

July 2016

Agricultural insurance in Latin America: taking root



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Executive summary

Agricultural insurance in Latin America is provided in a variety of ways, but most commonly through public-private partnerships.

Agricultural insurance is one of a number of risk management strategies used to confront the perils of agricultural production. It helps manage risks in the agricultural food value chain, stabilize farming income and promote investment in agriculture. In Latin America, agricultural insurance systems include formal and informal risk sharing and transfer arrangements, private insurance and post-disaster government relief. They span the spectrum of predominantly market-based systems where private insurers compete for business, to more state-directed programs. The most common agricultural insurance model found in the region is a hybrid public-private partnership (PPP) arrangement that combines public support measures such as premium subsidies and technical support, with private-sector provision.

Agricultural insurance penetration in the region is relatively low...

Agricultural production continues to play an important role in Latin America's economic development story. Agricultural insurance, by contrast, remains relatively undeveloped, with large segments of the farming population unprotected and underserved by traditional insurance markets. Agricultural insurance penetration rates average only 0.03% of gross domestic product (GDP) across the entire region – compared to over 0.06% for North America – with most business concentrated in medium- to large-scale commercial farming in Brazil, Mexico and Argentina. This reality reflects a host of demand- and supply-side constraints, such as high operating cost structures and limited incomes of small- and medium-sized farms, and the inherent volatility of revenues and claims in this particular line of business.

... yet premium growth has been robust.

Despite these constraints, agricultural insurance premiums have grown rapidly in recent years, expanding more than fivefold over the past decade to reach USD 1.6 billion in 2015. A combination of surging commodity prices, increased international trade in agricultural goods, improvements in insurance affordability and reach, and greater use of reinsurance and government support mechanisms explain much of the growth. In recent years, some of these growth drivers have emerged as sources of vulnerability, such as the exposure to adverse price shocks or cutbacks in government premium subsidies. With global agricultural commodity prices trending lower and Latin American governments facing mounting fiscal pressures amid a region-wide economic downturn, premium growth is likely to moderate in the short term.

The growth potential for agricultural insurance in Latin America remains positive, provided the operating environment remains favourable.

The medium to long-term growth prospects for agricultural insurance and reinsurance in Latin America are good. Low penetration rates suggest strong growth potential, provided supply-side constraints such as high transaction costs and inadequate infrastructure are addressed. Governments need to create enabling environments for growth through public-private partnerships and regulatory reform, especially as it pertains to microinsurance and index-based agricultural insurance instruments. On the demand side, ongoing improvements in product design and delivery mechanisms are expected to increase gradually the uptake by both commercial and subsistence farmers.

The lay of the land

Latin America accounts for approximately 10% of global agricultural output.

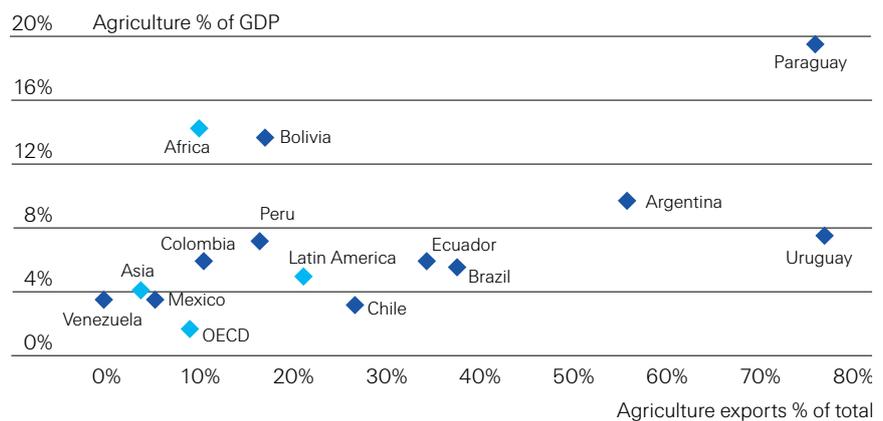
The southern cone countries are the region's agricultural heartland.

Agriculture in Latin America

Agriculture remains a pivotal part of Latin America's economy. Its share of total output has steadily declined with the advance of industrialization, but agriculture still accounted for 5.3% of regional GDP in 2013 compared to around 1.6% in the industrialized economies. Total Latin American agricultural output in 2013 was around USD 217 billion, or nearly 10% of global agriculture output. This is equal to around one fifth of Asia's agricultural output, which includes China and India, the world's two agricultural giants (27% and 9% of global output, respectively).

