

# Insurance Market Development in Latin America and the Caribbean

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# 1. Introduction

In economic terms, *insurance* refers to the pooling mechanism for reducing the downside of risk through resource reallocation from good to stormy states of the world:

Insurance reimburses an individual for some or all of a financial loss that is linked to an unpredictable event or risk. This protection is accomplished through a pooling mechanism whereby many individuals who are vulnerable to the particular risk are joined together into a risk pool. Each person pays a small amount of money, known as a premium, into the pool, which is then used to compensate the unfortunate individuals who do actually suffer a loss. Insurance reduces vulnerability by replacing the uncertain prospect of large losses with the certainty of making small, regular premium payments (Churchill et al., 2003).

Typically, risk coverage is provided through a policy from an insurance company. The extent to which the insurer successfully facilitates coverage (and is able to spread its risk assumptions) is the extent to which the insured can take greater chances and better manage risk exposure. As such, insurance markets are crucial for economic growth and a complementary stimulus to capital market development.

To better understand and facilitate that process, the Inter-American Development Bank (IDB)—together with the Regional Association of Insurance Companies (Fundación Interamericana de Empresas de Seguros, FIDES) and the Regional Association of Supervisors (Asociación de Supervisores de Seguros de Latinoamérica, ASSAL)—is coordinating policy-oriented research on the

insurance industry in the region, targeting the variables and factors that affect its development. A survey of different actors in the market has been carried out to obtain information about perceptions of the industry and its status. This represents the first attempt to systematically analyze the insurance market in Latin America and the Caribbean. By updating survey results periodically, this IDB-FIDES-ASSAL research effort will provide a long-term view of insurance in the region and permit formulation of more accurate and specific policy recommendations. The first step is to spotlight the most important issues for the development of insurance markets in Latin America and the Caribbean.

At the end of 2004, insurance markets in the region were relatively underdeveloped and widely divergent, despite evidence of a growing demand for risk coverage by the private sector. Premium volume in Latin America and the Caribbean for life and non-life insurance totaled about 2.5 percent of regional gross domestic product (GDP) (compared to 8 percent in Europe, 7 percent in Asia, and 9 percent in the United States) and just 1.5 percent of insurance business worldwide. Moreover, the region's business is concentrated in a few countries, with more than 90 percent of the premiums written in Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela (Swiss Re, 2004). Figure 1 shows that not only is there room for more insurance market penetration (premiums as a percent of GDP), but also for better, greater "density" (premium per capita in US\$), that is, for a more competitive, deep, and efficient insurance market. Evidence suggests that weaknesses in the infrastructure supporting insurance operations, immature marketing and product delivery mechanisms

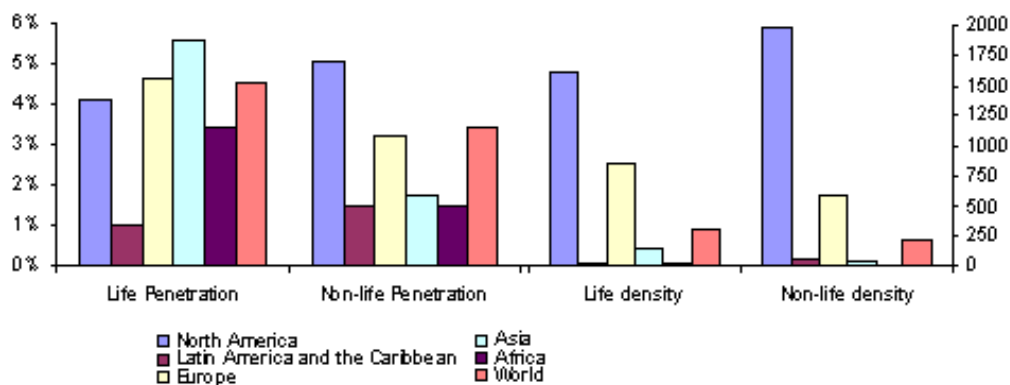
and know-how, may be slowing down the growth of efficient insurance markets. We see evidence of this inasmuch as insurance products are still perceived as too complex by consumers, unreliable as financial risk management tools (claims processing is perceived as opaque and unreliable), and too expensive. These circumstances create inefficiencies that prevent insurance from exercising its full potential to favor the allocation of resources and economic growth. Of course, insurance markets vary from country to country and there are also success stories in some countries or in the development of specific products.

This paper provides an initial glimpse into the performance of the insurance industry in the region through the use of a broad diagnostic survey. It also provides some descriptive statistics based on survey data. Survey information is used to identify variables and factors affecting insurance market performance in Latin America and the Caribbean, forming the basis for a

discussion of policy recommendations. The analysis is a first step toward identifying problems perceived to be of critical relevance to more effective insurance markets in the region. Questions about causality among variables, and how external factors may affect variables simultaneously, remain in play. Further research using existing surveys as well as future surveys with larger samples and more powerful tests and statistical techniques need to be undertaken to adequately answer these questions and provide a robust assessment of which policies indisputably lead to more effective insurance markets.

The analysis proceeds in measured steps. Section 2 presents a brief overview of the role played by insurance in the economy and the importance of developing an effective insurance market. Section 3 reviews the main studies of insurance. Section 4 surveys the status of insurance markets in the region and Section 5 describes the main results from the survey. Section 6 presents our conclusions and the main policy recommendations for future research to improve insurance market effectiveness in the region.

**Figure 1. Insurance in Latin America Compared to Other Regions**



Source: Swiss Re Economic Research & Consulting

## 2. Insurance and Its Role

The term *underwriting* originated in one of the oldest current insurance markets in the world: Lloyd's of London, which was originally a coffee shop. Commercial shipping companies that sought insurance for their vessels would place the details of the ship and its cargo on a chalkboard in the shop. Interested individuals with funds to insure against adversities examined the board and wrote their names under a ship's details (hence *under-writing*), indicating that they had assessed and were willing to take on the associated risks (Churchill et al., 2003). This risk pooling provided both an efficient means for protecting against certain types of adversity, such as those at sea, and also a source of complexities in designing and delivering insurance products.

### Insurance and Economic Activity

The existence of insurance markets facilitates economic activity. This follows directly from the idea that risk-averse individuals are willing to pay at least a fair premium to ensure compensation should a specific event occur in the future. This enables some individuals to enter into higher risk activities, offering higher than expected pro-

ductivity returns that they would not enter otherwise. An insurer supplies a contract, which details future payments covering specified circumstances. Such a contract is favorable to the insurer, insofar as the premium paid is at least as high as the expected payment to the policyholder (adjusted for the probability of the triggering adversity occurring). Premiums charged to all policyholders provide funds for those entitled to payments. For each policy that may incur a loss to the insurer, the law of large numbers indicates that when the number of contracts increases and the policy is appropriately priced (so that the premium equals the expected loss from each individual contract) the insurer gains nonnegative profits in the long run and is motivated to undertake its customer's risks, thereby promoting economic growth and activity (Moss, 2003).

