al. (1997,1998) and Modigliani and Perotti (1999) show that a strong institutional framework of "rules of the game" is necessary to protect minority investors and thus to promote the development of security markets.

<sup>10</sup> A final benefit of privatization is that it makes regulatory policy more subject to public scrutiny, which allows a transparent public debate and increased reliance on legal, as opposed to administrative, recourse. Such public visibility of policy also contributes to reduced policy ambiguity.

the resolution of policy risk through sustained privatization on stock market development. At the end we offer some concluding remarks and some ideas for future research.

### **A simple model**

A privatizing government gains from selling a sequence of  $N$  previously state-owned firms over  $T$  periods; time is indexed by  $t = 0, 1, \dots, N, \dots, T$ .<sup>11</sup> We assume that the government sells one firm per period, at a price  $\pi_t$ , until all  $N$  firms are sold. Sales increase state revenues, because of the enhanced value of the firms under private ownership. We assume that firms have value 1 under private ownership and 0 under state control, with all payoffs realized at time  $T$ . In addition, the government gains a political benefit of control  $c$  at time  $T$  from each firm under state ownership. As a result, it will sell state-owned firms only for a positive price.

In each period, after the government sold another firm, it may consider reversing the transition of control to the private sector to capture some political advantage. This choice affects the price of all domestic assets, as their ultimate payoff and risk profile depends on the actual degree of protection of property rights. Thus the incentive to invest in risky assets and the required return depends on confidence on the government policy.

Of course, the more firms have been sold, the greater is the temptation. Suppose that investors are uncertain as to the government's preference on interference in privatized firms; specifically, assume that interference allows to capture a fraction  $\alpha$  of value from all privatized companies, but such a policy reversal carries a privately known political cost  $\theta$ , distributed on  $[0, \Theta]$ .<sup>12</sup> Investors receive the realized firm value (either 0 or 1) at time  $T$ ; as they are risk

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<sup>11</sup> This assumption can be rationalized in our framework: because the government confidence increases endogenously over time as it refrains from interference, revenues are larger if sales are done gradually. However, a full formalization would involve considerable complexity. For a related model, see Cherian and Perotti (2000).

<sup>12</sup> Firms still in state hands have no value so they cannot be expropriated further.

neutral and the interest rate is zero, they are willing in each period to pay a price which equals their expected payoff at T. The government has a discount factor  $\delta < 1$ , reflecting a finite time in office. Because of discounting, there are no reasons for the government to not sell a firm in any period, so all firms which are sold will be sold as of  $t=N$ .

Investors will have an initial prior belief on the likelihood that the government will resist the temptation to interfere. Since the highest gain from interference is to capture a fraction  $\alpha$  of a stock of N privatized firms after N periods, this probability as of time t equals  $P_0 \equiv \text{Prob}(\theta < \alpha N | \Omega_t)$ , where  $\Omega_t$  is the information set at time t (which contains all government choices until t).

We refer to  $P_t$  as the confidence as of time t in the government's commitment to a policy of non interference.<sup>13</sup> Note that if the government cost  $\theta$  is above the threshold  $\theta^* \equiv \alpha N$ , it will never choose to interfere; so we can rewrite  $P_t$  as the probability that the government's  $\theta$  is above  $\theta^*$ . Investor will be willing to pay at time t a price equal to their expectation at that date on the final value of the firm, which equals:

$$\begin{aligned} \pi_t &= 1(\text{probability of no interference}) + 0(1 - \text{probability of no interference}) \\ &= P_t = \text{probability of a commitment government.} \end{aligned}$$

Notice that the return to the government of each sale at time t is  $\pi_t - \delta^{T-t}c$ . We assume that  $P_0 > \delta^T c$  so that the government is willing to start privatizing from the first period.

We now state a first, elementary result.

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<sup>13</sup> We assume that  $P_0 > c$  so that the government is willing to start privatizing from the first period.

### **Proposition I**

*Following a policy reversal, the credibility is zero and the government stops selling firms to the private sector.*

Proof: A reversal indicates that the government's cost of reversal  $\theta$  is below the critical  $\theta^*$ ; in other words, it is not committed. Since investors then expect government interference, firms are worthless, so the private sector will not buy any firm at a positive price. Since the political benefit of control  $c$  is positive, the government does not sell any more firms.

On the basis of these observations, we can now state the main result of the model:

### **Proposition II**

*Governments which intend to reverse policy will time this reversal strategically to take advantage of the uncertainty over their commitment. As a result, confidence in the government's commitment increases as long as there is no policy reversal.*

Proof: In the first date, the government prefers to sell a firm, as it gains  $\pi_0 - \delta^T c > 0$  which is by assumption positive. In general, at each date a government which has some positive credibility will always choose to sell a firm, provided that  $p_0 - \delta^{T-t} c > 0$ . After each sale, the government may choose to interfere, capturing once and for all the partial value  $\alpha$  for each already privatized firm. If it interferes, from Proposition I we know that no more firms are sold, so the payoff is simply

$$\alpha t + (N-t) \delta^{T-t} c$$

which is the sum of the value captured from the  $t$  firms privatized so far plus the political benefit of control for the rest.

If it does not interfere, this may mean that it is committed, which has a probability  $p_t$ . Alternatively, it may delay strategically the timing of interference to take advantage of more firms and capture more sale revenues.

Thus the government will choose to interfere (after the sale) if  $\alpha t > \theta$  and

$$\alpha t - \theta > \delta [\alpha (t+1) - \theta + p_t - \delta^{T-t} c].$$

The second inequality verifies whether it prefers to do so today or wait until tomorrow when one more firm will be sold and thus can be captured.

Thus at time 1, if no interference took place, investors will conclude that

$$\alpha - \theta < \delta [2\alpha - \theta + p_1 - \delta^{T-1} c], \text{ or}$$

$$\theta > \{\alpha - \delta [2\alpha + p_1 - \delta^{T-1} c]\} / (1-\delta) \equiv \theta_1$$

As long as  $\theta_1 > 0$ , this implies that investors' posterior will be updated on the probability that the government is committed, i.e.  $\text{Prob}(\theta > \theta^* | \theta > \theta_1) > \text{Prob}(\theta > \theta^*)$ .