Within Latin America, the size and weight of the agriculture sector differs across nations. Paraguay, Argentina and Uruguay have the largest sectors as a percentage of GDP and exports, reflecting an abundance of arable land and well-established agribusiness industries. Recent strength in soft commodity (agriculture and livestock commodities) prices, notably of soybeans, have boosted the share of total agriculture output in those countries. In contrast, the share of agriculture in Venezuela, Mexico, Colombia and Peru is closer to the Asian and developed-country averages. Their economies have sizeable manufacturing sectors or, as is the case of Venezuela, are heavily reliant on hydrocarbons. Chile and Brazil occupy the middle ground, with relatively diversified export and industrial bases, but also large agribusiness industries in soybeans (Brazil) and wine (Chile). In Bolivia, traditional subsistence agriculture dominates, which explains the sector's large contribution to GDP and lesser share of exports.

Figure 1
Agricultural sector, contribution to economy and exports, 2014



Source: FAO, UNCTAD.

Production data understate the importance of agriculture in Latin America.

Production figures understate the importance of the agricultural sector, not least because they exclude the informal sector and ancillary industries such as food processing and distribution. The agricultural sector is also a major source of employment, foreign exchange, fiscal revenues and political support in many countries in the region. In Argentina, for example, export tariffs on agricultural exports account for around 5% of fiscal revenues and a substantial portion of foreign exchange earnings. Therefore, fluctuations in agricultural output can have significant bearing on related industries and the overall economy.

Agriculture in Latin America faces multiple risks, including exposure to natural catastrophes.

The perils

Economic activity, including agriculture, in Latin America is vulnerable to instability in the political and market environments that afflicts many countries in the region. Another key exposure for agricultural producers in particular is natural catastrophe risk. The type, frequency and severity of natural-world perils vary widely across the region and within countries. With respect to weather-related risks, these are greatest in climates that have well-defined rainy and dry seasons, or are impacted by the El Niño/Southern Oscillation (ENSO) phenomenon. Drought is the most devastating peril in Brazil, which has sustained the majority of the drought-related economic losses in the past 30 years. Meanwhile, frost is a significant peril for agricultural producers in Mexico, Chile and Argentina. Flood risk is common across the region, but magnified in the Andean region given its precipitous topography that often contributes to flash flooding. Non-weather related risks include seismic activity, which is concentrated along the Pacific Rim of Latin America. Chile and Mexico have experienced the largest earthquake and tsunami-related losses. Table 1 summarizes the natural catastrophe exposures facing the entire region.

Table 1
Natural perils in Latin America

Peril	Major loss exposures
Hailstorms	Mainly affects crop production in Argentina, Uruguay, south eastern Brazil
Tropical cyclones	Central America, Mexico, Caribbean
Tornadoes	Southern Cone, eastern Mexico, Baja California (Mexico)
Winter storms	Mainly forestry plantations and aquaculture farms in Argentina, Uruguay and Chile
Drought	Northeastern Brazil, semi-arid areas of the pampas in Argentina, southern Chile and northern Mexico
Frost	Mexico, Chile, Argentina
Flood	Peru, Ecuador, Bolivia, northern Chile and western Chile
Earthquake, volcanoes	Mostly indirect damage to irrigation and distribution infrastructure in the Pacific Rim countries
Tsunami	Pacific coast countries

Source: World Bank, Swiss Re Economic Research & Consulting.

The ENSO phenomenon affects the region every three to five years.

