

United States International Trade Commission

**Property and  
Casualty Insurance  
Services:  
Competitive  
Conditions in  
Foreign Markets**

Investigation No. 332-499

USITC Publication 4068

March 2009



# U.S. International Trade Commission

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# **U.S. International Trade Commission**

Washington, DC 20436  
*www.usitc.gov*

## **Property and Casualty Insurance Services: Competitive Conditions in Foreign Markets**

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**March 2009**

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# Abstract

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The global property and casualty (P&C) insurance market, measured in terms of total revenue, is concentrated in three geographic regions, North America, Europe, and North Asia (Japan, China, and Korea), with automobile insurance representing the single largest market segment. Overall, the P&C insurance markets of developed countries are mature, whereas the markets of many developing countries are growing rapidly. Demand for P&C insurance services is driven by many factors, including economic growth and compulsory lines requirements, whereas the supply of such services is a function of the number of competing firms and the regulations imposed on such firms. P&C insurance is sold in global markets through cross-border trade and through the sales of affiliates located in foreign countries, with affiliate sales accounting for the dominant share of international trade. Although most countries establish prudential regulations pertaining to the provision of insurance services, Commission research suggests that many countries maintain nontariff measures (NTMs) that restrict the participation of foreign insurance firms in domestic markets. Econometric models developed by the Commission estimate that NTMs have a significant effect on the profitability of insurance companies in foreign markets. Moreover, the model results suggest that removal of NTMs in foreign countries would result in increased U.S. cross-border insurance exports and affiliate sales, and result in higher levels of employment in the U.S. P&C insurance industry.



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# Executive Summary

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This report, requested by the United States Trade Representative, focuses on the property and casualty (P&C) insurance industry. P&C insurance protects a person or business from damage to, or loss of, insured property, as well as legal liability for losses caused by injury to other people or their property. P&C insurance is divided into personal lines and commercial lines. P&C insurance contributes to economic growth and development by mitigating financial volatility resulting from large losses, motivating investment in property and commercial activity with inherent risks, and facilitating commerce and trade.

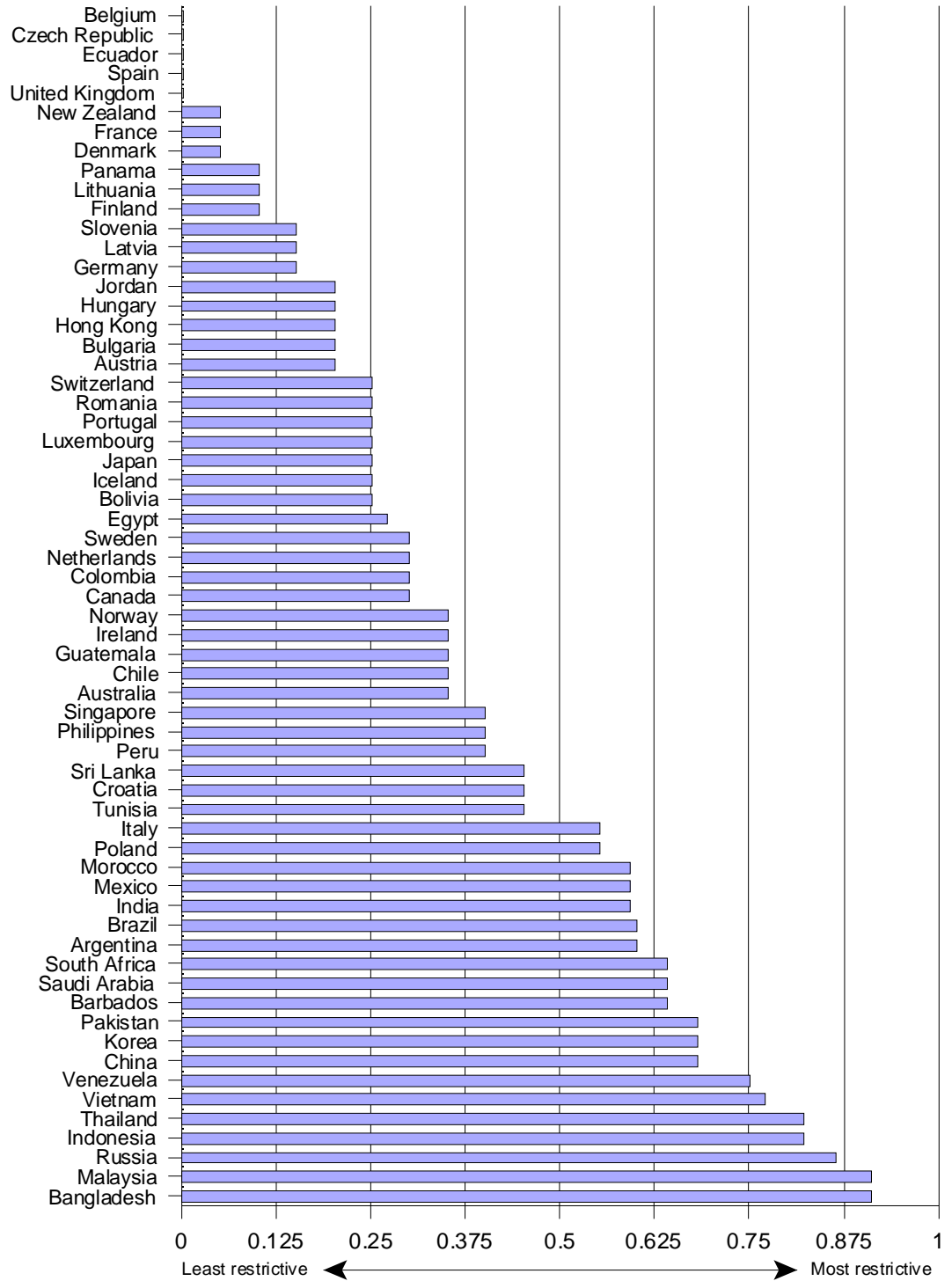
## Key Findings

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An inventory of 72 countries reveals a multitude of nontariff measures (NTMs) that limit access to, and competition in, national markets for P&C insurance. Many of the countries most encumbered by NTMs also have the highest insurance premium growth rates and the lowest levels of insurance penetration, making them potentially attractive markets for U.S. firms.

In order to systematically examine NTMs across countries, the Commission developed an Insurance Trade Restrictiveness Index (ITRI). The ITRI facilitates cross-country comparisons (figure ES.1), and serves as the trade policy variable in econometric models used to examine the effect of NTMs on P&C industry profits, trade, and employment. The ITRI survey shows that Belgium, the Czech Republic, Ecuador, Spain, and the United Kingdom are among the most open P&C insurance markets.

**FIGURE ES.1** Insurance Trade Restrictiveness Index (ITRI), selected countries



Source: Compiled by Commission staff.

Note: The ITRI value for Belgium, Czech Republic, Ecuador, Spain, and the United Kingdom is zero.

The Commission's econometric analysis suggests that P&C insurers' adjusted profit margins in the most restrictive markets—Bangladesh, Malaysia, Russia, Indonesia, Thailand, Vietnam, and Venezuela—are inflated by more than 35 percent due to trade restrictions. As such, liberalization in these countries may promote economic growth and stability by providing individuals and businesses with the means to manage risk at more affordable prices.

The Commission's analysis also suggests that cross-border exports and sales by U.S.-owned affiliates abroad could expand markedly if foreign insurance markets were liberalized. For example, a 10 percent reduction in foreign restrictiveness could increase U.S. exports by 9.9 percent. If all countries examined were to fully liberalize, U.S. exports could increase by 48 percent, or \$870 million.

Liberalization could produce an even greater effect on affiliate sales, the predominant means of trade in P&C insurance. The Commission's analysis indicates that a 10 percent reduction in foreign restrictiveness could yield a 14.5 percent increase in the sales of U.S. affiliates. If all countries fully liberalized, U.S.-owned affiliates could increase sales by 28 percent, or \$39.1 billion.

The Commission's partial equilibrium analysis also offers support for industry representatives' statements that, in the event of foreign liberalization, the establishment of P&C affiliates in overseas markets could produce an increase in the U.S. P&C industry's domestic employment. Under such circumstances, U.S. P&C employment could increase by 0.72 percent, meaning that a firm with 10,000 employees could add 72 positions in its U.S. offices. Many of these jobs would likely pay well above the average U.S. wage.

## **Market Dynamics**

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The global market value of P&C insurance, measured by total revenue, grew by 5 percent in 2007 to \$1.5 trillion. More than 90 percent of the global market was concentrated in three geographic regions: Europe (45 percent), North America (38 percent), and North Asia (China, Japan, and Korea) (9 percent).

With the exception of select insurance firms dealing in mortgage-related securities, the P&C insurance industry is one of the healthier subsectors of the financial services industry. Thus far, the financial crisis has mainly impacted P&C insurance firms through their investment portfolios, which have experienced negative returns due to global financial market turmoil.

The P&C insurance markets in developing countries are growing faster than those in developed countries, spurring greater interest in entering and competing in those markets. In 2006, total premiums in the developing countries grew at an annual rate of 19 percent, compared to a rate of 3 percent in developed countries.

Insurance firms sell P&C insurance in global markets via both cross-border exports and affiliate sales, with the latter estimated to be as much as 30 times larger. During the 2000–2006 period, U.S. cross-border exports grew by 31 percent. The fastest growing U.S. export markets included Switzerland, Canada, the Philippines, and Malaysia. U.S.-

owned affiliates' sales grew by 8 percent during the 2000–2005 period, with the largest host markets being the United Kingdom, Ireland, and Canada.

# Acronyms

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ABI	Association of British Insurers
ABS	Asset-Backed Securities
AIA	American Insurance Association
AIG	American International Group
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
CAGR	Compound Annual Growth Rate
CDS	Credit Default Swap
CIAB	Council of Insurance Agents and Brokers
CSI	Coalition of Service Industries
FDI	Foreign Direct Investment
FLG	Financial Leaders Group
FLWG	Financial Leaders Working Group
FTA	Free Trade Agreement
GATS	General Agreement on Trade in Services
GDP	Gross Domestic Product
IFSC	International Financial Services Center
IMF	International Monetary Fund
ITRI	Insurance Trade Restrictiveness Index
MAT	Marine, Aviation, and Transport
NAIC	National Association of Insurance Commissioners
NAICS	North American Industry Classification System

## **Acronyms—Continued**

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NTM	Nontariff Measure
OECD	Organization for Economic Cooperation and Development
P&C	Property and Casualty
PRI	Property Rights Index
RAA	Reinsurance Association of America
TRI	Trade Restrictiveness Index
UNCTAD	United Nations Conference on Trade and Development
USITC	U.S. International Trade Commission
USTR	Office of the U.S. Trade Representative
USDOC	U.S. Department of Commerce
USDOL	U.S. Department of Labor
WDI	World Development Index
WTO	World Trade Organization



# Glossary

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**Agent**—An individual who sells insurance, either as an independent or captive agent. Captive agents sell insurance for only one insurance company, whereas independent agents sell insurance for multiple companies.

**Asset-backed security**—A financial security backed by a pool of loans, typically loans of similar type, duration, and interest rate. The issuer of such securities uses the cash flow from loan payments to fund interest payments on the security. Almost any type of loan with regular principle and interest payments can be securitized, including auto loans, credit card receivables, and mortgage loans.

**Bancassurance**—The practice of selling insurance through banks and/or postal centers.

**Broker**—An individual that acts as an intermediary between a client and an insurance company; brokers typically work on behalf of clients, rather than insurance companies.

**Captive insurance company**—A company that is created and funded by one or more noninsurance companies to provide the owners with insurance coverage; a form of self-insurance.

**Commercial line**—Property and casualty insurance for businesses and other institutions.

**Compulsory insurance**—Insurance coverage required by law. For example, many countries require automobile owners to carry a minimum amount of automobile liability insurance.

**Directors and officers (D&O) errors and omissions liability insurance**—D&O liability insurance, a type of P&C insurance, covers directors and officers of a company for negligent acts or omissions, and for misleading statements that result in lawsuits against the company.

**Insurance density**—Insurance premiums per capita; the ratio of total insurance premiums in a country divided by that country's total population.

**Insurance penetration**—The ratio of total insurance premiums in a country divided by that country's national gross domestic product.

**Marine, Aviation, and Transport (MAT) insurance**—Insurance covering goods in transit as well as the commercial vehicles that transport them via land, air, or water.

**Mortgage-backed security**—A financial security backed by a pool of mortgages; the issuer of such securities uses the cash flow from mortgage payments to fund interest payments on the security.

**Multiple peril insurance**—Personal or commercial property insurance that combines, in one policy, several types of property insurance covering numerous perils, including, for example, damage caused by flood, fire, or wind.

**Personal lines**—Property and casualty insurance for individuals, typically homeowners and automobile insurance.

***Policyholders' surplus***—The excess of an insurance company's assets above its legal obligations to meet its liabilities, i.e., the benefits payable to its policyholders.

***Premium***—The price a person or entity pays for insurance; an insurance company assumes the risks of people and entities in exchange for a premium payment.

***Premiums written***—Total premiums written by an insurer during a specified period of time.

***Property and casualty insurance***—Insurance covering a person or entity from damage to, or loss of, insured property, as well as legal liability for losses caused by injury to other people or damage/loss to property.

***Reinsurance***—Reinsurance, commonly referred to as insurance for insurance companies, is an insurance transaction in which one company (the assuming insurer, or reinsurer) indemnifies, for a premium, an insurance company (the ceding insurer) against all or part of the loss that it may sustain from its insurance policies.

***Underwriting***—The process of examining and accepting or rejecting insurance risks, and classifying accepted risks, in order to charge the proper premium for each.

***Underwriting capacity***—The maximum amount of insurance that an insurance company can underwrite.

***Underwriting cycle***—The tendency of P&C insurance markets to fluctuate between “hard” and “soft” market conditions. Soft markets are characterized by high levels of competition and falling premium prices, whereas hard markets are characterized by decreasing competition and rising premium prices.

***Unearned premium***—The portion of an annual premium received from a policyholder but not recognized as revenue, in accounting terms. For example, an up-front, annual premium of \$1,200 on a 1-year insurance policy would typically be placed in an unearned premium reserve, with revenue recognition occurring at a rate of \$100 per month for the 12-month policy term.

*Source:* Compiled by Commission staff from Rubin, *Dictionary of Insurance Terms*, 2008; and RAA, “RAA Fundamentals of Property Casualty Reinsurance,” 2008.

# CHAPTER 1

## Introduction

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### Background and Purpose

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Property and casualty (P&C) insurance is a critical component of economic infrastructure, promoting economic growth and stability principally through risk management. P&C insurers manage risk by assessing the likelihood and cost of losses, pricing premiums sufficiently to cover all or part of predicted losses, and risk pooling.<sup>1</sup> P&C insurers also provide economic incentives, in the form of lower premiums, to encourage policyholders to reduce their exposure to loss.<sup>2</sup>

Successful risk management yields significant economic benefits, such as mitigating the financial volatility that could follow large, noninsured losses; motivating investment in property and commercial activity with inherent risk; and facilitating commerce and trade through vehicles such as marine, aviation, and transport (MAT) insurance. The P&C insurance industry also promotes the efficient allocation of capital by gathering and assessing information in the underwriting process and extending insurance to (and perhaps investing in) commercial enterprises that are deemed to have a high likelihood of success.<sup>3</sup>

As background information for discussions of P&C insurance taking place in the World Trade Organization (WTO) and other trade fora, the Office of the United States Trade Representative (USTR) requested that the Commission prepare a report that (1) provides an overview of global and selected foreign markets for P&C insurance services, including factors affecting supply and demand in these markets; (2) examines the nature and extent of cross-border trade and affiliate sales in the global market for P&C insurance services; and (3) identifies and examines policies and practices that affect U.S. firms' access to, and competitiveness in, foreign markets for such services.<sup>4</sup> The USTR further requested that the geographic scope of the report include examples from both developed- and developing-country markets.<sup>5</sup>

The majority of research and analysis conducted in connection with the USTR's request covers the situation in the P&C insurance industry through the end of 2007. In the second half of 2008 and into 2009, severe financial instability in many parts of the world impacted the financial services industry. This report briefly notes the impact of these events, although discussion is limited by their unfolding nature (box 2.1).

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<sup>1</sup> Risk pooling is the collection of premiums from many policyholders to cover the insurable losses experienced by a few.

<sup>2</sup> For instance, insurers may offer discounts to homeowners who install fire alarms in their homes.

<sup>3</sup> Skipper, "Foreign Insurers," 1997, 10–13; ABI, *Insurance Liberalization and the Model Schedule*, April 2003, 2–3.

<sup>4</sup> The USTR requested this report pursuant to authority delegated by the President under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)). A copy of the request letter can be found in app. A.

<sup>5</sup> Public notice of this investigation was posted by the Office of the Secretary, U.S. International Trade Commission, Washington, DC 20436, and published in the *Federal Register* (73 F.R. 48392). A copy of the *Federal Register* notice is included in app. B.

## Scope

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This report focuses on the P&C insurance industry, which supplies insurance that protects a person or business from damage to, or loss of, insured property, as well as legal liability caused by injury to other people or damage/loss to the property of others.<sup>6</sup> P&C insurance is frequently divided into personal insurance (or personal lines), which covers individuals, and commercial insurance (or commercial lines), which covers businesses. Although personal lines consist primarily of automobile and homeowners insurance, a large number of additional insurance products are written as personal lines, including renters, condominium, flood, personal liability, travel, boat, and valuable items insurance. Commercial lines largely consist of automobile, multiple peril,<sup>7</sup> and workers' compensation insurance, as well as insurance products protecting against legal liability resulting from negligence, carelessness, or failure to act. Like personal lines, the commercial insurance category includes a wide range of insurance products, including inland marine, fire, medical malpractice, farm owners' multiple peril/crop, and product liability insurance. It also includes a wide range of insurance products covering financial and business transactions, such as financial guaranty, mortgage guaranty, credit, and surety insurance. The information and analyses in this report cover both the personal and commercial segments of the P&C insurance market. Reinsurance, a related industry, is introduced in chapter 2 and discussed as it pertains to international trade in insurance services in chapter 3.

## Approach and Organization

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This report addresses the three elements of the USTR's request sequentially and provides both qualitative and quantitative analyses. Chapter 2 describes the global market and how P&C insurers operate, identifies supply and demand factors, and provides country profiles of the 10 largest developed and 10 largest developing P&C insurance markets. The market and macroeconomic data contained in these profiles are drawn principally from country reports published by AXCO Insurance Information Services, the Organization for Economic Cooperation and Development's (OECD) *Insurance Statistics Yearbook*, and the International Monetary Fund's (IMF) International Financial Statistics database.

Chapter 3 examines the nature of, and motivations behind, P&C insurance trade, and examines trends in cross-border trade through 2007 and sales by foreign-owned affiliates in host markets through 2006. Trade data are based on the *Survey of Current Business* published by the Bureau of Economic Analysis (BEA) and the OECD yearbook referenced above. Insurance experts in both private industry and academia were also consulted on certain trade data issues.

Chapter 4 identifies and analyzes policies and practices that affect U.S. firms' access to, and competitiveness in, foreign markets. In particular, the Commission analyzes nontariff measures (NTMs) that limit market access or place foreign service suppliers at a competitive disadvantage. To identify such measures, the Commission referred to the

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<sup>6</sup> Outside the United States, P&C insurance is commonly referred to as nonlife or general insurance.

<sup>7</sup> Multiple peril insurance incorporates several different types of property insurance coverage, such as flood, fire, and wind. In its broadest application, the term is synonymous with all-risks insurance, which covers loss or damage to property from accidental circumstances not specifically excluded from coverage.

model schedule and best practices list developed by the Financial Leaders Working Group (FLWG).<sup>8</sup> Divergences from industry-identified best practices are interpreted as NTMs. Chapter 4 also identifies countries that implement such NTMs and provides an Insurance Trade Restrictiveness Index (ITRI), a quantitative measure of the NTMs found in each country. The Commission uses econometric models incorporating the ITRI, as well as firm-level financial data and country-level market, macroeconomic, and institutional data, to estimate the effects such measures have on profit margins, as well as the potential effect of liberalization on U.S. exports and affiliate sales of P&C insurance.<sup>9</sup> Chapter 4 also presents the results of a partial equilibrium analysis that measures the likely effect that the liberalization of foreign P&C insurance markets would have on employment in the U.S. P&C insurance industry.

In developing chapter 4, Commission staff conducted primary and secondary research. Primary research included interviews with insurance firms, trade associations, and academics in the United States, as well as extensive communications with U.S. Department of State and U.S. Foreign Commercial Service officials abroad, in-country industry representatives, and foreign government officials. The Commission held a public hearing at which all interested parties were invited to present testimony.<sup>10</sup> Secondary research included a review of pertinent literature produced by the U.S. government, the insurance industry, multinational organizations, academics, and research consultancies, including country reports published by AXCO Insurance Information Services.<sup>11</sup> Firm-level financial data are from the Orbis Companies Database developed by Bureau van Dijk.

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<sup>8</sup> The Financial Leaders Group (FLG) and its working group, the FLWG, represent companies and industry associations in financial services, including banking, insurance, insurance intermediation, asset management, securities, and pensions. The FLWG's membership is drawn from companies and associations located in Australia, Canada, Hong Kong, Japan, Switzerland, and the United States, as well as EU member countries. FLWG, "Financial Leaders Group Calls Further Financial Services Liberalization Essential," February 10, 2006.

<sup>9</sup> See apps. E and F for full details on the econometric models used in this report.

<sup>10</sup> The public hearing was held on September 23, 2008, in Washington, DC. A list of hearing participants is included in appendix C and the hearing transcript, as well as written submissions submitted by interested parties in conjunction with this investigation, may be found at the Commission's Internet site (<http://www.usitc.gov>) under the dockets section.

<sup>11</sup> AXCO's Insurance Market Reports Database provides firm- and country-level data, as well as detailed information on regulation and supervision, for the insurance markets of 141 countries.



# CHAPTER 2

## Global Industry and Market

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In 2007, the global market for P&C insurance,<sup>1</sup> measured in terms of total revenue, grew by 5 percent to approximately \$1.5 trillion.<sup>2</sup> Collectively, more than 90 percent of the global market was concentrated in three geographic regions: Europe (45 percent), North America (38 percent), and North Asia<sup>3</sup> (9 percent).<sup>4</sup> Slow growth in most developed countries contrasted with more rapid growth in many developing markets. Overall, P&C premiums in developed countries registered flat or declining growth rates, due in large part to market maturity and high levels of competition. Although financial market turmoil affected investment and commercial banking much more heavily in 2008, the P&C insurance industry was also affected. In addition to serious financial problems at American International Group (AIG), one of the world's largest P&C insurers, the P&C insurance industry was also affected by the declining value of investment holdings, particularly asset classes favored by P&C insurers such as equities, corporate bonds, and tax-exempt securities (box 2.1).<sup>5</sup>

In 2007, commercial lines and personal lines accounted for 30 percent and 70 percent, respectively, of the global market. Personal lines represent the dominant share of global premiums largely because individual consumers, the single largest customer group, typically maintain both private passenger automobile insurance and some form of home/contents insurance. Private passenger automobile insurance represents the single largest product segment of the global P&C insurance industry, accounting for approximately 50 percent of global premiums. The large and growing fleet of privately owned automobiles worldwide, and regulations requiring some form of automobile insurance in most countries, largely account for the dominance of the automobile insurance segment.<sup>6</sup> Other important product segments include fire, allied, and multiple peril insurance (20 percent) and workers' compensation insurance (6 percent).

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<sup>1</sup> The P&C insurance industry comprises establishments primarily engaged in the initial underwriting of various types of insurance policies referred to as P&C insurance or general insurance; establishments engaged in underwriting mortgages and other real estate transactions are also included. Life, disability income, accidental death and dismemberment, and health and medical insurance policies are not included in this industry definition. IBISWorld, *Global Direct General Insurance Carriers*, September 30, 2008, 3.

<sup>2</sup> Total revenue comprises both gross premiums and net investment income.

<sup>3</sup> North Asia comprises Japan, China, and Korea.

<sup>4</sup> IBISWorld, *Global Direct General Insurance Carriers*, January 27, 2009, 3, 11–12.

<sup>5</sup> Fitch Ratings, "Review and Outlook 2008–2009," December 18, 2008, 1–3.

<sup>6</sup> By contrast, commercial automobile insurance accounted for 6 percent of global premiums. IBISWorld, *Global Direct General Insurance Carriers*, September 30, 2008, 8–10.

## BOX 2.1 Effects of the 2008 Financial Crisis on the Insurance Industry

### Introduction

In the second half of 2008 and into 2009, severe instability in global financial markets impacted financial services firms around the world, particularly commercial and investment banks. With the exception of select insurance firms dealing in mortgage-related securities, however, the property and casualty (P&C) insurance industry is one of the healthier subsectors of the financial services industry.<sup>a</sup> Thus far, the financial crisis has mainly impacted P&C insurance companies through their investment portfolios, which have experienced negative returns due to global financial market turmoil.<sup>b</sup>

### The U.S. P&C Insurance Industry: Financial Results in 2008

In the first nine-months of 2008, U.S. P&C insurers' net income fell by 92 percent to \$4.1 billion, compared to \$49.4 billion in the first nine months of 2007.<sup>c</sup> This large decline in net income is largely attributable to two main factors: a decline in underwriting income resulting from large catastrophe losses and decreasing investment income due to financial market turmoil. In the first nine months of 2008, catastrophe losses stemming from Hurricanes Gustav and Ike, among more than 30 other serious weather events, totaled approximately \$24.9 billion. These storm losses, comprising approximately 2.5 million claims, were the primary factor behind a \$19.9 billion underwriting loss recorded by the U.S. P&C insurance industry during this period.<sup>d</sup> Turmoil in global financial markets, particularly equity and fixed income markets, also took a toll on U.S. P&C insurers' investment portfolios. Overall, net investment income declined by approximately 4 percent in the first nine months of 2008 to \$38 billion.<sup>e</sup>

### American International Group

In September 2008, American International Group (AIG), the United States' second largest P&C insurance company, based on 2007 written premiums, was saved from financial collapse by U.S. government intervention. The source of AIG's financial instability was not its core insurance operations, which even now are fundamentally sound,<sup>f</sup> but instead the issuance of credit default swaps (CDSs),<sup>g</sup> a type of credit insurance, by its London-based derivatives trading business, AIG Financial Products (AIG FP).<sup>h</sup> Attracted by high profit margins, AIG FP became one of the largest sellers of CDSs, developing a portfolio of such securities with a notional value of approximately \$446 billion by the second quarter of 2008.<sup>i</sup> Buyers of such securities were attracted to AIG FP's offer to post generous collateral if the value of insured securities dropped, or if AIG's own credit rating fell.<sup>j</sup> In 2007 and 2008, the deterioration of the U.S. residential mortgage market, and subsequent problems in broader capital and credit markets, resulted in heavy losses to AIG FP's CDS portfolio. AIG FP, for example, lost more than \$10 billion in 2007 and \$14.7 billion in the first half of 2008.<sup>k</sup> The deterioration of AIG FP's CDS portfolio required it to post large amounts of collateral, activities which cut deeply into its capital reserves. In May 2008, AIG attempted to replenish its capital position by raising approximately \$20 billion.<sup>l</sup> However, continuing deterioration of financial markets, in general, and AIG's financial position, in particular, caused several ratings agencies to downgrade AIG's credit ratings in September 2008, actions which required AIG FP to post an additional \$14.5 billion in collateral to its CDS clients.<sup>m</sup> Unable to post such collateral, or raise additional capital, AIG was forced to accept an \$85 billion line of credit from the U.S. Federal Reserve in order to prevent bankruptcy.<sup>n</sup> By March 2009, the U.S. government had provided capital totaling approximately \$170 billion to AIG.<sup>o</sup>

<sup>a</sup>Standard & Poor's, *Insurance: Property-Casualty*, January 29, 2009, 1.

<sup>b</sup>Ibid.

<sup>c</sup>Standard & Poor's, *Insurance: Property-Casualty*, January 29, 2009, 2.

<sup>d</sup>Ibid.

<sup>e</sup>Ibid.

<sup>f</sup>IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 32.

<sup>g</sup>Ibid. A credit default swap (CDS) is a type of derivative security that is akin to credit insurance in that it provides protection against default on assets tied to debt and mortgage securities. However, since CDS products were traded "over the counter" and, as such, were largely unregulated, issuers were not required to meet capital adequacy requirements.

<sup>h</sup>IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 32.

<sup>i</sup>Sender, "AIG Saga Shows How Dangerous Credit Default Swaps Can Be," March 9, 2007; IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 32.

<sup>j</sup>Sender, "AIG Saga Shows How Dangerous Credit Default Swaps Can Be," March 9, 2007.

<sup>k</sup>IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 32.