In general, if there is no interference as of time  $t$ , investors update their beliefs on the government's commitment to not interfering according to

$$p_t = \text{Prob}(\theta > \theta^* | \theta > \theta_t) > \text{Prob}(\theta > \theta^* | \theta > \theta_{t-1}) = p_{t-1}$$

where  $\theta_t \equiv \{\alpha t(1 - \delta) - [p_t - c]\} / (1-\delta)$ . Note that  $p_t > p_{t-1}$  and  $\theta_t > \theta_{t-1}$  for all  $t$ ; the posterior expected cost of expropriation for the government increases in each period without a reversal, and thus does the government credibility. Thus, for each period that passes without a reversal, the perceived probability of a reversal declines.

QED

The dynamics of confidence (and therefore prices), and the associated perception of policy uncertainty over time, are illustrated in Figure 1.

Insert Figure 1 here

Moreover, note how uncertainty at first climbs fast, then rises at a decreasing rate; in a longer game, increasing confidence leads ultimately to a fall in uncertainty.

From this simple model we conclude that confidence building results from a steady policy vis-à-vis the transfer of control to the private sector and restraint from interference for privatized firms. Note that the model does not imply a mechanic dependence between sales and market development, only that confidence will be built up by (steady) privatization sales accompanied by a stable policy; confidence will be a summary statistics for market growth.

In the next section we outline our empirical approach to explain stock market development in a sample of emerging markets. We next test whether confidence building through sustained privatization leads to a resolution of policy risk.

## **Section II    The impact of privatization on policy risk**

### **Sample construction and methodology**

We include all the countries classified by the IFC as having an emerging stock market, and selected all those for which there are data available in the Emerging Stock Markets Factbook from at least 1988 onwards. This leads to a sample of 31 countries.

Our hypothesis is that sustained privatization influences the development of stock market via a progressive resolution of policy risk. There are serious issues of endogeneity to be taken into account, as countries with stronger market development may choose to privatize. We chose therefore to proceed in two steps.

The first step is to establish how policy risk is related to privatization over the medium term. From our sample of 31 countries, we select all those countries that have been engaged in substantial privatization sales for at least four years in the period 1988-1995. Using this criterion, there are 22 countries that can be classified as having a significant privatization policy.<sup>14</sup> Note that the requirement of a sufficient history of privatization sales leads to a sample of countries with a fairly sustained privatization program. Such countries are more likely to be successful privatizers. However, rather than judging subjectively the quality of each country's privatization policy, we use measured changes in their perceived policy risk. While on average the programs in the sample were deemed successful (as our data seem to confirm), the sample does include countries for which the privatization process was delayed or slowed down due to political backlash, and for which policy risk seems to have risen.<sup>15</sup>

Our second step is to test to what extent changes in policy risk during the privatization contribute to local stock market development. To this goal we relate the stock market development in all 31 countries in our sample to changes in their perceived policy risks. We use growth in market capitalization, traded value, and excess stock returns as direct measures of stock market development. We control for stock market liberalization, shown by Henry (2000) amongst others to have a direct effect on stock market development.

In order to be able later to assess the timing of the resolution of policy risk, we also distinguish four different stages in the privatization process.

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<sup>14</sup> There are only a few countries for which inclusion in either of the samples is ambiguous. We neglected Costa Rica and Uruguay for our initial sample of emerging stock markets because of incomplete data for the market capitalization or traded value on the stock market. For Israel, the World reports 15 privatization transactions spread out over 1988 to 1995. We were unable to obtain privatization data for the years before 1988. Given the low number of transactions and the lack of data we excluded Israel as a privatizing country, but include it in our initial sample of emerging stock markets.

<sup>15</sup> Turkey and Venezuela are prime examples during the sample period.



Pre-privatization period: This period is defined as the two years before the announcement period. It is used so as to measure announcement effects and as benchmark for the privatization period.

Announcement period: This period includes the 2 years preceding the first actual sales, to capture the announcement and preparation of privatization.

Early privatization period: We define this period as the years of actual start of sales up to the year before the peak in privatization sales takes place.

Late privatization period: Includes the year of the peak in privatization revenues as well as all following years, as long as a significant volume of privatization sales continues.

The World Bank database only records privatization transactions that took place since 1988. Therefore, for all countries which privatized in 1988 or 1989 we use other sources to assign the beginning of the privatization program. All countries in our sample continue to privatize up to 1994. The list of countries and the timing of their privatization stages is given in Table 1 of Appendix 1.<sup>16</sup>

## **Policy risk indicators**

In this section we introduce our quantitative indicators for policy risk. The first one is constructed by the *Institutional Investor* and is published twice a year. The other one is obtained from the commercial agency *International Country Risk Guide*.

Both are indicators for country risk, of which policy risk is only one of the sources. Therefore, not all of these indicators conform as closely to the specific notion of policy risk as

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<sup>16</sup> For two countries, we deviate from the definition given above, because the definition would lead to an inappropriate classification of privatization periods. See appendix 1 for a justification for these special cases and for the sources on which we base our classification for countries that were already engaged in privation before the World Bank started to maintain its database.

defined above. We first briefly expand on how these indicators are constructed and in what sense they are useful for our analysis of policy risk.

### Institutional Investor Country Credit Rating (CCR)

This indicator is based on information provided by leading international banks and is constructed and published by the *Institutional Investor*. Bankers are surveyed to grade each country on a scale of zero to 100, where 100 represents the least chance of default. The survey is held every 6 months.

The bankers are asked to rank them in order of importance for their credit ratings. Table 1 in Appendix 2 provides a list of the rankings of all factors for 1979 and 1994 for emerging countries. The CCR seems to provide a useful proxy for policy risk, as the factor “Political Outlook” is ranked high on the list factors. Since the ratings relate to chances of default we expect bankers to be forward looking.

The survey results are published in March and September. The March survey is based on interviews gathered starting in November and thus reflects the general opinion prevailing around the end of the year preceding the publication.<sup>17</sup>

### International Country Risk Guide

This indicator is constructed by the commercial agency International Country Risk Guide (ICRG) since 1984. ICRG classifies country risk into three different categories: political risk, financial risk and economic risk. Each indicator consists of different components of country risk, for which every country receives a score on scale of 1 to 100. These different components are then weighted to construct the country’s rating for each category. The

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<sup>17</sup> An editor at the Institutional Investor confirmed that the March ratings are generally received during November and December.

components of each of these indicators and the weight of each component for the indicator are given in Table 2 of Appendix 2.

The policy risk indicator of ICRG, based on subjective analysis by its analysts, offers the closest relation to our notion of policy risk. Especially the first three terms of this indicator are interesting. “Economic Expectations vs. Reality” measures “the perceived gap between popular aspirations for higher standards of living and the ability or willingness of the government to deliver improvements in income and welfare”. The second term captures “the ability of government to adopt a suitable and successful economic strategy”. “Political leadership” assesses “the viability of the current government based on the degree of stability of the regime and its leader, the probability of the effective survival of the government, and the continuation of its policies if the current leader dies or is replaced”.