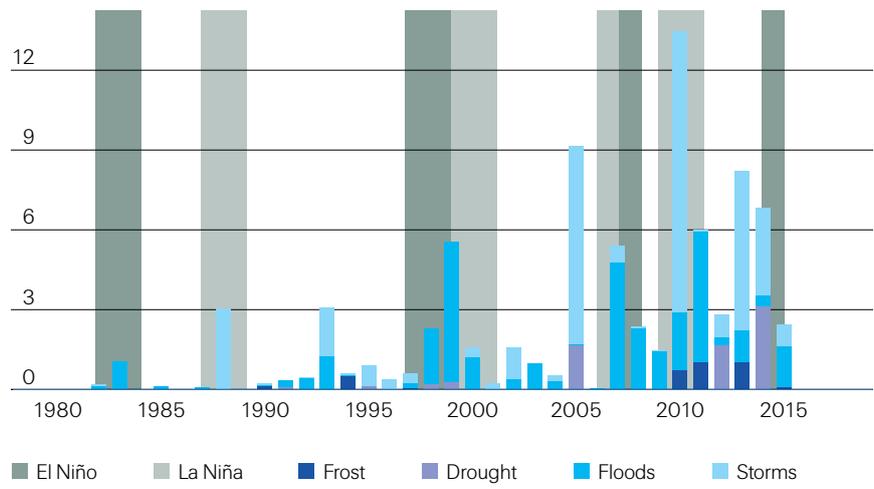
A key driver of catastrophe exposures in Latin America is the ENSO phenomenon, which produces abnormally warm (El Niño) or abnormally cool (La Niña) sea surface temperatures in the Pacific every three to five years. El Niño tends to produce higher rainfalls and above-average temperatures in Peru, Ecuador, Argentina, Uruguay, southern Brazil and northern Mexico. La Niña events produce wetter conditions in northeastern Brazil, Colombia and Venezuela, and drier conditions in Argentina, Uruguay, southern Brazil, Peru, Ecuador and northern Mexico.¹ In total, major ENSO-related catastrophe events have been responsible for nearly USD 30 billion of economic losses during the past 10 years, with largest loss events occurring in 1998–1999 and 2010–2011 (see Figure 2).²

¹ *Agricultural Insurance in Latin America: Developing the Market*. World Bank, 2010.

² *sigma 2/2015 – Natural catastrophes and man-made disasters in 2014: convective and winter storms generate most losses*, Swiss Re, 2015.

The lay of the land

Figure 2
El Niño and La Niña related economic losses in Latin America, USD billion



Source: Swiss Re Economic Research & Consulting.

Agricultural insurance systems

Different techniques can help mitigate risks in agriculture.

Over time, the development of various techniques have helped farmers manage and mitigate some of the risks inherent in agricultural production. For example, crop diversification, intercropping and flexible input-use have helped maintain crop yields, while vaccines and quarantines have reduced losses from outbreaks of pests and livestock diseases. Commodity futures contracts have given farmers a tool to hedge their price risks, while informal crop-sharing and cooperative risk pools provide basic risk transfer. These techniques usually suffice to absorb small and infrequent losses. However, they provide only a small buffer against severe or more frequent loss-inducing natural disaster events.

Agriculture insurance in Latin America is a mix of public and private participation.

Agriculture insurance systems have emerged to close this protection gap in Latin America, and have taken many forms. They include *ex-ante* risk sharing or transfer, such as crop sharing or risk pooling, as well as private sector insurance and post-disaster government assistance. The precise mix of public and private participation is a function of the depth and breadth of local financial sectors, the size and sophistication of agricultural markets, and the level of state intervention in the sector and economy generally.

Market-based insurance schemes are geared to medium- to large-scale commercial farmers.

Market-based agricultural insurance models

Market-based insurance solutions are geared to those commercial agricultural activities that generate sufficient income to pay for insurance premiums.³ They are typically purchased by medium- to large-scale, semi- to fully-commercial operations. In Latin America, these can be found in the irrigated areas of northern and central Mexico, the irrigated valleys of Peru and Chile, southeastern and central Brazil, and the Pampas of Argentina and Uruguay. The types of insurance product on offer are varied and reflect the nature of the risk exposures (see Table 2). Most fall under property insurance, but other lines such as business interruption and liability insurance are also growing in importance.