<sup>l</sup>Standard & Poor's, *Insurance: Property-Casualty*, January 29, 2009, 4.

<sup>m</sup>IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 32.

<sup>n</sup>Barr, "Congress Wants AIG Answer," March 4, 2009; Standard & Poor's, *Insurance: Property-Casualty*, January 29, 2009, 4; and IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 32.

<sup>o</sup>*Economist*, "Sound and Fury Over AIG," March 17, 2009.



**BOX 2.1** Effects of the 2008 Financial Crisis on the Insurance Industry—*Continued*

**P&C Monoline Insurance Companies**

Monoline insurers are companies that provide insurance for only one type of risk, such as the risk of a bond or other security defaulting.<sup>p</sup> Monoline insurers focused on asset-backed securities (ABS) account for the greatest share of losses due to their activities in mortgage and financial guaranty insurance.<sup>q</sup> The two largest monoline insurers in this area, AMBAC and MBIA, collectively account for approximately 50 percent of the \$2.5 trillion industry.<sup>r</sup> Both AMBAC and MBIA announced multi-billion dollar losses in 2008 principally due to their ABS portfolios.<sup>s</sup>

**Wider Effects on the P&C Insurance Industry**

Unlike banks, most P&C insurance companies were not involved in originating mortgage loans and investing in the mortgage-related derivatives that impacted the financial system.<sup>t</sup> Moreover, those insurers that did invest in mortgage-related securities only placed a small portion of total assets in such instruments. As a result, most P&C insurance companies are expected to escape the worst effects of the global financial crisis. One exception may be P&C insurance companies with banking subsidiaries, such as Swiss Re and Allianz.

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<sup>p</sup>Oxford Analytica, "International: Monoline 'Solutions' Bring New Risks," March 6, 2008; and Oxro4d Analytica, "International: Monoline Downgrades Put System at Risk," January 31, 2008.

<sup>q</sup>*Insurance Journal*, "P/C Insurers' Net Income, Profitability Fall Sharply in First-Half 2008," October 1, 2008; Oxford Analytica, "International: Monoline 'Solutions' Brings New Risks," March 6, 2008; Oxford Analytica, "International: Monoline Downgrades Put System at Risk," January 31, 2008.

<sup>r</sup>Oxford Analytica, "International: Monoline 'Solutions' Bring New Risks," March 6, 2008; Oxford Analytica, "International: Monoline Downgrades Put System at Risk," January 31, 2008.

<sup>s</sup>Ambac, "Ambac Financial Group," November 5, 2008; MBIA, "MBIA Inc. Provides Financial Update," November 5, 2008.

<sup>t</sup>Willis, "Impact of the Credit Crisis," October 20, 2008. In general, insurance companies are not as highly leveraged as many other financial services companies; insurance companies also tend to hold smaller proportions of CDSs and other types of risky assets.

In 2007, the P&C insurance markets of most developed countries experienced declining trends in both premium volume and rates. In most countries, the contraction occurred across all product lines, with the exception of several developed Asian countries that experienced buoyant premium growth resulting from strong economic performance.<sup>7</sup> By contrast, P&C insurance premiums in developing markets experienced growth across all production lines, due largely to strong economic growth, increasing incomes, compulsory lines requirements, and a growing awareness of risk mitigation techniques.<sup>8</sup>

The world's largest P&C insurance companies, measured by total revenues, tend to be located in North America and Europe. At the global level, the P&C insurance industry exhibits a low level of industry concentration, although concentration varies by region, country, and product line. Overall, the top four P&C insurance firms account for 14 percent of the global market, with no individual firm estimated to hold more than 5 percent of the total.<sup>9</sup> In 2006, global employment in the P&C insurance industry totaled approximately 1.6 million people, with the United States accounting for approximately 39 percent of this total (625,000 people).<sup>10</sup>

Although large corporations tend to possess the financial resources and technical expertise necessary to navigate the markets and regulatory regimes of multiple countries, only a few such firms maintain extensive international operations. Indeed, international trade in insurance services, whether conducted via cross-border trade or through foreign subsidiaries, is conducted by a small, often specialized, subset of the global P&C insurance industry. Such firms include ACE Limited (Switzerland), AIG (United States), Allianz SE (Germany), Assicurazioni Generali (Italy), The AXA Group (France), The Chubb Corporation (United States), and Zurich Financial Services (Switzerland). Lloyd's of London (United Kingdom) is also a major provider of P&C insurance worldwide (box 2.2). Most U.S. P&C insurance companies, including large, well-known firms like Allstate, The Hartford Group, and State Farm, either do not sell P&C insurance outside the United States, or limit their international exposure to Canada and Mexico.

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<sup>7</sup> Swiss Re, "World Insurance in 2007," 2008, 14.

<sup>8</sup> *Ibid.*, 20.

<sup>9</sup> IBISWorld, *Global Direct General Insurance Carriers*, September 30, 2008, 10–11.

<sup>10</sup> IBISWorld, *Global Direct General Insurance Carriers*, January 21, 2009, 5, and IBISWorld, *Auto & Other Direct Insurance Carriers*, November 19, 2008, 5.

## BOX 2.2 Lloyd's of London

Unlike most well-known brands in the insurance business, Lloyd's of London (Lloyd's) is not a company. Instead, Lloyd's is a society of members that work together to provide property and casualty insurance and reinsurance services. Lloyd's specializes in underwriting complex, specialized risks that are either very large or hard to price including, for example, oil rigs, bridges, wind farms, airlines, space vehicles, and sporting events. Founded in a coffee house in London, England, in 1688, Lloyd's now operates in more than 200 countries and territories worldwide.

As of May 1, 2008, Lloyd's comprised 80 syndicates and 51 managing agents. Members, who provide the capital behind Lloyd's policies, comprise both corporations/limited partnerships and individuals. Members typically underwrite insurance policies in syndicates, which are managed on a day-to-day basis by managing agents.<sup>a</sup> Under such arrangements, members insure a portion of the total underwritten loss, and are not responsible for the losses of other syndicate members. Several U.S. firms operate in the Lloyd's market, including Liberty Syndicates, which is backed by U.S.-based Liberty Mutual Group.<sup>b</sup>

In a typical transaction, Lloyd's insurance brokers negotiate competitive terms and conditions on behalf of clients with several syndicates, hoping to find one that will insure a specific risk. In situations involving very large risks, more than one syndicate may be involved. Lloyd's syndicates, which frequently compete with each other for insurance business, employ specialist underwriters to price and assess specialized risks, as well as process claims following loss events.

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Source: Lloyd's, "The Lloyd's Market," undated (accessed January 26, 2009).

<sup>a</sup>A managing agent is a company established for the sole purpose of providing management and other services to a syndicate. Managing agents, which may provide services to more than one syndicate, provide the business structure behind a syndicate and employ specialist underwriters and support staff.

<sup>b</sup>Liberty Syndicates Web site. <http://www.libertysyndicates.com> (accessed March 12, 2009).

## Insurance Market Profiles

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In 2006, premium growth rates for P&C insurance varied widely between developed and developing countries.<sup>11</sup> Most developed-country markets exhibited mid-to-low single-digit growth rates, or in some cases, negative growth rates, ranging from -6 percent in Japan to 7 percent in Spain (table 2.1). The exception in this category was Korea, with a growth rate of 23 percent. Overall, the average premium growth rate for the developed countries was less than 3 percent in 2006, significantly below the average annual growth rate of 10 percent recorded from 2002 through 2006.<sup>12</sup> By contrast, total P&C insurance premiums grew rapidly in developing countries, ranging from 8 percent in Mexico, Poland, and South Africa to 35 percent in Venezuela (table 2.2). The average growth rate for premiums in this group was 19 percent in 2006, consistent with the average annual growth rate of approximately 19 percent from 2002 through 2006.<sup>13</sup>

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<sup>11</sup> The classification is derived from the World Bank's "Country Classifications," undated (accessed January 12, 2009). The World Bank classifies countries into low-income, lower-middle-income, upper-middle-income, and high-income categories. Developed economies in this report refer to the high-income category and developing economies consist of low-income, lower-middle-income, and upper-middle-income groups. Throughout this section, references to developed countries will include the countries in table 2.1, and references to developing countries will include the countries in table 2.2.

<sup>12</sup> Average based on 44 observations due to missing growth observations in 2002; growth in Italy available from 2004.

<sup>13</sup> Average based on 42 observations because only Mexico and Venezuela reported growth rates in 2002.

**TABLE 2.1** Insurance market profiles, top developed-country markets for P&C insurance, 2006<sup>a</sup>

Country	Total P&C premiums (millions of \$) <sup>b</sup>	Growth over previous year, total P&C premiums <sup>c</sup> (%)	P&C insurance density <sup>d</sup> (\$/capita)	P&C insurance market penetration <sup>e</sup> (% of GDP)	Foreign market share <sup>f</sup> (% of P&C insurance market)	Number of firms	Industry concentration <sup>g</sup>
Australia	17,890	2	863	2.4	26	102	67
Canada <sup>h, i</sup>	30,431	-1	1,061	2.4	38	194	56
France <sup>j</sup>	53,695	0	875	2.4	n/a	1,053	69
Germany	61,031	0	742	2.1	8	227	48
Italy <sup>j</sup>	40,024	3	685	2.2	26	126	59
Japan <sup>i, k, m</sup>	67,962	-6	532	1.6	6	42	97
Korea <sup>i</sup>	29,642	23	614	3.3	3	97	94
Spain <sup>l</sup>	30,150	7	684	2.4	20	298	44
United Kingdom	69,464	-3	1,148	2.9	45	788	69
United States	484,742	3	1,621	3.7	11	2,343	45

Sources: Total premiums and premium growth: AXCO, Inc., "Statistics: Non-Life Market Totals," undated (accessed September 17, 2008). Population and GDP: IMF, World Economic Outlook Database (accessed October 15, 2008). Foreign market share: OECD, *Insurance Statistics Yearbook 1997–2006*, 2008. Number of firms and industry concentration: AXCO, Inc., "Market Participants: Summary and Trends," undated (accessed November 3, 2008); AXCO, Inc., "Market Participants: Market Concentration," undated (accessed November 20, 2008); and AXCO, Inc., "Appendix 2: Company Statistics," undated (accessed October 10, 2008).

<sup>a</sup>Some data are not available for 2006 and will reflect the last year available. Differences are noted where appropriate.

<sup>b</sup>Data exclude personal accident and healthcare insurance.

<sup>c</sup>Percent growth of total P&C premiums during 2006.

<sup>d</sup>Density is defined as P&C premiums per capita. Calculated by Commission staff (P&C premiums in millions of U.S. dollars as reported by AXCO; population in millions as reported by the IMF).

<sup>e</sup>Market penetration is defined as P&C premiums as a share of gross domestic product (GDP). Calculated by Commission staff (P&C nominal premiums in millions of U.S. dollars as reported by AXCO; nominal GDP converted from billions as reported by the IMF).

<sup>f</sup>Data refer to market share of foreign-controlled companies in the domestic P&C insurance market, OECD Table 23. Unavailable data denoted where appropriate.

<sup>g</sup>Industry concentration defined as market share of written premiums by top 10 insurers (foreign and domestic) for latest available year as reported by AXCO, Inc., "Market Participants: Market Concentration." Data for Australia and Korea calculated by Commission staff from AXCO, Inc., "Appendix 2: Company Statistics."

<sup>h</sup>The number of firms in Canada exceeds 300 if provincially licensed firms are included. See AXCO, Inc., "Market Participants: Market Concentration."

<sup>i</sup>Unclear to which year data on number of firms correspond in Canada and Korea.

<sup>j</sup>Figures for number of firms refer to 2007 in France, Italy, and Japan.

<sup>k</sup>With respect to the number of firms in Japan, AXCO also reports "there were also 59 co-operative insurance carriers operating under sector-specific laws and 389 unregulated co-operatives." See AXCO, Inc., "Market Participants: Market Concentration".

<sup>l</sup>Figures for the number of firms in Spain refer to life and nonlife market combined.

<sup>m</sup>Data on industry concentration in Japan refer to 2005.

**TABLE 2.2** Insurance market profiles, top developing-country markets for P&C insurance, 2006<sup>a</sup>

Country	Total P&C premiums <sup>b</sup> (millions of \$)	Growth over previous year, total P&C premiums <sup>c</sup> (%)	P&C insurance density <sup>d</sup> (\$/capita)	P&C insurance market penetration <sup>e</sup> (% of GDP)	Foreign market share <sup>f</sup> (% of P&C insurance market)	Number of firms	Industry concentration <sup>g</sup>
Argentina <sup>ij</sup>	3376	20	87	1.6	n/a	103	47
Brazil <sup>k</sup>	11,626	26	62	1.1	n/a	70	63
China <sup>j</sup>	18,941	26	14	0.7	n/a	39	90
India <sup>l</sup>	4,494	13	4	0.5	n/a	12	95
Mexico <sup>i,m</sup>	6,435	8	62	0.7	n/a	94	78
Poland <sup>h,n</sup>	4,807	8	126	1.4	40	33	87
Russia <sup>m</sup>	11,331	25	79	1.1	n/a	918	38
South Africa <sup>o</sup>	5,333	8	113	2.1	n/a	359	80
Turkey <sup>n</sup>	4,792	23	70	0.9	17	29	77
Venezuela <sup>m</sup>	2,539	35	94	1.4	n/a	49	71

Sources: Total premiums and premium growth: AXCO, Inc., "Statistics: Non-Life Market Totals," undated (accessed October 15, 2008). Population and GDP: IMF, World Economic Outlook Database (accessed October 15, 2008). Foreign market share: OECD, *Insurance Statistics Yearbook 1997–2006*, 2008. Number of firms and industry concentration: AXCO, Inc., "Market Participants: Summary and Trends," undated (accessed December 10, 2008); AXCO, Inc., "Market Participants: Market Concentration," undated (accessed November 20, 2008); and "Appendix 2: Company Statistics," undated (accessed November 20, 2008).

<sup>a</sup>Some data are not available for 2006 and will reflect the last year available. Differences are noted where appropriate.

<sup>b</sup>Data exclude personal accident and healthcare insurance.

<sup>c</sup>Percent growth of total nonlife premiums during 2006.

<sup>d</sup>Density is defined as P&C premiums per capita. Calculated by Commission staff (P&C premiums in millions of U.S. dollars as reported by AXCO; population in millions as reported by the IMF).

<sup>e</sup>Market penetration is defined as P&C premiums as a share of gross domestic product (GDP). Calculated by Commission staff (P&C nominal premiums in millions of U.S. dollars as reported by AXCO; nominal GDP converted from billions as reported by the IMF).

<sup>f</sup>Data refer to the market share of foreign companies in the domestic P&C insurance market reported in OECD Table 23. Only data for Poland and Turkey are available.

<sup>g</sup>Industry concentration defined as market share of written premiums by top 10 insurers (foreign and domestic) as reported by AXCO, Inc., "Market Participants: Summary and Trends." Data for China, South Africa, and Venezuela calculated by Commission staff from AXCO, Inc., "Appendix 2: Company Statistics."

<sup>h</sup>Figure for foreign market share in Poland refers to 2004.

<sup>i</sup>Figure for the number of firms in Argentina includes companies that write life and workers' compensation.

<sup>j</sup>Figures for the number of firms in Argentina, China, and Mexico refer to 2007.

<sup>k</sup>According to AXCO, taking into account multiple holdings, there were about 70 active insurance companies in Brazil at the end of 2006.

<sup>l</sup>Unclear to which year data on number of firms in India refer. As of 2008, there were "an estimated 20 non-life insurers, both public sector and private, that are registered to do business in India." AXCO, Inc., "Market Participants: Summary and Trends," undated (accessed December 10, 2008)

<sup>m</sup>Unclear if data on number of firms in Mexico, Russia, and Venezuela refer to nonlife and life combined.

<sup>n</sup>Figures for the number of firms in Poland and Turkey refer to 2008.

<sup>o</sup>Data on number of firms represent 102 short-term insurance companies registered in South Africa in December 2005, 7 major financial conglomerates that include short- and long-term insurers, and 250 underwriting managers (figure estimated by AXCO) that have agreements with short-term insurers or Lloyd's underwriters to underwrite a particular line of business. These underwriting managers are often partially or fully owned by the insurer, but work as independent organizations.

For the most part, there was a high degree of similarity in the type of insurance products sold in all insurance markets. Across developed and developing countries, the most commonly purchased type of P&C insurance in 2006 was automobile insurance, reflecting the influence of compulsory insurance regulations.<sup>14</sup> Despite considerable variability in the share of total P&C insurance accounted for by automobile insurance in 2006,<sup>15</sup> it constituted the largest share of the P&C insurance market in all countries, with the exception of Russia.<sup>16</sup> Property insurance of some type represented the second-largest share of the P&C insurance market in most countries, accounting for approximately 25 percent of the market.<sup>17</sup> The third-largest line of insurance in developed countries was liability insurance, with an average share of 10 percent in 2006. By contrast, the third-largest line in developing countries varied widely, and included not only liability insurance, but also marine, aviation, and transport insurance; surety, bonds, and credit insurance; construction and engineering insurance; and workers' compensation and employers' liability insurance. In general, liability insurance usage reflects the nature of a country's legal system, with demand for such insurance increasing with enforcement of legal rights and the general level of litigiousness.<sup>18</sup>

The share of the P&C insurance market accounted for by foreign firms varies widely among countries. In developed countries, foreign market share<sup>19</sup> in 2006 ranged from 6 percent in Japan to 45 percent in the United Kingdom; in developing countries data were available only for Turkey (17 percent) and Poland<sup>20</sup> (40 percent). In general, foreign market share estimates above 60 percent are characteristic of small transition economies, such as the Czech Republic, Slovakia, and Hungary.<sup>21</sup> Although there is no clear explanation for foreign market share variation, one industry representative indicates that foreign market share is affected in large part by the restrictiveness of local regulations.<sup>22</sup>

In most of the countries analyzed, P&C insurance services were supplied by a relatively large number of firms,<sup>23</sup> typically ranging from several dozen to several hundred.<sup>24</sup> By contrast, 2,300 P&C insurance companies maintained operations in the United States. Industry concentration, measured as the market share of the 10 largest firms, varied across country markets; it ranged from 44 percent in Spain to 97 percent in Japan (2005) in our sample of developed countries, and from 38 percent in Russia to 95 percent in India<sup>25</sup> in our sample of developing countries.

Insurance density, defined as total premiums per capita, measures the breadth of the insurance market. In 2006, the average insurance density for developed countries was

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<sup>14</sup> AXCO, Inc. "Compulsory Insurances," undated (accessed October 28, 2008).

<sup>15</sup> AXCO, Inc. "Statistics: Non-Life Market Totals," undated (accessed September 17, 2008, and October 28, 2008).

<sup>16</sup> Automobile insurance represented 21 percent of Russia's total P&C insurance market; property accounted for 74 percent.

<sup>17</sup> In our sample of developed countries, Korea was the outlier with property accounting for only 4 percent of total P&C insurance. In our sample of developing countries, Russia was the outlier, with property constituting the largest share of total P&C insurance.

<sup>18</sup> Industry official, interview by Commission staff, December 2, 2008.

<sup>19</sup> Data refer to market share of foreign companies in the domestic market (nonlife). OECD, *Insurance Statistics Yearbook 1997–2006*, 2008.

<sup>20</sup> Polish figure refers to 2004.

<sup>21</sup> OECD, *Insurance Statistics Yearbook 1997–2006*, 2008.

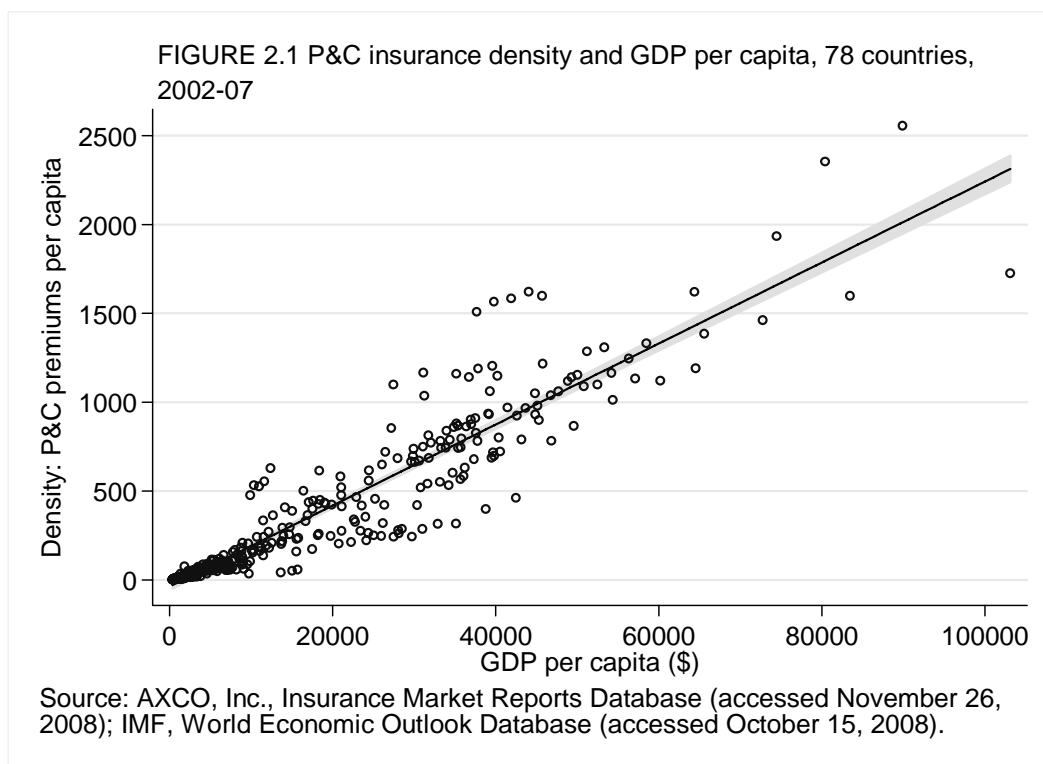
<sup>22</sup> Industry official, interview by Commission staff, Philadelphia, PA, December 5, 2008.

<sup>23</sup> Hartwig, Insurance Information Institute, Written submission to the USITC, October 2, 2008, 3.

<sup>24</sup> Most data on the number of firms are 2006 data. For some countries, data were only available for 2005, 2007, or 2008. See tables 2.1 and 2.2 for more detail.

<sup>25</sup> Until recently, the insurance industry in India was a government-owned monopoly.

\$882, compared with \$71 for developing countries.<sup>26</sup> Insurance penetration, or total P&C insurance premiums as a percentage of national gross domestic product (GDP), measures the growth potential of insurance markets.<sup>27</sup> Insurance penetration in developed countries averaged 3 percent, compared to an average of 1 percent in developing countries.<sup>28</sup> Given that the level of wealth likely stimulates demand for insurance services, it is not surprising that the developed countries exhibit higher insurance density and market penetration. In general, too, the development of the P&C insurance market promotes economic growth. For a sample of 78 countries, the level of per capita income was positively related to both insurance penetration and insurance density from 2002 through 2007 (figures 2.1 and 2.2), indicating that, as income rises, individual consumers and business customers devote additional resources to mitigating risk through the purchase of insurance products.<sup>29</sup>

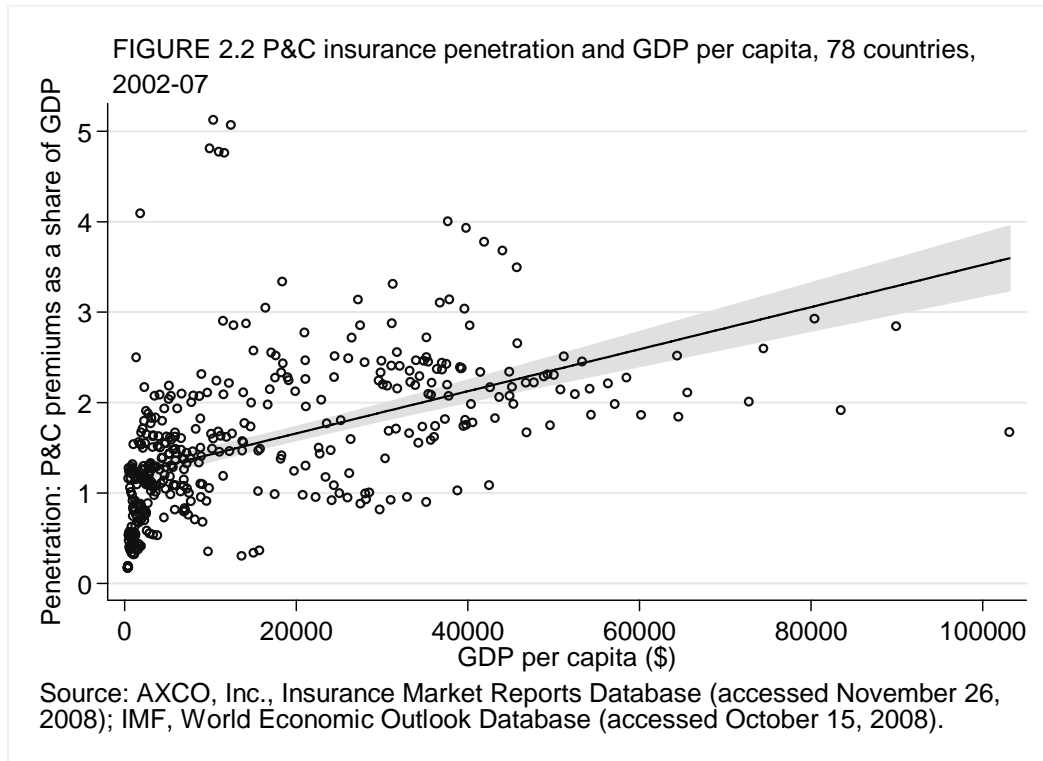


<sup>26</sup> For the same year, mean density was \$367 per capita for a sample of 78 countries (refer to app. D for a list of countries).

<sup>27</sup> Hartwig, Insurance Information Institute, Written submission to the USITC, October 2, 2008, 7.

<sup>28</sup> For the same year, mean penetration was 1.6 for the expanded 78-country sample.

<sup>29</sup> The scatter plots displayed in figures 2.1 and 2.2 contain data pertaining to income per capita, insurance density, and insurance penetration for 78 countries from 2002 through 2007 (a total of 388 observations in each figure). A regression line through each scatter plot shows a positive relationship, with regression coefficients significant at all levels of confidence. The shaded area around the line indicates the confidence interval. See app. D for more details.