The financial risk indicator is based on quantitative as well as qualitative information. Some interesting components are “Repudiation of contracts by the government”, “Losses from exchange controls” and “Expropriation of private investments”. The other components are less related to our notion of policy risk. The main problem of this indicator is that it is partially based on historical information, so it may not be forward looking. Therefore, we consider this indicator as a less attractive measure of our definition of policy risk.

The economic risk indicator is based solely on quantitative measures of current trends, and is therefore not forward looking. Perotti and Van Oijen (2000) show that the economic risk indicator is a poor indicator for measuring our type of policy risk.

For our analysis we construct a new indicator that combines those components from the ICRG political and financial risk indicators that are most closely related to our notion of policy risk. These components are “Economic Expectations vs. Reality”, “Economic planning failures”, and Political leadership” from the ICRG political risk index, and “Repudiation of

contracts by the government”, “Losses from exchange controls” and “Expropriation of private investments” from the ICRG financial risk index. We apply equal weights to these components to construct what we call the ICRG policy risk indicator from now onwards.

### **Development of policy risk over the privatization programs**

In this section we analyze how policy risk has developed over the privatization programs of the 22 privatizing countries in our sample. We are particularly interested in assessing the extent to which sustained privatization has resolved policy risk and the timing of the resolution. In doing this, we take the following approach. For our sample of emerging economies that we classified as having a significant privatization policy, we document the development of the two policy risk indicators (CCR and ICRG policy risk) over the different privatization periods. We then perform simple means tests on whether or not the resolution of policy risk differs across privatization periods. Finally, to test whether the resolution in policy risk is indeed endogenous to the privatization process, we compare the development of two policy risk indicators of the countries that privatize with the improvements in policy risk in developing countries that did not engage in privatization.

Table 1 summarizes the behavior of policy risk over time. A positive growth rate for a risk indicator stands for a decrease in policy risk. The ICRG policy risk indicator and the CCR on average decreased in value in the pre and announcement period, suggesting that countries often privatize in periods of declining credibility; in contrast, they strongly improve in early and late stages of privatization. The CCR seems most closely related to the policy risk indicator over the privatization process.

**Table 1: Yearly percentage improvements in policy risk over privatization periods.**

CCR refers to the percentage improvements in the Institutional Investor Country Credit Risk Rating. ICRG Policy Risk refers to percentage improvements in the policy risk indicator as constructed from the ICRG political and financial risk indicators published by the International Country Risk Guide agency. A description of these indicators is given in the text above. Average improvements represent the arithmetic means of the improvements in policy risk for each period where for each period the yearly improvements are equally weighted.

		Annual change (%)	Standard Deviation	Minimum	Maximum
CCR	Pre	-2.35	10.68	-41.24	25.64
	Announcement	-2.47	9.73	-37.95	19.42
	Early	2.11	7.85	-21.15	25.90
	Late	5.08	8.11	-15.43	35.43
ICRG Policy Risk	Pre	-0.49	5.28	-10.71	12.82
	Announcement	-0.07	9.07	-19.44	33.33
	Early	4.51	11.49	-25.00	37.50
	Late	3.28	8.33	-20.00	34.15

The evolution of the CCRs and ICRG policy risk indicator are consistent with a gradual resolution of policy risk over the privatization period. It appears that sales start on average in periods of declining political ratings, which improve only gradually thereafter. In other words, there is no vast gain in political credibility merely by the establishment of a privatization program. Note that there is on average increasing confidence during the process of privatization, suggesting that in the average sample country the privatization policy was not reversed.

We test whether this pattern is statistically significant by studying whether the improvements in the semi-annual credit rating of Institutional Investor (the CCR) and of the monthly ICRG policy risk rating differ significantly across different privatization periods. The results are given in Table 2. The CCRs and the ICRG policy risk indicator improve significantly in early and late privatization stages; there is no evidence of an improvement in the announcement stage, suggesting that it does not per se establish much credibility. Moreover, the improvements in the CCR in late stages of privatization are significantly larger than in earlier periods.<sup>18</sup>

<sup>18</sup> We also performed Mann-Whitney (non-parametric) tests on the medians with similar results.

**Table 2: Difference tests on changes in CCR and ICRG ratings**

Semi-annual percentage changes in CCR and monthly percentage changes in ICRG ratings. A negative difference means that the average change in the earlier period was lower than in the later period.

Paired T-Test		Mean Difference	t-value
CCR (Semi-annual)	Pre minus Announcement	-0.18	0.83
	Pre minus Early	***-2.40	-2.82
	Pre minus Late	***-3.70	-5.33
	Announcement minus Early	***-2.22	-2.83
	Announcement minus Late	***-3.52	-5.53
	Early minus Late	** -1.30	-2.08
ICRG Policy Risk (Monthly)	Pre minus Announcement	-0.01	-0.08
	Pre minus Early	***-0.40	-2.65
	Pre minus Late	** -0.31	-2.49
	Announcement minus Early	***-0.39	-2.68
	Announcement minus Late	** -0.30	-2.47
	Early minus Late	0.09	0.75

\*\*\* denotes significantly different from zero at the 1% level  
 \*\* denotes significantly different from zero at the 5% level  
 \* denotes significantly different from zero at the 10% level

Of course, the observed pattern in policy risk may be due to other factors than privatization. For example, there may have been a change in perceived policy risk over the last fifteen years shared by all non-OECD countries, independently of whether or not these countries engaged in substantial privatization.<sup>19</sup> To test this alternative hypothesis, we compare changes in policy risk of the countries in the sample with those of a sample of non privatizing countries.

We selected all developing countries from the Global Development Finance CD ROM of the World Bank, removing all those for which the privatization database reported privatization transactions. This resulted in a sample of 24 countries from which we constructed a single non-privatized benchmark to compare each country's policy risk performance.

Table 3 provides the results of a paired t-test on the difference in performance between privatizing and non privatizing countries in each privatization period.

<sup>19</sup> This possibility is limited by the imperfect time overlap of the various privatization periods. For example, the year 1986 is classified as a year of early privatization for Chile, Jamaica, Malaysia and Mexico while this year falls outside the privatization periods for all other countries. Nevertheless, 1993, 1994 and 1995 are classified as years in the late period of privatization for almost all countries.

**Table 3: Difference in confidence building in privatizing and nonprivatizing countries.**

Tests are based on semi-annual percentage changes in the Institutional Investor Country Credit Ratings (CCR) and monthly percentage changes in International Country Risk Ratings (ICRG ).