Table 2

Agricultural insurance sub-lines of business

Crops & horticulture	Privately-provided insurance cover is available for all types of crops, fruits, flowers and vegetables, in the following formats: <ul style="list-style-type: none"> ■ Named-peril crop insurance – indemnifies owners of certain crops, or tenant farmers having an interest in such crops, for loss or damage due to a specific peril named in the policy. ■ Multi-peril crop insurance (MPCI) – provides crop insurance protection for growers of certain kinds of crops. Coverage is written on specific cause-of-loss or all-risk basis. ■ Revenue coverage (price and yield) – revenue protection for an insurable crop when low prices, low yields or a combination of both cause a producer's revenues to fall below a guaranteed level. ■ Parametric or index covers, including weather derivatives – covers yield losses due to a readily observable variable that is highly correlated with the particular crop yield, normally rainfall, irrigation water flow, or number of days with temperature above/below a certain threshold. Could also be determined by the performance of an insurance-related index (eg, on claims development for certain risks related to specific weather conditions). ■ Quality guarantee – covers commercial standards established by the reference markets.
Greenhouse	Comprehensive coverage for material damage to structure, glass, equipment and plants due to fire, windstorms, snow weight and equipment failure.
Livestock	Generally protects the owner against losses resulting from death or involuntary destruction of livestock due to disease or accidental injury. Business interruption covers have been developed for large-scale cattle, pig and poultry operations.
Horses, bloodstock and pets	Covers individual animals of the most varied species, but in most cases equines, whether pleasure horses or bloodstock. The cover is triggered by disease or accident causing death or permanent disability.
Forestry	Insurance for timber and plantations, most importantly for fire and windstorm. Extended covers are becoming increasingly popular and may include flood, hail, snow weight, insect infestation, and damage caused by domestic and wild animals.
Aquaculture	Insurance cover for the breeding and raising of aquatic animals, whether in inland ponds or offshore. It covers mortality or loss of fish stock due to meteorological events, disease, pollution, algae blooms and escape from damaged installations.

Source: Swiss Re Economic Research & Consulting.

³ *Agricultural Insurance in Latin America: Developing the Market*, World Bank, 2010.

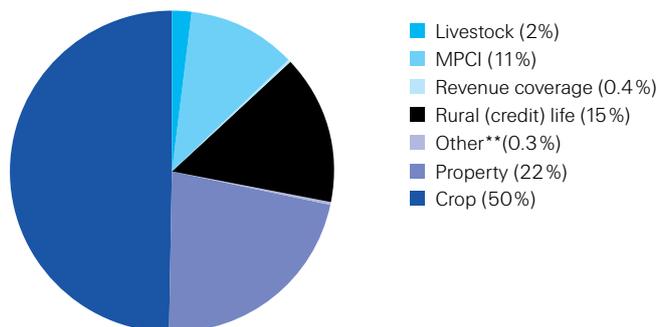
Agricultural insurance systems

Crop insurance dominates in Latin America.

The regional premium split between crop and livestock lines of business is approximately 98 to 2. At a more granular level, named-peril and MPCl dominate, followed by livestock, aquaculture and forestry. Catastrophe crop and livestock cover is an important subset of named-peril insurance: in Brazil, it accounts for roughly half of crop insurance premiums. Outside traditional lines, “rural” credit, life, property and liability insurance for agricultural-sector workers often fall under the agriculture rubric (see Figure 2). They comprised 42% (USD 517 million) of agricultural premiums in Brazil 2015. In Mexico, life covers written by state insurer Agroasemex made up 34% (USD 94 million) of its agriculture portfolio. In other countries, volumes for these lines of business are generally small and market size difficult to ascertain.

Figure 3

Sub-lines of agricultural insurance as % of total direct agricultural premiums written, in Argentina, Brazil and Mexico*, 2015



*Includes life and property policies issued by Agroasemex.

**Includes aquaculture and forestry.

Source: Superintendência de Seguros Privados (SUSEP), Comisión Nacional de Seguros y Fianzas (CNSF), Superintendencia de Seguros de la Nación (SSN), Swiss Re Economic Research & Consulting.

Cooperatives and mutual insurers were the first agriculture insurance providers.

There are two basic types of agriculture insurance providers in Latin America: (1) cooperatives and mutual insurer schemes: and (2) commercial insurers. Cooperatives and mutual insurers were among the first, starting in Argentina in the late 19th century. They remain popular there and also in Uruguay, Paraguay and Mexico, and accounted for 9% of premiums written across the region in 2015. The largest market concentrations are in Paraguay (61% of total premiums in 2015), Argentina (45%), and Uruguay (37%). In Mexico, there are 452 agricultural “insurance funds” (*fondos de aseguramiento*), or non-profit societies of farmers.

Local, regional and global companies participate in the market.