## The Property and Casualty Insurance Industry

### *How Property and Casualty Insurance Firms Operate*

The P&C insurance industry operates in essentially the same way worldwide, although differences do exist between countries and regions. In essence, insurance enables individuals and entities to share the burden of unexpected losses associated with damage or destruction to property or incurred liability. Specifically, P&C insurance companies collect payments, known as premiums, from insurance policyholders that face similar risks, including, for example, automobile accidents and house fires. Such premiums are pooled together by the insurance company, with payments made from the pool to individuals and entities that experience losses. Although some participants do not suffer losses or receive payments from the pool associated with such losses, they still benefit from this risk-sharing arrangement by avoiding the risk of large-scale financial loss.<sup>30</sup>

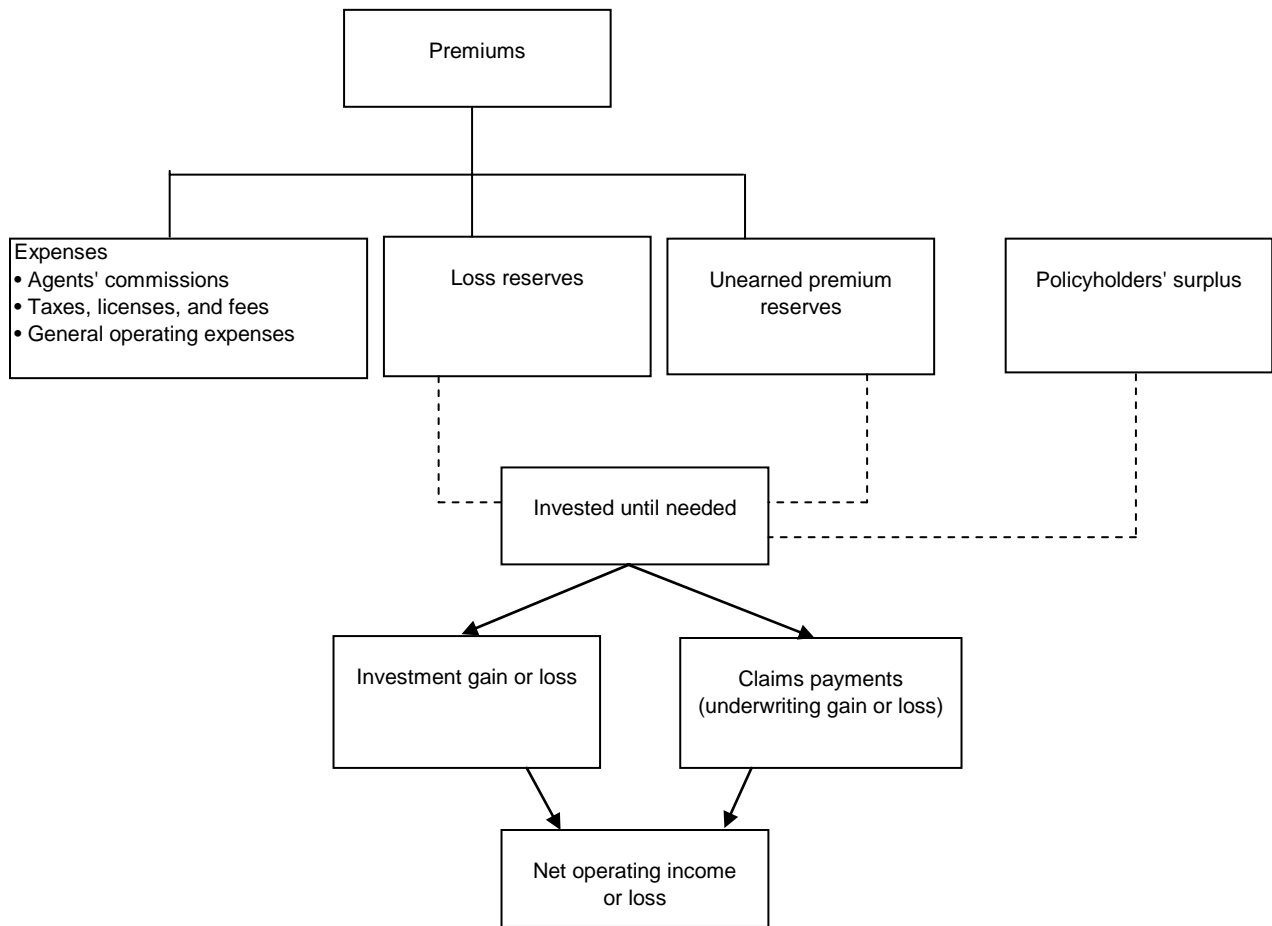
Following underwriting and policy issuance, P&C insurance companies collect premium payments from customers (figure 2.3). Upon receipt, premium payments are placed in an unearned premium reserve. Such funds are then “earned,” or recognized as revenue, over the policy’s term, typically on a monthly basis.<sup>31</sup> Like all companies, P&C insurers use

<sup>30</sup> Standard & Poor’s, *Insurance: Property-Casualty; Europe*, September 2007, 18.

<sup>31</sup> For example, an upfront premium payment of \$1,200 on a one-year insurance policy would typically be placed into an unearned premium reserve, with revenue recognition occurring at a rate of \$100 per month for the 12-month term. Standard & Poor’s, *Insurance: Property-Casualty*, July 10, 2008, 11; Standard & Poor’s, *Insurance: Property-Casualty; Asia*, February 2007, 19; and Standard & Poor’s, *Insurance: Property-Casualty; Europe*, September 2007, 16.



**FIGURE 2.3** Flow of funds through P&C insurance firms



Source: Compiled by Commission staff using sources from Standard & Poor's and the American Insurance Association.

revenues to pay a wide variety of expenses, with the single largest expense being losses, otherwise known as policyholder claims. Other expenses include agent/broker commissions, workforce salaries, claims-related expenses such as litigation fees and insurance adjusters' fees, and general overhead expenses. P&C insurance companies are also required to set aside funds to cover claims, referred to as loss reserves. Overall, the underwriting portion of a company's profit (or loss) is determined by subtracting such expenses from total premiums.<sup>32</sup> Due to highly competitive conditions in many countries, which restrict insurers' ability to raise prices, P&C insurance companies tend to set premium prices at levels that closely match premium revenues with expected loss payouts. Due to the complexity of accurately estimating loss payouts, however, the underwriting operations of many insurance companies often experience losses. In the United States, for example, P&C insurance companies recorded an underwriting profit in only two years during the period 1980–2006.<sup>33</sup>

<sup>32</sup> Standard & Poor's, *Insurance: Property-Casualty*, July 10, 1008, 11.

<sup>33</sup> AIA, "Insurance 201: Property-Casualty Finance," September 7, 2006, 3.

The total profitability of P&C insurers, however, comprises not only the performance of the underwriting segment of the business, but also gains/losses<sup>34</sup> on invested loss reserves, unearned premium reserves, and policyholders' surplus.<sup>35</sup> In general, P&C insurance companies around the world invest their reserves in low-risk, high-quality investment vehicles, particularly government and high-grade corporate bonds, with the intention of deriving investment income/gains, although the share of reserves invested in such assets varies by country.<sup>36</sup> In the United States, for example, bonds accounted for nearly 67 percent of insurance companies' reserve investments in 2006.<sup>37</sup> By contrast, European insurance companies tend to place a larger share of their reserves in equities, a practice that exposes them to greater losses than their U.S. counterparts during falling stock markets.<sup>38</sup> In Asia, some governments have established rigid regulations specifying how P&C insurance companies are allowed to invest reserves. In general, Asia's more developed economies, including Japan, Hong Kong, and Korea, are characterized by more liberal investment regimes that give insurers wide latitude to set investment strategy. By contrast, the investment regimes of developing economies like China, India, Indonesia, Malaysia, Thailand, and Vietnam tend to restrict insurers' investment choices.<sup>39</sup>

P&C insurance firms expend a great deal of resources on calculating premium prices and reserve holdings. Both activities have an important bearing not only on a firm's profitability, but also its competitive position within the industry. Unlike most products and services, premium prices must be established before the actual cost of providing loss coverage is known. As a result, premium prices are largely determined by complex, actuarial calculations that attempt to estimate the frequency and severity of future losses, with premium rates rising and falling in response to the anticipated cost of such losses.<sup>40</sup> Competitive conditions and anticipated investment returns also may play a role in the process of setting premium rates. During periods of high investment returns, for example, insurers may choose to lower premium prices in an effort to gain market share, relying on investment income for overall profitability. Conversely, in periods of low or declining

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<sup>34</sup> Investment gains or losses on an insurance company's investment portfolio include interest income on bonds held in the portfolio, dividends on stocks held in the portfolio, and capital gains/losses derived from the sale of securities held in the portfolio. AIA, "Insurance 201: Property-Casualty Finance," September 7, 2006, 3; Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 11.

<sup>35</sup> Policyholder surplus is the excess of an insurance company's assets over its liabilities, defined as its legal obligations to meet the benefits payable to its policy holders. Rubin, *Dictionary of Insurance Terms*, 2008, 384. Policyholder surplus tends to vary with a firm's overall profitability. During profitable years, management may place additional funds in the policyholders' surplus, while in loss-making years, management may use funds from the policyholders' surplus to pay claims and/or other expenses. AIA, "Insurance 201: Property-Casualty Finance," September 7, 2006, 3; Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 13, 16.

<sup>36</sup> Since many property losses are often settled in a relatively short timeframe, P&C insurance companies tend to invest the majority of their reserves in highly liquid securities that can be quickly converted to cash. Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 11; and AIA, "Insurance 201: Property-Casualty Finance," September 7, 2006, 2.

<sup>37</sup> Insurance Information Institute, *The III Insurance Factbook 2008*, 2008, 37. In 2006, U.S. insurance companies placed the remainder of such reserves in common stock (18 percent), cash and short-term investments (8 percent), and other investments (7 percent).

<sup>38</sup> Standard & Poor's, *Insurance: Property-Casualty; Europe*, September 2007, 18.

<sup>39</sup> Standard & Poor's, *Insurance: Property-Casualty; Asia*, February 2007, 22.

<sup>40</sup> Actuarial calculations are based on historic loss data and statistics, such as demographic data that pertain to a particular group of policyholders. When underwriting automobile insurance policies, for example, insurers use historic data on automobile accident rates, repair costs, and many other factors to calculate premium rates for individual customers. AIA, "Insurance 201: Property-Casualty Finance," September 7, 2006, 1.

investment returns, insurance companies may be unable to lower premium prices, or may even raise prices, to avoid the possibility of net losses.<sup>41</sup>

The P&C insurance market is subject to cycles that fluctuate between “soft” and “hard” market conditions. Soft market conditions are characterized by high levels of competition, decreasing prices, and declining underwriting standards as companies compete for market share. Such conditions, however, typically lead to reduced profitability and increased claims, which, in turn, lead to underwriting losses and declining underwriting capacity. As a result, insurance companies typically react by introducing stricter underwriting standards, setting the stage for hard market conditions. In hard markets, insurance companies limit the supply of insurance and raise prices, leading to high levels of profitability. However, high profits attract capital into the industry, raising underwriting capacity and leading to increased competition, with such competition setting the stage for a return to soft market conditions.<sup>42</sup> Although such underwriting cycles tend to affect the global P&C insurance industry, conditions vary by individual country and/or product line segments. Overall, the global P&C insurance market experienced hard market conditions from 2003 through 2007, transitioning to soft market conditions in 2008.<sup>43</sup>

P&C insurance firms also use actuarial methods to calculate the size of their loss reserves, with miscalculation posing serious risks to a firm’s profitability and competitiveness. For example, a firm that sets reserves higher than necessary runs the risk of reducing its profitability, forcing it to raise premium rates. By contrast, setting reserves too low may inflate profits, leading the firm to inappropriately lower its rates. Setting reserves lower than necessary may also create a situation in which an insurance company does not have sufficient loss reserves to cover higher than expected claims. However, establishing an optimal level of reserves is extremely difficult due to the uncertainty surrounding estimations of future losses. In addition to the unpredictability of natural disasters, forecasts are subject to many other variables, including real economic growth, inflation, interest rates, and sociopolitical trends.<sup>44</sup>

Globally, insurance is distributed to customers via several methods. In many parts of the world, particularly in North America and Europe, personal lines are distributed to customers through insurance agents. Such agents either work for a particular company, usually as part of a network, or independently, selling policies for multiple firms. In some countries, personal lines are distributed to customers via bank and/or postal centers, a method of distributing insurance products known as bancassurance. Although bancassurance methods are used in Europe, such methods are particularly prevalent in Asian countries. P&C insurance companies also increasingly use direct sales techniques to distribute personal lines, including Internet, telephone, and direct mail methods. By contrast, commercial lines tend to be sold through brokers, that are employed by businesses and other organized entities to identify insurance policies that meet the specific needs of each organization. Brokered deals are particularly common in the United States, United Kingdom, Australia, and Canada, accounting for as much as

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<sup>41</sup> Standard & Poor’s, *Insurance: Property-Casualty; Asia*, February 2007, 20.

<sup>42</sup> Rubin, *Dictionary of Insurance Terms*, 2008, 536; Hartwig, Insurance Information Institute, Written submission to the USITC, October 2, 2008, 6.

<sup>43</sup> Industry official, interview by Commission staff, Philadelphia, PA, December 5, 2008; Fitch Ratings, “The Property/Casualty Underwriting Cycle,” April 14, 2008, 1–3.

<sup>44</sup> Standard & Poor’s, *Insurance: Property-Casualty*, July 10, 2008, 14; Standard & Poor’s, *Insurance: Property-Casualty; Europe*, September 2007, 16–17.

80 percent of commercial lines sales in these countries. In Asia, however, brokered deals are less common.<sup>45</sup>

## Supply and Demand Factors

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A wide range of factors affect P&C insurance companies' willingness to supply insurance in global markets as well as consumers' decisions to purchase insurance. Supply factors include NTMs, input costs, and government regulations requiring the approval of new types of insurance. Demand factors include economic and demographic factors, mandatory government requirements for coverage, and the likelihood of catastrophic events. Some factors may affect both supply and demand decisions, such as the number of insurers operating in a given market, institutional and business climate factors, and price regulation.

### *Supply Factors*

According to industry representatives, country-level trade policies are one of the most important factors that affect U.S. firms' abilities to access foreign P&C insurance markets. The presence of NTMs can affect the ability of multinational insurance firms to enter foreign markets which, in turn, decreases competition and raises the price of insurance services. For example, provisions restricting the amount of foreign equity in domestic insurance firms may limit such firms' control over their overseas operations, a factor which may discourage foreign market entry. A summary and analysis of the nature and potential effect of NTMs on the P&C insurance industry are provided in chapter 4 of this report.

As one of the P&C insurance industry's primary operating expenses, the cost and availability of labor can also affect the supply of P&C insurance. Insurance firms prefer to fill most positions with college graduates, and often provide additional specialized training to their employees. This explains, in part, the relatively high wages earned by insurance industry employees. For example, U.S. insurance employees in nonsupervisory positions earned an average of \$798 per week, which is higher than the U.S. private industry average of \$568 per week.<sup>46</sup> Moreover, the U.S. insurance industry has been slow to adopt labor-saving technological innovations, lagging behind other segments of the financial services sector. This may be due to the complex nature of insurance products, security concerns, the difficulty and high cost of developing and maintaining online systems, or insurers' reluctance to encourage increased competition by facilitating online policy and price comparisons, among other factors.<sup>47</sup> Further, certain tasks cannot be accomplished electronically, such as face-to-face client-agent consultations (especially when they relate to complicated policies) and damage assessment.<sup>48</sup>

According to industry representatives, government regulations requiring the approval of new types of insurance also can affect the supply of insurance services. Regulation of this type, referred to as policy form regulation, has the potential to affect the amount of time

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<sup>45</sup> Standard & Poor's, *Insurance: Property-Casualty; Asia*, February 2007, 17; Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 17; and Standard & Poor's, *Insurance: Property-Casualty; Europe*, September 2007, 17.

<sup>46</sup> USDOL, BLS, "Career Guide to Industries: Insurance," March 12, 2008.

<sup>47</sup> Lewin, "Insurance Industry Lags Behind in Technology," June 5, 2006.

<sup>48</sup> USDOL, BLS, "Career Guide to Industries: Insurance," March 12, 2008.

required to introduce new insurance products. In the United States, the median time from registration with regulatory authorities to product release in states maintaining policy form regulations was 72 days, as compared to 43 days in states lacking such regulations.<sup>49</sup> In general, the insurance industry believes that policy form regulation raises compliance costs and increases the time to market for new insurance products, potentially impairing market innovation and first-mover advantages.<sup>50</sup>

### ***Demand Factors***

Economic factors such as economic growth, cost of living, and unemployment levels affect the consumption of insurance products, with demand usually rising as prosperity increases. Industry representatives report that economic growth is one of the most important factors explaining differences in demand across countries.<sup>51</sup> In some developing countries, economic development has led to the emergence of a middle class. These households tend to acquire valuable property such as homes and automobiles, all of which typically require insurance. In addition, empirical studies on the factors affecting demand for P&C insurance confirm that real GDP per capita is highly positively correlated to insurance consumption.<sup>52</sup> Similarly, quantitative work conducted by Commission staff also demonstrates a clear, positive relationship between per capita income growth and P&C insurance premium growth across a large sample of countries (figure 2.4).<sup>53</sup> Relatedly, consumers tend to purchase more insurance in countries exhibiting a high cost of living, largely because property in such locations tends to be more highly valued. Not surprisingly, unemployment levels also tend to affect demand for insurance services, with lower levels of unemployment spurring increased insurance purchases. By contrast, demand for insurance tends to fall during periods of high unemployment, as some consumers are unwilling or unable to assume the cost of maintaining insurance policies.

Demand for P&C insurance also tends to be greater in areas characterized by high population density, due to higher property values as well as higher per capita levels of crime and other loss-incurring events than in more sparsely populated areas. Among the top 10 developed countries, for example, three of the five largest P&C insurance markets in 2006—Japan, Germany, and the United Kingdom—were also the most densely populated. Exceptions occur in countries like Australia, Canada, and the United States, where demand for insurance is high, but population density is relatively low due to the abundance of land.

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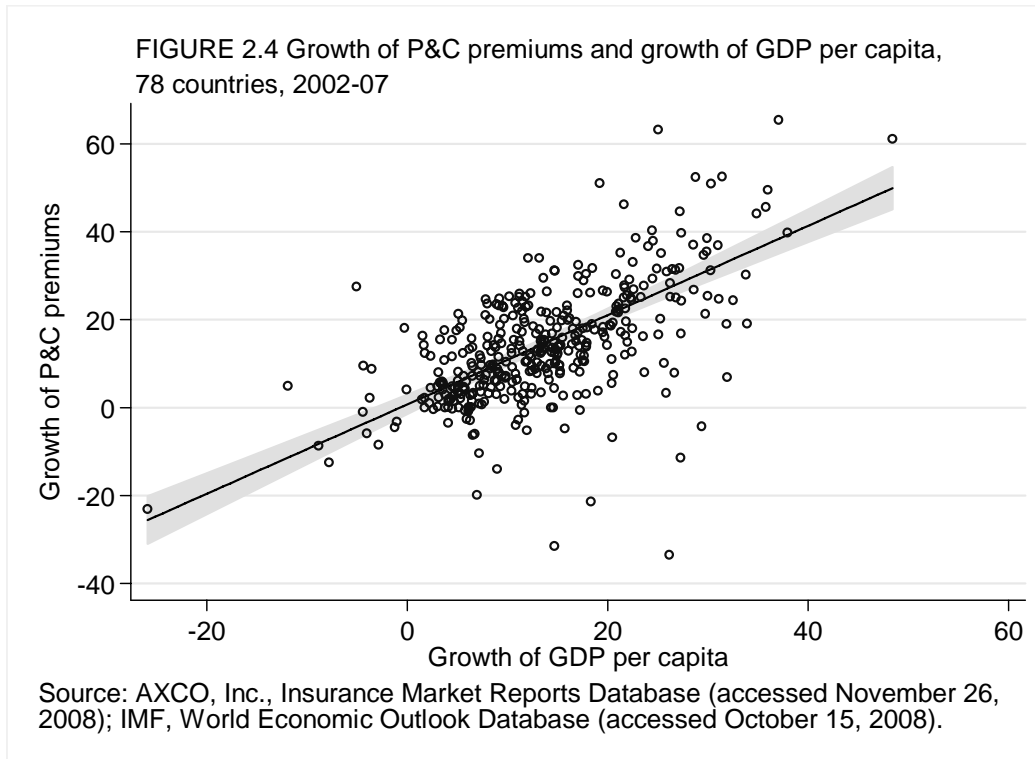
<sup>49</sup> Cummins, “Deregulating Property-Liability Insurance,” 2002, 16.

<sup>50</sup> *Ibid.*, 18. Since regulators typically require higher levels of scrutiny for insurance sold to individuals, the arguments against policy form regulation are typically restricted to commercial lines.

<sup>51</sup> Industry official, telephone interview by Commission staff, December 2, 2008.

<sup>52</sup> Esho, et al., “Law and the Determinants of Property-Casualty Insurance,” June 2001, 11. The correlation coefficient is 0.85.

<sup>53</sup> The scatter plot displayed in figure 2.4 contains data on income and premium growth for 78 countries from 2002 through 2007, for a total of 388 observations. A regression line through the scatter plot displays a positive relationship, with a regression coefficient significant at all levels of confidence. The shaded area around the regression line indicates the confidence interval. See appendix D for more details.



Government regulation can also affect demand for P&C insurance products. Indeed, government-required insurance coverage, referred to as compulsory lines, tends to increase demand for insurance products. For example, most countries require that consumers and businesses purchase some type of automobile insurance, a factor which likely boosts demand beyond the level that would exist in the absence of such regulations.

Finally, the actual and perceived threat of catastrophic events such as hurricanes, earthquakes, and even terrorist attacks also stimulates demand for P&C insurance services. Indeed, demand for terrorism insurance has reportedly increased since the September 11, 2001, terrorist attacks. In the period immediately following the attacks, demand for terrorism insurance spiked, just as insurance firms were scaling back their P&C insurance offerings and raising premium prices. In some cases, insurance firms stopped issuing terrorism-related insurance policies altogether.<sup>54</sup> Over time, however, demand for terrorism insurance decreased, even as insurers began to offer policies at more favorable prices. Although demand for terrorism insurance has declined since the 2001 terrorist attacks, and prices have consistently fallen, terrorism insurance represents a potentially important segment of the overall P&C insurance market. The perception that climate change may be driving increasingly frequent and damaging weather-related events, such as hurricanes, fires, floods, and droughts, is also reportedly leading to higher demand for both P&C insurance and reinsurance services (box 2.3). Due to high levels of uncertainty surrounding climate change threats, however, many P&C insurance companies are grappling with the difficulties associated with the development and pricing of such policies, largely because miscalculation raises the potential for catastrophic losses.<sup>55</sup>

<sup>54</sup> O'Connor, "Recent Trends in the Catastrophic Risk Insurance/Reinsurance Market," 2005, 47.

<sup>55</sup> *Ibid.*, 44.

### BOX 2.3 Reinsurance

Reinsurance, commonly referred to as insurance for insurance companies, is an insurance transaction in which one company (the assuming insurer, or reinsurer) indemnifies, for a premium, a primary insurance company (the ceding insurer) against all or part of the loss that it may sustain from its insurance policies. A reinsurer, in turn, may purchase reinsurance from another reinsurer, a transaction known as retrocession.<sup>a</sup> One of the most important functions of reinsurance is to protect P&C insurers against unforeseen, catastrophic events that threaten to overwhelm loss reserves, including events like large-scale hurricanes and earthquakes. Insurance companies also use reinsurance to increase insurance capacity, limit liability exposures, and stabilize operating results.<sup>b</sup>

An insurance company's reinsurance requirements are determined by company-specific factors, including its book of insurance business, its underwriting strategy, and its financial position. As a result, reinsurance contracts, and premiums, must be customized to take into account each insurer's unique circumstances. Reinsurance transactions are typically structured as either facultative contracts or treaty contracts. Facultative contracts provide coverage for a specific individual risk (like, for example, a high-risk building), usually because the primary insurance company considers the risk too large to absorb on its own. By contrast, treaty contracts cover a portion of an entire class or classes of business, like homeowners' insurance. An insurance company may purchase a single reinsurance contract or may purchase several treaties to achieve the desired level of coverage, a process known as aslaying. Under such arrangements, reinsurers pay claims, as necessary, in a predetermined sequence in response to loss events.<sup>c</sup>

The leading suppliers of reinsurance services tend to be large multinational insurance companies that specialize in such services, mainly Swiss Re (Switzerland), Munich Re (Germany), Berkshire Hathaway (United States), and Hannover Re (Germany). Reinsurance can also be purchased from the reinsurance departments of primary insurers. In 2007, the global reinsurance market was valued at approximately \$168 billion,<sup>d</sup> exhibiting a compound annual growth rate of approximately 6 percent from 2003 through 2007. Of this total, Munich Re accounted for approximately 18 percent of the global market, followed by Swiss Re (16 percent), Berkshire Hathaway (7 percent), and Hannover Re (3 percent). All other sources of reinsurance services accounted for approximately 57 percent of the global market.<sup>e</sup> In 2007, the largest regional market was the Americas, which represented 56 percent of the global market, followed by Europe (35 percent), and the Asia-Pacific region (10 percent).<sup>f</sup> Primary P&C insurance companies based in the United States ceded approximately \$58 billion to reinsurers in 2007, largely to firms based in Bermuda (52 percent), Switzerland (17 percent), and the United Kingdom (9 percent). Overall, foreign reinsurers represented approximately 83 percent of the U.S. reinsurance market in 2007.<sup>g</sup>

In general, the reinsurance industry faces similar market conditions to that of primary insurers, particularly the ups and downs of the underwriting cycle, wherein premium pricing conditions exhibit "soft" market conditions (i.e., the cycle is characterized by excess capital and underwriting capacity) and "hard" market conditions following large-scale catastrophes that drain capital from the market. During 2008, for example, the global reinsurance industry, like the P&C insurance industry, faced highly competitive market conditions characterized by soft market conditions, excess underwriting capacity, and turbulent financial markets, a situation which may lead to underperformance and/or losses on reinsurers' investment portfolios. In response to such conditions, the reinsurance industry reportedly maintained underwriting discipline in 2008, largely to preserve capital in uncertain times.<sup>h</sup>

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<sup>a</sup>RAA, "RAA Fundamentals of Property Casualty Reinsurance," 2008; Datamonitor, "Global Reinsurance," April 2008, 12; and Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 9.

<sup>b</sup>RAA, "RAA Fundamentals of Property Casualty Reinsurance," 2008.

<sup>c</sup>Ibid.

<sup>d</sup>The global reinsurance market is measured as the amount of gross written premiums ceded to reinsurers. Datamonitor, "Global Reinsurance," April 2008, 7.

<sup>e</sup>Datamonitor, "Global Reinsurance," April 2008, 12; Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 8, 11.

<sup>f</sup>Datamonitor, "Global Reinsurance," April 2008, 10.

<sup>g</sup>Insurance Information Institute, "Facts and Statistics: International," undated (accessed January 21, 2009).

<sup>h</sup>Standard & Poor's, *Insurance: Property-Casualty*, July 10, 2008, 9; Fitch Ratings, *2008–2009 Global Reinsurance Review & Outlook*, September 2008, 1, 3–4.

## *Factors Affecting Both Supply and Demand*

The number of insurers in a country market can affect both the supply and demand for P&C insurance services. In general, the supply of insurance is greater in countries with a relatively high number of insurance companies, as companies compete with each other on not only the basis of price but also by offering new (or improved) insurance products.<sup>56</sup> Such competition, in turn, tends to increase demand for such services. For example, Liberty Mutual's experience in Colombia illustrates how the entrance of a foreign insurance company into a previously protected market can boost both the supply and demand of P&C insurance services. After entering the Colombian P&C market, Liberty Mutual addressed a previously underserved market by supplying taxicab insurance.<sup>57</sup> Such insurance proved to be extremely popular with taxicab drivers, resulting in increased demand and rapidly growing sales for Liberty Mutual. By the end of 2007, Liberty Mutual controlled approximately 40 percent of Colombia's market for taxicab insurance.<sup>58</sup>

A country's institutional and business climate can affect the supply and demand for insurance services. For instance, a country's financial regime can affect supply. The insurance industry relies fairly heavily on investment income, and thus insurers tend to offer a greater supply of insurance in countries with sophisticated financial markets as they can invest their reserves in a wide variety of equity, fixed-income, and other investments.<sup>59</sup> Access to global capital markets can increase investment opportunities, however government regulations often restrict cross-border capital flows and dictate the types of investments in which insurance companies are permitted to invest loss and unearned premium reserves and policyholders' equity.

The development of a country's legal and property rights regimes also likely influences the decisions of insurance companies to supply insurance as well as the purchasing decisions of insurance customers. On the supply side, the development of a country's legal system, and the enforcement of contracts, has an important bearing on company-level decisions to enter foreign markets.<sup>60</sup> On the demand side, the existence and enforcement of property rights, which protect consumers from loss or damage to an asset, provides an economic incentive to acquire and insure property. Quantitative research indicates a strong relationship between property rights and P&C insurance consumption per capita.<sup>61</sup>

The enforcement of creditor rights also may increase demand for P&C insurance products. For example, consumers of both personal and commercial lines are more likely to purchase insurance if they believe that their policies will be honored under all circumstances, even in situations involving the insolvency of an insurance company.<sup>62</sup> Indeed, several developed countries require insurance companies to participate in state-run insurance guaranty funds wherein financially stable companies assume responsibility

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<sup>56</sup> Hartwig, Insurance Information Institute, Written submission to the USITC, October 2, 2008, 7.

<sup>57</sup> Taxicab insurance protects taxicab drivers from damage, to or theft of, their taxicabs. To facilitate the recovery of vehicles and ensure that taxicab drivers are able to continue to operate after a theft incident, Liberty Mutual installs Lo-Jack on all insured taxicabs and offers loaner cars.

<sup>58</sup> Industry official, interview by Commission staff, December 17, 2008.

<sup>59</sup> Esho, et al., "Law and the Determinants of Property-Casualty Insurance," June 2001, 11.

<sup>60</sup> Industry representative, telephone interview by Commission staff, December 2, 2008.

<sup>61</sup> Esho, et al., "Law and the Determinants of Property-Casualty Insurance," June 2001, 16, 20.

<sup>62</sup> *Ibid.*, 5.



for claims made by insolvent insurers' customers, thereby removing a significant financial risk to consumers.<sup>63</sup>

Last, the regulation of P&C insurance premium prices by national governments has the potential to affect both the quantity of insurance supplied and demanded.<sup>64</sup> In general, premium price regulation is designed to avoid two situations: excessive price competition among insurers and price collusion among firms that could artificially inflate premiums.<sup>65</sup> The insurance industry, however, argues that price regulation often leads to rate suppression<sup>66</sup> and the cross-subsidization<sup>67</sup> of high-risk consumers,<sup>68</sup> factors which may encourage insurers to limit the quantity of insurance supplied in regulated markets, or opt out of such markets altogether. Government-mandated prices, which are typically lower than free market prices, also tend to increase the quantity of insurance products demanded,<sup>69</sup> a factor which may lead to a shortage of insurance services for regulated insurance products.