Insurance markets are particularly beneficial for economic activity in developing countries, such as those in Latin America and the Caribbean. Households in developing countries are exposed to high risk, with important consequences to welfare and efficiency. Table 1 shows how, in the absence of formal insurance markets and instruments, risks

**Table 1. Informal Risk Management and Coping Strategies**

Strategy	Examples	Shortcomings
Managing and reducing risk faced via changes in portfolio of income sources	Crop diversification; specialization in low-risk activities; migration of some members	Sacrifice of expected income
Asset management	Savings and self-insurance	Lack of suitable savings assets (lumpiness, insecurity); focus on liquid, less-productive assets; long building time; covariance in asset prices and income
Informal insurance	Reciprocal gifts/loans from friends and relatives	Incomplete protection; vulnerability to covariant risk
Market based solutions	Formal insurance policies	Typically not available to the poor

Source: Dercon (2006)

from changed sources and reduced flows of income and from asset management lead to suboptimal solutions via self-insurance or informal insurance.<sup>1</sup>

These risks, or “chances that an event will cause damage or loss” (Churchill et al., 2003), are associated with specific incidents such as illness, theft, or unemployment, or with economy-wide events such as a drought or recession. It has long been acknowledged that these shocks have important implications, not the least for the poor, including short-term impairment of consumption and nutrition, resulting in calls for the establishment of safety nets and other mechanisms.

These risks lead to changes in the portfolio of income sources and in asset management, sometimes promoting survival strategies that result in inefficient resource allocation. Therefore, expanding insurance provision for the poor is an important instrument with substantial long-term welfare benefits. Typical survival strategies and their shortcomings are indicated in Table 2.

The lack of formal insurance mechanisms leads to inefficient economic solutions that are also inequitable. Therefore, the development of insurance markets is justified by considerations of both efficiency and equity. As Sen (1999) states, the key point is that insurance allows everyone, and particularly the poor, to improve their economic poten-

tial and become less prone to lean on welfare programs.

## INSURANCE AND CAPITAL MARKETS

The role of insurance not only is complementary to productive activities but very significant for financial sector development. Insurers enter the market with equity capital and issue insurance policies, which are a form of debt capital. The funds raised by issuing both types of capital are invested until needed to pay claims. In this context, an effective insurance sector is not only relevant for productive and economic activity and for facilitating the sharing of risk, but also plays a crucial role in the investment of savings.

Insurance companies as institutional investors in corporations not only help improve capital allocation but also further enhance their investments through increased monitoring. Capital markets also can be a driving force for and benefit from the development of institutional investors. Insurance companies have liability compositions that are mostly long term, with liquidity needs, and constitute a natural complement for capital market development. Insurance companies have large cash inflows and reserves (linked to premium payments) that are partly invested in less liquid instruments such as government and corporate bonds, and equities that are typical instruments of a deve-

**Table 2. Survival Strategies**

<b>Strategy</b>	<b>Examples</b>	<b>Shortcomings</b>
Changes in portfolio of income sources	Children’s labor	Sacrifice of human capital
Asset management	Selling/pawning of real productive assets	Long time to rebuild base
Informal insurance	Charity	Incomplete protection; vulnerability to covariant risk
Market based solutions	Bank loans for consumption credit	Typically not available to the poor

*Source:* Dercon (2006)

<sup>1</sup> Tables 1 and 2 come from Dercon (2006).

loped capital market. In the absence of an array of such investment instruments, insurance companies would gravitate toward government bills and bonds with little diversification and benefit to capital market development (Figure 2).

In the context of financial market development, insurance services play a crucial role in risk management, in allocating savings, and in capital market growth. The development of sound, modern, and open insurance markets is an essential component of financial reform and capital market development in emerging-market and transition countries.

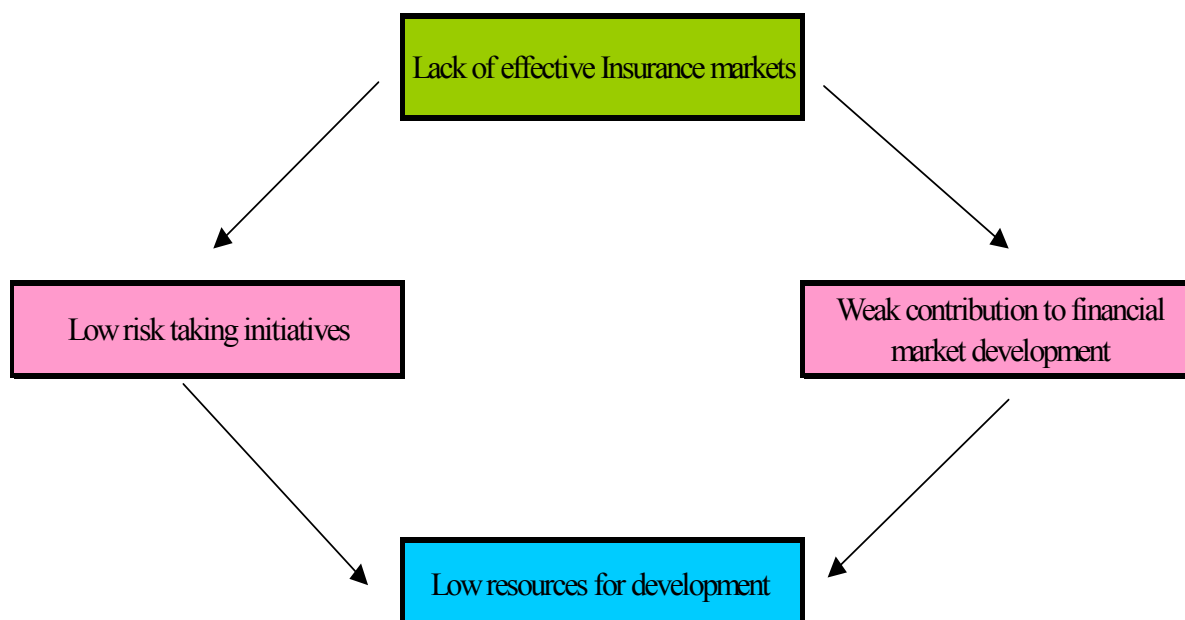
### INSURER RISKS

Although the primary purpose of insurance is to meet claims at all times, insurers are exposed to a number of risks. Solvency risks are either technical or related to investment. Technical risks are of two types: underpricing and underprovision. Underpricing occurs when the insurer attracts buyers by setting excessively low premiums that, combined with investment returns, do not cover the expected claims. Technical reserves repre-

sent the largest share of an insurer's debt, and they are a measure of an underwriter's obligations to its policyholders. Generally speaking, insurers are underprovisioned when their technical reserves are inadequate to meet their policy obligations.

Investment risk is generated by the insurer's role as a financial intermediary and reflects how the insurer's exposure to insolvency resembles a bank's. Market failure is threatened when the market price does not reflect the insolvency risk. In a world of perfect information, economic theory presumes that competition and rational behavior ensure that risk is reflected in consumers' willingness to pay, thereby fostering efficient risk management among insurers. To correctly assess the insurer's solvency, however, the buyer should have accurate data on the joint distribution of loss claims, the return on the insurer's asset portfolio, and the technical reserves that the insurer will hold when benefits are paid. Since such information is in practice costly or unavailable for buyers, it is plausible to think that they cannot fully assess the financial strength of their insurer or the quality of the insurance contract. In

**Figure 2: Lack of Effective Insurance Markets**





addition to technical and investment risks, the insurer also is exposed to the possibility of default by a partner (for example, a re-insurer) or of mismanagement, as well as to systemic risk.