		Mean difference (Privatizing-Benchmark)	t-value
CCR (semi-annual)	Pre	0.57	0.94
	Announcement	0.38	0.66
	Early	**1.28	2.35
	Late	**1.71	2.48
ICRG Policy Risk (monthly)	Pre	0.05	0.60
	Announcement	-0.00	-0.00
	Early	***0.29	2.91
	Late	**-.017	-2.32

\*\*\* denotes significantly different from zero at the 1% level

\*\* denotes significantly different from zero at the 5% level

\* denotes significantly different from zero at the 10% level

The paired tests offer clear evidence that the two samples of countries do not differ much prior to privatization. However, the evolution of the policy risk indicators diverges in the early and late privatization period<sup>20</sup>. In countries where privatization progresses, the CCR measure of perceived policy risk drops significantly more than for the average emerging country over the same period. The ICRG policy risk indicator outperforms the non-privatization benchmark in the early privatization period, while it underperformed in the late period. An explanation may be an exogenous reduction in pure political instability in high risk countries during the later years which led to a large drop in the ICRG policy risk rating spread. The ICRG policy risk indicator seems more related to such developments than the CCR. It is also possible that the markets started anticipating future privatization in the non-privatizing countries.

An alternative way of assessing whether there is a link between privatization and policy risk is to regress changes in a policy risk indicator on an indicator of the progress of privatization (see Perotti and van Oijen, 2000). We use the amount of privatization sales scaled by GNP as such an indicator. The results of a simple OLS regression of changes in policy risk as dependent variable and contemporaneous privatization sales as explanatory variable (plus a number of control variables) can be found in Table 4. The results indicate that countries that make substantial progress in privatization (as measured by privatization sales) show a reduction of political uncertainty, especially when policy risk is measured by the CCR. To avoid an endogeneity problem related to the “privatization sales” variable, we also use lagged privatization sales as explanatory variable. The results are similar: policy risk, when

<sup>20</sup> We also performed a nonparametric Wilcoxon test, which provided similar results.

measured by the CCR, decreases after the implementation of privatization. We also use instrumental variables to control for a potential endogeneity problem. Again, we find that only there is only a strong link between the CCR rating and privatization.

**Table 4: Link between privatization sales and policy risk.**

The sample consists of the 22 countries we classified as privatizing (see Table 1 of Appendix 1) and 9 additional countries. All yearly data for the 31 countries are pooled into one sample after which we regress our two different measures of policy risk improvement on privatization sales to GNP. Policy risk is measured by either the CCR rating (panel A) or the ICRG policy risk index (panel B). In model (1) we use OLS and current values of privatization sales to GNP. In model (2) we use OLS and lagged values of privatization sales to GNP. In model (3) we use instrumental variables (IV) and lagged values of privatization sales to GNP as an instrument for current values of privatization sales/GNP. The t-values are in parentheses. Standard errors are controlled for heteroskedasticity.

<b>Panel A</b>	Dependent Variable: Improvement in Country Credit Rating (relative change) (not in %)		
	OLS (1)	OLS (2)	IV (3)
Constant	-.003 (-.52)	-.000 (-.02)	-.006 (-.68)
Growth in GNP Per Capita	***.180 (4.06)	***.198 (4.50)	***.180 (4.02)
Growth in Exports Per Capita	.047 (1.36)	.035 (.90)	.019 (.48)
Real Depreciation	.020 (.63)	.021 (.64)	.020 (.63)
Privatization Sales/GNP	***.019 (3.47)	-	***.034 (2.28)
Lagged Privatization Sales/GNP	-	***.020 (4.77)	-
Adjusted R-sq.	.18	.18	.15
Prob. F-value	.00	.00	-
J-statistic	-	-	.00
N	309	278	288



<b>Panel B</b>	Dependent Variable: Improvement in ICRG Policy risk index (relative change) (not in %)		
	OLS (1)	OLS (2)	IV (3)
Constant	** .017 (1.99)	*** .025 (2.57)	*** .025 (2.35)
Growth in GNP Per Capita	.036 (.909)	.050 (1.25)	.051 (1.25)
Growth in Exports Per Capita	*** .104 (2.37)	* .077 (1.70)	* .077 (1.67)
Real Depreciation	.015 (.54)	.020 (.68)	.020 (.73)
Privatization Sales/GNP	.003 (.84)	-	-.002 (-.16)
Lagged Privatization Sales/GNP	-	-.001 (-.16)	-
Adjusted R-sq.	.005	.013	.012
Prob. F-value	.25	.85	-
J-statistic	-	-	.00
N	292	267	288

We conclude that there is evidence of an evolution in the perception of policy risk in countries engaging in sustained privatization programs relative to other developing countries, especially when policy risk is measured by the CCR, which also suggests a delayed effect. These results support the view that privatization leads to a resolution of political uncertainty. At the same time, it seems that only actual implementation of privatization (as opposed to its announcement) changes the perception of investors towards policy risk. In the next section we document how this reduction in policy risk favor the development of equity investment in emerging countries.

### **Section III Policy Risk and Stock Market Development**

This section addresses the empirical relation between stock market development and policy risk in emerging economies. We study the following indicators of stock market development: yearly growth in market capitalization over GNP, yearly growth in traded value over GNP, and the yearly average of monthly returns, where each monthly return is adjusted for the return

of the Morgan Stanley Capital International-world index.<sup>21</sup> We obtain the data from the IFC's emerging markets database for our initial sample of 31 countries.

Before we relate stock market development to changes in policy risk, we first report how our measures of stock market development fare over the different privatization periods within our sample of 22 privatizing countries. Table 5 reports the summary statistics for these measures over the different privatization phases.<sup>22</sup> There is certainly enough variation in the sample to be accounted for.

**Table 5: Descriptive statistics for stock market development indicators over different privatization periods**

		Annual % Change	Standard deviation	Minimum	Maximum
Capitalization/ GNP	Pre	42.50	101.12	-74.74	458.74
	Announcement	51.50	131.22	-65.64	678.61
	Early	45.30	88.50	-66.01	402.83
	Late	24.61	58.85	-65.50	233.35
Traded Value/ GNP	Pre	87.61	222.30	-72.28	1,072.38
	Announcement	109.09	325.80	-68.87	1,928.48
	Early	106.63	265.21	-76.90	2,024.60
	Late	56.12	128.69	-71.45	552.29
MSCI Index Adj. Returns	Pre	-0.01	5.36	-12.43	10.02
	Announcement	0.74	4.31	-5.72	9.43
	Early	1.75	4.80	-9.65	17.74
	Late	-0.08	3.47	-5.96	8.40

The development of stock markets in the countries has been radical in all privatization periods. The average yearly growth in traded value over GNP always exceeds 50% in any privatization period, although it slows down in the late phase of privatization. The pattern over the different periods confirms our earlier claim that the direct effect of privatization share issues can only account for a small fraction of the growth of these markets.