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<sup>63</sup> AIA, "Insurance 201: Property-Casualty Finance," September 7, 2006, 2.

<sup>64</sup> Price regulation is typically restricted to personal lines and workers' compensation.

<sup>65</sup> Cummins, "Deregulating Property-Liability Insurance," 2002, 6.

<sup>66</sup> Rate suppression occurs when government-mandated premiums provide insufficient revenue to cover loss payouts.

<sup>67</sup> Cross-subsidization occurs when government pricing caps prevent insurers from charging higher rates to high-risk customers, potentially increasing insurers' overall risk and requiring price increases on lower-risk customers.

<sup>68</sup> Cummins, "Deregulating Property-Liability Insurance," 2002, 12.

<sup>69</sup> Hartwig, Insurance Information Institute, Written submission to the USITC, October 2, 2008, 7.



# CHAPTER 3

## International Trade in Property and Casualty Insurance

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### Nature of Trade: Cross-Border Trade vs. Affiliate Sales

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Insurance companies compete in the global market in two distinct ways—through cross-border exports and imports, and through sales by affiliates located in host markets. Cross-border trade is more analogous to exports and imports of merchandise. In this case, an insurance company in one country sells an insurance policy to a customer in another country. When the insurer is located in the United States and the customer is located elsewhere, the sale is classified as a U.S. export. When the insurer is located outside of the United States and the customer is a U.S. resident, or a U.S.-based firm, the transaction is classified as a U.S. import of insurance services.

However, cross-border trade in insurance services is often restricted, largely because insurance regulators in many countries prohibit cross-border sales of personal lines, as it is often difficult to ensure the solvency of foreign insurance companies, and thus, their ability to pay claims. For this reason, most cross-border trade in insurance services involves so-called “sophisticated consumers,” primarily large corporations operating in global markets and insurance companies purchasing reinsurance contracts from specialized reinsurance firms.

**BOX 3.1** The GATS and Trade in Insurance Services

The General Agreement on Trade in Services (GATS), one of the founding agreements of the WTO, defines trade in services through four “modes.” Those most relevant to trade in insurance services are mode 1 (cross-border supply), equivalent to cross-border trade, and mode 3 (commercial presence), equivalent to sales through affiliates. In mode 1 trade, services are provided across borders. By contrast, in mode 3 trade, service providers establish a commercial presence, through which they offer their services directly in the host market.

Insurers also compete internationally by establishing and operating subsidiary companies abroad, commonly referred to as foreign affiliates. A foreign affiliate is typically licensed locally and subject to the full supervision of local insurance regulators. As a result, once established in a new market, foreign affiliates typically face few restrictions on the sale of insurance. Many global insurers also try to leverage their international brand names by hiring local insurance agents, or working through other distribution channels in the host market, such as banks or postal centers. Other global insurers enter into joint venture arrangements with local insurers, bringing capital, managerial expertise, and product

knowledge to foreign markets. Even though the sale of insurance through foreign affiliates takes place entirely in a foreign country (both the seller and the buyer are located in a foreign market), it is considered a form of services trade, identified as “affiliate transactions” (box 3.1).

Trade in insurance services can provide benefits for market participants in both exporting and importing countries. An early, influential paper on trade in insurance services cited three expected benefits to importing countries, particularly developing-country markets, from engaging in cross-border insurance trade:

- Increased competition should bring greater diversity of insurance products and lower prices to consumers
- Increased domestic market capacity should reduce the concentration of risk in a single market, decreasing the likelihood of market disruptions
- Increased competition should reduce the ability of anticompetitive practices, such as cartels, to distort markets<sup>1</sup>

More recently, other observers have cited additional benefits to developing countries of opening their financial services markets to foreign companies, including insurance firms. For instance, the entry of foreign firms can bring jobs to the local market and increase competition for domestic firms, forcing those firms to improve their existing operations.<sup>2</sup> By contrast, exporters of insurance services profit by expanding their sales in foreign markets, particularly in many fast-growing developing-country markets, and by diversifying their risk geographically. Insurance companies also benefit from their ability to sell insurance to multinational customers around the world.

As discussed in chapter 2, the P&C insurance industry is split into two market segments, commercial lines and personal lines. International trade in each segment is driven by different factors. International trade in commercial lines insurance is usually conducted via cross-border trade and is driven by the needs of large multinational firms, many of which have offices and facilities in multiple countries requiring some form of insurance. Moreover, the practice of insuring multinational companies with master insurance policies designed to cover a single company's entire global insurance needs under a single contract encourages cross-border commercial insurance transactions. Examples of master policies include property insurance for business facilities worldwide and/or directors' and officers' liability and errors and omissions insurance for executives in multiple locations. Although master policy arrangements are often preferred by both P&C insurance companies and their multinational clients, local country regulations sometimes limit such arrangements, requiring global insurers to establish affiliates in multiple countries.<sup>3</sup> The distribution system for commercial insurance, which revolves around insurance brokers, also tends to promote international trade in insurance services. Insurance brokers, including firms like Marsh & McLennan and Aon, typically operate on a global basis, and frequently develop packages for their multinational clients.<sup>4</sup>

The practice of insuring very large risks using syndicated arrangements also promotes cross-border trade in commercial lines. Under such arrangements, which are often coordinated through insurance brokers, insurance coverage for very large risks is split among several insurance companies, some that may be located in different countries.

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<sup>1</sup> Skipper, "Foreign Insurers in Emerging Markets," 1997, 2–3.

<sup>2</sup> Coalition of Service Industries, "Making the Most of the Doha Opportunity," 2006, 10–12.

<sup>3</sup> USITC, Hearing transcript, September 23, 2008, 140–46 (testimony of Michael Moran on behalf of Council of Insurance Agents and Brokers; David Snyder on behalf of American Insurance Association; and Robert Gordon on behalf of Property Casualty Insurers Association of America); Moran, Written testimony to the USITC, September 23, 2008, 6–7.

<sup>4</sup> For example, see CIAB, "Opening Markets for Insurance Agents & Brokers," May 3, 1999, Written submission to the USITC, October 9, 2008, 1–2.

Examples of large risks include nuclear power plants, commercial satellites, and particularly well-known or high-value real estate.<sup>5</sup> Last, some commercial insurance products, particularly marine, aviation, and transport (MAT) insurance, which provides insurance for international transport vehicles like ships and airplanes, as well as goods in transit, are often sold on a cross-border basis.

Unlike commercial lines, which tend to be traded across borders, personal lines insurance is typically sold through insurers' affiliate companies located in foreign markets because of individual preferences and regulatory requirements. Consumers, most of whom do not have expertise and familiarity with foreign insurance companies, markets, and regulations, often prefer to purchase insurance from locally recognized companies, usually through insurance agents and/or bancassurance methods. Such consumers are unlikely to buy insurance from companies based abroad, although such purchases have become somewhat more feasible given the rise of Internet distribution channels. Since individual consumers are considered to be less sophisticated than multinational firms, they generally receive the highest level of protection from national insurance regulators. As a result, personal lines are more likely to be sold through foreign affiliates due to regulatory requirements for a local commercial presence, subject to full regulatory supervision. Despite such scrutiny, insurance firms are actively seeking to sell personal lines through affiliate companies. For example, Liberty Mutual, a U.S.-based firm that offers both personal and commercial insurance, has established an affiliate in China that concentrates on personal lines insurance, particularly automobile insurance. Liberty Mutual's affiliate in China is one of 14 such affiliates around the world that focuses on personal lines insurance in foreign markets. The company has also announced plans to open an affiliate in India, with tentative plans to offer both personal and commercial insurance.<sup>6</sup>

### ***Factors Driving International Competition in P&C Insurance***

An important motivation for international trade in insurance services is simply insurers' desire to access growing markets. In general, the P&C insurance markets of most developed countries have moved into the mature stage of the industry life cycle, characterized by high levels of insurance penetration<sup>7</sup> and slow growth rates, providing strong incentives for companies based in those markets to expand abroad, particularly to the high-growth markets of many developing countries. In our sample of developed countries, for example, insurance penetration averaged 9 percent in 2007, compared with an average of 3 percent in our sample of developing countries.<sup>8</sup> As noted in chapter 2, demand for insurance services tends to grow with a country's overall level of development, largely because increasing numbers of individuals and businesses both feel the need for and can afford insurance coverage. In addition, as automobile ownership increases along with economic development, national regulators typically require some form of mandatory automobile insurance, an important factor driving demand for P&C insurance in many developing countries. A growing awareness of risk mitigation techniques in many developing countries, particularly among business customers, also

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<sup>5</sup> Examples include the World Trade Center in New York before the attacks of September 11, 2001, or international landmarks such as the Eiffel Tower in Paris.

<sup>6</sup> Liberty Mutual, "International Operations," undated (accessed November 14, 2008); industry official, interview by Commission staff, Chongqing, China, September 6, 2007.

<sup>7</sup> Insurance penetration is calculated as insurance premiums as a percentage of national GDP.

<sup>8</sup> Country groups as defined by Swiss Re Corporation. Data from Swiss Re, "World Insurance in 2007," table 1, 2008, 33.

tends to drive demand for insurance services. Taken together, these factors suggest that developing-country insurance markets are likely to grow rapidly for many years to come. Many U.S. firms are interested in entering and/or operating in the P&C insurance markets of developing countries. In addition to AIG, which sells insurance in dozens of developing countries, Liberty Mutual also has established operations in many developing countries. Liberty Mutual typically enters such markets by purchasing a local insurance company, and then expands market share by identifying underserved product segments.<sup>9</sup>

### ***Factors Driving Firms to Compete Internationally***

The size of an insurance company's national market also may provide an incentive to engage in international trade. For example, many of the world's leading P&C insurance companies are based in Europe, often in countries characterized by relatively small insurance markets; this may be a factor that encourages EU firms to search for revenue growth outside their respective home-country markets. By contrast, most U.S. insurance companies have not historically operated outside the United States, largely because business opportunities in the large, diverse U.S. insurance market have likely reduced the incentive for U.S. firms to venture abroad. Indeed, of the 2,343 licensed insurance companies in the United States, fewer than 25 can be identified as being actively involved in foreign markets. In addition, the U.S. state-based system of insurance regulation likely encourages this focus on the domestic market, largely because many U.S. P&C insurers only operate within a single U.S. state. Domestic insurers that did move into foreign markets likely responded to a particular set of circumstances, i.e., a corporate culture predisposed to international ventures and/or the particular interests of a company's management team.<sup>10</sup> For example, the U.S. insurance firm with the broadest international operations, AIG, evolved from a company founded in Shanghai, China, in 1919. Since that time, AIG's corporate leadership has remained active in international markets, expanding into dozens of countries over the past 90 years.<sup>11</sup>

## **Cross-Border Trade as a Share of the Global Insurance Market**

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Although the insurance industry calculates revenues and market size in terms of gross premiums written, government statistics for most countries tend to follow guidelines established in the IMF's *Balance of Payments Manual*. As a result, many governments and international organizations report cross-border trade in insurance services as premiums collected from nonresidents, net of claims paid to nonresidents.<sup>12</sup> Although comprehensive statistics pertaining to total global cross-border trade in insurance services

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<sup>9</sup> Industry official, interview by Commission staff, December 17, 2008.

<sup>10</sup> Harold Skipper and Robert Klein (professors, Georgia State University), interview by Commission staff, Atlanta, GA, November 10, 2008; industry representative, interview by Commission staff, New York, NY, November 19, 2008.

<sup>11</sup> AIG, "History," undated (accessed November 14, 2008).

<sup>12</sup> In principle, the ratio of premiums to claims should reflect payments within a single year. However, to account for variations in claims payments due to unforeseen events in a particular year, the IMF advises country statistical agencies to base the ratio on a "medium- to long-term period." IMF, *Balance of Payments Manual*, 1993, 66–67. The Bureau of Economic Analysis follows this system for reporting U.S. cross-border insurance trade statistics, reporting "normal" claims payments derived from actual claims averaged over several years. USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," table 6.1, October 2008, 52.

do not exist, premiums collected through cross-border sales likely account for a very small share of overall global insurance premiums. As an illustration, the Commission developed a ratio measuring cross-border exports of P&C insurance as a share of net premiums. The ratio was developed using P&C insurance export data for 14 available OECD countries, and then dividing such export data by net premium data for each country (table 3.1).<sup>13</sup> Overall, the average for the reporting OECD countries indicates that cross-border exports of P&C insurance likely represent less than 3 percent of global net premiums.

For most countries, the ratio of exports to net premiums is significantly smaller than the overall OECD average, which is skewed by significantly larger ratios for several countries, particularly Ireland and Luxembourg, both of which are countries with small domestic insurance markets and many offshore foreign insurance companies.

**TABLE 3.1** Cross-border exports as a share of total P&C insurance, 2006

OECD Country	Exports	Gross premiums	Gross claims	Net premiums (premiums-claims)	Exports/net premiums
Millions of \$					%
Australia	24	21,723	13,819	7,904	( <sup>a</sup> )
Czech Republic	9	3,316	1,678	1,638	1
Germany	307	184,678	96,763	87,915	( <sup>a</sup> )
Hungary	5	1,928	1,003	925	1
Ireland	5,838	9,104	4,310	4,794	122
Italy	597	51,030	31,142	19,888	3
Korea	164	35,349	13,418	21,931	1
Luxembourg	364	1,272	705	567	64
Norway	320	7,701	4,679	3,022	11
Poland	26	5,292	2,697	2,595	1
Slovak Republic	6	953	399	554	1
Sweden	433	13,728	8,149	5,579	8
United Kingdom	378	127,676	43,958	83,718	1
United States	3,046	469,035	261,055	207,980	2
OECD average					3

Sources: OECD, OECD Stat Extracts, Trade in Services by Partner Country Database; AXCO, Inc., Insurance Market Reports Database (accessed October 2, 2008).

Notes: Data for the United States and the United Kingdom are for 2005. Data for all countries are from OECD, except for U.S. data from AXCO, which excludes personal accident and health care insurance. OECD data include "other direct" and freight insurance, but do not include reinsurance. Although the OECD reports such data exclusive of reinsurance services, Ireland's exports likely include reinsurance services.

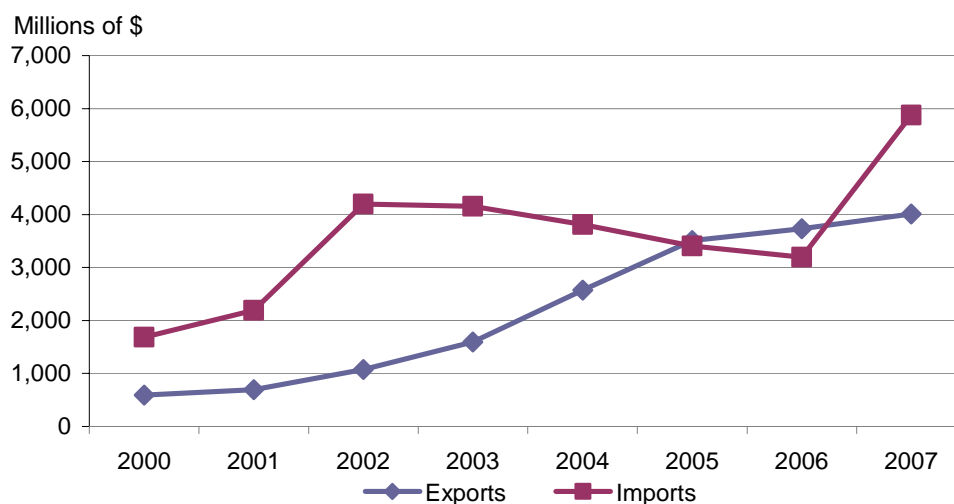
<sup>a</sup>Less than 0.5 percent.

<sup>13</sup> According to Swiss Re, OECD countries account for 90 percent of global insurance premiums. Swiss Re, "World Insurance in 2007," 2008, 35 and 39. Moreover, due to a variety of factors, OECD countries most likely account for an even larger share of global cross-border P&C insurance exports, largely because developed economies are more likely to engage in cross-border trade than emerging markets. Such factors include highly sophisticated primary insurance companies that purchase reinsurance services from global reinsurance firms, as well as a larger number of multinational corporations that are likely to buy insurance on a cross-border basis.

## U.S. Cross-Border Insurance Trade<sup>14</sup>

U.S. cross-border exports of primary insurance services reached \$4.0 billion in 2007, compared with U.S. imports of \$5.9 billion (figure 3.1).<sup>15</sup> From 2000 through 2007, both imports and exports recorded strong growth, with compound annual growth rates of 11 percent and 21 percent, respectively. Although U.S. government statistics combine cross-border trade data for life insurance and P&C insurance, many industry observers believe that P&C insurance accounts for the vast majority of such trade.<sup>16</sup>

**FIGURE 3.1** Total U.S. cross-border exports and imports of primary insurance services, 2000–2007



Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade 1986–2007," table 5: Insurance, undated (accessed July 21, 2008, and January 7, 2009).

Historically, U.S. imports of insurance services have exceeded U.S. exports, largely because the majority of cross-border imports consist of reinsurance rather than primary (direct) insurance, and most of the world's largest reinsurance firms are located outside the United States. In recent years, however, U.S. cross-border exports of insurance services have increased relative to imports, with exports equaling or exceeding imports in 2005 and 2006. In 2007, imports increased sharply, partly as a result of rising premiums in the U.S. market resulting from the difficult 2005 hurricane season.<sup>17</sup>

The top seven markets for U.S. cross-border insurance exports account for 77 percent of the total (figure 3.2). In 2007, the largest market for U.S. insurance exports was Canada, which accounted for 38 percent of the total, followed by Switzerland (12 percent) and Ireland (9 percent).

<sup>14</sup> BEA data for cross-border trade in insurance do not separate life from P&C insurance. These data also include trade in agents, brokers, and auxiliary insurance services, which are believed to be relatively small.

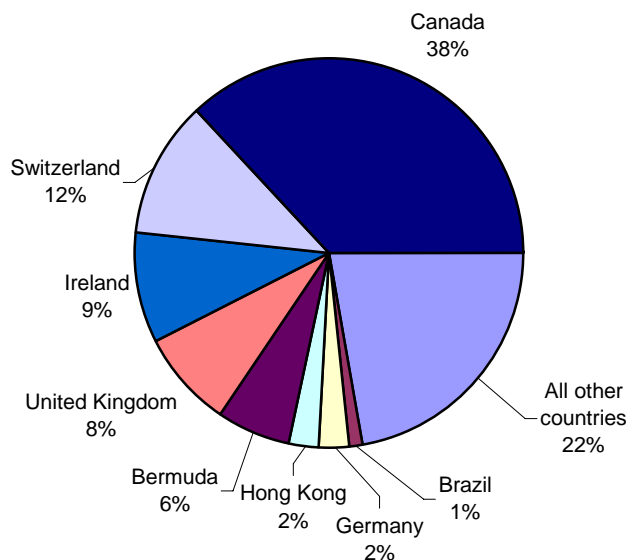
<sup>15</sup> For additional discussion of international trade trends in insurance, see USITC, *Recent Trends in U.S. Services Trade*, 2008.

<sup>16</sup> Industry officials, interview by Commission staff, November 10, 2008.

<sup>17</sup> USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," October 2008, 27.



**FIGURE 3.2** U.S. insurance exports by major country, 2007



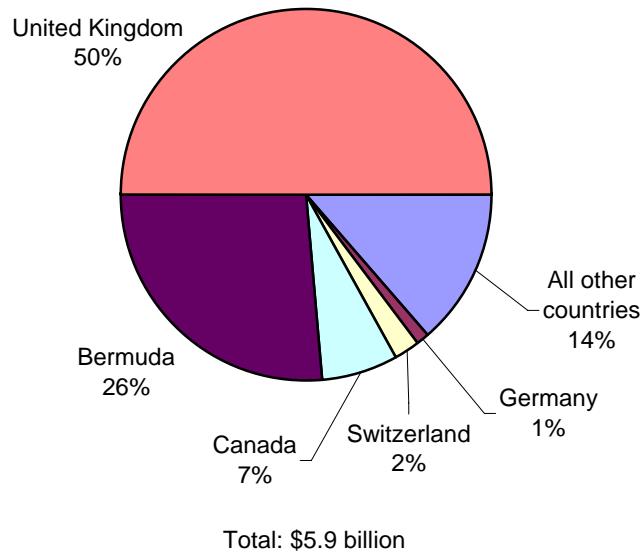
Total: \$4.0 billion

Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," table 6.2, October 2008.

U.S. insurance imports are even more highly concentrated than exports (figure 3.3). Fully one-half of U.S. imports originate in the United Kingdom, reflecting the prominence of that market in specialty insurance lines, particularly MAT insurance and insurance for large risks. Bermuda accounts for another 26 percent of U.S. imports, reflecting not only MAT insurance written in that country, but also the presence of many U.S. captive insurers located in Bermuda for tax purposes (box 3.2). Switzerland also accounts for a significant share of U.S. imports of insurance services. As a prominent international insurance center, Switzerland is home to several of the world's largest insurance companies, including Swiss Re, Winterthur, and Zurich Financial Services. Due to the small size of the Swiss domestic insurance market, Swiss insurers write more than 75 percent of their direct P&C premiums abroad.<sup>18</sup>

<sup>18</sup> IMF, *Switzerland Factual Update*, June 2007.

**FIGURE 3.3** U.S. insurance imports by major country, 2007



Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," table 6.2, October 2008.

**BOX 3.2** Captive Insurers

A captive insurer is a company that is created and funded by one or more noninsurance companies for the purpose of providing insurance coverage to its owner(s). As an alternative to traditional insurance, captives first emerged in the 1980s during a period in which many businesses experienced difficulty obtaining certain types of commercial insurance coverage. From 1989 through 2007, the worldwide number of captives more than doubled to 5,119 firms. The number of captives based in the United States grew dramatically in 2006, with Arizona, Nevada, and Utah posting growth that approached or topped 50 percent. With 1,251 licensed captives, the United States was the largest captive domicile in 2006, followed by Bermuda with 989 firms. Although several U.S. states have legislation that permits the establishment of captive insurance firms, Vermont has become a particularly prominent host to captives, with 563 captive insurance entities established in the state by the end of 2006. Overall, Vermont ranked third among captive locations worldwide in 2006, following Bermuda and the Cayman Islands.

Sources: Insurance Information Institute, "Glossary of Insurance Terms," undated (accessed February 12, 2008); Insurance Information Institute, "Captives and Other Risk-Financing Options," August 2008; Moody, "Vermont: The Gold Standard," August 5, 2005; Geisel, "25 Years After Law," August 7, 2006; and Lenckus, "Onshore Domiciles Continue to See Growth in Captives," March 3, 2008.

The fastest-growing insurance markets for U.S. cross-border trade are identified in table 3.2. U.S. exports of primary insurance services increased at a compound annual growth rate (CAGR) of 31 percent from 2000 through 2007, with imports increasing at a rate of 20 percent. Among developed countries, U.S. exports increased fastest to Switzerland, Bermuda, and Belgium-Luxembourg.<sup>19</sup> Exports to Europe increased at a CAGR of 42 percent. Among developing countries, export growth rates were fastest to

**TABLE 3.2** Fastest-growing markets for cross-border insurance trade, 2000 and 2007

	U.S. Exports			U.S. Imports			
	2000	2007	CAGR	2000	2007	CAGR <sup>a</sup>	
	Millions of \$		%	Millions of \$		%	
All countries	592	4,012	31	All countries	1,685	5,878	20
Selected developed countries				Selected developed countries			
Switzerland	1	462	158	Netherlands	1	14	46
Bermuda	4	249	83	Australia	3	26	37
Belgium-Luxembourg	1	16	60	Switzerland	22	137	30
New Zealand	1	12	53	Japan	4	22	28
Canada	78	1,477	52	Italy	1	5	26
Germany	5	99	51	Canada	82	391	25
Spain	1	10	49	Bermuda	340	1,555	24
Israel	1	13	40	Belgium-Luxembourg	5	21	23
Italy	1	9	33	France	12	49	23
France	4	26	32	United Kingdom	1,140	2,931	14
Selected developing countries				Selected developing countries			
Philippines	1	12	53	Brazil	( <sup>b</sup> )	19	309
Malaysia	1	9	47	Indonesia	( <sup>b</sup> )	18	305
Brazil	5	47	38	Venezuela	( <sup>b</sup> )	8	261
China	4	23	30	Argentina	( <sup>b</sup> )	5	238
India	1	2	19	Chile	( <sup>b</sup> )	4	227
Venezuela	4	12	16	Mexico	2	11	27
Chile	6	10	7				
Mexico	31	37	3				

Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade 1986–2007," table 5: Insurance, undated (accessed July 21, 2008,

Note: BEA data used here include exports of primary insurance services only, for both life and P&C insurance. BEA included separate data

<sup>a</sup>Compound annual growth rate. This calculation is based on unrounded, cross-border trade data supplied by the BEA.

<sup>b</sup>Less than \$500,000.

<sup>19</sup> Even though Ireland is a significant destination for U.S. exports and source of U.S. imports of insurance services, BEA began to report separate data for Ireland only in 2007, so it is not possible to calculate the growth rate of trade with Ireland. It is likely that growth has been significant in recent years, inducing BEA to present the data breakout for Ireland.

the Philippines, Malaysia, and Brazil. For all countries except Canada, U.S. exports grew from a very small base. Due to Canada's close economic relationship with the United States, many U.S. insurance companies that operate primarily in the U.S. market also operate in Canada. The increase in U.S. exports of insurance services to a growing number of countries reflects the large number of cross-border mergers and acquisitions in the insurance industry over the past decade,<sup>20</sup> the global spread of multinational companies, and, increasingly, the distribution of insurance over the Internet. U.S. imports of primary insurance grew fastest from the Netherlands, Australia, and Switzerland, among developed countries. Imports from Europe increased at a CAGR of 15 percent from 2000 through 2007.<sup>21</sup> In terms of developing countries, U.S. imports increased fastest from Brazil and Indonesia, albeit from a very small base.<sup>22</sup>

## Global Cross-Border Insurance Trade

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OECD data pertaining to cross-border trade in P&C insurance services cover most OECD member countries as well as several important nonmember countries.<sup>23</sup> Table 3.3 presents available data, for selected markets, for cross-border exports and imports of P&C insurance services from 2000 through 2006.<sup>24</sup> Such data are presented for the purpose of comparing trends in cross-border trade among countries.<sup>25</sup>

In 2006, the largest single exporter of P&C insurance was Ireland, which reported total exports of \$5.8 billion. Ireland has become an important center of cross-border insurance trade in recent years, largely due to the creation of its International Financial Services Center in 1987, and to tax law changes in 2003 (box 3.3). The United States ranked second, with \$3.0 billion in exports of insurance services.<sup>26</sup> For all reporting countries, direct P&C insurance (including freight and other direct insurance) accounted for

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<sup>20</sup> During the 2003–08 period, the Zephyr M&A database recorded an average of 94 cross-border M&A deals per year involving a U.S. company as the target or the acquirer. During the 1997–2002 period, the average was 25 cross-border M&A deals per year.

<sup>21</sup> For additional discussion of international trade trends in insurance, see USITC, *Recent Trends in U.S. Services Trade*, 2008.

<sup>22</sup> BEA reported zero imports from most developing countries in 2000, which makes it impossible to calculate a CAGR for those countries. To compensate, the Commission calculated the growth rates for Argentina, Brazil, Chile, Indonesia, Israel, and Venezuela using a 2000 U.S. import figure of \$1,000 (\$0.001 million).

<sup>23</sup> Not all OECD member countries report cross-border insurance trade data. Data for non-OECD member countries are available for Brazil, China, India, Indonesia, the Russian Federation, and South Africa. OECD, "Source OECD Services Statistics," undated (accessed October 8, 2008).

<sup>24</sup> The most recent year for which OECD data are available is 2006. The OECD does not report a single figure for P&C insurance. Instead, it reports separate data for life, freight, and "other direct" insurance, as well as reinsurance and auxiliary insurance services. For the purpose of this report, which focuses on primary insurance, P&C insurance is defined as the sum of the OECD data for freight insurance and other direct insurance. That number is presented where available, but not all countries report data for both the freight and other direct insurance categories. It is likely, but unconfirmed, that countries that do not report a separate figure for freight insurance include that category within other direct insurance, or simply do not report trade in freight insurance.

<sup>25</sup> The OECD does not report data for Bermuda, France, Switzerland, and the United Kingdom.