These considerations point to two important aspects of asymmetric information that can prompt market failure: moral hazard and adverse selection.<sup>2</sup> Moral hazard refers to situations in which one side of the market cannot observe the actions of the other. For this reason, it is sometimes called a “hidden action problem” (Varian, 1990). Adverse selection occurs when a negotiation between two people with different amounts of information (that is, asymmetric information) restricts the quality of the good being traded. This typically happens because the more informed person is able to negotiate a favorable exchange.

### **INSURANCE, REGULATION, AND SUPERVISION**

Moral hazard and adverse selection are typical forms of asymmetric information that lead to risk of insolvency as well as to underprovision of insurance products. They

justify the need for *government intervention* in insurance markets through legal provision, regulation and supervision (OECD, 2003c). The importance of insurance regulation and supervision also is reinforced by the integration of world insurance markets, which requires an adequate regulatory framework in each jurisdiction.

The danger of moral hazard increases whenever the government establishes implicit or explicit guarantees against insolvency. The promise of bailouts removes incentives from policyholders to consider insurers’ financial strength when buying insurance coverage.

User perceptions of regulation and supervision combine with those of capital adequacy to help shape the evolution and development of insurance markets. Therefore, public policy is a significant factor in strengthening insurance markets in Latin America and the Caribbean, particularly in identifying the limits of government intervention to promote the insurance business and avoid underprovision and financial disruptions, as well as to ensure welfare gains (see Greene, 1976).

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<sup>2</sup> For a more extensive discussion of moral hazard and adverse selection, see Appendix A.

### 3. Literature Review

#### THE ROLE OF INSURANCE IN ECONOMIC GROWTH AND ACTIVITY

Whereas several studies establish that financial development is an important determinant of national economic growth,<sup>3</sup> understanding the causal relationship between insurance market growth and economic development is still lacking. According to Patrick (1966), economic expansion can be led by supply-led through growth in financial development or, alternatively, financial development can be demand-led through growth in the economy. In other words, causality is two-way. The work of Outreville (1990, 1992, and 1996) is notable for identifying links between an economy's financial and insurance market development. The 1992 study shows a positive relationship between economic expansion and insurance sector growth. Insurance markets (measured by the ratio of insurance premiums to GDP) also are shown to depend significantly on a coun-

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<sup>3</sup> King and Levine (1993) argue, "Schumpeter might be right." Levine and Zervos (1996) show that stock market development is positively associated with economic growth. Demirgüç-Kunt and Levine (1996) also clarify that the level of stock market development is a good predictor of economic growth. Boyd and Smith (1996) demonstrate that the endogenous evolution of debt and equity markets in the development process provides an economy with a more efficient set of financial opportunities and encourages the development of capital markets. Levine (1997) and Beck and Levine (2001) find a positive causal impact of financial development on productivity and economic growth. Rajan and Zingales (1998) confirm that economic growth finds a limitation in the financial system. Caprio and Demirgüç-Kunt (1998) confirm that long-term credit is scarce in emerging-market countries, especially for small firms that would obtain long-term finance if located in industrial countries. Rajan and Zingales (2001a, 2001b) partly attribute the growth of companies to financial innovation.

try's financial development. In examining market structure, Outreville finds that developing countries have a supply causality pattern to their development, suggesting that supply-side factors should receive more research and policy attention.

Arestis and Demetriades (1997), Demetriades and Hussein (1996), and Pesaran, Haque, and Sharma (2002) have highlighted the importance of accommodating causal relationships to cross-country differences in size and direction. That is, the issue of "heterogeneity" is crucial in gauging the economic role of insurance across different countries. Ward and Zurbruegg (2000) also examine the causal relationship between insurance industry growth and economic growth. Recognizing that the economic benefits of insurance are conditioned by national regulations, economic systems, and culture, they argue that examination of the interrelationships between insurance and economic growth must be done country-by-country.

Looking beyond questions of supply, Beenstock, Dickinson, and Khajuria (1986) and Browne and Kim (1993) found that the state's role in providing insurance services was a determinant of life insurance demand. Specifically, they found an inverse relationship between life insurance premiums and social security coverage. According to Hofstede (1995), the insurance level within an economy will depend on the national culture and how it affects individual willingness to use insurance contracts to handle risk. Fukuyama (1995) confirms that heterogeneity is likely to be conditional on the cultural context of a given economy. Insurance will offer important economic benefits when activities generally are seen as risky and

when the possibility of adversity is managed optimally through insurance contracts rather than other risk transfer mechanisms. Fukuyama connects these cultural differences with the level of trust in the economy.

### **THE ROLE OF INSURANCE IN FINANCIAL INTERMEDIATION AND DOMESTIC CAPITAL MARKETS**

The mainstream literature on the factors that affect financial market development does not explicitly include the insurance market. However, insurance company activities as financial intermediaries and institutional investors are keys to capital market development. Conyon (1994) states that the primary impact of insurance comes from its financial intermediary activities, linking insurance market development to the accumulation of productive capital within an economy. Conyon and Leech (1994) show that institutional investors (that is, pension funds, insurance companies, and mutual funds) improve project productivity potential.

In assessing policy choices that spur financial market development, existing research has singled out legal and regulatory reform, corporate governance, and particularly the role of institutional investors. La Porta et al. (1997, 1998) confirm that the legal environment and enforcement affect the size and depth of the financial sector. They study the quality of laws governing institutional investor protection and the vigor of enforcement and confirm that a weak legal system retards financial development and economic growth. Browne, Chung, and Frees (2000) show that a country's legal system is a significant determinant of the demand for automobile and general liability insurance.<sup>4</sup>

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<sup>4</sup> The relevance of legal systems and inherited institutions for financial market development in general has been explored further by La Porta et al. (2000), López-de-Silanes (2001), Coffee (2000), Rajan and Zingales (2001a, 2001b), and Stulz and Williamson (2001), among others.

### **RELEVANT FACTORS FOR INSURANCE DEVELOPMENT**

Three things emerge from the literature on relevant factors for the development of insurance markets. First, as noted previously, various attempts have tried to link specific variables (for example, the legal system, governance, enforcement, institutional qualities) to insurance and financial market development. Swiss Re (2004) has analyzed these factors mostly from the point of view of businesses. Among the factors that determine insurance growth are the savings level and per capita GDP, which have a positive impact on insurance but also benefit from the development of insurance markets. Enz (2000) studies the relations between insurance demand and GDP, highlighting many factors (including taxation, regulation, and risk coverage provided by the government) that limit insurance penetration in the market. Greene (1976) and Outreville (1992) examine the state's role in the insurance market.