It is striking that our growth indicators for traded value and capitalization both peak in the announcement period as opposed to the late period, which includes the year of highest privatization sales. There may be several reasons for the incidence of the peak. First, the

<sup>21</sup> We also used residuals from an estimated ICAPM model as a measure of stock market development. The results are similar to the results reported for the MSCI-world index adjusted returns reported here.

<sup>22</sup> For the traded value over GNP ratio, we removed the 1989 observations for Indonesia. In that year, the growth rate of the traded value over GNP equalled an 11700%, which is more than five times as large as the second largest growth rate in the sample.

countries selected by the IFC as emerging markets are those countries whose stock markets actually did emerge, so there may be a sample selection. These markets often started growing from a very low initial level of market development; small absolute increases in capitalization or traded value then imply very high growth rates. Several countries which started privatizing later probably benefited from the positive experience of earlier privatization in other emerging markets.

Second, the announcement of privatization may induce higher market capitalization, traded value and new listings from the anticipation of risk sharing and liquidity benefits that are expected to result from future privatizations. It may also coincide with the period of financial liberalization.

Third, it is often the case that some governments list the shares of the state-owned enterprises on the stock exchange before actually selling them, contributing to explain the peak capitalization growth.

We now turn to the final part of our analysis. Are changes in policy risk important for stock market development in emerging economies? In order to assess this, we use our full sample of 31 emerging stock markets and link stock market development in these countries to changes in policy risk, adding data for the years 1988-1995 for our non-privatizing countries. We pool all yearly observations into one data set of about 300 observations.<sup>23</sup> We then regress our different measures of stock market development on the improvements on policy risk, using separate regressions for each policy risk indicator.

We use three natural macro-economic control variables in our regressions: real depreciation vis-à-vis the US dollar, growth of exports per capita and growth of GNP per capita. These factors are assumed to capture general economic developments and to be less directly related (at least contemporaneously) with policy risk. The data are obtained from the International Financial Statistics of the IMF and the World Bank Global Development Finance database.

We also control for stock market liberalization. Most of the stock markets in our sample were liberalized during our sample years. Henry (2000) and Bekaert and Harvey (1999) show that in the period around these liberalizations, markets experienced positive abnormal returns, and dividend yields dropped. This suggest that market capitalization, traded value and stock returns jump up during the implementation of market liberalization. Over the

medium term, later stock market growth may also be affected by an earlier liberalization, if investors confidence builds up and more firms acquire listings to profit from the resulting lower cost of capital. We therefore include two dummies that capture whether or not the stock market is or has been liberalized. The first liberalization dummy variable has a value of one if liberalization has taken place in the same year or in any of the previous years. Hence, this dummy should capture the medium term growth of emerging stock markets that results from liberalization. The second liberalization dummy equals one around the liberalization date and tests for a pure announcement effect.<sup>24</sup> To construct these dummies, we use the stock market liberalization dates provided by Bekaert and Harvey (1999). For the eleven countries not reported in Bekaert and Harvey (1999), we use the IFC liberalization dates, given by the month after which the IFC considers the country's composite index as 'investable'. According to the IFC, most of these countries did not experience any liberalization.

Finally, we include the yearly privatization sales, scaled by GNP, in the regressions. This term should capture any direct effect of privatization share issues independent from its effect on policy risk, as well as any contemporaneous liquidity benefits from privatization listings. The summary statistics of the regression variables can be found in Table 6.

**Table 6: Descriptive statistics for regression variables**

Variables	Mean	Median	Maximum	Minimum	Standard deviation	Number of Observations
Growth in Capitalization/GNP (%)	34.7	14.9	678.6	-74.7	84.7	303
Growth in Traded Value/GNP (%)	84.3	25.5	2,279.8	-87.5	246.4	303
Stock market return in excess of MSCI World Index (%)	0.63	0.24	17.7	-12.4	4.2	189
Growth in GNP per capita (%)	5.9	6.9	89.9	-51.0	15.3	309
Growth in Exports per capita (%)	8.0	7.8	67.0	-61.1	13.1	310
Real depreciation (%)	-9.6	-6.0	60.7	-97.4	20.2	310
Privatization Sales/GNP (%)	0.46	0.02	11.0	0.0	1.1	309
Percentage change in Country Credit Rating	1.8	1.9	35.4	-41.2	8.9	310

<sup>23</sup> In the regression on excess returns, the size of our sample is reduced to around 190 because the EMDB does not provide return data for all years and countries.

<sup>24</sup> For those liberalizations that occur in the first three months (last three months) of the calendar year, the dummy equals one both the year of liberalization and the year before (after that). For liberalizations that fall within the other months, the dummy equals one only in the year of the liberalization.

Percentage change in ICRG Policy Risk Rating	2.8	0.00	61.9	-34.5	12.3	293
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We perform regressions both with and without country dummies. In all cases the inclusion of country dummies worsens the fit of the regression, measured by the adjusted R-squared. This suggests that there are no significant country effects. Table 7 reports the results of all the regressions, where we exclude country dummies.

The equations indicate that policy indicators (liberalization and policy risk) perform well at explaining the remarkable sample variation, particularly our measures of perceived policy risk. The CCR is significant in all regressions: at the 1% level for growth in capitalization and excess return, and at the 5% level for traded value over GNP. The ICRG policy risk indicator is significantly related to growth in capitalization and traded value, but not to excess return.<sup>25</sup>

The difference in explanatory power among the two policy risk indicators is intriguing. CCR turns out to be particularly valuable in explaining market development. It is possible that the ICRG policy index relies to some extent on conventional, backward-looking economic measures which are less informative on the underlying risk and opportunity factors than perceived risk and confidence measured directly by CCR.