Commercial insurers comprise local, regional and global companies, although the distinction is often blurred. The largest “local” player in the region by a wide margin (see Figure 3) is Brazil’s Aliança do Brasil, which is a strategic partnership between Spanish insurer Mapfre and Brazilian bank Banco do Brasil. On its own, Mapfre had an 11% market share of agricultural premiums across Latin America in 2015. With its 50% stake in Aliança do Brasil, its share rises to nearly 30%.

Mexico’s ProAgro is the second largest insurer in the region after Aliança do Brasil.

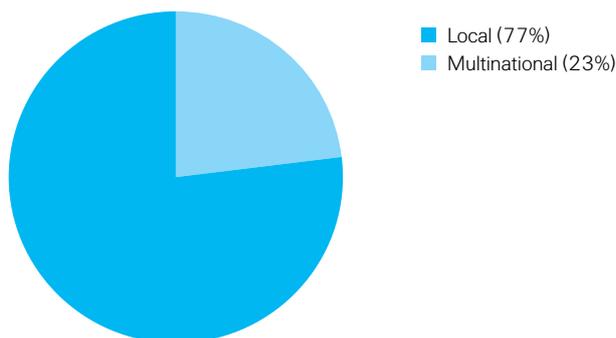
The second largest local player in the region is Protección Agropecuaria (ProAgro), a Mexican mono-line insurer. Its dominance in Mexico makes it the largest private local insurer in the region with approximately 10% of premiums.⁴ The company has grown its market share in Mexico substantially in recent years, from 39% in 2010 to 52% in 2015. This is in part due to its participation in a publicly subsidized index insurance program, CADENA (see below).

⁴ ProAgro also has a presence in Central America and is reportedly expanding into Colombia, Ecuador, and Chile. See: <http://www.buenafuente.com/nota.aspx?id=2445&t=1>

Foreign insurers occupy the top ranks of the agricultural insurance market in Latin America.

The leading foreign agricultural insurer in the region after Mapfre is Allianz, with a 4% share of premiums due mostly to its strong position in Argentina (18% market share). Other foreign insurers in the region include Swiss Re's Corporate Solutions, Zurich, Sompó and Liberty. The main regional (ie, not global) player in the agriculture space is Argentina-based Sancor, a cooperative with a sizeable footprint in Uruguay (16%), Paraguay (43%), and Argentina (18%).

Figure 4
Market shares in Latin America, by participant, 2015 direct premiums written



Local/regional = 77%

Firm (Parent)	Premiums (USD m)	Market share (%)
Aliança Do Brasil*	615.8	38.1%
ProAgro	158.9	9.8%
Sancor	68.9	4.3%
General de Seg.	54.6	3.4%
Essor	54.0	3.3%
Segunda	39.7	2.5%
Neue Horizont	35.9	2.2%
Bradesco	27.6	1.7%
Agroasemex	22.1	1.4%
Sucre	20.8	1.3%

Multinational = 23%

Firm (Parent)	Premiums (USD m)	Market share (%)
Mapfre	170.5	10.5%
Allianz	58.0	3.6%
Swiss Re CorSo	48.3	3.0%
Zurich	21.4	1.3%
Marítima	20.5	1.3%
Liberty	15.3	0.9%
Magallanes	8.5	0.5%
RSA	6.8	0.4%
Fairfax	6.1	0.4%
Tokio Marine	5.8	0.4%

*Aliança do Brasil = strategic partnership between Mapfre and Banco do Brasil. Accounting for Mapfre's 50% stake in Aliança do Brasil, the multinational-local/regional split is approximately 40–60%.
Source: National statistics, Swiss Re Economic Research & Consulting.

Public programs support the traditional subsistence farms.

Publicly-provided agricultural insurance

Public programs support the traditional subsistence farms in the region. Public agricultural insurance programs are safety nets that offer producers a minimum level of economic security.⁵ They mainly target traditional subsistence (small- to medium-sized) farms that produce primarily for own consumption, do not generate sufficient income to pay for commercial insurance, and which lack access to formal credit and insurance markets. Such smallholdings are common in the highland regions of Andean countries and Central America, the Brazilian Amazon, and the plains of Brazil, Colombia and Venezuela.

⁵ *Agricultural Insurance in Latin America: Developing the Market*. World Bank, 2010.

Agricultural insurance systems

The public/private participation models in the region vary considerably.

Argentina has a well-developed private sector model...

... while in others, state-owned insurers have large market shares.