Swiss Re (2004 and 2006) identifies several important factors determining growth of the insurance business, including the distribution of wealth, the legal system and property rights, insurance product availability, regulation and supervision, trust, and risk awareness. Other non-economic factors that have an impact on the development of insurance are religion, culture, and education. Specific factors are identified for life insurance and non-life insurance (see Table 3). For non-life insurance, they include regulation (for example, compulsory coverage), claim awards, exposure to natural disasters, and the public sector's role in health. For life insurance, they include economic stability (for example, inflation and the exchange rate), demography, the tax system, the savings rate, and the pension system.

**Table 3. Factors Influencing Insurance Demand**

<b>General factors</b>	<b>Specific factors</b>
Economic growth	Products offered
Wealth distribution of income	Distribution channels
Religion, culture	Risk awareness
Education	Insurance regulation
Property rights, legal certainty	Trust in insurance
<hr/>	
<b>Non-life Insurance</b>	<b>Life Insurance</b>
Compulsory insurance	Economic stability (e.g., inflation, currency)
Natural catastrophe exposure	Savings rate
Public role in health and workers compensation insurance	Demography
Claims awards	Tax benefits
	Pension system

*Source:* Swiss Re Economic Research & Consulting

Second, insurance business failure can stem from several potential sources. Most of the theoretical research has focused on the problems of adverse selection and moral hazard in the insurance market. Rothschild and Stiglitz (1976) show that asymmetric information between the insurer and the policyholder inhibits the design of an efficient contract when the buyers are heterogeneous in their accident probabilities (which is private information for the buyer). Yet, the empirical evidence for asymmetric information in insurance markets is decidedly mixed. Several recent empirical studies have failed to find evidence of asymmetric information in property/casualty, life, and health insurance markets. These studies include Cawley and Philipson (1999), who examine the U.S. life insurance market; Cardon and Hendel (2001), who look at the U.S. health insurance market; and Chiappori and Salanie (2000), who focus on the French automobile insurance market. In contrast, Cutler (2002) reviews a substantial literature that finds evidence in support of asymmetric information in health insurance markets; and Cohen (2001) offers some evidence for adverse selection in U.S. automobile insurance markets. Chiappori and Gollier (2006) argue that asymmetric information is a central reason that competition in insurance markets may fail to guarantee that all mutual advan-

tageous risk exchanges are realized. These results support the conclusion that depending on the specific market and situation, asymmetric information constitutes an important feature of insurance markets.

Third, the literature contains different views about the need for capital adequacy regulation and supervision in the insurance business. Advocates for a free insurance market without any regulation, supervision, or capital adequacy requirements argue that asymmetric information in insurance is less severe than in banking and that an insurance company crisis or failure is less costly than a bank failure. Rees and Kessner (1999) discuss this issue extensively, and favor a free insurance market based on their analysis of the U.K. (unregulated) and German (tightly regulated) markets. The authors argue that since buyers are always ready to pay for an insurer that guarantees solvency, there is always enough capital available in case of insolvency. Therefore, the decision of insurers is efficient in terms of economic capital, and regulation is not only unneeded but can impose deadweight loss on the market. This argument rests on the assumption that consumers are fully informed about the insolvency risk. Klemperer and Meyer (1985), however, remove this crucial assumption that the consumer can understand the sol-

gency risk fully and can use relevant information effectively. Given the empirical evidence, they dispute the superiority of the U.K. unregulated model and assert that insurance failures (citing the period 1986–99) are more severe than the losses of other financial institutions.

Despite the arguments in favor of a free and unregulated market, in practice the regulation and supervision of the insurance industry are common in Latin America and the Caribbean, and widespread around the world. Yet the argument for freedom from regulation and supervision is stronger for the insurance than for the banking sector. This is because insurance providers do not need to provide suddenly massive liquidity (that is, to cover rapid withdrawals by depositors like those that may lead to a bank run and spread system-wide through “contagion”). In addition, the insurance business has the capability of diversifying its risk portfolio through reinsurance.

### **DEFINING EFFECTIVENESS IN INSURANCE MARKETS**

The extent to which the insurer successfully facilitates the insurance process becomes the overarching criterion for a metric on effectiveness. How quickly, how cheaply, how simply, and (among other things) how reliably an insurance company administers its policies will help determine how well it minimizes its risk as an insurer.

There is a dearth of literature about insurance effectiveness framed this way. Most research is from intra-industry studies of deep insurance markets such as those of Europe or the United States and focuses on profitability or economic efficiency, concepts that flow directly from the microeconomic theory of the firm. The search for variables and factors that capture *insurance market effectiveness* is altogether absent because these studies are tailored to the re-

search agenda of already highly developed insurance markets. In these circumstances, profit maximization and competition are far more pertinent concerns than laying the foundation for a workable market.

Thus Diacon, Starkey, and O’Brien (2002) concentrate on an insurer’s efficiency, namely its ability to produce a set of outputs (such as premiums and investment performance) from given inputs (such as administrative and sales staff and financial capital). They conclude that an insurance company would be technically efficient if it cannot reduce its resource usage without some corresponding reduction in outputs, given the current state of production technology in the industry (Diacon, Starkey, and O’Brien, 2002). Cummins and Weiss (1998) similarly focus on a Pareto frontier of economic efficiency, which is achieved when an insurer has reached cost efficiency, or the production-maximizing (technical efficiency) and the cost-minimizing (allocative efficiency) combination of inputs. Beyond insurer efficiency, some studies choose to measure company performance. Avoiding some of the subjectivity associated with profits reported by long-term insurers, Mayers and Smith (1982), for example, utilize an operating-income variable (defined as income before taxes and dividends to policyholders) as well as annual growth in premiums. Proxies of performance in other studies include growth in assets (Ingham and Thompson, 1995), return on assets (O’Hara, 1981; Genetay, 1999), growth in premiums (Armitage and Kirk, 1994), and executive remuneration/emoluments (Brickley and James, 1987; Fields, 1988; Kroll, Wright, and Theerathon, 1993; and Mayers, Shivdasani, and Smith, 1997).

In relatively newer or shallow insurance markets, such as Latin America and other emerging economy regions, a specific strand of the literature on insurance effectiveness warrants elaboration. Apart from analysis by

international insurers (for example, Munich Re and Swiss Re), there have been few studies of Latin American and Caribbean insurance markets. Swiss Re and the International Insurance Federation rank 16 countries benchmarked for levels of premiums per capita for life and non-life business, but all of the countries are developed. Moreover, these studies have not been conducted independently because many international insurance companies analyze insurance markets as part of their business expansion.

The World Bank and the International Monetary Fund have undertaken studies of insurance markets in Latin America and the Caribbean in the context of the Financial Sector Assessment Program.<sup>5</sup> These studies are country specific and they focus exclusively on the regulatory aspects of insurance markets. Moreover, these studies only apply to a limited number of countries (five in the region). Similar limitations apply to the World Bank and IMF program *Reports on Observance of Standards and Codes*, which summarize how well countries observe certain internationally recognized benchmarks.<sup>6</sup> Furthermore, in this case, there has been little analysis of the insurance markets. As for the World Bank's *World Development Indicators*, entries include "time to register a business" and "time to enforce a contract," but there is no measure for insurance effectiveness. Similarly, neither the World Bank's Investment Climate Survey nor its Doing Business Database includes any measure of insurance among their tabulated financial indicators.