Note that the coefficient for the privatization sales over GNP term is insignificant in all regressions.<sup>26</sup> This is consistent with the notion that policy risk perception is a summary statistics of the effect of privatization on confidence and thus on the required rate of return. The direct effect of privatization sales appears thus not significant after controlling for changes in policy risk.<sup>27</sup>

In accordance with Henry (2000) and Bekaert and Harvey (1999), we find that stock returns jump around liberalization. We find that stock market liberalization dummies are also related to stock market development. There is evidence of a large, positive effect on capitalization around the liberalization date. These findings suggest that stock market liberalization increases the market's capitalization through new listings. The regressions also show that excess stock returns are strongly related to changes in the CCR indicator, in line with the results of Diamonte, Liew and Stevens (1996) and Erb, Harvey and Viskanta

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<sup>25</sup> Exclusion of the liberalization dummies does not affect the significance of policy risk.

<sup>26</sup> Exclusion of the policy risk indicators does not alter this result. We thus do not find any evidence of a direct link between privatization and stock market development.

<sup>27</sup> This does not mean that current privatization sales have no impact on policy risk indicators; in section II we saw that when we regressed our policy risk measures on the simultaneous flow of privatization sales, there is a positive and significant effect.

(1996b), but not to changes in the ICRG policy risk indicator. The medium term effect of liberalization on stock returns is negative, but insignificant in all but one specification. In all, the results seem to suggest that risk premiums decline around and after liberalization, leading to somewhat lower later returns, which is in accordance with Henry (2000) and Bekaert and Harvey (1999).

**Table 7: Stock market development, liberalization and policy risk.**

The sample consists of the 22 countries we classified as privatizing (see Table 1 of Appendix 1) and 9 additional countries. For the latter group, we use stock market development data from 1988 to 1995. For the countries included in our sample of privatizing, we use stock market development data for the years as reported in Table 1. All yearly data for the 31 countries are pooled into one sample after which we regress our five different measures of stock market development on policy risk improvement and stock market liberalization. Liberalization' is a dummy that equals one in the year of stock market liberalization and in those years that follow. 'Liberalization Period' is a dummy that equals one in the year/years in which the liberalization actually took place. As macro-economic control variables we use growth in GNP per capita, growth in exports per capita, real depreciation and privatization sales over GNP (latter in %). In addition to OLS estimates, we report two-step GMM estimates. We use lagged values of policy risk improvement as instruments. The t-values are in parentheses. They are calculated using White heteroskedasticity-consistent standard errors.

<b>Panel A</b>	Dependent Variable: Growth in Market Capitalization over GNP (not in %)			
	OLS (1)	OLS (2)	GMM (3)	GMM (4)
Constant	***.18 (3.71)	***.17 (3.32)	***.16 (7.23)	***.15 (4.07)
Growth in GNP Per Capita	-.59 (-1.37)	-.26 (-.57)	-.35 (-1.24)	**-.57 (-2.32)
Growth in Exports Per Capita	.47 (1.42)	.41 (1.23)	**.47 (2.28)	.21 (1.25)
Real Depreciation	-.49 (-1.57)	-.45 (-1.41)	***-.56 (-3.39)	***-.67 (-4.77)
Privatization Sales/GNP	-.02 (-.59)	.01 (.17)	.01 (.32)	.06 (1.26)
Liberalization	.11 (1.14)	.10 (1.04)	**.09 (2.18)	*.08 (1.67)
Liberalization Period	*.43 (1.91)	*.44 (1.96)	***.48 (3.49)	*.28 (3.03)
Improvement in:				
Country Credit Rating (relative change)	***1.65 (2.95)		***.98 (2.26)	
ICRG Policy Risk (relative change)		*.80 (1.79)		**.75 (2.24)
Adjusted R-sq.	.08	.06		
Prob. F-value	.00	.00		
Sargan test (p-value)			.43	.30
Test for first-order serial correlation (p-value)			.56	.53
Test for second-order serial correlation			.45	.26
Wald test of joint significance			.00	.00

N	303	288	303	288
<b>Panel B</b>				
Dependent Variable: Growth in Traded Value over GNP (not in %)				
	OLS (1)	OLS (2)	GMM (3)	GMM (4)
Constant	***.50 (3.60)	***.47 (3.06)	***.47 (6.28)	***.42 (6.48)
Growth in GNP Per Capita	.01 (.00)	.62 (.50)	-.50 (-.50)	.11 (.16)
Growth in Exports Per Capita	**2.81 (1.98)	*2.76 (1.90)	**1.41 (2.11)	***1.86 (3.00)
Real Depreciation	-.61 (-1.18)	-.52 (-.97)	***-1.16 (-3.27)	-.71 (-1.41)
Privatization Sales/GNP	-.09 (-.80)	-.03 (-.30)	-.08 (-.54)	.18 (1.26)
Liberalization	-.05 (-.16)	-.05 (-.16)	.13 (.97)	-.25 (-1.57)
Liberalization Period	.43 (.77)	.46 (.82)	.21 (.84)	-.06 (-.25)
Improvement in:				
Country Credit Rating (relative change)	**3.53 (2.39)		**4.52 (2.27)	
ICRG Policy Risk (relative change)		**1.74 (1.99)		**2.39 (3.15)
Adjusted R-sq.	.03	.02		
Prob. F-value	.02	.06		
Sargan test (p-value)			.58	.50
Test for first-order serial correlation (p-value)			.94	.95
Test for second-order serial correlation			.13	.11
Wald test of joint significance			.00	.00
N	303	288	303	288

<b>Panel C</b>	Dependent Variable: MSCI-World Index Adjusted Returns (average monthly return, not in %)			
	OLS (1)	OLS (2)	GMM (3)	GMM (4)
Constant	-0.002 (-.48)	-0.002 (-.45)	.004 (1.53)	***.42 (6.48)
Growth in GNP Per Capita	-0.006 (-.21)	.022 (.81)	.004 (.20)	.11 (.16)
Growth in Exports Per Capita	.003 (.14)	.004 (.17)	-.02 (-1.49)	***1.86 (3.00)
Real Depreciation	***-.071 (-5.73)	***-.060 (-4.27)	***-.06 (-7.79)	-.71 (-1.41)
Privatization Sales/GNP	-.138 (-.44)	.002 (.85)	.002 (1.40)	.18 (1.26)
Liberalization	-.007 (-1.31)	-.008 (-1.39)	**-.007 (-2.31)	-.25 (-1.57)
Liberalization Period	**0.019 (2.32)	***.022 (2.71)	***.020 (4.57)	-.06 (-.25)
Improvement in:				
Country Credit Rating (relative change)	***.149 (3.33)		***.119 (3.61)	
ICRG Policy Risk (relative change)		.038 (1.50)		.010 (.39)
Adjusted R-sq.	.25	.17		
Prob. F-value	.00	.00		
Sargan test (p-value)			.86	1.00
Test for first-order serial correlation (p-value)			.08	.12
Test for second-order serial correlation			.34	.26
Wald test of joint significance			.00	.00
N	188	180	186	175

We also analyzed whether the interaction between liberalization and changes in policy risk development affects stock market development. Such an interaction would arise if liberalization makes markets more sensitive to changes in policy risk. If the stock market is not liberalized, changes in policy risk may have less consequences if local investors are not concerned about it. However, an interaction term in the regressions reported in Table 7, is insignificant at the 10% level. Including country dummies in the regressions generally worsens



the overall fit but increases the coefficient of the CCR and ICRG policy risk indicators for the capitalization regression, with little effect on the significance.