<sup>26</sup> However, U.S. data reported as "other direct" insurance by the OECD actually reflect both life and P&C insurance, so the United States may actually rank lower among reported countries. The United States does not break out life and P&C insurance exports. USDOC, BEA official, telephone interview by Commission staff, July 22, 2008.

**TABLE 3.3** Global cross-border trade in P&C insurance services, selected markets, 2000–2006

Country	2000	2001	2002	2003	2004	2005	2006	CAGR <sup>a</sup>
	Millions of \$							%
Australia								
Exports	19	17	17	21	24	24	24	4
Imports	144	129	136	163	188	199	199	6
Brazil								
Exports	4	7	8	17	9	19	300	108
Imports	248	355	498	474	590	628	672	18
Germany								
Exports	192	169	239	262	325	327	307	8
Imports	341	341	414	562	792	806	928	18
Greece								
Exports	<sup>(b)</sup>	<sup>(b)</sup>	112	130	146	177	198	15
Imports	<sup>(b)</sup>	<sup>(b)</sup>	243	321	397	548	713	31
India								
Exports	247	253	290	354	748	585	828	22
Imports	<sup>(b)</sup>	589	604	756	1,372	1,642	523	-2
Ireland <sup>c</sup>								
Exports	823	<sup>(b)</sup>	2,587	5,798	6,078	4,579	5,838	39
Imports	1,016	<sup>(b)</sup>	2,001	2,266	2,218	2,512	2,624	17
Italy								
Exports	375	518	624	488	601	535	597	8
Imports	319	404	473	393	498	578	788	16
Luxembourg								
Exports	<sup>(b)</sup>	<sup>(b)</sup>	112	173	240	351	364	34
Imports	<sup>(b)</sup>	<sup>(b)</sup>	72	59	59	51	79	2
Norway								
Exports	151	126	290	372	325	340	320	13
Imports	342	358	469	520	561	413	<sup>(b)</sup>	4
Russian Federation								
Exports	<sup>(b)</sup>	27	58	85	112	186	240	44
Imports	<sup>(b)</sup>	22	38	66	24	60	59	18
South Africa								
Exports	451	<sup>(b)</sup>	<sup>(b)</sup>	<sup>(b)</sup>	<sup>(b)</sup>	<sup>(b)</sup>	<sup>(b)</sup>	<sup>(b)</sup>
Imports	380	204	225	297	391	479	587	8
Sweden								
Exports	238	222	234	367	361	405	433	11
Imports	53	83	99	49	47	53	33	-8
United States <sup>d</sup>								
Exports	592	574	877	1,153	1,759	2,743	3,046	31
Imports	1,685	2,016	3,771	3,634	3,162	2,978	2,739	8
Average growth rate								
Exports for all reporting countries								11
Imports for all reporting countries								28

Source: OECD, OECD Stat Extracts, Trade in Services by Partner Country Database.

Notes: Countries are selected based on available data reported by OECD. Data reflect the sum of OECD data for "other direct" and "freight" insurance for each country, which together reflect total P&C insurance. U.S. data include both life and P&C, but the overwhelming majority of trade data are believed to reflect P&C insurance.

<sup>a</sup>Compound annual growth rate. The CAGR reflects available annual data starting with 2000; the calculation is based on unrounded data supplied by the OECD.

<sup>b</sup>Not available.

<sup>c</sup>See box 3.3 for additional information on the growth of Ireland's trade in insurance services.

<sup>d</sup>U.S. cross-border trade data included in this table differs from that contained in Figure 3.1 because the BEA data reported to the OECD does not include auxiliary insurance services.

### **BOX 3.3 The Growth of Ireland's Insurance Industry**

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Ireland created its International Financial Services Center (IFSC) in 1987. The IFSC is a special tax district in Dublin, created specifically to encourage the establishment of foreign financial services in Ireland. For foreign investors, important benefits of the IFSC include a 12.5 percent corporate tax rate, minimal reinsurance regulation, Ireland's network of 41 double taxation agreements, and the lack of restrictions on profit repatriation to treaty-partner countries. Benefits pertaining to profit repatriation include no withholding taxes on dividends or capital gains paid out to the parent company. These regulations make profit repatriation from Ireland significantly easier than from many other countries, an important consideration for global insurers and other financial firms.

Insurers operating in Ireland also benefit from attributes that have attracted many other foreign investors to the country. Ireland is in the same time zone as London's global insurance market, and investors benefit from access to the entire EU market through the EU Single Market Directive. Ireland also boasts a young, English-speaking, well-educated workforce with a large number of experienced insurance industry workers. In 2003, the 12.5 percent tax rate was extended to all of Ireland, attracting additional foreign financial firms.

Ireland's efforts to attract global financial firms have been quite successful. In the insurance sector, most such firms are captive insurers and reinsurance companies. More than one-half of the world's top 20 insurance companies maintain operations in Dublin, carrying out international activities including underwriting of direct insurance and reinsurance, as well as back office operations. Captive management is also an important activity, with approximately 220 captive insurers registered in the IFSC at the end of 2006.

These changes have encouraged many U.S. companies to locate their captive insurers in Ireland. In 2008, large U.S. firms with captives operating in Ireland included Hertz Corp., McDonald's, Delphi, Motorola, IBM, and Heinz Co.

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*Sources:* International Financial Services Centre Online (accessed November 26, 2008); Willis Management (Dublin), Ltd., "Captive Insurance Company Management in Dublin, Ireland," undated (accessed November 26, 2008); KPMG, "International Financial Services in Ireland," 2007; and Bureau van Dijk, Orbis Companies Database (accessed December 1, 2008).

49 percent of total insurance exports in 2006, with reinsurance, primarily P&C reinsurance, accounting for 35 percent. The remaining 16 percent was life insurance. However, such averages mask significant variations among countries, with several small markets, including Brazil and Norway, exporting primary insurance almost exclusively. By contrast, Germany, which is home to several large, active reinsurance companies, reported that 90 percent of insurance exports constituted reinsurance. The United States and the United Kingdom also exported larger shares of reinsurance in 2006.

Total reported cross-border imports of insurance services were \$18.4 billion in 2006, with the United States and Ireland reporting \$2.7 billion and \$2.6 billion, respectively. Ireland's insurance imports consisted entirely of other direct insurance. As noted, cross-border trade statistics for the United States include both life insurance and P&C insurance services, and do not separately break out freight insurance.

## **Affiliate Transactions**

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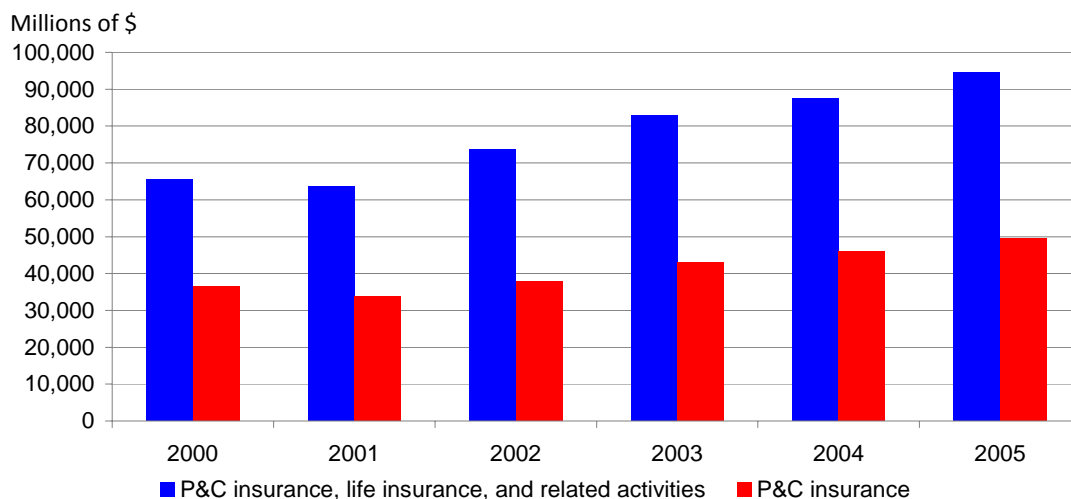
Although the U.S. government and the OECD both produce limited data on foreign firms' involvement in the domestic insurance markets of countries around the world, the two sources of data are not directly comparable. The following section uses U.S. government data to survey the role of U.S.-owned firms in foreign insurance markets, and the role of foreign-owned insurance companies in the U.S. market. The subsequent

section presents OECD data comparing foreign-owned insurance firms' involvement in the domestic insurance markets of reporting OECD countries.

### *U.S. Insurance Trade Through Affiliate Sales<sup>27</sup>*

Foreign affiliates of U.S.-based insurance companies recorded P&C insurance sales of \$94.4 billion in 2005, with such sales growing at a compound annual rate of almost 8 percent from 2000 through 2005 (figure 3.4).<sup>28</sup> By contrast, sales in the United States by the affiliates of foreign P&C insurance companies grew at the slightly slower rate of 6 percent during the same period, totaling \$49.4 billion.

**FIGURE 3.4** Insurance sales by the foreign affiliates of U.S.-based firms, 2000–2005



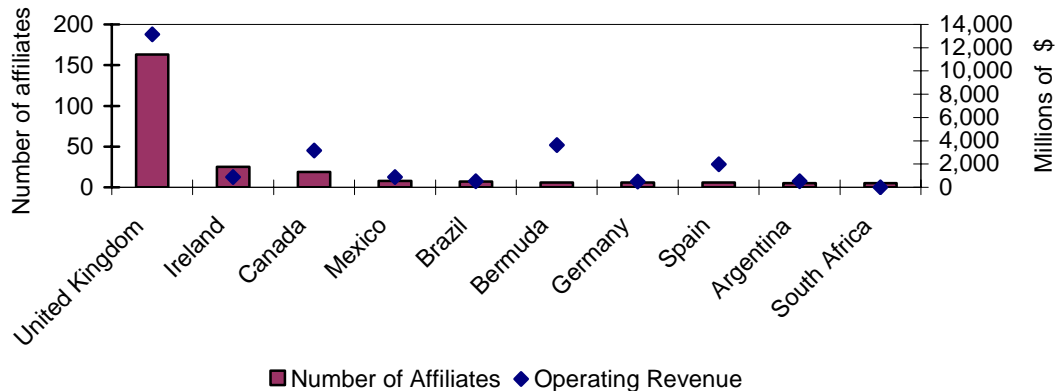
Source: USDOC, BEA, "Sales of Services to Foreign Persons by U.S. MNCs Through Their Nonbank MOFAs," table 10, undated (accessed July 21, 2008).

As of November 2008, U.S. parent companies owned equity shares in at least 294 active P&C affiliates around the world (figure 3.5), with the number of affiliates owned by each

<sup>27</sup> Includes sales of P&C insurance; excludes sales of life insurance and sales by agents, brokers, and auxiliary insurance service providers. BEA data for affiliate sales do not separate sales of primary insurance from reinsurance. Although it is likely that affiliate sales predominately reflect primary insurance, there are active foreign-owned reinsurance P&C affiliates operating in the United States, and U.S.-owned reinsurance P&C affiliates operating in foreign countries. In addition, some insurance carriers sell both primary insurance and reinsurance, making it difficult to separate sales of primary insurance from reinsurance by company.

<sup>28</sup> BEA released updated 2005 and 2006 data in October 2008, but changed its methodology, so the updated data are not comparable to data for 2005 and previous years. The older affiliate trade data presented sales by affiliates, equivalent to premiums. The new data present premiums net of claims, leading to a substantial decrease in the estimates of overall sales of insurance services by affiliates, and making the affiliate sales data comparable to the cross-border services data for the first time. In the new estimates, total sales of P&C insurance by U.S.-owned, foreign affiliates were \$19.5 billion in 2006, compared with \$17.1 billion in 2005. USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," October 2008, 35.

**FIGURE 3.5** Foreign affiliates of U.S. P&C insurers



Source: Bureau van Dijk, Orbis Companies Database (accessed October 2, 2008).

parent and their geographic distribution varying widely.<sup>29</sup> Of the total, 163 such affiliates were located in the United Kingdom, a clear illustration of the United Kingdom’s leading role in the global P&C insurance market. These companies collectively reported \$13.2 billion in operating revenue, or 38 percent of the total operating revenue reported by all affiliates. Ireland and Canada ranked second and third, with 25 and 19 affiliates, respectively.<sup>30</sup>

U.S.-based AIG has, by far, the most extensive international operations of all U.S. P&C insurance firms operating in foreign markets. Of the 294 U.S. affiliates currently active in the P&C business, 47 are owned by AIG. Overall, AIG maintains operations in 130 countries, although it is not clear how many of these affiliates/offices are engaged in the P&C insurance business.<sup>31</sup> By contrast, Travelers Insurance has 14 affiliates, all of which are in the United Kingdom or Canada, and Liberty Mutual reports 11 affiliates.

Europe accounted for the largest share—approximately one-third—of P&C insurance sales by foreign affiliates of U.S.-based firms in 2005 (table 3.4). In Latin America and the other Western Hemisphere countries, U.S. firms recorded significant sales in Bermuda, Mexico, and Brazil. U.S. affiliates of foreign insurance firms recorded sales of P&C insurance services of \$46.9 billion in 2005.<sup>32</sup>

<sup>29</sup> As reported by Bureau van Dijk, Orbis Companies Database (accessed November 25, 2008). P&C affiliates are those that are identified by the primary NAICS code 52412, defined as “direct insurance (except life, health, and medical) carriers,” and that are owned by a U.S. parent with an equity share of at least 25.01 percent. By comparison, the database identifies 90 such companies that are majority owned (50.01 percent equity share) by U.S. parents.

<sup>30</sup> Not all affiliates report operating revenue, so the actual total is likely to be higher. None of the five U.S.-owned affiliates in South Africa reported operating revenue.

<sup>31</sup> AIG Web site. <http://www.aig.com> (accessed January 14, 2009).

<sup>32</sup> As previously noted, BEA has changed its methodology for calculating affiliate sales. As a result, updated data for 2006 are not comparable with the 2000–2005 data presented here. Using the new methodology, sales of P&C insurance by U.S. affiliates of foreign firms were \$20.0 billion in 2006 and \$17.4 billion in 2005.



**TABLE 3.4** Share of global sales of P&C insurance by U.S.-owned foreign affiliates, by country, 2000–2005 (%)

Country	2000	2001	2002	2003	2004	2005
Canada	8	9	10	11	12	10
Europe	41	40	41	40	37	34
France	1	1	1	2	2	<sup>(a)</sup>
Germany	16	12	11	<sup>(a)</sup>	7	7
United Kingdom	20	23	25	23	21	19
Other Western Hemisphere countries	28	27	25	24	27	28
Other Eastern Hemisphere countries	23	24	24	25	25	27
Australia	1	1	2	2	3	<sup>(a)</sup>

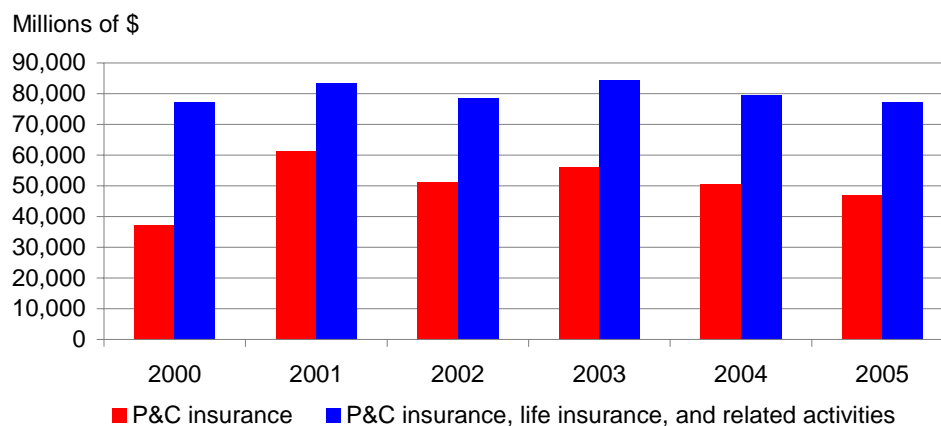
Source: USDOC, BEA, “Sales of Services to Foreign Persons by U.S. MNCs Through Their Nonbank MOFAs,” table 10, undated (accessed July 21, 2008).

Note: Affiliate sales data exclude life insurance, but include sales of reinsurance.

<sup>a</sup>Not available.

Figure 3.6 illustrates sales of both life and P&C insurance by U.S. affiliates from 2000 through 2005. P&C insurance sales vary as a share of the total because such sales change in response to market conditions following major catastrophes, such as severe hurricanes or terrorist attacks. By contrast, sales of life insurance are relatively stable.

**FIGURE 3.6** Sales by U.S. affiliates of foreign firms, 2000–2005



Source: USDOC, BEA, “Sales of Services to U.S. Persons by Foreign MNCs Through Their Nonbank MOUSAs,” table 11, undated (accessed July 21, 2008).

Data pertaining to the sales of foreign companies’ U.S. affiliates are limited, largely because most data are suppressed to avoid disclosing company-specific financial data. On a regional basis, however, such data reveal that the majority of P&C affiliate sales in the United States originate from affiliates whose parents are based in Europe. Since 2000, however, the European share of U.S. sales has slipped in favor of sales by companies based in Latin American and other Western Hemisphere countries, primarily Bermuda (table 3.5). The Bermuda insurance market began to grow rapidly following the September 11, 2001, terrorist attacks, due largely to surging demand for reinsurance services and captive insurance activity. The Bermuda insurance market has also benefited from several tax advantages (box 3.4).

**TABLE 3.5** Regional shares of sales of P&C insurance services by U.S. affiliates of foreign companies, 2000–2005 (%)

Region	2000	2001	2002	2003	2004	2005
Europe	85	89	78	74	61	61
Other Western Hemisphere countries	6	5	<sup>(a)</sup>	13	25	24

Source: USDOC, BEA, "Sales of Services to U.S. Persons by Foreign MNCs Through Their Nonbank MOUSAs," table 11, undated (accessed July 21, 2008).

Note: Affiliate sales data exclude life insurance, but include sales of reinsurance.

<sup>a</sup>Not available.

#### **BOX 3.4** Bermuda's International Insurance Industry

Bermuda is the world's fourth-largest domicile for reinsurance and a leading domicile for captives, with 1,305 international reinsurers and 840 captive insurers. In 2006, Bermudian insurers wrote premiums valued at \$115.8 billion. The largest lines were excess property, excess casualty, and property catastrophe reinsurance. Although known as a center of reinsurance, Bermuda's insurance market was actually comprised of 55 percent primary insurance and 45 percent reinsurance, measured by total premiums, at the end of 2006, with 66 percent of its exposure in North America. There are 22 Bermuda-based companies that are publicly traded, and many of the world's largest reinsurers and direct insurers also have Bermuda affiliates.

Two of Bermuda's largest insurers, ACE and XL Capital, were founded in the mid-1980s, in response to a shortage of liability insurance capacity in the United States. Capital shortages following three major U.S. catastrophes (Hurricane Andrew in 1992, the September 11th terrorist attacks, and the hurricane season of 2005, which included Hurricanes Katrina, Rita, and Wilma) each led to the formation of several new Bermudian insurers.

Several factors have led to Bermuda's growth as a center of international insurance activity: a favorable regulatory regime; a highly favorable tax environment; a convenient location for doing business in the United States; a local currency pegged to the U.S. dollar; and the existence of distinct operating advantages, including skilled personnel, and advanced communications systems. Bermuda also benefits from its reputation as a secure and diverse marketplace.

Specific tax advantages include Bermuda's lack of income, withholding, capital gains, premium, or profit taxes for corporations licensed in Bermuda, although insurers do pay a payroll tax and certain fees. However, U.S.-owned captives and other U.S.-owned insurers are taxed in the United States on their worldwide earnings. Some Bermudian-based insurers choose to be taxed in the United States as U.S. corporations, which allow them to avoid a U.S. federal excise tax on premiums paid to foreign insurers by U.S. customers. According to one estimate, effective tax rates on Bermudian insurers averaged approximately 15 percentage points lower than those on U.S. insurers in 2003–07. This difference has generated calls in the United States to change its tax policy as a way to level the playing field for U.S. firms, but so far the U.S. government has not taken action.

Regulatory advantages are also important to Bermudian insurers. Bermuda permits investors to establish new companies very quickly, which facilitates the quick injection of new capital into the global market in times of crisis, a role Bermuda has played vis-à-vis the United States following major catastrophe years since 1992. The Bermuda market has also encouraged alternative forms of risk management that substitute for traditional reinsurance, including the use of hedge funds to inject capital into the reinsurance sector, and the use of new products such as catastrophe bonds and catastrophe swaps.

According to one estimate, Bermudian insurers provide 40 percent of U.S. hurricane and earthquake reinsurance, account for 26 percent of the total U.S. reinsurance market, and directly support 9,600 jobs in the United States. The study, commissioned by the Association of Bermuda Insurers and Reinsurers, also asserts that Bermudian insurers indirectly support an additional 14,000 U.S. jobs.

Sources: AXCO, Inc., "Bermuda: International Market," undated (accessed November 14, 2008); Fitch, "Bermuda Market Overview," March 3, 2008; and GSP Consulting Corp., "Analysis of the U.S. Economic Impact," November 2007.

Note: Excess property and excess casualty insurance lines represent coverage not available from an insurer licensed within a local market (an admitted carrier), so that coverage must be purchased from an insurer outside of the local jurisdiction (a nonadmitted carrier). Insurance Information Institute, "Glossary of Insurance Terms," undated (accessed February 12, 2008).

## *Global Insurance Trade Through Affiliate Sales*

For 2006, OECD data cover foreign companies' share of the domestic insurance market in 18 OECD countries (table 3.6). For these countries, foreign companies' share of total written premiums ranges from 94 percent in Slovakia to 3 percent in Korea.<sup>33</sup> As a general rule, countries with small insurance markets (as measured by gross premiums) are likely to have higher levels of foreign market penetration due to the lack of globally competitive domestic insurers. In the United States, which is the world's largest insurance market, foreign companies account for a relatively small 9 percent of total premiums. One exception is the United Kingdom, where foreign firms accounted for 44 percent of the United Kingdom's gross premiums in 2006, likely due to London's role as a global center of underwriting activity for large and unusual risks. Most international insurance firms maintain operations in London, boosting foreign firms' overall share of the British market. By contrast, Korea ranks last in terms of foreign underwriting activity, reflecting the difficulties that foreign firms face in gaining entry to the Korean market.<sup>34</sup>

**TABLE 3.6** Market share of foreign companies in the domestic P&C market for direct insurance, 2006

Country	Market share of foreign companies		Gross premiums millions of \$
	%		
Slovakia	94		951
Czech Republic	92		3,289
Sweden	48		11,934
Luxembourg	48		1,270
United Kingdom	44		30,886
Norway	42		7,680
Austria	35		9,877
Canada	34		57,716
Portugal	33		5,192
Australia	24		17,870
Italy	24		48,266
Spain	21		25,035
Netherlands	20		37,184
Turkey	17		4,944
United States	9		809,054
Germany <sup>a</sup>	8		108,531
Japan	6		69,878
Korea <sup>a</sup>	3		30,987
Average market share for foreign companies	34		

Source: OECD, *Insurance Statistics Yearbook 1997–2006*, table 23, 2008, 53.

<sup>a</sup>Market share includes reinsurance. Separate data for direct insurance only are not available.

<sup>33</sup> OECD, *Insurance Statistics Yearbook 1997–2006*, table 23, 2008, 53.

<sup>34</sup> USTR, "Korea," 2008. The pending bilateral free trade agreement (FTA) between the United States and Korea addresses insurance in the FTA's financial services chapter. If the FTA enters into force, it is expected to generate a substantial increase in U.S. exports of insurance services to Korea. See USITC, *U.S.-Korea Free Trade Agreement*, 2007, 4–8.

Historically, foreign firms have also faced difficulties accessing Japan's domestic insurance market.<sup>35</sup>

## Trends in Reinsurance Trade

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The reinsurance industry is integrated into a single worldwide market, with many of the largest reinsurance firms based in Bermuda, Germany, and Switzerland. Given the global nature of the reinsurance market, international trade in such services is in most cases a requirement to access customers around the world. Indeed, insurance companies worldwide rely heavily on access to a large capital pool controlled by foreign-based reinsurers.<sup>36</sup> Overall, the reinsurance business is not as closely regulated as other segments of the P&C insurance market, largely because insurance companies are assumed to be sophisticated consumers less in need of regulatory protection than individual consumers, or even business consumers, of primary insurance. For this reason, many of the regulatory restrictions that act as barriers to trade in P&C insurance services, both personal and commercial lines, do not affect reinsurance services to a large degree.<sup>37</sup> Trade in reinsurance is principally visible in cross-border trade statistics, largely because U.S. government and OECD affiliate trade data do not separate reinsurance from primary insurance.

### *U.S. Cross-border Trade in Reinsurance Services*

Table 3.7 illustrates the share of reinsurance in overall U.S. imports and exports of cross-border insurance services, compared with trade in primary insurance. U.S. exports of reinsurance services reached \$6.3 billion in 2007, compared with imports of \$36.9 billion (table 3.7). Reinsurance accounted for 61 percent of total U.S. cross-border insurance exports in 2007, and 86 percent of total imports.

From 2000 through 2007, U.S. cross-border exports of reinsurance grew at a compound annual growth rate of approximately 11 percent, compared with import growth of 21 percent. Such rapid growth of U.S. imports of insurance services is due in large part to U.S. companies' increasing reliance on reinsurance services provided by companies based in Bermuda.<sup>38</sup> Overall, U.S. imports of reinsurance services exceeded U.S. exports by a wide margin from 2000 through 2007, mainly because most of the world's largest reinsurance firms are located outside the United States.

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<sup>35</sup> USTR, "Japan" 2008.

<sup>36</sup> One of the few economic studies to directly address trade in insurance services bolsters this argument. Li, Moshirian, and Sim (2003) present evidence that increased foreign direct investment by U.S. firms in insurance is correlated with increased intra-industry trade in insurance services. The authors do not address whether such intra-industry trade involves direct insurance or reinsurance, since the largest share of cross-border insurance trade is reinsurance. However, it appears that firms that establish foreign affiliates in small markets turn to global reinsurance markets to reinsure their risks. Li, Moshirian, and Sim, "The Determinants of Intra-Industry Trade," 2003.

<sup>37</sup> USITC, Hearing transcript, September 23, 2008, 138–39 (testimony of George M. Brady on behalf of National Association of Insurance Commissioners).

<sup>38</sup> Industry representative, interview by Commission staff, New York, NY, November 19, 2008.

**TABLE 3.7** U.S. cross-border trade in insurance services, 2000–2007

Trade	2000	2001	2002	2003	2004	2005	2006	2007	CAGR <sup>a</sup> (%)
U.S. exports									
Total (Millions of \$)	3,631	3,423	4,415	5,974	7,314	7,787	9,276	10,286	16
Reinsurance (Millions of \$)	3,039	2,727	3,339	4,381	4,742	4,275	5,541	6,275	11
Primary (Millions of \$)	592	697	1,077	1,593	2,571	3,511	3,735	4,012	31
Reinsurance/total (%)	84	80	76	73	65	55	60	61	<sup>(b)</sup>
Primary/total (%)	16	20	24	27	35	45	40	39	<sup>(b)</sup>
U.S. imports									
Total (Millions of \$)	11,284	16,706	21,926	25,234	29,090	28,540	33,582	42,761	21
Reinsurance (Millions of \$)	9,599	14,513	17,729	21,076	25,280	25,133	30,388	36,883	21
Primary (Millions of \$)	1,685	2,193	4,199	4,158	3,808	3,406	3,193	5,878	20
Reinsurance/total (%)	85	87	81	84	87	88	90	86	<sup>(b)</sup>
Primary/total (%)	15	13	19	16	13	12	10	14	<sup>(b)</sup>

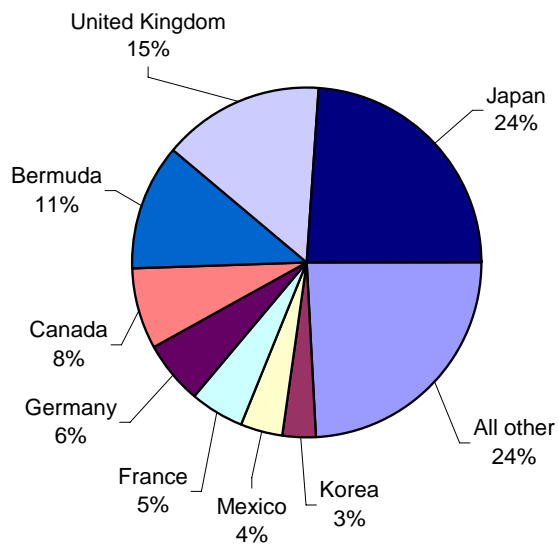
Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade 1986–2007," table 5: Insurance, undated (accessed July 21, 2008, and January 1, 2009).