## REVIEW OF STUDY METHODOLOGY

In general, econometric and quantitative analyses have been used to assess the factors and variables of capital, financial, and insur-

ance market development. Ward and Zurbrugg (2000), Enz (2000), Outreville (1990, 1992, and 1996), Arestis and Demetriades (1997), Demetriades and Hussein (1996), and Pesaran, Haque, and Sharma (2000) are examples of econometric analyses based on time series. Some of these papers have also used techniques (such as cointegration) for analyzing causality. Hofstede (1995) and Fukuyama (1995) make little use of quantitative analysis. Using surveys to analyze insurance markets has been limited (Swiss Re studies, for example, have utilized surveys but lack parametric analysis).

Scarcely any studies examine how institutional factors influence insurance company effectiveness. The predominant literature is comprised of intra-industry studies outside the scope of public policy and focuses on generating firm-specific prescriptions to improve the business, that is, the profitability of insurance per se (see Annex 1).

For instance Borde, Chambliss, and Madura (1994) critique traditional methodologies for determining what firm-specific factors affect insurance company risk. They develop alternative parametric models for measuring the impact of factors on risk. O'Sullivan and Diacon (2002) utilize a two-way fixed-effects model of nonexecutive board member influence on the performance of life insurance companies in the United Kingdom. Using a set of panel data comprising 53 life insurance companies over seven years, the model includes time and company dummies to pick up those influences on performance that are company invariant (for example, macroeconomic movements) and time invariant (for example, subsidiary status, organizational structure), respectively. Kramer (1996, 2000) uses ordered logit and neural network models to determine the financial solidity of Dutch non-life insurers. Both models use the same six variables to proxy for solvency, profitability, and investments.

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<sup>5</sup> See

<http://www.imf.org/external/np/fsap/fsap.asp#cp>.

<sup>6</sup> See <http://www.imf.org/external/np/rosc/rosc.asp>.

Taylor (2001) assesses the use of regression analysis in examining service recovery in the insurance industry and finds it likely that different models may be appropriate for different samples and research variables. A research framework is presented to help overcome potential bias in regression coefficients used in competitive insurance settings.

Diacon, Starkey, and O'Brien (2002) employ a two-stage analysis to explore inter-company differences in efficiency. The first stage uses a nonparametric frontier method—data envelopment analysis (DEA)—that uses linear programming techniques to discover the frontier firms and construct a convex piecewise linear surface or frontier over these firms. The second stage consists of regressing the Farrell efficiency scores from the first-stage DEA process against environmental variables under a tobit model for censored data. Similarly, Leverty, Lin, and Zhou (2004) apply a two-stage methodology to estimate firm effectiveness in the Chinese insurance Indus-

try, using DEA to estimate firm efficiency in the first stage, and then a weighted tobit [capitalized or not???, please be consistent] regression, a count or Poisson regression model, and a WLS regression in the second stage to disentangle the determinants of firm efficiency. Cummins and Weiss (1998) comment on the dominance of the “best practice” frontier efficiency methodology for measuring insurance firm performance but posit its limitations.

Based on the findings of the literature review, the program of work being undertaken (i.e., survey of insurance markets and studies) takes the research forward by focusing on the role of insurance in capital market development (and therefore economic growth). It also develops a conceptual framework for analysis and sheds light on the variables and factors that are more relevant for insurance market development and warrant public policy intervention. This paper describes the situation of the insurance industry as it emerges from the survey.<sup>7</sup>

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<sup>7</sup> Subsequent analyses will present a more sophisticated explanatory model of the factors and variables that influence the development of insurance markets in Latin America and the Caribbean.

## 4. The Importance of Insurance in Latin America and the Caribbean

Drastic policy shifts occurred in Latin America during the 1990s. The countries of the region relied on privatization, liberalization, and deregulation to strengthen financial markets, among them the insurance market.

*Privatization.* Government involvement in the economy through state-owned enterprises diminished considerably during the decade. While targeting greater efficiency and fiscal relief, enterprise privatization also was touted as a way to jump-start capital markets by widening share ownership and expanding the supply of investment securities. Other than the state-owned insurer *La Previsora* in Colombia and the reinsurance monopoly in Brazil, the major actors in the big insurance markets of the region are private.<sup>8</sup> Moreover, workers' compensation insurance is now written by private insurers in Argentina and Colombia, and a privately run unemployment insurance scheme has recently been introduced in Chile (Swiss Re, 2004).

Movement toward social security privatization also was intended to deepen capital markets by generating a pool of private savings to finance private investments. Individual capitalization regimes began replacing state-run pensions in the region, beginning with Chile in 1981. Peru followed suit in 1993, Argentina and Colombia in 1994, Uruguay in 1996, Bolivia and Mexico in 1997, El Salvador in 1998, Costa Rica in 2001 and, most recently, the Dominican Republic in 2003.

<sup>8</sup> The only exception is Costa Rica where the 1924 Law of Monopolies of the Instituto Nacional de Seguros (National Insurance Institute) states that insurance is a monopoly of the state.

*Liberalization.* The liberalization of Latin American financial markets (including stock markets) and the capital account, which had lagged in the 1980s, quickly intensified in the 1990s. The goal was to open the door for more foreign capital to fund domestic investments, as well as to provide domestic firms with access to risk diversification from abroad. The opening to international finance, it was believed, would provide more discipline and efficiency to domestic capital markets (see Figure 3, which comes from Galindo, Micco, and Panizza, 2005).

For insurance in particular, foreign insurers would provide new capital and know-how through more sophisticated insurance products and distribution channels for reaching a broader spectrum of people. With reduced entry barriers, many international insurers entered the region's insurance markets. Merger and acquisition activities accelerated and competition intensified. By 2004, the market share of foreign insurers ranged between 30 percent and 75 percent of the region's market (Table 4).

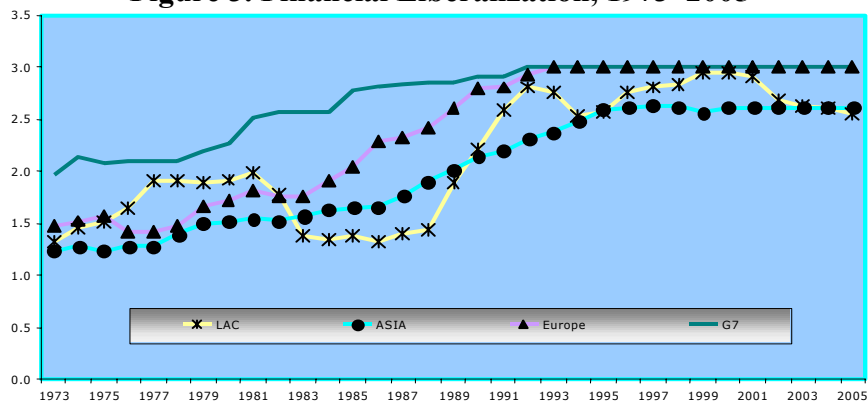
**Table 4. Market Share of Insurers with Foreign Ownership (≥50%)**

	Life	Non-life
<b>Latin America</b>		
Brazil	32%	43%
Mexico	75%	58%
Chile	62%	63%
Argentina	53%	35%
Venezuela	39%	50%
Colombia	38%	46%

Source: Swiss Re (2004)



**Figure 3. Financial Liberalization, 1973–2005**



*Note:* The index plots the simple average of liberalization in the capital account, the domestic financial system, and the stock market. This measures ranges from 1 to 3, where 3 is full liberalization. The Average Liberalization Index in the graph is the simple average of the liberalization measure across countries in each year.