We checked for the presence of outlier effects by excluding countries with extreme market development patterns (Portugal and Indonesia) from our analysis, with similar results. We also excluded all observations where the growth in stock market development was more than four standard deviations away from the mean. This reduces the size of the coefficients somewhat, but does not change the pattern of significance across the different regressions. Finally, we tried including inflation in the analysis, but the results are almost identical.

There are several strong reasons why the results indicate a direct causality running from policy risk and liberalization to stock market development. First of all, we establish the importance of policy risk for stock market development by contrasting samples of privatizers and non-privatizers, in a sample in which around 40% of the observations are from years in which no substantial privatization took place. We also find the gradual pattern in stock market development (that we attribute to the gradual resolution of policy risk) hard to explain in terms of indirect liberalization benefits of new listings. The stock market is a forward-looking indicator. If market conditions were expected to improve as a direct result of announced liberalization sales, prices and trading volume should immediately anticipate these benefits.<sup>28</sup>

The OLS regressions may, however, suffer from a reverse causality problem in the sense that both stock market development and stock market liberalization may cause improvements in policy risk. As a test for such a potential causality problem we assess the robustness of our OLS results to using the method of instrumental variables with respect to the policy risk variable. Since it is difficult to find valid instruments for the policy risk variable, we use lagged variables of improvements in policy risk index as instruments. The

autocorrelations between the two policy risk indicators and their lags suggest that lagged CCR may be a good instrument<sup>29</sup>, while lagged ICRG Policy may be a poor instrument due to the lack of autocorrelation<sup>30</sup>. We will use the Sargan test of overidentifying restrictions to test for the validity of these instruments in a more precise way. We also test for the presence of potential country-specific effects by using a test for higher order autocorrelation. To implement the instrumental variables method we use the GMM estimation techniques for panel data developed by Arellano and Bond (1991) and Arellano and Bover (1995). In addition to the OLS estimates, Table 6 also presents the GMM results for the three model specifications. We show the two-step GMM estimates that control for heteroskedasticity in the error term.

We find that the GMM results are quite similar to the OLS results, although we find that the effect of an improvement in policy risk on growth in market capitalization over GNP is generally lower for the GMM estimates, while the effects of an improvement in policy risk on growth in traded value to GNP is generally higher for the GMM estimates. Another difference from the OLS results is that growth in capitalization tends to be higher once the market has been liberalized. Also, the statistical significance of the GMM estimates improves over the OLS results, although it should be noted that the two-step GMM estimates may be produce poor estimates of the standard deviations of the coefficients in certain samples (see Blundell and Bond, 1998). The main difference, however, can be found in the specification with the change in ICRG policy risk. It turns out that the lag of ICRG Policy is a weak instrument for current ICRG Policy, as has been suggested by the low autocorrelation before.

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<sup>28</sup> Trading and diversification gains may also be incorporated gradually, of course, if there are fears that the privatization process may be halted or reversed; such concerns do belong to our definition of political and policy risk.

<sup>29</sup> The correlation between growth in CCR and growth in lagged CCR is 45.2%, and the correlation between the change in CCR and the change in lagged CCR is 50.1%.

<sup>30</sup> The correlation between growth in ICRG Policy and growth in lagged ICRG Policy is only 15.4%, and the correlation between change in ICRG Policy and change in lagged ICRG Policy is only 9.6%.

The general conclusion is that the OLS results do not seem to suffer from a reverse causality problem where stock market development causes improvement in policy risk.

We conclude therefore that policy risk improvements, correlated with the existence of a sustained privatization and liberalization program, appear to be an important factor in the rapid development of emerging stock markets. Of course, policy risk did not alone determine the development of these stock markets, but its impact is economically quite significant.

## **Conclusion**

We have presented evidence that the resolution of policy risk through sustained privatization has been an important source for the recent growth in emerging stock markets. It seems that sustained privatization has gradually strengthened the institutional framework by forcing a resolution of policy and legal uncertainties which had till then hindered equity market development, leading to increase in investor confidence.

On average, this process seems to take place gradually as privatization proceeds, with much of the resolution taking place during privatization, as opposed to the announcement and preparation period. We also confirm earlier results that liberalization has a positive impact, although the significance of policy risk appears significantly stronger.

We view our approach as an attempt to investigate the dynamics of required returns on investments. There is by now a general consensus in finance that required returns evolve over time. If this is true for firms, it must be true for country risks, particularly in emerging markets.

A final but important point is that it is possible that privatization can by itself resolve policy risk by helping to overcome political resistance to market reforms and their effect, perhaps because it establishes a broader-based ownership. Biais and Perotti (2001) explain

how a large privatization program may be designed so as to reduce policy risk of future policy reversals. A market-oriented party may increase the probability of being re-elected by implementing a series of underpriced sales, where excess demand is rationed so as to ensure a broad diffusion of shareholding and to reward long term holdings. A wide diffusion of shares may then shift the voting preferences of the middle class. This shift in the political equilibrium creates stable political support for market reforms and reduces policy risk for equity investment, reducing the risk premium, producing excess returns and increasing market capitalization.<sup>31</sup>

In our view there is much promise for research in the area of political economy and finance. Privatization, just as nationalization, has strong redistributive effects and tends to cause political conflict, whose outcome is both relevant and informative for investors.

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<sup>31</sup> Jones et al (1999) find significant empirical support for these conclusions by analysing the pricing and share allocations affiliated with privatization sales.

## **Appendix 1:**

### **Special cases in defining the privatization period and a list of the privatizing countries**

For 5 countries, we deviate from the quantitative definitions of privatization periods given in the text.

**Argentina:** We put 1989 in the announcement period. In 1989 the newly-elected President Menem immediately announced a privatization plan which already led to sales in 1990 (Sader, 1993)

**Brazil:** In 1988, there was one large privatization transaction; however, in 1989 and 1990 there were no sales. In 1990 a privatization plan was announced, which took off in 1991 (Sader (1993)). Hence we regard 1990 as part of the announcement period.