<sup>a</sup>Compound annual growth rate.

<sup>b</sup>Not applicable.

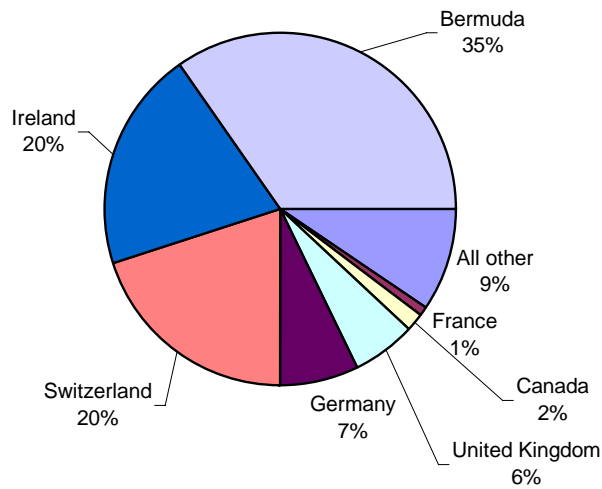
In 2007, 76 percent of U.S. cross-border exports of reinsurance services were concentrated in only eight countries. Overall, the largest market for U.S. reinsurance exports was Japan, which accounted for 24 percent of the total in 2007, followed by the United Kingdom (15 percent) and Bermuda (11 percent) (figure 3.7). In 2007, U.S. reinsurance imports were even more highly concentrated than exports, reflecting the dominance of reinsurance companies based in Bermuda, Ireland, and Switzerland, which together accounted for 75 percent of total cross-border imports of reinsurance services (figure 3.8). From 2000 through 2007, Bermuda was by far the largest source of U.S. reinsurance imports. During this period, Ireland and Switzerland both moved ahead of the United Kingdom as the second- and third-largest sources of U.S. reinsurance imports, respectively. Ireland's growth as a reinsurance center is a result of the Irish government's efforts to attract financial services firms to Dublin (box 3.3), while companies based in Switzerland have been major players in global reinsurance markets for decades.

**FIGURE 3.7** Destinations for U.S. cross-border exports of reinsurance services, 2007



Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," table 6.2, October 2008.

**FIGURE 3.8** Sources of U.S. cross-border imports of reinsurance services, 2007



Source: USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," table 6.2, October 2008.

# CHAPTER 4

## Market Access and Competitive Conditions

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### Identification of Measures Affecting Trade in Insurance Services

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The focus of this chapter is on policies and practices that affect market access and competition (hereafter nontariff measures, or NTMs). While there may be examples of policies and practices that have a positive or neutral effect on market access and competition, the focus here is on those that adversely affect market access and competition. As demonstrated by the quantitative work presented later in this chapter, NTMs have a substantial effect on profits and trade.

In identifying NTMs, the Commission drew from literature developed by academics and industry representatives, in particular the Financial Leaders Working Group. The FLWG represents companies and industry associations across the financial services industry, including banking, insurance, insurance intermediation, asset management, securities, and pensions. The group's membership is drawn from companies and associations located in Australia, Canada, Hong Kong, Japan, Switzerland, and the United States, as well as EU member countries.<sup>1 2</sup> As such, the FLWG does not represent the views of any one firm or country. Drawing principally from this group's model schedule and list of best practices, the Commission identified 11 NTMs that P&C insurance firms may encounter as they attempt to trade with, or invest in, foreign markets.

The FLWG does not include representatives from all developed countries or any developing countries, and therefore, it may not fully represent the perspectives of these countries regarding NTMs. More specifically, some countries may not agree as to whether the measures identified by the FLWG are intended principally to limit trade or to ensure the safety and soundness of the insurance market. There are divergent opinions regarding what constitutes so-called prudential regulations, intended to ensure stability and protect consumers.<sup>3</sup> Consequently, the discussion that follows principally addresses the trade limiting aspects of the 11 NTMs identified by the FLWG, but recognizes that there are different ways to define prudential measures.

Studies examining services NTMs employ various methods of identifying countries which maintain impediments to trade. Several analyses have used WTO members' GATS commitments as a sole or key source of information on services barriers. For example, both the Pacific Economic Cooperation Council (1995) and Hoekman (1995, 1996) built frequency ratios based on the number of GATS commitments scheduled by individual WTO member countries in order to assess the relative level of liberalization offered in

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<sup>1</sup> FLWG, "Financial Leaders Group Calls Further Financial Services Liberalization Essential," February 10, 2006.

<sup>2</sup> EU countries typically apply insurance regulation on a country-by-country basis.

<sup>3</sup> USITC, Hearing transcript, September 23, 2008, 143 (testimony of George M. Brady, NAIC).

these commitments.<sup>4</sup> Similarly, McGuire and Schuele (2000) used GATS commitments and other information to assess the restrictiveness of measures affecting the financial services sector in various countries. GATS commitments are frequently used as a source of information on services barriers because they are available for a large number of countries; offer largely standardized language regarding NTMs, facilitating cross-country comparisons; and represent legally binding levels of openness, enabling analyses of trade agreements. However, GATS commitments may misrepresent the relative restrictiveness of some countries' services measures, as most commitments are more than 10 years old and often represent an upper bound, meaning that actual policies are often more liberal than a country's commitments might suggest. A recent survey estimates that, on average, the measures identified in WTO member countries' GATS commitments are 84 percent more limiting than these countries' current practices.<sup>5</sup>

The Commission conducted extensive primary and secondary research<sup>6</sup> to assess the degree to which the insurance regulations of 72 countries are in line with best practices set forth in the model insurance schedule developed by the FLWG.<sup>7</sup> The model schedule includes nine policies that foster competition by permitting foreign access to P&C insurance markets, and two types of provisions that accord national treatment in those markets. Derogations from the model schedule are interpreted as NTMs.<sup>8</sup>

Market access provisions specified in the model schedule include

- the ability to supply MAT insurance on a cross-border basis (cross-border supply) (box 3.1);
- the ability of consumers to purchase MAT insurance from overseas vendors that have not registered in the consumers' home market (consumption abroad);
- the ability of foreign firms to determine their form of establishment in overseas markets;
- the ability of foreign firms to determine the extent of their equity participation in an overseas insurance entity;
- the gradual elimination of restrictions on foreign equity participation;

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<sup>4</sup> Mattoo, Stern, and Zanini, eds., *A Handbook of International Trade in Services*, 2008, 186.

<sup>5</sup> Gootiz and Mattoo, "Services in Doha?" August 5, 2008.

<sup>6</sup> Primary research includes interviews with representatives from P&C insurance firms and industry associations, academics noted in this area of research, and the Commission's public hearing on this investigation. In addition, the Commission conducted e-mail communications with foreign regulatory authorities, often in concert with U.S. Chambers of Commerce abroad, the U.S. State Department, the U.S. Foreign Commercial Service, foreign industry associations, and foreign missions in the United States. Prominent sources of secondary research include AXCO country reports, Standard & Poor's, the Economist Intelligence Unit, the OECD Product Market Regulation Database, reports published by the Financial Leaders Working Group, U.S. Foreign Commercial Service country commercial guides, the U.S. Trade Representative's National Trade Estimate report, foreign legislation, and journal articles accessed through JSTOR and the Social Sciences Research Network. Country and industry association Web sites were also used in the Commission's secondary research efforts.

<sup>7</sup> This model schedule was adopted by the Financial Leaders Group and its Working Group in 2001 for the purpose of guiding the development of individual countries' GATS commitments on insurance services. The Financial Leaders Group, which was established in 1996 and represents several of the world's largest financial services associations and firms, promotes efforts to achieve financial services liberalization through the WTO. CSI, Written submission to the USITC, October 7, 2008, 3; FLWG, "Financial Leaders Group Calls Further Financial Services Liberalization Essential," February 10, 2006.

<sup>8</sup> NTMs identified by the Commission are very similar to those identified by other researchers. See, for instance, Deihl and Sheppard, "Modal Estimates of Services Barriers: Annex 1," November 8, 2005; and Dee, "A Compendium of Barriers to Trade in Services," November 2005.



- the absence of restrictions or discriminatory measures affecting foreign provision of compulsory insurance;
- the elimination of monopolies and other exclusive suppliers of insurance services;
- the ability of foreign firms to choose the individual(s) that serve as their overseas representative(s);
- the availability of visas and work permits for service suppliers that enter a foreign market on a temporary basis.

The schedule's national treatment provisions include

- foreign firms' ability to supply insurance services to entities that are owned by, or affiliated with, the government;
- the application of identical capital solvency requirements for both foreign and domestic insurance enterprises.

An inventory of NTMs based on the insurance industry's model schedule offers several benefits when conducting assessments of such NTMs. First, unlike the measures scheduled by WTO member countries when they acceded to the GATS, the measures identified in the model schedule are currently in force. The use of the model schedule also allows a focus on measures that industry representatives believe have the greatest effect on insurance firms' ability to export and operate in foreign markets. The value of industry input in developing trade restrictiveness indices is stressed by Deardorff and Stern, who argue that industry expertise is necessary to identify measures that impact the provision of a particular service, and to distinguish measures with a valid regulatory purpose from measures that primarily restrict trade.<sup>9</sup> Further, the model schedule was the basis of an industry effort to create an inventory of NTMs in foreign countries. As a result, a relatively significant amount of information has been collected on the measures identified in the model schedule. In creating the inventory used in the following analyses, the Commission updated, verified, and added new information to the industry's database, creating an inventory with more complete information on individual countries, and extending the inventory's coverage from 46 to 72 countries (table 4.1).<sup>10</sup> This inventory is the basis of the analyses below, and of the insurance trade restrictiveness index, ITRI, presented later in this chapter.

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<sup>9</sup> Deardorff and Stern, "Empirical Analysis of Barriers to International Services Transactions," 2008, 185.

<sup>10</sup> The Commission collected NTM-related information on 72 countries: Argentina, Australia, Austria, Bangladesh, Barbados, Belgium, Bolivia, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Ecuador, Egypt, Estonia, Finland, France, Germany, Greece, Guatemala, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, Kenya, Korea, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Morocco, the Netherlands, New Zealand, Norway, Pakistan, Panama, Peru, the Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Venezuela, and Vietnam.

**TABLE 4.1** Countries with derogations from the model schedule

Country	Market Access Provisions							National Treatment Provisions	
	MAT insurance permitted on a cross-border basis	Access to MAT insurance on a cross-border basis is permitted without regard to registration	Freedom to establish in the form of firm's choice	Freedom from equity limitations and staged elimination where they exist	Absence of restrictions or discriminatory measures affecting foreign provision of compulsory lines	Elimination of monopolies and other exclusive suppliers of insurance services	Ability of insurance firms to select their own representatives in the host country	Provision of visas and work permits for short periods of stay	Ability to supply insurance services to entities owned or affiliated with the government
Argentina	X	X	X			X		X	X
Australia		X	X		X	X			
Austria	X			X			X		
Bangladesh	X	X	X	X	X	X	X	X	X
Barbados	X	X	X	X				X	X
Belgium									
Bolivia	X	X	X						
Brazil	X	X	X			X	X		X
Bulgaria	X	X							
Canada					X	X	X	X	X
Chile		X	X					X	X
China			X	X	X	X	X	X	X
Colombia	X	X	X						
Croatia	X	X	X	X		X	X		
Czech Republic									
Denmark							X		
Ecuador									
Egypt	X	X	X	X					
Estonia	X	X							
Finland			X				X		
France			X						
Germany	X	X	X						
Greece									
Guatemala		X	X				X	X	
Hong Kong	X	X							
Hungary	X	X							
Iceland	X	X					X		
India	X	X	X	X				X	X
Indonesia	X	X	X	X	X	X		X	X
Ireland		X		X			X	X	
Israel			X	X		X			

TABLE 4.1 Countries with derogations from the model schedule—Continued

Country	Market Access Provisions							National Treatment Provisions		
	MAT insurance permitted on a cross-border basis	Access to MAT insurance on a cross-border basis is permitted without regard to registration	Freedom to establish in the form of firm's choice	Freedom from equity limitations and staged elimination where they exist	Absence of restrictions or discriminatory measures affecting foreign provision of compulsory lines	Elimination of monopolies and other exclusive suppliers of insurance services	Ability of insurance firms to select their own representatives in the host country	Provision of visas and work permits for short periods of stay	Ability to supply insurance services to entities owned or affiliated with the government	Application of identical capital, solvency, reserve, tax, and other financial requirements, subject to the prudential carve out
Italy	X	X	X	X	X			X	X	
Japan			X			X				X
Jordan	X	X								
Kenya	X	X	X	X	X					
Korea	X	X	X	X	X	X	X		X	X
Latvia		X								X
Lithuania	X	X								
Luxembourg	X	X						X		X
Malaysia	X	X	X	X	X		X	X	X	X
Malta	X				X			X		
Mexico	X	X	X	X					X	X
Morocco	X	X	X	X	X				X	
Netherlands	X	X					X	X		X
New Zealand					X					
Norway	X	X	X			X		X	X	X
Pakistan	X	X	X	X		X			X	X
Panama	X	X								
Peru		X	X				X	X		X
Philippines		X			X	X			X	X
Poland	X	X		X		X	X	X	X	X
Portugal	X	X						X		X
Romania	X	X					X			X
Russia	X	X	X	X	X	X	X	X	X	X
Saudi Arabia			X	X	X	X	X	X	X	X
Singapore	X	X	X				X	X	X	
Slovakia	X	X								
Slovenia	X	X				X				
South Africa	X	X	X	X			X	X		X
Spain										
Sri Lanka	X	X	X					X		X
Sweden	X	X	X				X			X

**TABLE 4.1** Countries with derogations from the model schedule—*Continued*

Country	Market Access Provisions							National Treatment Provisions	
	MAT insurance permitted on a cross-border basis	Access to MAT insurance on a cross-border basis is permitted without regard to registration	Freedom to establish in the form of firm's choice	Freedom from equity limitations and staged elimination where they exist	Absence of restrictions or discriminatory measures affecting foreign provision of compulsory lines	Elimination of monopolies and other exclusive suppliers of insurance services	Ability of insurance firms to select their own representatives in the host country	Provision of visas and work permits for short periods of stay	Ability to supply insurance services to entities owned or affiliated with the government
Switzerland	X	X				X			
Thailand	X	X	X	X	X	X	X	X	X
Tunisia		X	X	X			X	X	
Turkey	X	X	X		X		X		
Ukraine	X	X	X						X
United Arab Emirates	X	X	X	X		X	X	X	
United Kingdom									
Venezuela	X	X	X	X			X		X
Vietnam	X		X	X	X	X	X	X	X

*Source:* Compiled by Commission staff from industry interviews, country and industry reports, and electronic databases.

4-9 *Note:* As noted, this inventory of derogation from the model schedule is the result of intensive research using primary and secondary sources. As in all research of this nature, it was occasionally necessary to make inferences from the best available information.

# Summary of Market Access and National Treatment NTMs

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**Limitations on the cross-border provision of MAT insurance:** Commission staff analyzed insurance-related NTMs for 65 countries. This research indicates that limitations on the cross-border provision of MAT insurance are relatively common. Approximately three-quarters of the focus countries maintain some restriction on cross-border MAT insurance, with such provisions found in both developed and developing markets. For example, countries such as Brazil, Bulgaria, Colombia, Indonesia, Russia, and Switzerland appear to prohibit all forms of cross-border trade in MAT insurance. Some focus countries limit the cross-border supply of MAT insurance to certain lines (such as marine export insurance in Bangladesh) or certain providers (such as EU-based providers in Hungary). In Germany, Norway, Singapore, and South Africa, the cross-border provision of insurance coverage may be permitted in buyer-initiated transactions. Other countries subject the cross-border supply of MAT insurance to an economic needs test, or do not guarantee or commit to an open market for cross-border MAT insurance.

**Restrictions on the purchase of MAT insurance abroad:** Similarly, approximately 80 percent of the focus countries effectively restrict their residents' ability to purchase MAT insurance abroad, either through an outright ban on some or all such transactions, or by imposing measures such as registration, approval, or commercial presence requirements on foreign insurance suppliers. For example, Argentina, Bolivia, Colombia, Hong Kong, Italy, Korea, Malaysia, Pakistan, the Philippines, Singapore, Turkey, and Venezuela require that insurance firms establish a presence in their countries, register, and/or obtain some type of approval in order to provide insurance coverage to customers. Chile imposes a 22 percent tax on MAT insurance coverage that is purchased abroad. Much like cross-border MAT insurance transactions, consumers' ability to purchase MAT insurance abroad also is limited by economic needs tests and a lack of bilateral or multilateral trade commitments in several countries.

**Limitations of form of establishment:** To remain competitive in varying cultural and regulatory environments, insurance firms often provide insurance services to overseas clients through local affiliates.<sup>11</sup> The ability to establish branch offices can be particularly critical, as branches have access to both local and home-office capital.<sup>12</sup> Measures affecting the manner in which a foreign firm may set up operations in an overseas market are particularly common; 60 percent of the focus countries maintain provisions that limit a firm's ability to determine its form of establishment. For example, a number of countries—namely Argentina, Brazil, Chile, China, Colombia, Egypt, Guatemala, Indonesia, India, Mexico, Malaysia, Saudi Arabia, Singapore, South Africa, Sri Lanka, Thailand, Venezuela, and Vietnam—prohibit or restrict the establishment of branch offices. Further, the establishment or operation of a commercial presence by a foreign

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<sup>11</sup> Ma and Pope, "Determinants of International Insurers' Participation," 2003, 235–48.

<sup>12</sup> CSI, written submission to the USITC, October 7, 2008, 2.

insurer may be subject to approval in several countries, including Brazil, Germany, Italy, Russia, Singapore, Thailand, Turkey, and Venezuela.

**Limitations on foreign shareholding in an insurance firm:** Commission research also indicates that at least half of the focus countries maintain limitations on the share of foreign equity in an insurance entity. Several countries, including China, India, Mexico, Malaysia, Russia, and Vietnam, have established specific percentage limits for foreign shareholding in insurance entities. Similarly, Egypt, Indonesia, Ireland, South Africa, Thailand, and Turkey require a foreign investor to secure approval when its equity stake in an insurance enterprise exceeds a certain threshold. Among this report's focus countries, only Korea has liberalized provisions regarding foreign equity holdings in recent years. One industry representative reports that a firm's ability to determine its equity holding in a foreign enterprise is critical; investors may be less willing to contribute capital or expertise to an enterprise in which they hold a minority interest, as it may be unclear who will benefit from those investments.<sup>13</sup>

**Restrictions on the provision of compulsory insurance:** Over one-quarter of the focus countries maintain measures affecting foreign firms' ability to provide compulsory insurance coverage, which may include, for example, third-party motor vehicle insurance. Many U.S. P&C insurance companies note, in particular, that non-Chinese insurance companies are not allowed to offer third-party automobile liability insurance in China.<sup>14</sup> In Australia and Canada, the provision of third-party auto insurance is reserved for a monopoly provider in certain states or provinces. In Italy, auto insurers must offer all categories of insurance, Japan requires that firms providing such insurance receive approval, Lithuania requires providers of compulsory auto insurance to secure membership in the Motor Bureau, and Vietnam completely bars foreign firms from providing third-party auto liability insurance. Other compulsory insurance markets that are not open to foreign participation include Vietnam's construction insurance market and Norway's fire insurance pool.

**Presence of monopoly providers:** No less than 30 percent of the focus countries retain measures regarding the monopoly provision of all, or certain types, of P&C insurance. Types of insurance coverage that are reserved for monopoly providers—either completely or in certain jurisdictions or industries—include third-party auto insurance (Australia and Canada), workers' compensation insurance (Australia, Brazil, and Switzerland), and natural damage and fire insurance (Switzerland), among others. In certain countries, the postal system acts as a public insurance monopoly and may benefit from less stringent regulatory requirements than those applied to its competitors.<sup>15</sup> Recent developments have had some effect on postal firms' participation in insurance markets. Under the provisions of the U.S.-Korea Free Trade Agreement, for

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<sup>13</sup> USITC, Hearing transcript, September 23, 2008, 147 (testimony of Michael Moran on behalf of Council of Insurance Agents and Brokers); Moran, on behalf of the Council of Insurance Agents and Brokers, Written testimony to the USITC, September 23, 2008.

<sup>14</sup> USITC, Hearing transcript, September 23, 2008, 13 (testimony of David Synder, American Insurance Association; industry officials, interviews by Commission staff, August 14, 2008 and December 17, 2008).

<sup>15</sup> USITC, Hearing transcript, September 23, 2008, 110–14 (testimony of David Snyder, American Insurance Association); Snyder, Written testimony to the USITC, September 23, 2008.

example, Korea Post will be subject to the same rules as private suppliers of insurance services.<sup>16</sup> Further, Japan has begun the process of privatizing Japan Post, whose insurance activities largely are limited to the life insurance segment.<sup>17</sup> At the same time, however, one industry representative reports concerns that Japan Post may use its growing private ownership as a rationale for entering the P&C insurance market while continuing to benefit from preferential treatment.<sup>18</sup>

**Restrictions on the selection of key personnel and the entry of foreign workers:** The availability of skilled and knowledgeable employees reportedly is critical to the success of insurance companies in overseas markets.<sup>19</sup> Moreover, the transfer of key personnel also may benefit developing countries by facilitating the development of professional workforces to staff those countries' insurance companies.<sup>20</sup> At least 40 percent of the focus countries maintain measures affecting insurance firms' ability to select key personnel. For example, in both Brazil and Guatemala, firms with three or more employees are required to employ nationals to fill at least two-thirds of their positions. Russia, Thailand, Turkey, Venezuela, and South Africa have identified certain positions that must be filled—or a certain share of which must be filled—by nationals or permanent residents of the host country. Further, Saudi Arabia requires that Saudi citizens account for 30 percent of a firm's employees, while Singapore subjects work permits to firm-specific quotas, thus limiting the number of foreign personnel in a firm's overall workforce. Although most countries (including the United States) regulate the entry of foreign workers, it appears that at least 10 of the overseas markets investigated as part of this study maintain measures pertaining to the issuance of work permits and visas. For example, work permits are subject to quotas in Italy, Malaysia, and South Africa, while Thailand limits the number of permits available to individual firms based on firms' capital. Administrative factors act as barriers to the issuance of work permits in Indonesia, where obtaining a work permit entails numerous steps, and in Chile, which reportedly does not issue work permits and visas in a timely manner. Further, work permits cannot be obtained in Poland.

**Restrictions on the foreign provision of insurance to state-owned or state affiliated enterprises:** In addition to the market access measures summarized above, insurance companies also face provisions that may place them at a disadvantage relative to domestic insurers. For example, the ability of foreign firms to provide insurance coverage to enterprises that are affiliated with, or owned by, the state is limited in more than one-third of the focus countries. The coverage of all, or some, government entities is reserved for state-affiliated insurers in Norway,<sup>21</sup> Pakistan, the Philippines, Saudi Arabia, and Thailand. Similarly, Argentina specifically prohibits the foreign provision of insurance

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<sup>16</sup> U.S.-Korea Free Trade Agreement, Annex 13-D.

<sup>17</sup> USITC, Hearing transcript, September 23, 2008, 113–14 (testimony of David Snyder, American Insurance Association).

<sup>18</sup> Ibid.

<sup>19</sup> Hartwig, Insurance Information Institute, Written submission to the USITC, October 2, 2008, 7.

<sup>20</sup> UNCTAD, *Trade and Development Aspects of Insurance Services*, November 21, 2005, 26.

<sup>21</sup> The state is the monopoly provider of war risk cargo insurance in Norway.

coverage for government-owned or -used goods. “Buy Canada” policies may put foreign insurers at a competitive disadvantage in certain Canadian provinces. Further, in some countries, foreign insurers face discrimination or are effectively barred from selling insurance to state entities despite the absence of a formal provision limiting such activities. Markets in which insurers confront these informal barriers reportedly include India, Indonesia, Korea, and Malaysia.

**Discriminatory capital solvency requirements:** Discriminatory capital solvency measures are particularly prevalent, as approximately 50 percent of the focus countries appear to apply unequal capital solvency requirements to domestic and foreign insurers. For example, Indonesia requires joint ventures to maintain Rp. 15 billion (or approximately \$1.2 million)<sup>22</sup> in paid-up capital, while local insurance firms are required to hold only Rp. 3 billion (or approximately \$250,000). Portugal and Sweden impose different deposit requirements on non-EU members and non-European Economic Association countries. Some countries also maintain other types of measures that may have a discriminatory effect on foreign firms’ capital. These include discriminatory tax measures (such as those imposed in China, Pakistan, Peru, and Venezuela), and measures affecting capital remittances (such as those maintained by Brazil, Peru, Sri Lanka, and Thailand).

## **The Insurance Trade Restrictiveness Index**

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The Commission used its inventory of NTMs to develop an Insurance Trade Restrictiveness Index, or ITRI, which provides a numeric score for NTMs identified in 62 countries.<sup>23</sup> In particular, the Commission assigned one of three scores to each of the 11 practices found in the model schedule. For each practice, a score of 0 is applied if it is completely open (or permitted), whereas a score of 1 is assigned if it is completely closed (or prohibited). In many cases, practices are neither completely open nor prohibited. Such cases are classified as “other” and assigned a score of 0.5. The index was calculated as the average of these scores, with no weights applied to specific practices (figure 4.1). The Commission employs the ITRI in several econometric models designed to estimate the effect of NTMs.

## **Effects of Liberalization**

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Commission research and academic literature offer some insight into the likely effects of removing NTMs on trade, economic development, profits, and employment. The trade, profit, and employment effects of liberalization were developed by the Commission, whereas the effects on economic growth drew on outside research. The immediate effects of liberalization could include market entry by foreign insurers, most likely as affiliate companies in the previously restricted retail insurance sector. Under such circumstances, the threat of

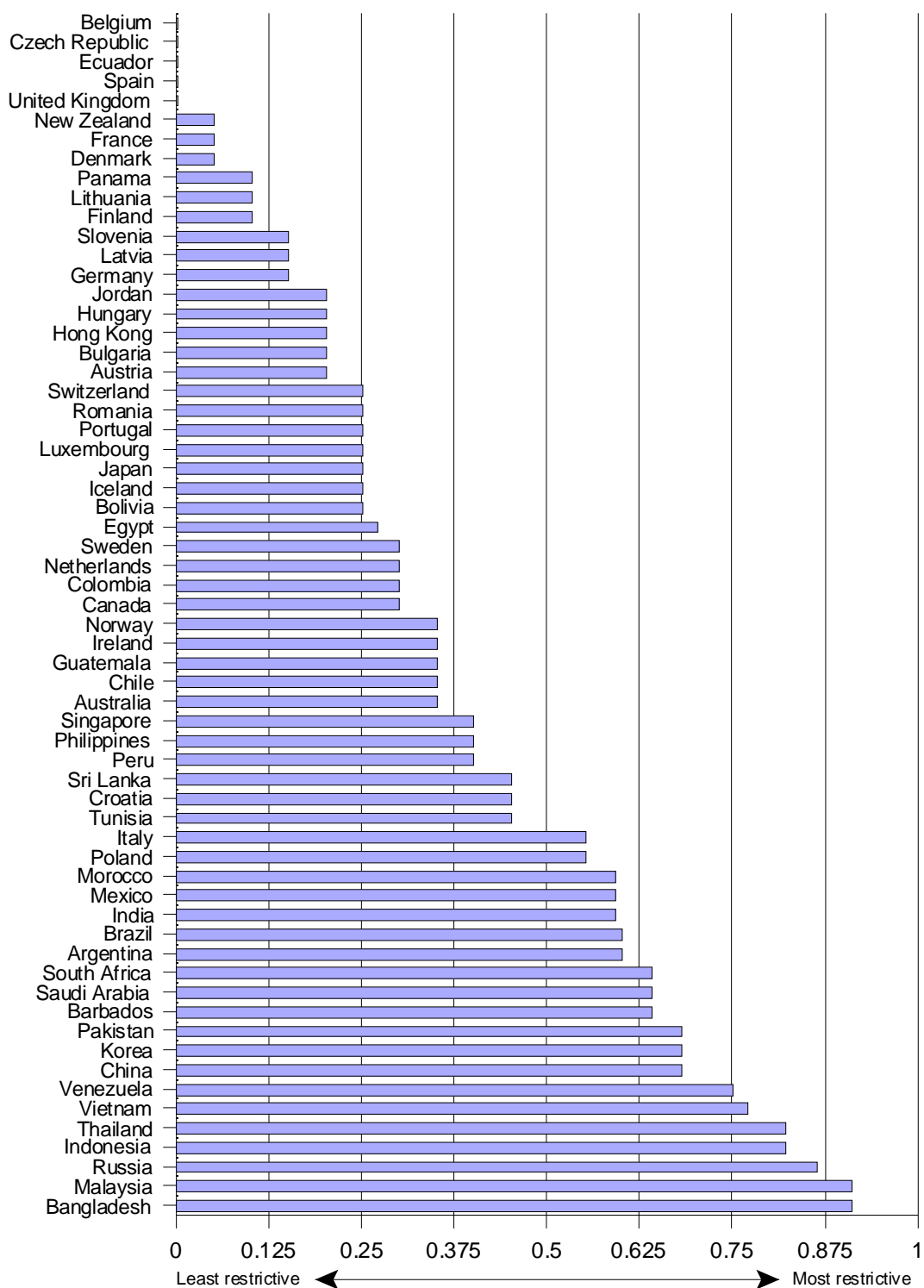
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<sup>22</sup> Based on a December 8, 2008, interbank exchange rate of \$1 to Rp. 12,121.2.  
<http://www.oanda.com/>.