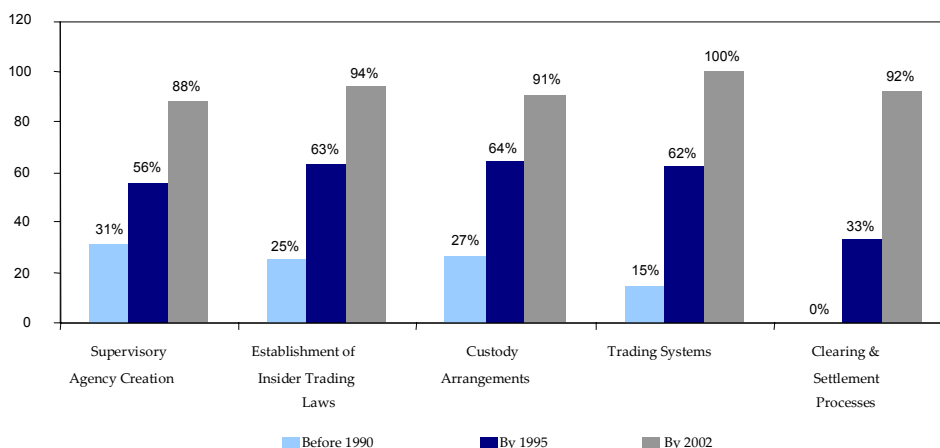
*Source:* Financial Liberalization is based on the indicators developed in Kaminsky and Schmukler (2003) and authors' updates

*Regulatory Reform.* Across the region, reforms in securities market supervision, governance, and infrastructure accelerated rapidly in the 1990s (Figure 4). The intention was to step up exchange platforms and systems to lower transactions costs, as well as to create a regulatory body and legislation to protect investors and elicit more investment. By 2002, the region as a whole seemed market ready.

Despite this multidimensional reform “package,” insurance markets in Latin America and the Caribbean remain shallow compared to other international markets (for example, insurance penetration—measured as premiums over GDP—is low: see Figure 1).

Table 5 shows recent data<sup>9</sup> collected from household surveys about access to private health insurance. A simple average of seven countries for which information is available

**Figure 4. Percentage of Latin American Countries Having Implemented Reforms, 1990–2002**



*Source:* De la Torre and Schmukler (2004)

<sup>9</sup> The countries selected in the table are those for which data are available.

shows that only 8 percent of households declared having some type of private health insurance (the average for poor households is 2 percent). Compared to developed countries such as the United States (68 percent) and Australia (45 percent), these numbers highlight the relative underdevelopment of the region's financial markets. We should note that health insurance access may not be the best indicator of the degree of development of the industry because it is dependent on government provision of these services (effective government-provided universal public health insurance, for example). However, it is the most comparable indicator that can be built using household surveys. Improving the design of household surveys may enable us to capture more complete and comparable information about other types of insurance.

**Table 5. Households with Access to Private Health Insurance (%)**

	Nonpoor	Poor	Total
Ecuador	9.6	1.0	6.8
Guatemala	9.5	1.8	6.0
Panama	3.8	0.1	2.8
Nicaragua	3.0	0.6	2.1
Paraguay	13.1	1.3	10.0
Peru	8.5	0.7	4.9
Dominican Republic	27.8	10.9	22.8
Average	11.0	2.0	8.0
Australia			45.0
U.S. (Individuals)			68.0

*Source:* For Latin America, authors' calculation based on household surveys obtained from the ME-COVI database; for U.S., United States Census Bureau (2003); for Australia, Colombo and Tapay (2003).

Indeed, the current condition of the insurance industry in Latin America and the Caribbean does not match other indicators for the region, such as population and GDP, which represent about 6 percent and 8 percent of the world's totals, respectively. Seen in conjunction, these figures reveal a marked underdevelopment of the region's insurance

industry.<sup>10</sup> However, there is also "heterogeneity", which is crucial in gauging the economic role of insurance across different countries. Ward and Zurbruegg (2000) examine the causal relationship between insurance industry growth and economic growth in the OECD countries, and recognize that the economic benefits of insurance are conditioned by national regulations, economic systems, and culture. They argue that an examination of the interrelationships between insurance and economic growth must be done country by country.

To put that into perspective, recent studies indicate enormous differences among emerging-market countries (see Figure 5). The level of insurance development (measured by penetration, i.e., the ratio of premiums to GDP) varies significantly among countries in Latin America and the Caribbean (see Figure 6). This view (see Enz 2000) contrasts with the models that assume a constant income elasticity of demand for insurance, and have the unrealistic implication that insurance penetration grows without constraint. Figure 6 shows a wide disparity in the level of insurance demand and coverage among developed economies (e.g., Spain), relatively developed countries such as Chile, Brazil and Mexico, and poor countries such as Bolivia and Honduras.<sup>11</sup>

For all of the reasons articulated earlier, the challenge is to overcome the market failures that hinder insurance development and to identify the factors that promote it. Using information from the survey we selected the variables that are most likely to have an impact on the effectiveness of insurance markets. The selection of variables was made based on previous studies as well as on experience. In the first place, insurance markets will be affected by variables that have an impact on the overall health of the econ-

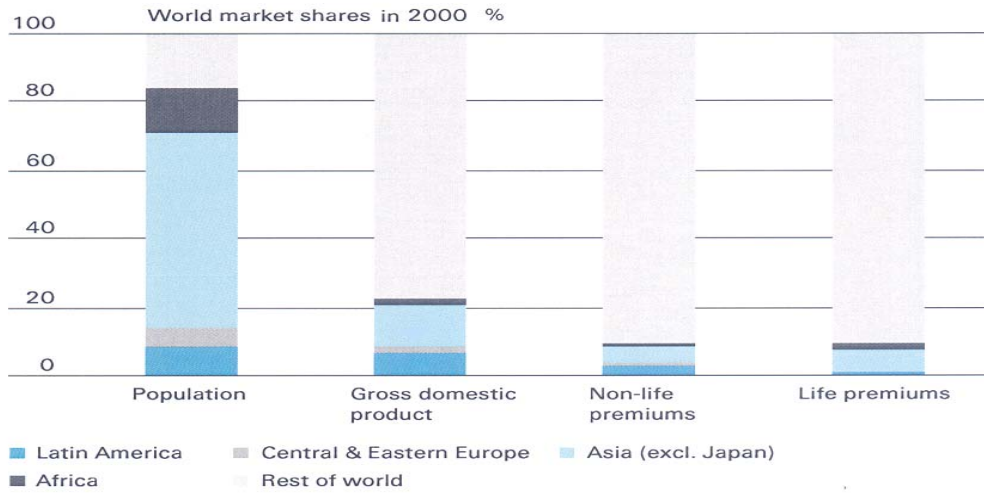
<sup>10</sup>Swiss Re (2002).