**Chile:** This country has a long tradition of privatization, extending back to the early 70s. This period consists of two waves of privatization, according to Hachette and Luders (1993). We take the second wave of privatization as our focus of analysis. For privatization sales before 1988 we rely on Hachette and Luders and use 1985 as the start of privatization.

**Jamaica:** For Jamaica we were unable to obtain information about the precise sales before 1988. We rely here on Leeds (1991) ("Privatization Through Public Offerings: Lessons from Two Jamaican Cases" in R. Ramamurti and R. Vernon (eds) *Privatization and Control of State-Owned Enterprises*, World Bank, Washington DC ) who claims that privatization started off in 1986.

**Malaysia:** We rely on Sader (1993) and Galal, Jones and Vogelsang (1994) who claim that privatization started in 1985.

**Mexico:** For Mexico we use Rodriguez (1992) for obtaining privatization sales data before 1988. We neglect the revenues of privatization in 1983 and 1984. Privatization in that period mostly involved liquidation of assets. Revenues were around 40 million and 1 million respectively for those years. In 1985 sales were 113, and remained above 100 million afterwards. (See Rodriguez 1992).

The countries in our sample of privatizers, and the resulting classification of privatization periods are reported in Table 1.

**Table 1: Sample of countries and their privatization periods**

	Pre	Announcement	Early	Late
ARGENTINA	87	89	90	92
BANGLADESH	85	87	89	93
BRAZIL	88	90	91	93
CHILE	81	83	85	88
COLOMBIA	87	89	91	93
COTE D'IVOIR	87	89	91	95
GREECE	86	88	90	90
INDIA	87	89	91	94
INDONESIA	87	89	91	95
JAMAICA	82	84	86	89
MALAYSIA	81	83	85	92
MEXICO	81	83	85	91
NIGERIA	85	87	89	93
PAKISTAN	86	88	90	94
PERU	87	89	91	94
PHILIPPINES	85	87	89	93
PORTUGAL	85	87	89	92
SRI LANKA	85	87	89	92
TUNESIA	84	86	88	92
THAILAND	88	90	92	93
TURKEY	84	86	88	90
VENEZUELA	86	88	90	91

## Appendix 2: Overview of the Policy risk Indicators

**Table 1: Rankings for the importance of factors in Country Credit Risk Ratings.**

Factor	1979	1994
Debt Service	1	1
Political Outlook	3	2
Economic Outlook	2	3
Financial Reserves/Current Account	4	4
Trade Balance	5	5
Foreign Direct Investment	6	6
Fiscal Policy	9	7
Inflow of Portfolio Investment	8	8
Access to Capital Markets	7	9

Source: Erb, Harvey and Viskanta (1996b).

**Table 2: Composition of the International Country Risk Guide Indicators**

<u>Policy risk indicator</u>	<u>Weight</u>
Economic expectations vs. reality	.12*
Economic planning failures	.12*
Political leadership	.12*
External conflict	.10
Corruption in government	.06
Military in politics	.06
Organized religion in politics	.06
Law and order tradition	.06
Racial and national tensions	.06
Political terrorism	.06
Civil war risks	.06
Political party development	.06
Quality of bureaucracy	.06
<u>Financial Risk indicator</u>	
Loan default or unfavorable loan restructuring	.20
Delayed payment of supplier's credits	.20
Repudiation of contracts by government	.20*
Losses from exchange controls	.20*
Expropriation of private investments	.20*
<u>Economic Risk indicator</u>	
Inflation	.20
Debt service as a % of exports	.20
International liquidity ratios	.20
Foreign trade collection experience	.20
Current account balance as % of goods and services	.20
Parallel foreign exchange rate market indicators	.20

\* Components used for the ICRG policy risk indicator

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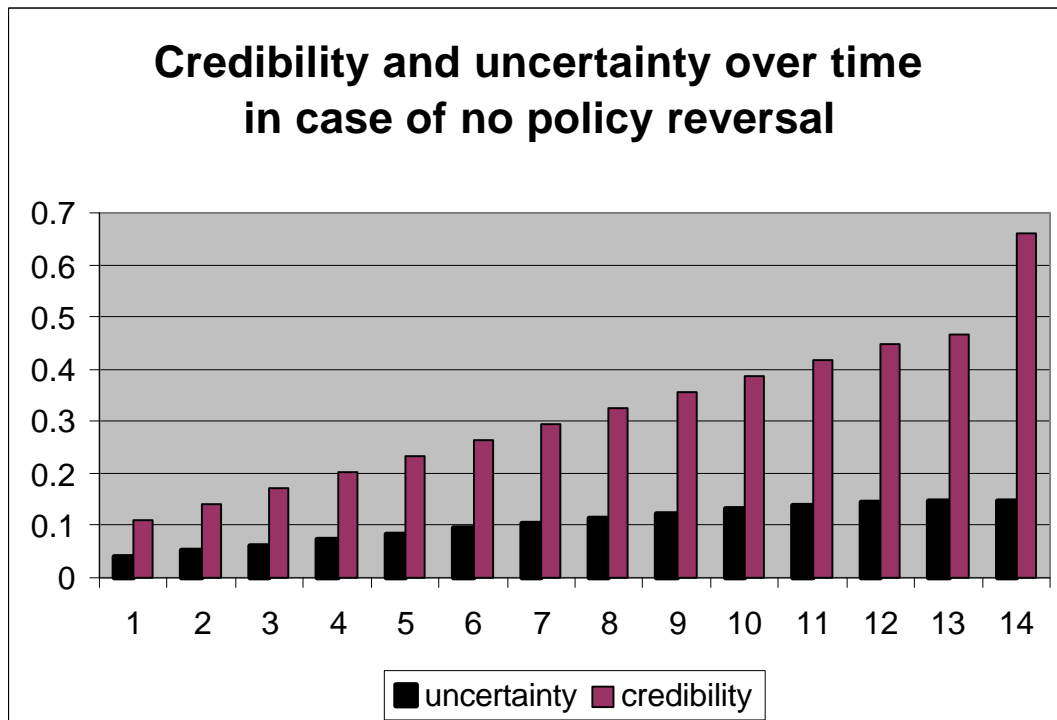
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**Figure 1: Credibility and uncertainty over time**

Horizontal axis is time (years); The simulation uses the following parameter values: the value captured in case of interference is  $\hat{a}=0.90$ , the discount factor is  $\hat{\alpha}=0.70$ , the number of firms to be sold  $N=20$ , and the final date is  $T=30$ .



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