<sup>23</sup> The term trade restrictiveness index (TRI) is used by some economists in a different context. See Anderson and Neary, “A New Approach,” January 1996, 107–25; Irwin, “Trade Restrictiveness,” September 2007.



**FIGURE 4.1** Insurance Trade Restrictiveness Index (ITRI), selected countries



Source: Compiled by Commission staff.

Note: The ITRI value for Belgium, Czech Republic, Ecuador, Spain, and the United Kingdom is zero.

increased competition from foreign insurance companies would likely motivate domestic insurance firms to improve operations. In general, as there would be more firms in the market and/or fewer trade restrictions, consumer prices and profit margins tend to fall to more competitive levels. Overall, the operation of foreign P&C insurance firms in open markets encourages the development of those markets by extending insurance to a larger share of the population.

### ***Trade Effects***

Commission research suggests that liberalizing foreign markets would result in a considerable increase in U.S. insurance exports. Econometric models developed by the Commission suggest that a 10 percent reduction in a country's restrictiveness would increase U.S. insurance exports by 9.9 percent (appendix E). For example, a 10 percent reduction in Mexico's restrictiveness in 2005 would have increased U.S. insurance exports to Mexico from \$27 million to approximately \$29.7 million.<sup>24</sup> If all countries in the Commission's sample were completely open, U.S. exports of insurance services could potentially increase by 48 percent, or \$870 million.<sup>25</sup>

Commission models estimate that liberalization would produce a greater effect on the sales of foreign insurance affiliates owned by U.S. companies, the predominant form of trade in P&C insurance. Under these models, a 10 percent reduction in the ITRI would yield an estimated 14.5 percent increase in U.S.-owned insurance affiliates' sales. Again, in the case of Mexico, a 10 percent reduction in trade restrictiveness would have increased U.S.-owned affiliates' sales from \$4.8 billion<sup>26</sup> to approximately \$5.4 billion in 2005. Full liberalization by all countries in the Commission's sample could result in an estimated 28 percent increase in total U.S.-owned affiliates' sales, or \$39.1 billion.<sup>27</sup>

### ***Economic Development Effects***

Industry experts have asserted that the development of the P&C insurance industry promotes economic growth and development through the economic functions the industry performs.<sup>28</sup> Such functions include risk pooling, thereby promoting long-term savings; signalling markets by electing to cover certain risks and not others; broadening and deepening financial and capital markets by investing reserves; reducing the financial uncertainty and volatility associated with noninsured losses; managing the liability exposure of individuals and firms when undertaking commercial activities; and using premium rates to encourage greater caution in individuals' and firms' assumption of risk.

These arguments find support, in varying degrees, in theoretic and empirical work. Holsboer (1999), for instance, attributes the connection between P&C

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<sup>24</sup> USDOC, BEA, "U.S. International Services: Cross-Border Trade in 2007," October 2008, 131. This figure includes life insurance as well as P&C, but excludes reinsurance.

<sup>25</sup> The export model includes data for 31 countries over the 2001–05 period. For more information regarding the model, see app. E.

<sup>26</sup> USDOC, BEA, "Financial and Operating Data (Nonbank) Interactive Tables," (accessed February 11, 2009).

<sup>27</sup> The affiliate sales model includes data for 34 countries over the 1999–2005 period.

<sup>28</sup> Skipper, Starr, and Robinson, "Liberalization of Insurance Markets," 2000, 10–13.

insurance penetration and economic growth to the effect of the insurance market on long-term savings and capital market development.<sup>29</sup> Catalan, Imparido, and Musalem (2000) find the same connection, attributing it to the intermediary function of P&C insurers, as well as their effect on capital market development.<sup>30</sup> Empirical econometric work that confirms the relationship between P&C insurance and economic growth includes Beenstock, Dickinson, and Khajuria (1988); Outreville (1990); Park, Borde, and Choi (2002);<sup>31</sup> Arena (2006),<sup>32</sup> and Vadlamannati (2007).<sup>33</sup>

### ***Profit Effects***

The Commission measured the impact of NTMs on the adjusted profit margins of P&C insurance carriers, calculated as pretax profits per dollar of net premiums written. For the purposes of this report, the impacts of NTMs are called profit effects. The estimated profit effects are defined as the amount by which P&C insurers' adjusted profit margins<sup>34</sup> are inflated due to trade restrictions. Following existing literature in the area,<sup>35</sup> the Commission developed the profit effects by employing a two-stage econometric model (appendix F). In the first stage, profits per dollar premium, using data reported by more than 2,700 firms in over 60 countries, are regressed on independent variables representing firms' investment acumen, cost management skills, risk assessment skills, and risk exposure. Investment acumen is measured as the ratio of investment returns, including net interest income and other gains and losses reflecting capital gains, to funds invested, including net technical reserves and policyholders' surplus. Cost management skills are reflected in the expense ratio, which divides fees, commissions, and other operating expenses by net premiums written. Risk assessment is reflected in the loss ratio, which divides claims paid by net premiums earned. Risk exposure is calculated by dividing net premiums written by the surplus. Risk exposure is subject to prudential regulation intended to ensure that potential losses can be covered by firms' capital. Typically, regulators limit net premiums to three times the value of firms' capital, though self-

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<sup>29</sup> Holsobar, "Repositioning of the Insurance Industry," 1999,

<sup>30</sup> Catalan, Imparido, and Musalem, "Contractual Savings or Stock Markets Development," 2000.

<sup>31</sup> Beenstock, Dickson, and Khajuria, "The Relationship Between Property-Liability Insurance Penetration," 1998; Outreville, "The Economic Significant of Insurance Markets," 1990; and Park, Borde, and Choi, "Determinants of Insurance Pervasiveness," 2002.

<sup>32</sup> Arena, "Does Insurance Market Activity Promote Economic Growth?" December 2006, 15–16.

<sup>33</sup> Vadlamannati, "Does Insurance Sector Growth and Reforms Effect Economic Development?" 2007, 52–53. There are other studies that do not find that insurance development promotes economic development, either generally or in specific countries, and still others that find evidence of the opposite dynamic, wherein economic growth promotes development of the P&C insurance industry. Throughout the literature, however, there is acknowledgement that both processes might occur simultaneously. It is for this reason, in part, that profits effects are estimated in two stages.

<sup>34</sup> Adjusted profit margins are "adjusted" for the effects on profit margins of firm-level variables such as loss ratios, expense ratios, risk exposure, and investment acumen. It is necessary to adjust the total profit margin for these firm-level effects in order to isolate the effects of country-level variables, including the ITRI.

<sup>35</sup> See, for instance, Kalirajan, et al., "The Price Impact of Restrictions in Banking Services," 2000, 215–30; McGuire, and Schuele, "Restrictiveness of International Trade in Banking Services," 2000; and Diehl and Shepard, "Modal Estimates of Services Barriers: Annex," October 27, 2005.

regulation by firms often reduces this multiple. Regression results for the first stage indicate that all independent variables are statistically significant at the 1 percent level and jointly explain about 51 percent of variation in the profit margin. The end result of this regression is an adjusted profit margin corrected for firm-level characteristics.

In the second stage, the adjusted profit margin is regressed on country-level institutional, market, and macroeconomic variables. The country-level institutional variables include the corruption perception index (CPI) and property rights index (PRI) developed by Transparency International and the Heritage Foundation, respectively. Due to correlation issues, these two variables appear in different model specifications. Market variables include the share of GDP exposed to risk, developed by the World Bank, and the combined market share of the top five P&C insurers in each market. Macroeconomic variables include the real interest rate, unemployment rate, and the ITRI, developed by the Commission and discussed previously. Regression results indicate that the ITRI, CPI, PRI, and GDP share exposed to risk variables are statistically significant, with the model explaining about 26 percent of variation in the adjusted profit margin. Algebraic manipulation of the ITRI and its coefficient yields the profit effects appearing in table 4.2.

Large profit effects suggest firms are able to extract higher profits than the amount they would command in an open trade environment. Many of the economies with larger profit effects are emerging markets, some of which have recently liberalized their insurance markets (e.g., India and Vietnam), but nonetheless retain significant restrictions. Countries with smaller profit effects are generally, but not exclusively, the developed economies of the OECD, many of which have few, if any, policy restrictions on foreign firms' market access and operations.

**TABLE 4.2** Estimated profit effects in the P&C insurance industry

0 to 10 percent		11 to 20 percent	21 to 35 percent	Greater than 35 percent
Austria	Japan	Canada	Argentina	Bangladesh
Belgium	Jordan	Chile	Barbados	Indonesia
Bolivia	Latvia	Colombia	Brazil	Malaysia
Bulgaria	Lithuania	Croatia	China	Russia
Czech Republic	Luxembourg	Guatemala	India	Thailand
Denmark	New Zealand	Ireland	Italy	Venezuela
Ecuador	Panama	Netherlands	Korea	Vietnam
Egypt	Portugal	Norway	Mexico	
Finland	Romania	Peru	Morocco	
France	Slovenia	Philippines	Pakistan	
Germany	Spain	Singapore	Poland	
Hong Kong	Switzerland	Sri Lanka	Saudi Arabia	
Hungary	United Kingdom	Sweden	South Africa	
Iceland		Tunisia		

*Source:* Compiled by Commission staff.

*Notes:* The estimated profit effects are the amount by which P&C insurers' adjusted profit margins are inflated due to trade restrictions. Adjusted profit margins are "adjusted" for the effects on total profit margins of firm-level variables, such as loss ratios, expense ratios, risk exposure, and investment acumen. It is necessary to adjust the total profit margin for the effects of firm-level variables in the first stage so that the effects of country-level variables, including the ITRI, can be isolated in the second stage.

## *Employment Effects*

Commission analysis also suggests that full liberalization of foreign P&C insurance markets would increase employment among firms in the U.S. insurance industry. Building upon traditional gravity models used to estimate the trade effects of liberalization, the Commission developed a partial equilibrium model. The partial equilibrium model focused on three geographic markets and the effect of liberalization on labor, capital, and other inputs. The Commission's model suggests that foreign liberalization would result in increased cross-border exports; the establishment of more foreign affiliates, which would require more support services from their U.S. headquarters; and growth among the U.S. affiliates of foreign firms as they exit markets newly occupied by U.S.-owned affiliates. In combination, these effects would ultimately increase P&C insurance employment in the United States by an estimated 0.72 percent. This would mean that, on average, an insurance firm with 10,000<sup>36</sup> employees would increase employment by approximately 72 workers.<sup>37</sup> These effects are consistent with information obtained in industry interviews. For example, one representative stated that if affiliate profits were returned to the home office, and the home office used those profits as capital with which to write new policies, additional employment could likely result.<sup>38</sup> Another industry representative indicated that, although many functions performed by foreign insurance affiliates need to take place in the host-country market, insurance firms typically prefer to centralize certain operations at U.S.-based headquarters. Such operations include corporate investment and certain data-processing operations, as well as tasks associated with the coordination of affiliates located in multiple countries.<sup>39</sup>

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<sup>36</sup> This example is provided for illustrative purposes only.

<sup>37</sup> Brady, et al., *Property and Casualty Insurance Services: Foreign Market Liberalization Effects on Labor*, forthcoming.

<sup>38</sup> Industry representative, telephone interview by Commission staff, December 2, 2008.

<sup>39</sup> J. David Cummins, interview by Commission staff, Philadelphia, PA, December 5, 2008.



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**APPENDIX A**  
**REQUEST LETTER**

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EXECUTIVE OFFICE OF THE PRESIDENT  
THE UNITED STATES TRADE REPRESENTATIVE  
WASHINGTON, D.C. 20508

The Honorable Daniel R. Pearson  
Chairman  
U.S. International Trade Commission  
500 E Street, SW  
Washington DC, 20436

DOCKET NUMBER
2621
Office of the Secretary Int'l Trade Commission

JUN 09 2008

Dear Chairman Pearson:

As you are aware, the United States actively encourages the global liberalization of services markets. The liberalization of financial service markets, in particular, is among our highest priorities as it has been shown that financial liberalization promotes more efficient and effective capital allocation, intermediation, and risk management, which in turn promote economic growth and prosperity in both developed and developing countries. A report on property-casualty insurance markets would be helpful as background information for discussions taking place in the WTO and other trade fora.

Therefore, I request, pursuant to authority delegated by the President under section 332(g) of the Tariff Act of 1930, that the U.S. International Trade Commission conduct an investigation and prepare a report that, to the extent possible; (1) provides an overview of global and selected foreign markets for property/casualty insurance services, including factors affecting supply and demand in these markets; (2) examines the nature and extent of cross-border trade and affiliate sales in the global market for property/casualty insurance services; and (3) identifies and examines policies and practices that affect U.S. firms' access to, and competitiveness in, foreign markets for such services. With regard to the geographic coverage of this report, the Commission should include examples from both developed- and developing-country markets.

The Commission is requested to deliver its report no later than nine months from the receipt of this request. After review and discussion, we intend to make the Commission's report available to the general public in its entirety. Therefore, the report should not contain any confidential business or national security classified information.

The Commission's assistance in this matter is greatly appreciated.

Sincerely,



Susan C. Schwab

RECEIVED  
OFFICE OF THE SECRETARY  
U.S. INTERNATIONAL TRADE COMMISSION  
2008 JUN 18 PM 3:28



**APPENDIX B**  
***FEDERAL REGISTER NOTICE***

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UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C. 20436

Investigation No. 332-499

***Property and Casualty Insurance Services: Competitive Conditions In Foreign Markets***

**AGENCY:** United States International Trade Commission.

**ACTION:** Institution of investigation and scheduling of hearing.

**SUMMARY:** Following receipt of a request on June 18, 2008 from the Office of the United States Trade Representative (USTR), the U.S. International Trade Commission (Commission) instituted investigation No. 332-499, *Property and Casualty Insurance Services: Competitive Conditions in Foreign Markets*, under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)).

**IMPORTANT DATES:**

September 2, 2008	Deadline for filing requests to appear at the public hearing.
September 5, 2008	Deadline for filing pre-hearing briefs and statements.
September 23, 2008	Public hearing.
September 30, 2008	Deadline for filing post-hearing briefs and submissions.
October 7, 2008	Deadline for filing all other written statements.
March 18, 2009	Transmittal of final report to the Office of the U.S. Trade Representative

**ADDRESSES:** All Commission offices, including the Commission's hearing rooms, are located in the United States International Trade Commission Building, 500 E Street S.W., Washington, D.C. All written submissions should be addressed to the Secretary, United States International Trade Commission, 500 E Street S.W., Washington, D.C. 20436. The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at <http://www.usitc.gov/secretary/edis.htm>.

**FOR FURTHER INFORMATION CONTACT:** Project Leader Eric Forden (202-205-3235 or [eric.forden@usitc.gov](mailto:eric.forden@usitc.gov)), Deputy Project Leader Jeremy Wise (202-205-3190 or [jeremy.wise@usitc.gov](mailto:jeremy.wise@usitc.gov)), or Chief, Services Division, Richard Brown (202-205-3438 or [richard.brown@usitc.gov](mailto:richard.brown@usitc.gov)) for information specific to this investigation. For information on the legal aspects of this investigation, contact William Gearhart of the Commission's Office of the General Counsel (202-205-3091 or [william.gearhart@usitc.gov](mailto:william.gearhart@usitc.gov)). The media should contact Margaret O'Laughlin, Office of External Relations (202-205-1819 or [margaret.olaughlin@usitc.gov](mailto:margaret.olaughlin@usitc.gov)). Hearing-impaired individuals may obtain information on this matter by contacting the Commission's TDD terminal at 202-205-1810. General information concerning the Commission may also be obtained by accessing its Internet site (<http://www.usitc.gov>). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202-205-2000.

**BACKGROUND:** As requested by the USTR, the Commission will conduct an investigation and prepare a report on property and casualty (P&C) insurance markets that (1) provides an overview of global and selected foreign markets for P&C insurance services, including factors affecting supply and demand in these markets; (2) examines the nature and extent of cross-border trade and affiliate sales in the global market for P&C insurance services; and (3) identifies and examines policies and practices that affect U.S. firms' access to, and competitiveness in, foreign markets for such services. In terms of geographic coverage, the USTR has requested that the Commission include examples of both developed- and developing-country markets. The USTR requested that the Commission deliver its report by March 18, 2009.

**PUBLIC HEARING:** A public hearing in connection with this investigation will be held at the U.S. International Trade Commission Building, 500 E Street SW, Washington, DC, beginning at 9:30 a.m. on September 23, 2008. Requests to appear at the public hearing should be filed with the Secretary, no later than 5:15 p.m., September 2, 2008, in accordance with the requirements in the "Submissions" section below. All pre-hearing briefs and statements should be filed no later than 5:15 p.m., September 5, 2008; and all post-hearing briefs and statements should be filed no later than 5:15 p.m., September 30, 2008. In the event that, as of the close of business on September 2, 2008, no witnesses are scheduled to appear at the hearing, the hearing will be canceled. Any person interested in attending the hearing as an observer or nonparticipant may call the Secretary to the Commission (202-205-2000) after September 2, 2008, for information concerning whether the hearing will be held.

**WRITTEN SUBMISSIONS:** In lieu of or in addition to participating in the hearing, interested parties are invited to submit written statements concerning this investigation. All written submissions should be addressed to the Secretary, and should be received no later than 5:15 p.m., October 7, 2008. All written submissions must conform with the provisions of section 201.8 of the Commission's *Rules of Practice and Procedure* (19 C.F.R. 201.8). Section 201.8 requires that a signed original (or a copy so designated) and fourteen (14) copies of each document be filed. In the event that confidential treatment of a document is requested, at least four (4) additional copies must be filed, in which the confidential information must be deleted (see the following paragraph for further information regarding confidential business information). The Commission's rules authorize filing submissions with the Secretary by facsimile or electronic means only to the extent permitted by section 201.8 of the rules (see *Handbook for Electronic Filing Procedures*, [http://www.usitc.gov/secretary/fed\\_reg\\_notices/rules/documents/handbook\\_on\\_electronic\\_filing.pdf](http://www.usitc.gov/secretary/fed_reg_notices/rules/documents/handbook_on_electronic_filing.pdf)). Persons with questions regarding electronic filing should contact the Secretary (202-205-2000).

Any submissions that contain confidential business information must also conform with the requirements of section 201.6 of the Commission's *Rules of Practice and Procedure* (19 C.F.R. 201.6). Section 201.6 of the rules requires that the cover of the document and the individual pages be clearly marked as to whether they are the "confidential" or "non-confidential" version, and that the confidential business information be clearly identified by means of brackets. All written submissions, except for confidential business information, will be made available for inspection by interested parties.

In its request letter, the USTR stated that it intends to make the Commission's report available to the public in its entirety. As a result, the Commission will not include any confidential business information or national security classified information in the report it sends to the USTR. Any confidential business information received by the Commission during the course of this investigation and used in preparing this report will not be published in a manner that would reveal the identities of individuals or companies supplying such information.

By order of the Commission.

/s/  
William R. Bishop  
Acting Secretary to the Commission

Issued: August 13, 2008



**APPENDIX C**  
**HEARING PARTICIPANTS**

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## CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

**Subject:** Property and Casualty Insurance Services:  
Competitive Conditions in Foreign Markets

**Inv. No.:** 332-499

**Date and Time:** September 23, 2008 - 9:30 a.m.

Sessions were held in connection with this investigation in the Main Hearing Room (room 101), 500 E Street, S.W., Washington, D.C.

### **ORGANIZATION AND WITNESS:**

American Insurance Association  
Washington, D.C.

**David F. Snyder**, Vice President and Assistant  
General Counsel

National Association of Insurance Commissioners  
Washington, D.C.

**George M. Brady**, Senior International Policy  
Analyst and Counsel

Property Casualty Insurers Association of America  
Des Plaines, IL

**Robert Gordon**, Senior Vice President, Policy  
Development and Research

**Stephen W. Broadie**, Vice President, Financial  
Legislation and Regulation

The Council of Insurance Agents & Brokers  
Washington, D.C.

**Michael Moran**, Executive Vice President,  
Aon Risk Services

**Sara G. Andrews**, Director, Global Strategy,  
Aon Risk Services



**APPENDIX D**  
**BIVARIATE MODEL RESULTS**

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**TABLE D.1** Bivariate linear regression results corresponding to figures 2.1, 2.2, and 2.4

	Figure 2.1 Insurance Density	Figure 2.2 Insurance Penetration	Figure 2.4 Growth of P&C premiums
Per capita income	0.023* (0.000)	0.000* (0.000)	
Per capita income growth			1.016* (0.068)
Constant	-37.212* (10.642)	1.193* (0.05)	0.719 (1.113)
Observations	388 <sup>a</sup>	388 <sup>a</sup>	386 <sup>a</sup>
R-squared	0.877	0.253	0.367

Note: Standard errors in parentheses.

\* significant at 1 percent

<sup>a</sup> Countries include Argentina, Australia, Austria, Bahrain, Bangladesh, Barbados, Belgium, Bolivia, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Ecuador, Egypt, El Salvador, Estonia, Finland, France, Germany, Greece, Guatemala, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, Kenya, Korea, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Morocco, the Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Peru, the Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, and Vietnam. Dates range from 2002 through 2007. P&C insurance data are available from 2003 for most countries in the sample.





**APPENDIX E**  
**EXPORTS AND AFFILIATE SALES**  
**EFFECTS ESTIMATION**

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## Introduction

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The Commission estimated the effects of eliminating trade restrictions on U.S. cross-border exports of insurance and U.S.-owned foreign affiliate sales of insurance. In its estimations, the Commission employed two econometric “gravity” models focusing on the different modes of trade. Gravity models have long been used to analyze trade in commodities. The literature using these models to analyze services trade and investment is relatively small, albeit growing. The Commission’s models suggest there is a substantial, inverse relationship between the ITRI, developed by the Commission to quantify NTMs that limit insurance trade, and both exports and affiliate sales.

## Previous Literature

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The gravity model approach to analyze cross-border trade was originally developed by Isard.<sup>1</sup> Walsh was the first to use a gravity model to estimate cross-border trade in individual services sectors.<sup>2</sup> In his models, Walsh employed explanatory variables commonly used to analyze trade in goods, such as distance, adjacency, population, and GDP. Stern concentrated similar research on an individual country, South Africa.<sup>3</sup> He used the ratio of South Africa’s net exports to world net exports as the dependent variable, regressing this on less traditional variables such as domestic patents registered per adult and expenditure on research and development. The Commission extended this modeling to U.S. trade in insurance.

Brainard was one of the first to investigate bilateral trade with respect to affiliate sales.<sup>4</sup> She determined that there is a robust relationship between traditional gravity model variables and affiliate sales. Bergstrand and Egger analyzed foreign direct investment and foreign affiliate sales between multiple countries using gravity models.<sup>5</sup> The Commission extended this research to examine U.S.-owned affiliate sales of insurance.

## Description of Data and Model

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The Commission’s models use panel data, with the export model including data on U.S. bilateral exports to 31 countries from 2001 through 2005, and the affiliate sales model using data for 34 countries from 1999 to 2005. Export and affiliate data come from the Bureau of Economic Analysis. Due to data limitations, the Commission’s models are not able to isolate P&C insurance. The export data include all types of primary insurance (including life insurance), although P&C is believed to account for the majority of cross-border trade in primary insurance.<sup>6</sup> The affiliate data reflect sales of both insurance and other nonbank financial services. In addition to the ITRI, both models include as independent variables the importer’s GDP, unemployment, English language, and relative distance. The importer’s GDP is measured in constant 2000 U.S. dollars, as reported in

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<sup>1</sup> Isard, “Location Theory and Trade Theory,” May 1954.

<sup>2</sup> Walsh, “Trade in Services,” October 2006.

<sup>3</sup> Stern, “Predicting South African Trade in Services,” 2002.

<sup>4</sup> Brainard, “An Empirical Assessment of the Proximity-Concentration Trade-off,” September 1997.

<sup>5</sup> Bergstrand and Egger, “A Knowledge-and-physical-capital Model,” 2007.

<sup>6</sup> Harold Skipper and Robert Klein (professors, Georgia State University), interview by Commission staff, Atlanta, GA, November 10, 2008.

the World Bank's World Development Indicators (WDI). The WDI is also the source of the other macroeconomic variable, importer's unemployment rate. A dummy variable is included to capture ease of communication. This variable equals one if English is an official language, or if a minimum of 20 percent of the country speaks English.<sup>7</sup> The model also includes a measurement of distance from the trading partner's capital to Washington, DC, calculated using the greatest circle formula developed by the Centre D'Etudes Prospectives et D'Informations.

The second model, focusing on affiliate transactions, includes two additional explanatory variables: foreign direct investment and so-called tertiary labor. Tertiary labor is the percentage of the labor force with at least a bachelor's degree, and is reported in the WDI. Foreign direct investment is measured as a proportion of the country's GDP and is also sourced from the WDI.

The data are generally well distributed, with good variation (tables E.1 and E.2). The ITRI is right skewed, because most countries in the model are not highly restricted. The number of observations is restricted slightly in the first model, because of the paucity of information on the importer's unemployment rate, and significantly in the second model because of the paucity of information on the percentage of tertiary labor. There is no significant correlation between the independent variables in either model (tables E.3 and E.4).

**TABLE E.1** Exports—data summary

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Exports	154	37.81	91.17	0.00	606
ITRI	155	0.43	0.28	0.00	0.93
Importer's GDP	155	6.39E11	9.13E11	5.46E10	4.98E12
Distance	155	373.83	336.83	9.56	1188.00
Importer's unemployment	144	7.52	5.21	1.3	31.2
English speaking	155	0.29	0.46	0.00	1.00
Year	155	2003	1.42	2001	2005

Source: Compiled by the Commission.

**TABLE E.2** Affiliate sales—data summary

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Affiliate sales	303	3.81E3	1.06E4	0	7.58E4
ITRI	315	0.35	0.27	0.00	0.91
Importer's GDP	319	4.14E11	7.67E11	22.44E12	4.98E12
Distance	322	8.91	0.46	8.02	9.70
Importer's unemployment	308	8.11	4.88	1.3	31.2
English speaking	322	0.28	0.45	0.00	1.00
Tertiary labor	214	25.08	9.11	7.20	51.50
FDI	319	8.85	40.65	-15.13	522.22
Year	322	2002	2.00	1999	2005

Source: Compiled by the Commission.

<sup>7</sup> The 20 percent threshold is intended to recognize that English need not be the official or predominant language of a country to significantly affect commerce in that country. Other studies could reasonably establish different thresholds.

**TABLE E.3 Exports—correlation matrix**

	ITRI	Ln(Importer's GDP)	Ln(Distance)	Ln(Importer's unemployment)	English speaking	Year
ITRI	1.00					
Ln(Importer's GDP)	-0.23	1.00				
Ln(Distance)	0.21	-0.31	1.00			
Ln(Importer's unemployment)	-0.09	-0.05	-0.07	1.00		
English speaking	-0.17	-0.23	0.15	0.14	1.00	
Year	-0.03	0.05	0.05	0.02	0.01	1.00

Source: Compiled by the Commission.

**TABLE E.4 Affiliate sales—correlation matrix**

	ITRI	Ln(Importer's GDP)	Ln(Distance)	Ln(Importer's unemployment)	English speaking	Tertiary labor	FDI	Year
ITRI	1.00							
Ln(Importer's GDP)	0.18	1.00						
Ln(Distance)	0.07	0.13	1.00					
Ln(Importer's unemployment)	-0.16	-0.14	0.03	1.00				
English speaking	0.06	0.01	0.51	-0.19	-0.06	1.00		
Tertiary Labor	-0.06	0.11	0.23	-0.13	0.00	0.41	1.00	
FDI	-0.04	-0.20	-0.04	-0.16	1.00			
Year	0.07	0.00	0.08	0.00	-0.02	0.09	0.14	1.00

Source: Compiled by the Commission.