<sup>11</sup> Swiss Re (2004: 5–6).

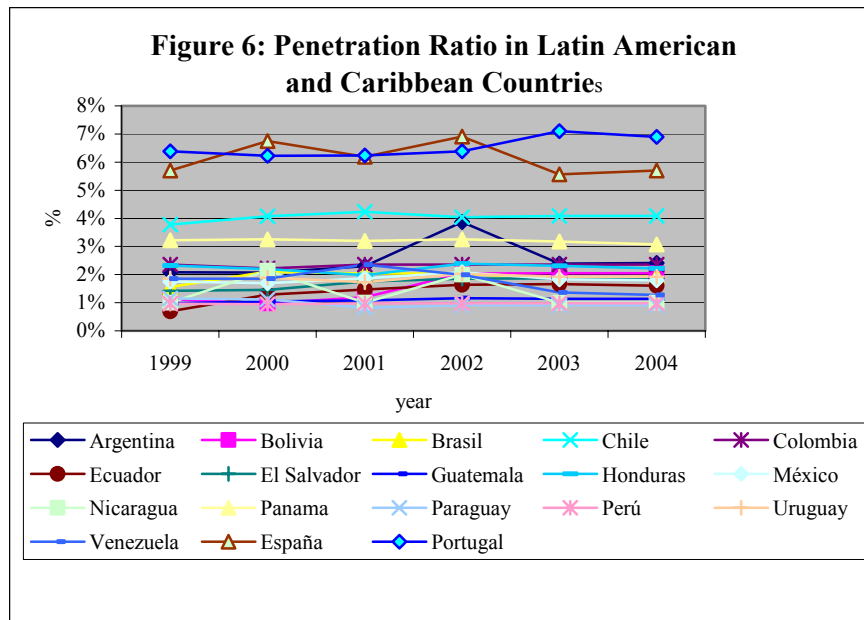
omy, such as income level, macroeconomic stability, average education of the population, culture, political stability and financial depth. A second set of factors that affect insurance markets in a more direct manner are competition in the insurance sector, moral

hazard, supervision of insurance companies, adverse selection, enforcement of consumer protection laws, enforcement of the law, and availability and clarity of information about products and services.

**Figure 5: The Emerging Markets Need to Catch Up in Insurance**



Source: DRI-WEFA, Swiss Re Economic Research & Consulting



Source: Assal, various years [www.assalweb.org](http://www.assalweb.org)

## 5. Survey Results

The underdevelopment of insurance in Latin America and the Caribbean is the result of a wide variety of factors—some exogenous, others within the scope of public policy. This section presents a basic analysis using data from a survey of industry specialists and regulators.

The survey and its results are very innovative because it is the first time that regional institutions (ASSAL, FIDES, and the IDB) undertake a common multiyear program of research and action to improve insurance markets in the countries of the region. Research and action are undertaken at the regional and national levels. That is, it starts as a regional program and moves down to the country-specific level. The objectives are to provide material for research to obtain a better understanding of the variables that specifically affect insurance market development in Latin America and the Caribbean, and to encourage participants to initiate policy actions.

Responses are tallied from insurance agents (18 industry superintendents, 19 industry associations, and 126 insurance companies) that make up the insurance market in the region. Each individual question measures one or more endogenous and/or exogenous variables that affect insurance markets. A scale in which items or variables represent different subconcepts of the uncovered variable or factor and responses is presented to indicate different degrees of agreement or disagreement with the item. The majority of the responses are ranked on a Likert scale of 1 to 5 (for example, five categories of agreement and disagreement with 3 being a neutral value). Some questions are based on categories (for example, income and education); others are yes/no questions (for example,

gender); and still others are related to factors that can influence a certain behavior (for example, buying insurance if income increases).

Various elements emerge from the analysis of the survey, which will be reviewed in more detail in a separate paper (Webb, Masci and Velarde, 2006).<sup>12</sup> Table 6 highlights some of the questions that scored lowest in the survey, that is, those perceived to be in most need of improvement.

Findings of the analysis of the survey are grouped according to a specific topic.

Overall, the impediments to market development, which received the most attention in the responses to the survey, were underdeveloped institutions, low quality of data, and education. Notably, the results suggest that lack of sufficient education about insurance is the greatest impediment, with poorly functioning police and justice systems second, and low data quality third.

### **Institutional Setting: Legal/ Judicial System**

The responses highlight the fact that the majority of those surveyed view judicial systems (including enforcement) as substantially slow, unpredictable, and in need of improvement. Because these institutions tend to be critical to the effectiveness of insurance operations, their inefficiency most likely directly reduces the effectiveness of insurance markets in the region.

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<sup>12</sup> Webb, Masci and Velarde (2006) present summary statistics from a survey of people in the industry in order to measure what factors are more closely related to effective insurance markets.



data collected for both life and non-life reserves and pricing is adequate. With respect to specific types of data collected for underwriting and pricing, it appears that data on credit risk profiles and the accident history of applicants, as well as conformity with construction codes are not as commonly collected yet as other types of information. Also, it appears that about half of those responding indicate that national mortality tables are not used in their markets.

Those surveyed were also asked about the types of information collected by different entities, including statistics on: financial statements, paid losses aggregated by line, number of claims paid by line of business, amounts paid for each claim, amounts paid by type of policy, number of claims rejected, geographical details regarding accidents, details regarding the risk profile of the insured, details regarding those involved in fraudulent claims, accident history of applicants, complaints made against companies, the evolution of payments for claims over time, aggregate costs of insurers, costs by line, aggregate premiums, premiums by line, and technical result by line. The majority responded that supervisors collect most of this information, and a minority responded the information is collected by industry associations and insurance companies.

Loss data collection and use, which is essential to insurance efficiency in pricing and risk management, is still poor in the region. About 35 percent of those queried responded that statistics on fire losses are not collected or organized by locality or region, while 17 percent said that it is collected or organized by region or department. Only 17 percent said it is collected by city, and less than 5 percent stated that it is collected by district. The breakdown for data on auto losses is as follows: 33 percent not collected by geographic locality; 24 percent by region or department; 17 percent by city; and less than 5 percent by district.

## **Education: Training and Use of Actuaries**

Actuaries bring professionalism and much needed expertise to the practice of loss data and price setting analysis. The current status of actuarial practice in Latin America and the Caribbean suggests that property/casualty insurance is significantly lacking in actuarial expertise, and that professional associations for actuaries are weak or nonexistent. From the survey results we learn that actuaries in the region are used most in the life insurance business, because it is in this the line of business that reserves more frequently appear to require certification by an actuary. However, a significant number of actuaries (about one third), apparently lack actuarial certification and/or have little training. A little less than half of those responding stated that the two areas in which training is thought to be most inadequate are the analysis of reserves and of re-insurance.

Finally, when asked about the strength of professional associations, only about one third or less of those responding indicated that actuarial, risk manager, and loss adjuster associations exist in their markets. Less than one third of professionals in these areas of activity are subject to a code of standards and practices.

## **Strength of the Regulatory Framework**

While no one single area of regulation stood out as needing the most improvement, several areas (including solvency margin and capital requirements, asset-liability matching, limits on types of permitted investments, and discount rates and use of mortality tables) were indicated as needing improvement by over 50 percent of those responding.

## **Strength of Supervisory Practices**

About one half of those responding indicated that the efficiency and knowledge of

their supervisor agency staff was good or very good. Corporate governance and risk matrix and financial analysis were areas of supervision that stood out as needing improvement for the majority of those responding.

The results of the survey as a whole (all of which are not discussed in this paper), suggest that the protection offered to consumers, as well as the services offered to the market were considered mostly good to adequate. The supervision of intermediaries, reinsurance and market conduct were deemed to be the weakest. Survey results indicate that 24 percent of respondents believed that the supervision of intermediaries was poor, while 4 percent believed it was very poor. Similarly, 11 percent of respondents thought that the supervision of reinsurance was poor and 2 percent thought it was very poor. With respect to the supervision of market conduct, 20 percent of respondents believed it was poor and 2 percent very poor.

Most common complaints included: the quantity and frequency with which data has to be delivered to the supervisor (56 percent); on-site inspections are too frequent and long (26 percent); and the process for issuing of new regulations is not very transparent (19 percent).

The majority of respondents (63%) believed that the use of sanctions improved the transparency of and confidence in the insurance market.

### **Resources Available to the Supervisor**

Mixed state and private sector funding was the most common form of financing for the supervisor. A clear majority of those responding indicated that their supervisor's approach to supervision was a mix of preventive and reactive supervision. Approximately one third of those responding indi-

cated that both computer and software equipment as well as manuals and guides for financial analysis and on-site inspections are inadequate.

### **Financial and Capital Markets**

Low transparency is only a significant issue for one third of respondents; however insufficient variety of financial instruments and insufficient trading (and consequent illiquidity) of fixed-income instruments appear to be significant concerns for about two thirds of the respondents. The valuation of instruments and insurance companies also appears to be a concern for over half of those responding. In this respect, rating agencies play an important role. Only 1 out of 5 respondents indicated that rating agencies rated either all or the majority of insurers in their market. A clear majority indicated that rating agencies only rate half or less of the insurers in their markets. With respect to market discipline, about 1 out of 5 persons responding indicated that rating agencies provided market discipline. This fraction is most likely the same 20 percent that operate in markets where rating agencies have a significant presence. Investors and insurance company owners appear to exert the most market discipline, while the supervisor is a close second. News agencies exert much less influence on market discipline in the region, although they do play a role.

### **Future and Historic Solvency Threats to the Market**

Among the factors that have and continue to threaten the profitability and solvency of insurers, those that stood out in the survey responses were: strong price competition, economic recessions, political conflicts, loss ratio volatility, insolvency or default by a reinsurer, volatility in the price or availability of reinsurance, ineffective supervisor, and underestimation of required reserves by the market.

## **Defining Characteristics of Industry Practices**

Interestingly, almost half of those responding indicated that insurance companies would use pre-established formulas for reserving if they were given a choice in their market. Other findings with respect to corporate governance are also reinforced: about one third of those responding indicated that there is no legislation or regulation with respect to corporate governance or internal control in their market. The use of catastrophic probable maximum loss analysis for insurance purposes does not seem to have spread to the majority of countries in the region. With respect to the strength of industry practices, the survey indicates that improvement is needed in several areas for the market to develop. The areas of industry practice flagged as weak include: asset-liability matching, underwriting, marketing practices of agents, internal control, management of insurance fraud, distribution networks, and marketing practices of agents and brokers. The existence of a code of ethics for the insurance industry does not seem to be commonplace in the region.

## **Consumers or Users of Insurance**

Only about half of those responding indicated there exist dedicated entities that either

negotiate on behalf of consumers or provide them with information on how to make claims. It appears that the majority of markets have consumers with little knowledge of insurance products and only weak confidence in the reliability of insurance products.

## **Collaboration Between Industry and Supervisor**

A formal, transparent process whereby the private sector can participate in regulatory reform does not seem to exist in more than one third of the markets. Less formal participation at the discretion of the supervisor appears to be more the norm.

## **Contribution of Insurance to Economic Development**

The insurance lines chosen as most important for the economy by those responding include: life insurance (with and without savings); homeowners; civil responsibility; insurance for small business owners; natural disaster coverage; and auto. The following lines of insurance were seen as having the potential for strong growth over the next ten years: life (with and without savings); annuities; auto; agriculture and fishery; and, health/medical.



## 6. Conclusions

This study provides a descriptive assessment of the strength and effectiveness of the insurance industry in Latin America and the Caribbean and indicates the areas and issues that deserve attention. It is clear that insurance markets in the region lack adequate depth and penetration, and that the countries of Latin America and the Caribbean are falling behind other regions of the world based on indicators of standardized measures of insurance to economic development. The studies covered in the literature review suggest that improved and more widely available insurance and risk management services may provide an important means for achieving greater equity and effectiveness.

The results of the survey suggest some policy priorities for strengthening insurance markets in the region. Overall, the impediments to market development, which received the most attention in the responses, were related to institutions, education, cost, and availability of financial instruments and quality of data. The policy priorities suggested by the survey results are as follows:

- i) Measure the cause, identify the extent, and discuss possible steps to minimize the impact of poorly functioning justice and police systems on insurance market effectiveness.
- ii) Explore mechanisms that would promote insurance product transparency, and consequently, greater understanding of insurance products by the general public
- iii) Promote alternative low-cost insurance service delivery mechanisms that would extend insurance services to lower income and rural populations.

- iv) Identify causes and possible solutions to low data quality in some public institutions.

To date, the literature suggests that much can be learned about the role that insurance and risk management play in promoting economic efficiency, as well as the equity and sustainability of economic development.

Greater focus is needed on insurance markets, especially in emerging economies. One strand of that effort should review the role of insurance in economic growth, identifying and assessing the variables that link insurance market development with growth in Latin America and the Caribbean. Another strand should assess the interrelationship between capital market and insurance market development, given the role of insurers as financial intermediaries and institutional investors. Another very promising strand involves the relationship between the availability of specific forms of business insurance (for example, liability insurance) and forms of social insurance (for example, health/unemployment insurance) and entrepreneurship.

Finally, the research effort should not only be expanded but also deepened. This survey to identify and assess variables is a public-private collaboration between IDB, FIDES, and ASSAL, as well as the first attempt to systematically analyze the insurance market in Latin America and the Caribbean. By updating the survey periodically, our research will take a long-term view of insurance in the region and permit the formulation of

specific policy recommendations that can be tested and refined over time.

This effort should use the data being generated to analyze further insurance market failures and the role played by public policy.

And, as the previous section notes, the existing survey or other similar surveys could be analyzed using factor analysis and structural equation modeling to discover and test latent variables that improve or impede insurance market performance in Latin America and the Caribbean.

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