A log-log specification is used for all continuous variables except the ITRI. The year variable is a categorical representation of each year to control for an upward linear trend of insurance exports and affiliate sales over time. Neither the year nor the English dummy variable is logged. The models are as follows:

$$\ln(exports) = \alpha_0 + \beta_1 (ITRI) + \beta_2 \ln(GDP) + \beta_3 \ln(unemployment) + \beta_4 \ln(distance) + \beta_5 (English) + \beta_6 (year) + \varepsilon$$

$$\ln(sales) = \alpha_0 + \beta_1 (ITRI) + \beta_2 \ln(GDP) + \beta_3 \ln(unemployment) + \beta_4 \ln(distance) + \beta_5 (English) + \beta_6 (FDI) + \beta_7 (tertiary) + \beta_8 (year) + \varepsilon$$

The foreign direct investment and the tertiary labor variables are in the level form because the data are reported in percentages. This constructs a constant elasticity model, where the percentage increase of an explanatory variable has a direct or inverse effect on the percent change of the dependent variable.

The ITRI variable is expected to have a negative sign because the more restrictive a country is, the more difficult it is for U.S. firms to export, enter, and operate. GDP is expected to have a positive sign because the larger the economy, the more incentive there is for U.S. companies to operate in the market. An increase in GDP also indicates a greater need for P&C insurance by the foreign country. The unemployment rate is expected to have a negative sign because it is an indication of the overall health of the trading partner's economy. The distance from capital to capital is expected to have a negative sign because it is easier to trade with a country that is proximate. Although insurance is not physically transported like goods, there is travel involved with setting up and overseeing a new company. This variable may also capture cultural similarities and general familiarity with the foreign country. Foreign direct investment is expected to be positive because it captures both how open a country is to allowing foreign investment, and how desirable it is to invest in the country. The tertiary labor ratio is expected to have a positive sign because it is an indicator of a country's level of development. The year variable is expected to have a positive sign because insurance trade has been increasing at a steady rate over the past decade.

Using results from both models, the total effect of removing the trade barriers of all included countries was estimated by taking the actual value for 2005 and adding what the model predicted the increase would be if the country's ITRI equalled zero. The total growth is the summation of each country's predicted liberalized value less the fitted values.

$$\Sigma Lib\_Exports_i = \Sigma e^{FittedExports_{i2005}} (1 + e^{ITRI_i + \beta I exports})$$

$$\Sigma Lib\_Sales_i = \Sigma e^{FittedSales_{i2005}} (1 + e^{ITRI_i + \beta I exports})$$

## Results

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In the U.S. exports model, the variables ITRI, GDP, unemployment, distance, English language, and year all have the expected signs and are significant at the 1 percent level (table E.5). The adjusted R-squared is 0.65. The ITRI coefficient indicates that a 10 percentage point decrease in restrictiveness of an importing country would cause a 9.9 percent increase in U.S. insurance exports.

The ITRI has a larger effect on the U.S.-owned affiliate sales model. The variables ITRI, GDP, unemployment, distance, English language, foreign direct investment, and year all have the expected signs and are significant at the 1 percent level (table E.5). The tertiary labor ratio is not significant, but is still controlling for the overall development of each country. The adjusted R-squared is 0.72. The ITRI coefficient is valued at -1.45, implying that a 10 percentage point decrease in restrictiveness of a foreign country yields a 14.5 percent increase in affiliate sales to that country.

On the whole, the ITRI has a notable effect on both U.S. affiliate sales and U.S. exports of insurance (table E.6). If all the countries included in this analysis liberalized, the Commission estimates there could be a sizable increase in U.S. insurance sales abroad. U.S. exports to sample countries could grow from \$1.82 to \$2.69 billion, a 48 percent increase. Similarly, U.S.-owned affiliate sales in the modeled countries could grow from \$140.20 to \$179.27 billion, a 28 percent increase. Most OECD countries have the least restrictive scores, and consequently would likely witness relatively small growth in imports. Countries with the most restrictive barriers would likely see the most substantial increase in insurance trade with the United States.

**TABLE E.5** Gravity model results

Variable	Ln (Exports)	Ln (affiliate sales)
Intercept	-737.6542*** (-6.66)	-232.4866*** (-2.91)
Insurance Trade Restrictiveness score	-0.9908*** (-3.41)	-1.4463*** (-3.97)
Ln(Importer's GDP)	0.6702*** (-8.76)	1.2232*** (-19.38)
Ln(Distance)	-0.6810*** (-4.95)	-0.8554*** (-3.49)
Ln(Importer's unemployment)	-0.5215*** (-3.9)	-0.6904*** (-4.19)
English speaking	1.2397*** (-6.76)	1.4008*** (-6.51)
Tertiary labor	---	-0.0061 (-0.64)
FDI	---	0.0076*** (4.28)
Year	0.3642*** (6.66)	0.1079*** (2.7)
R-squared	0.6621	0.7358
Adjusted R-squared	0.6471	0.7239
Number of observations	141	186

Source: Estimated by the Commission.

Note: Estimates have been corrected for heteroskedasticity. T-statistics are provided in parentheses below the coefficient estimates.

\*\*\* Significant at the 1 percent level

**TABLE E.6** Estimated effects of liberalization, 2005

Dollar effects	Models	
	Insurance exports (billion \$)	Affiliate sales (billion \$)
Current	1.82	140.20
Liberalized	2.69	179.27
Absolute increase	.87	39.07
Percent increase	48%	28%

*Source:* Estimated by the Commission.



**APPENDIX F**  
**PROFIT EFFECTS ESTIMATION**

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## Introduction

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This appendix supplements the discussion in chapter 4 on calculating the profit effects of trade restrictions in P&C insurance markets, and provides information on the previous literature, conceptual framework, data, variables, and econometric specification.

The Commission estimated the effects of trade restrictions on adjusted pretax profit earned per dollar of net premiums written (or adjusted profit margins) for P&C insurance. Profit-per-dollar premium, rather than a price-cost margin, was chosen for several reasons. Premiums vary by customer and are based on a variety of risk factors, while the ultimate cost of coverage is not known at the time a policy is written, and may not be known for years after the fact. In addition, the integral role that investment plays in the insurance industry warrants its inclusion in the model, rather than a variable that reflects underwriting activities alone. The use of a variable that includes investment returns is also supported by industry experts contacted by Commission staff. The model used by the Commission estimates profit effects in two stages.<sup>1</sup> In the first stage, data on more than 2,700 firms are used to calculate country-level average profit margins adjusted for firm-level factors, including underwriting expenses (loss ratio and expense ratio) and investment returns. In the second stage, data from over 60 countries are used to calculate the effects on these adjusted profit margins of institutional, market, and macroeconomic variables, including an index (the ITRI) reflecting barriers to trade.<sup>2</sup> Profit effects are estimated as the amount by which P&C insurers' adjusted profit margins are inflated due to trade restrictions.

## Previous Literature

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The two-stage econometric model employed to analyze the effect of NTMs on financial service industries, in particular the banking industry, was developed by Saunders and Schumacher.<sup>3</sup> Adding a trade policy variable to the second stage to calculate the effects of NTMs was pioneered by Kalirajan, et al.<sup>4</sup> This method was first applied to P&C insurance by the OECD, which developed aggregate and modal tax equivalents of NTMs.<sup>5</sup> Analysis performed by the Commission, however, differs in important respects. The OECD's analysis was limited to 26 transition or developing economies, whereas the Commission's sample comprises over 60 countries at different stages of development.

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<sup>1</sup> See footnote 3 for a discussion of the two-stage econometric model.

<sup>2</sup> From this point forward, adjusted profit margins refer to the dependent variable used in the second stage.

<sup>3</sup> It is possible to utilize a single-stage econometric approach in calculating profit effects. Estimation using a unified single-stage approach produced results qualitatively similar to those presented here. However, the use of firm-level data may skew results in a single-stage estimation, assigning greater weight to countries with many reporting companies. Additionally, it is possible that the results of a one-stage model may be subject to downward bias in standard errors, resulting in erroneous results. For example, see Saunders and Schumacher, "The Determinants of Bank Interest Rate Margins," 2000; and Moulton, "Random Group Effects," 1986.

<sup>4</sup> Kalirajan, et al., "The Price Impact of Restrictions," 2000.

<sup>5</sup> Tariff equivalents and tax equivalents are estimates of the price effects of NTMs, with the former measuring rents collected by incumbents and the latter measuring rents collected by exporters. Profit effects are similar to tariff equivalents in that they measure excess payments collected by incumbents, but they are different in that they measure the excess by profit margins rather than price-cost margins. Dihel and Shepherd, "Modal Estimates of Services Barriers," October 25, 2005; Dihel and Shepherd, "Modal Estimates of Services Barriers: Annex," October 27, 2005.

The aggregate and modal trade restrictiveness indices (TRIs) compiled by the OECD are based on commitments recorded in the GATS and restrictions found in the OECD Product Market Regulations Database.<sup>6</sup> By contrast, the Commission's ITRI was developed from measures currently in place, using a framework based on a model schedule developed by the insurance industry. Finally, the econometric work performed by the Commission and the OECD used largely different independent variables in each stage; the Commission's ITRI variable was found to be statistically significant while the OECD's was not.<sup>7</sup> Similarities between the OECD and Commission approaches include similar dependent variables and similar fit in the first- and second-stage equations.

## Conceptual Framework

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Restrictions on the sales of insurance by foreign firms effectively shift the foreign supply curve to the left in the domestic insurance market. Domestic supply remains unchanged because restrictions are discriminatory toward foreign suppliers. The upward shift in the foreign supply curve effectively raises the price of insurance premiums. Higher premiums and the larger investment they fund result in a wedge between the observed adjusted profit margin and the adjusted profit margin which would occur in the absence of trade restrictions under *ceteris paribus* conditions. In the context of this report, this wedge is called a profit effect.<sup>8</sup> The analysis below utilizes an econometric model to estimate the size of this profit effect.

## Description of Model and Data

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Modeled after previous empirical work on NTMs, the first stage utilizes a log-log specification to determine the effect of four firm-level variables, as well as country dummy variables, on the profit margin, calculated as profit before taxes divided by net premiums written (see equation 2 below). Summing the constant and the coefficient of the country dummy variable yields the average profit margin for insurance carriers in that country, adjusted for the effects of firm-level attributes. Although much work of this nature calculates price effects on a price-cost margin, profit earned per dollar of premium written is a more suitable proxy for the insurance industry. As noted, calculating the price-cost margin for the insurance industry is not feasible because of the customization of individual policies, the incalculable cost of policies sold, and the paucity of information on premiums and market shares of insurance products per firm.<sup>9</sup> Additionally, the operational structure of the industry suggests that a profit margin is preferable to other performance measures, such as the underwriting ratio, due to the dual core activities of policy underwriting and investment.<sup>10</sup> The underwriting ratio captures commissions to agents and brokers, taxes, employee salaries and benefits, and other operating costs, but does not capture investment costs and returns. A substantial portion of an insurance firm's income is typically composed of returns on the investment of

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<sup>6</sup> The OECD compiled a trade restrictiveness index reflecting the increasing restrictiveness of regulation, weighted modally and normalized to range along a scale from zero to one. Dihel and Shepard, "Modal Estimates of Services Barriers," October 25, 2005.

<sup>7</sup> Dihel and Shepard, "Modal Estimates of Services Barriers," October 25, 2005; Dihel and Shepard, "Modal Estimates of Services Barriers: Annex," October 27, 2005.

<sup>8</sup> This discussion is based on Dee, "Trade in Services," November 5–6, 2001.

<sup>9</sup> Bikker and van Leuvensteijn, "An Exploration into Competition and Efficiency," July 2005, 20.

<sup>10</sup> Calandro and Lane, "The Insurance Performance Measure," 2002, 9; industry expert, e-mail message to Commission staff, December 9, 2008.

premiums during the interim between writing the policy and the payment of claims.<sup>11</sup> Losses frequently occur in the underwriting business and are typically offset by investment returns.<sup>12</sup> From 1999 through 2005, for example, P&C insurers in the United States recorded underwriting profits in only one year, 2004.

The second-stage regression (equation 3 below) uses a country-specific adjusted profit margin as the dependent variable, and country-level market, macroeconomic, and institutional data, including the ITRI, as independent variables.<sup>13</sup> The ITRI is based on extensive primary and secondary research conducted by Commission staff on 11 specific NTMs identified by the P&C insurance industry and captures actual regulations and policies in practice, rather than trade commitments or legislation.<sup>14</sup> ITRI values are calculated based on a scoring method previously used by Hoekman for evaluating GATS commitments.<sup>15</sup> Hoekman classified trade policies as either completely open, completely closed, or other (for any degree in between). Policies are assigned a score of 0 if they are completely open (or permitted), and assigned a score of 1 if they are completely closed or prohibited. In many cases, policies are neither completely open nor prohibited, with these cases classified as “other” and assigned a score of 0.5. Finer scoring distinctions were not considered feasible, largely due to the notable absence of standardized language used to describe NTMs. By contrast, the largely standardized language used in GATS commitments enables detailed country-by-country comparisons, a factor behind their frequent use in quantitative policy analysis. Scores were aggregated across the 11 elements and averaged to create an index ranging between 0 and 1.<sup>16</sup> No attempt was made to weight elements according to their perceived level of importance, largely to avoid additional subjectivity.

The profit effect is calculated using the ITRI coefficient estimated by the second-stage regression and the country-specific ITRI values for each country, in the following equation:

$$\text{Profit Effect} = 100 * (e^{\text{ITRIcoefficient} * \text{ITRIvalue}} - 1) \quad (1)$$

The equation uses the base of the natural logarithm (e) due to the log-log specification used in the first stage equation. As noted earlier, the estimated profit effect represents the amount by which P&C insurers’ adjusted profit margins are inflated due to trade restrictions, effectively capturing the excess profit margins of insurers after correcting for the influence of firm-specific factors.

Data used in the first stage included entries for more than 2,700 P&C insurance firms in over 70 different countries (tables F.1 and F.2). Data were gathered from Orbis, a large

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<sup>11</sup> Calandro and Lane, “The Insurance Performance Measure,” 8.

<sup>12</sup> *Ibid.*, 9.

<sup>13</sup> Country-specific adjusted profit margins are estimated as the sum of the intercept term and the coefficients of the country dummy variables from the first-stage regression results. This essentially measures the profit margins controlled for firm-specific variations, or the portion of the profit margin not determined by the firm-specific variables.

<sup>14</sup> Common criticisms of empirical work in this field based on GATS commitments are that the commitments are outdated and do not reflect actual practice in the countries.

<sup>15</sup> Hoekman, “Tentative First Steps,” May 31, 1995, 15.

<sup>16</sup> Two of the elements regarding market access are closely related. One pertains to the existence of equity limitations, and the other, the staged elimination of such limitations. In the absence of equity limitations, the issue of staged elimination of such limits is considered “not applicable.” The ITRI is then computed as the aggregate score averaged over the 10 applicable elements.

**TABLE F.1** Summary statistics of firm-level data

	Profit margin	Net premium to surplus ratio	Investment return	Loss ratio	Expense ratio
Mean value	0.4214	1.4833	0.0444	66.6140	35.0709
Maximum	238.25	104.6642	1.9695	983.97	888.2350
Minimum	-116.026	-22.7365	-3.3835	-649.37	-451.8020
Standard deviation	6.1353	3.7004	0.1012	49.4703	45.8690
Number of observations					2,786

Source: Compiled by the Commission using Bureau van Dijk, Orbis Companies Database (accessed January 13, 2009).

Notes: Statistics are calculated for the data used to run the regression. The particular log-log specification used in calculating profit effects resulted in the omission of any negative values.

**TABLE F.2** Country distribution of firm-level data

Top 10 countries		Regional information	
Country	Number of companies	Country	Number of companies
United States	1,292	North America	1,408
Germany	218	Europe	860
United Kingdom	132	South & Central America	286
France	102	Asia	220
Spain	95	Rest of World	12
Argentina	90		
Canada	59		
Mexico	57		
Brazil	48		
Switzerland	46		

Source: Compiled by the Commission from Bureau van Dijk, Orbis Companies database, (accessed January 13, 2009).

Note: Those companies that did not report the variables of interest were automatically omitted from the regression. As a result, although Australia had a significant number of observations, it is not included in the profit effect calculation because the companies did not report either the expense or the loss ratios.

database containing financial information for more than 51 million international companies.<sup>17</sup>

These data were then used in the following estimation in the first stage:

$$\ln(\text{profit margin}) = \beta_0 + \beta_1 \ln(\text{investment return}) + \beta_2 \ln(\text{net premium to surplus ratio}) + \beta_3 \ln(\text{expense ratio}) + \beta_4 \ln(\text{loss ratio}) + \beta_5 \sum_{i=1}^{66} \text{country dummy}_i \quad (2)$$

The dependent variable for the first stage is the profit margin, which, as noted above, is profit before tax per dollar of net premium written. The measure of investment return was calculated by taking a ratio of investment income (the sum of net investment income and other gains/losses) to funds invested (the sum of net technical reserves and surplus).

<sup>17</sup> Bureau van Dijk, Orbis Companies Database (accessed January 13, 2009).

Investment return, which is expected to have a positive sign, provides an indicator of firms' investment acumen and serves to control for investment earnings. The ratio of net premiums written to surplus measures the degree to which insurance firms are exposed to risk. There is generally a maximum ratio set by regulatory agencies as a way to ensure firms' solvency.<sup>18</sup> The variable is expected to have a negative sign since higher exposure to risk results in more claims payments and lower profits.<sup>19</sup> The expense ratio measures a firm's operating cost and management skills, and is defined as operating expenses, such as overhead, as a percentage of premiums written.<sup>20</sup> Similar to the expense ratio, the loss ratio is an indicator of the insurer's underwriting performance, including risk assessment and pricing, measuring losses and related loss adjustment expenses as a percentage of premiums earned.<sup>21</sup> Both the expense and loss ratios are expected to have negative signs, as high costs decrease profitability.

In the second stage, market, macroeconomic, and institutional variables are used to account for variance in country-specific adjusted profit margins, the dependent variable. Country-specific adjusted profit margins are estimated as the sum of the country dummy coefficient and the intercept in the first-stage regression.<sup>22</sup> This report considers two different specifications of the second-stage equation, each of which are run twice.<sup>23</sup> The first regresses adjusted profit margins on the ITRI, perception of corruption index, lagged real interest rate, an index of the percentage of GDP at risk from natural disasters, the unemployment rate, and the combined market share of the top five companies. The second specification is very similar, but replaces the index of corruption with an index of property rights. The second-stage equation is:<sup>24</sup>

$$\text{Adjusted Profit Margin} = \beta_0 + \beta_1 (\text{insurance trade restrictiveness index}) + \beta_2 (\text{property rights or corruption index}) + \beta_3 (\text{real interest rate from previous year}) + \beta_4 (\text{percentage of GDP at risk}) + \beta_5 (\text{unemployment rate}) + \beta_6 (\text{market share of top 5 companies}) \quad (3)$$

The ITRI variable, described above, is expected to have a positive sign, because the existence of policy restrictions is theorized to allow incumbent firms to extract profits higher than they would otherwise command in an open trading market. The first model specification includes an index measuring the perception of corruption in a country, which ranges in value from 0 to 10. Low values indicate a highly corrupt environment, while a value of 10 indicates the absence of corruption, which is defined as the misuse of public

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<sup>18</sup> Although regulatory agencies set a maximum ratio permitted for volume of premiums written, relative to surplus, firms generally self-regulate and remain below this level.

<sup>19</sup> It is possible to witness a positive relationship between profit ratio and risk exposure, if investors require higher returns to compensate for greater degrees of exposure.

<sup>20</sup> Standard & Poor's, Industry Surveys, Insurance: Property-Casualty, January 25, 2007, 29.

<sup>21</sup> Ibid.

<sup>22</sup> The sum of the country dummy coefficient and the intercept in the first-stage regression captures the country-specific variation in the log of the profit margin not explained by the firm-level variables. OLS moves errors to the constant in order to satisfy the assumption that errors have a zero population mean.

<sup>23</sup> The U.S. P&C market is subject to regulation that varies by state. To account for this, the Commission postulated two ITRI scores for the United States: one score of 0, assuming a completely open market, and one score of 0.5, assuming a market that is neither completely open nor completely closed. Regressions were performed with both these scores, separately, to gauge their separate effects. Regression results were virtually identical, demonstrating the robustness of the Commission's model. In both instances, the ITRI was significant at the 10 percent level.

<sup>24</sup> Resulting regression estimates are corrected for heteroskedasticity. Alternative estimations using other measures of risk, demand, and other macroeconomic factors, yielded results qualitatively similar to those reported.

power for private benefit, such as bribery of public officials or kickbacks in public procurement.<sup>25</sup> The corruption index is expected to have a positive sign, because high levels of public corruption increase the cost of doing business and decrease profitability. The second specification substitutes a property rights index for the corruption index. The property rights index is an assessment of the degree to which the personal property of individuals is protected by legal enforcement of the state, which ranges in value between 0 and 100.<sup>26</sup> Higher index values indicate greater property rights. The property rights index is expected to have a positive sign, because greater property rights are integral to the ability to provide insurance. The real interest rate is a lag variable. It is based on quarterly data from 2004, and is calculated as the nominal interest rate corrected for inflation.<sup>27</sup> It provides an overview of the investment environment, and is lagged on the theory that previous performance will influence the investment decisions made in 2005. The variable is expected to have a positive sign, as high interest rates increase profitability, and insurance firms generally place reserves in short-term investments. The index of percentage of GDP at risk measures a country's economic risk exposure from two or more natural disasters. The variable is expected to have a negative sign, as a higher percentage indicates a higher exposure to risk.<sup>28</sup> The unemployment rate is another demand factor expected to have a negative relationship with the adjusted profit margin. As unemployment rises, demand for insurance decreases, resulting in a lower adjusted profit margin. Finally, the combined market share of the top five firms indicates the degree of concentration in the market. The expected relationship with the adjusted profit margin is ambiguous. It may be positive if firms are achieving economies of scale, or it may be negative if the market has few firms exercising market power.

## Results

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In the first stage, the net premiums to surplus ratio, loss and expense ratios, and investment return variable are of the expected sign and statistically significant at the 1 percent level (table F.3). The R-squared in the first stage is 0.51, indicating that firm-level variables explain approximately 51 percent of variation in firms' profit margins.

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<sup>25</sup> Transparency International, "Corruptions Perception Index, 2006: FAQ," undated (accessed November 5, 2008).

<sup>26</sup> Holmes, et al., *2008 Index of Economic Freedom*, 2008, 41.

<sup>27</sup> Data were collected for money market rates where possible, and supplemented with the T-bill and government bond rates. IMF, International Financial Statistics Database.

<sup>28</sup> It may also be argued that the variable measuring percentage of GDP at risk should have a positive relationship with the corrected profit ratio. It is possible increased exposure to risk may lead investors to demand higher average returns, resulting in higher profits. Data collected from World Bank, "Natural Disaster Hotspots," 2005.



**TABLE F.3** Stage 1 results, dependent variable: Ln (profit margin)

Variable	Coefficient
Intercept	3.156 (7.63)
Ln(Investment return)	0.412*** (12.12)
Ln(Net premium to surplus ratio)	-0.611*** (-21.46)
Ln(Expense ratio)	-0.337*** (-8.01)
Ln(Loss ratio)	-0.673*** (-9.35)
R-squared	0.5081
Adjusted R-squared	0.4923
Number of Observations	2257

Source: Estimated by the Commission.

\*\*\*Significant at 1 percent level

Notes: Estimates are corrected for heteroskedasticity. Coefficients for country dummies are not reported. T-statistics are provided in the parentheses below coefficient estimates.

Results for the two specifications described in the previous section are presented for the second stage (table F.4).<sup>29</sup> The R-squared values are similar, irrespective of the specification used, ranging around 0.25. In the second stage, the ITRI exhibits the largest coefficient value, is of the expected sign (positive), and is significant at the 10 percent level, indicating that measures restricting trade contribute significantly to higher adjusted profit margins. The corruption perception index (specification 1) and property rights index (specification 2) are also both positive (the expected sign), and generally significant at the 1 percent level.<sup>30</sup> The index of percentage of GDP at risk from natural disasters is significant at the 5 percent level and of the expected negative sign, consistent with the theory that higher costs result from increased exposure to risk. The remaining variables, the real interest rate, unemployment rate, and market share of the top 5 firms, were not statistically significant in any of the specifications.

<sup>29</sup> Sensitivity analysis was performed to verify the model's robustness. Specifications included one that assigned dummy variables to the components of the ITRI based on mode of provision. This specification found significant results from the commercial establishment elements, which would be expected to have the largest impact on protected profits.

<sup>30</sup>In specification 2, using the least restrictive U.S. ITRI value, the coefficient for the property rights index was marginally less significant, at the 5 percent level.

**TABLE F.4** Stage 2 results, dependent variable: Adjusted profit margin

Variable	Specification 1		Specification 2	
	U.S. (ITRI = 0)	U.S. (ITRI = 0.5)	U.S. (ITRI = 0)	U.S. (ITRI = 0.5)
Intercept	2.6341 (7.72)	2.606 (7.612)	2.6008 (7.297)	2.5879 (7.309)
Insurance Trade Restrictiveness Index	0.402* (1.846)	0.4359* (1.931)	0.3549* (1.687)	0.3749* (1.728)
Corruption perception index	0.072*** (2.601)	0.0718*** (2.667)	---	---
Property rights index	---	---	0.0071** (2.519)	0.007*** (2.569)
Real interest rate (2004)	0.0014 (0.118)	0.002 (0.166)	0.001 (0.078)	0.0015 (0.119)
Percentage of GDP at risk index	-0.1081** (-2.074)	-0.1124** (-2.162)	-0.1141** (-2.31)	-0.1178** (-2.367)
Unemployment rate (2005)	0.0171 (1.261)	0.0174 (1.305)	0.0167 (1.146)	0.0169 (1.165)
Market share of top 5 insurance firms	-0.001 (-0.472)	-0.0008 (0.319)	-0.0007 (-0.322)	0.0005 (-0.235)
R-squared	0.2553	0.2597	0.2559	0.2579
Adjusted R-squared	0.1659	0.1709	0.1666	0.1689
Number of observations	57	57	57	57

Source: Estimated by the Commission.

Notes: Estimates have been corrected for heteroskedasticity. T-statistics are provided in parentheses below the coefficient estimates. The U.S. P&C market is subject to regulation that varies by state. To account for this, the Commission postulated two ITRI scores for the United States: one score of 0, assuming a completely open market, and one score of 0.5, assuming a market that is neither completely open nor completely closed.

\* Significant at the 10 percent level

\*\* Significant at the 5 percent level

\*\*\* Significant at the 1 percent level

From these results, profit effects were estimated using specification 1 (table F.5). As previously mentioned, estimated profit effects are defined as the amount by which P&C insurers' adjusted profit margins are inflated due to trade restrictions (equation 1 above). Countries are grouped based on the estimated magnitude of their respective profit effect. Overall, 20 countries have profit effects greater than 20 percent, due to currently restrictive trade policies.<sup>31</sup> Twenty-seven countries have profit effects of 10 percent or lower. Developed countries, such as the OECD economies, generally have smaller profit effects due to lower levels of trade restrictions. By contrast, developing economies such as China and India exhibit higher estimated profit effects. Countries with the highest profit effects have the most to gain from liberalization as consumers may benefit from lower premiums.

**TABLE F.5** Estimated profit effects in the P&C insurance industry

0 to 10 percent		11 to 20 percent	21 to 35 percent	Greater than 35 percent
Austria	Japan	Canada	Argentina	Bangladesh
Belgium	Jordan	Chile	Barbados	Indonesia
Bolivia	Latvia	Colombia	Brazil	Malaysia
Bulgaria	Lithuania	Croatia	China	Russia
Czech Republic	Luxembourg	Guatemala	India	Thailand
Denmark	New Zealand	Ireland	Italy	Vietnam
Ecuador	Panama	Netherlands	Korea	Venezuela
Egypt	Portugal	Norway	Mexico	
Finland	Romania	Peru	Morocco	
France	Slovenia	Philippines	Pakistan	
Germany	Spain	Singapore	Poland	
Hong Kong	Switzerland	Sri Lanka	Saudi Arabia	
Hungary	United Kingdom	Sweden	South Africa	
Iceland		Tunisia		

*Source:* Compiled by Commission staff.

*Notes:* The estimated profit effects are the amount by which P&C insurers' adjusted profit margins are inflated due to trade restrictions. Adjusted profit margins are "adjusted" for the effects on total profit margins of firm-level variables, such as loss ratios, expense ratios, risk exposure, and investment acumen. It is necessary to adjust the total profit margin for the effects of firm-level variables in the first stage so that the effects of country-level variables, including the ITRI, can be isolated in the second stage.

<sup>31</sup> The United States is included in these 20 countries, based on the states with the most restrictive policies.