Hybrid models are the norm.

The panoply of public insurance schemes ranges from the more market-oriented approaches adopted by Argentina, Paraguay and Venezuela, to public-private partnerships (PPPs) found in Mexico, Brazil and Chile, and to public provision of insurance via state-owned or parastatal entities in several Central American countries. There is much variation within these categories also, notably in the degree of public support and prioritization. Furthermore, in addition to the *ex-ante* preparedness and risk mitigation mechanisms, most countries have institutionalized emergency plans such as reinsurer-of-last-resort facilities and post-disaster aid programs.

Argentina has long been a leader of the market-based model wherein commercial and mutual insurers, backed by private reinsurance, compete for market share. Today 34 insurers operate in the Argentine market compared to, on average, seven in the other Latin America countries. State intervention has been relatively light-touch. Premiums are mostly market determined, with only a few crops (eg, tobacco, tree fruit, and grapes) subsidized by provincial governments. There is no federal subsidy scheme nor compulsory agriculture insurance. However, certain local governments purchase named-peril crop cover from local private co-insurance pools as protection for catastrophe exposures.

At the opposite end of the spectrum are those markets with heavy state intervention, usually via direct public provision and government support programs. There are state-owned insurers in the Dominican Republic, Costa Rica, Nicaragua and Panama, though only the Dominican Republic has a fully-fledged agriculture insurance program. Former public monopolies retain sizeable market shares in Uruguay and Colombia even after privatisation. In Uruguay, state-owned Banco de Seguros del Estado had a monopoly from 1913 to 1993, and it still holds the largest market share. Colombia's La Previsora was the sole provider of crop insurance prior to 2006 and now competes on equal terms with private players. The governments of both countries also offer premium subsidies and, in the case of Uruguay, tax exemptions and macro/sovereign-level insurance, whereby national or sub-national levels of government (regional, local) purchase insurance on behalf producers. The Dominican Republic was the last country to abandon exclusive state monopoly after it opened up its agricultural insurance sector in 2009, although no private insurer has yet entered the market.

The main model in the region today is a hybrid PPP arrangement, wherein government-sponsored schemes exist alongside relatively liberalized markets. Table 3 summarises the features of PPP models in different countries.

Table 3

Public support channels for agricultural insurance, as at December 2015

	Argentina*	Bolivia	Brazil	Chile	Colombia	Costa Rica	Dom. Rep.	Ecuador	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela	
State re/insurer			✓		✓	✓	✓					✓	✓	✓			✓		
Premium subsidies	✓		✓	✓	✓	✓	✓	✓				✓					✓	✓	
Macro-level insurance	✓											✓						✓	
Microinsurance		✓	✓									✓					✓		
<i>Ex-ante</i> disaster fund					✓							✓						✓	
Technical support	✓	✓	✓	✓								✓	✓						

*Premium subsidies and macro-level insurance at the sub-national level only.

Source: World Bank, Swiss Re Economic Research & Consulting.

The Brazilian PPP model combines the private sector with a multi-layered public support system.

The Brazilian and Mexican adaptations of PPP are two of the more complex arrangements. The Brazilian PPP model combines the private sector with a multi-layered public support system. There are 30 private insurers and an unspecified number of reinsurers underwriting agricultural risks based on commercial criteria. Government involvement occurs through five main channels:

- Federal and state rural premium subsidy program (*Programa de Subvenção ao Prêmio do Seguro Rural*, PSR). Subsidies are distributed by private insurers accredited by the Ministry of Agriculture (MAPA), which also administers the program. Subsidization rates vary by crop, region and size of producer. For most crops, the subsidy is set at 40% of premiums. This rises to between 60–70% for priority crops (eg, soya, rice), winter crops (eg, corn, oats, wheat) and insurance for small-scale producers.⁶
- The Agricultural Guarantee Program (*Programa de Garantia da Atividade Agropecuária*, Proagro) provides working capital credit protection against catastrophic risks. Farmers make payments in exchange for: (1) an exemption from paying subsidized loan obligations in case of adverse climate conditions; and (2) a guaranteed indemnification of financial losses caused by catastrophic weather events.
- Insurance for Family Agriculture (*Seguro da Agricultura Familiar*, SEAF) is a compulsory multi-peril crop-credit program for family farmers. It indemnifies growers by the amount that actual crop revenues fall short of the loan amount, and provides a 75% premium subsidy.
- Harvest Guarantee Program (*Programa Garantia-Safra*, GS) covers small-scale farmers below the poverty line (ie, people earning up to 1.5x the minimum salary and farming on no more than 10 hectares of land), who farm non-irrigated crops in arid areas (ie, northeast of Brazil).
- Rural Insurance Stability Fund (*Fundo de Estabilidade do Seguro Rural*, FESR) is a reinsurance fund established in 1966.⁷ The fund covers losses resulting from crop failure, hail, disease, drought and flood, when a company's net retained loss ratio is between 100–150% or exceeds 250%. The FESR is due to be replaced by a Catastrophe Fund (*Fundo de Catástrofe*) funded through voluntary contributions by re/insurers and public monies.⁸
- Reinsurance Institute of Brazil (Instituto de Resseguros do Brasil, IRB), which provides reinsurance capacity mostly through quota share agreements. This IRB also manages the Rural Insurance Stability Fund (FESR).

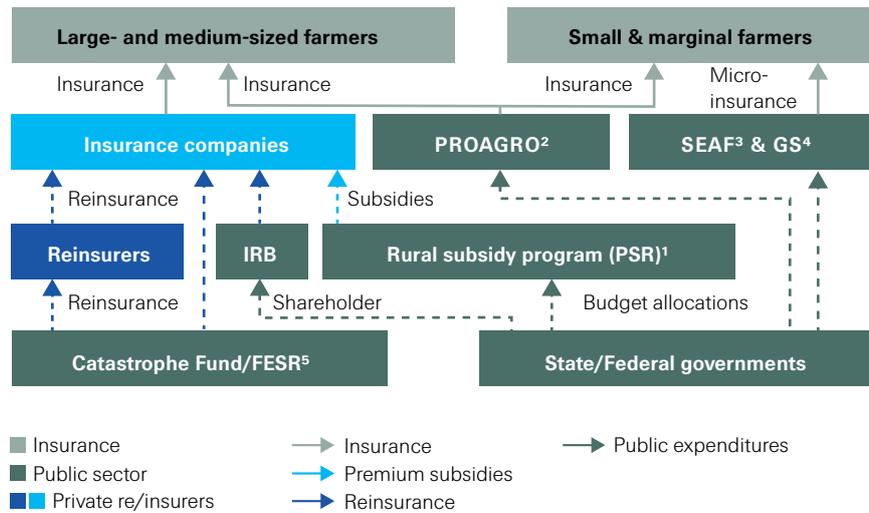
⁶ *Plano Agrícola e Pecuário (PAP) 2014/15*, Ministério da Agricultura, Pecuária e Abastecimento, 2014.

⁷ Agricultural re/insurers contribute 30% of annual profits for major sub-lines of business (crop, aquaculture, livestock, forestry) and 50% for those involving guarantees from public or private financial institutions. Any operational deficit is met by the government.

⁸ The Catastrophe Fund was introduced by the Complementary Law No 137 of August 2010, but regulation is still pending. Once established, the Fund will be administered by an offshoot of the IRB supervised by the CNSF/SUSEP.

Agricultural insurance systems

Figure 5
Brazil's PPP model



- 1 Federal and state subsidy programs (*Programa de Subvenção ao Prêmio do Seguro Rural*)
 - 2 Agricultural Guarantee Program (*Programa de Garantia da Atividade Agropecuária*)
 - 3 Insurance for Family Agriculture (*Seguro da Agricultura Familiar*)
 - 4 Harvest Guarantee (*Programa Garantia-Safra*)
 - 5 Rural Insurance Stability Fund (*Fundo de Estabilidade do Seguro Rural*)
 - 6 Reinsurance Institute of Brazil (*Instituto de Resseguros do Brasil*)
- Source: Swiss Re Economic Research & Consulting.

Mexico has an insurance subsidy scheme and a state-owned reinsurer.

Like Brazil, Mexico's PPP regime contains a subsidy scheme, support for small and marginal farmers, and reinsurance capacity via state-owned re/insurer Agroasemex. Overall premium subsidization rates are less than in Brazil (38% overall (35–60% for priority crops), versus 56% in Brazil in 2015). The government buys catastrophe covers on a tender basis, provides technical assistance and issues a small amount of direct insurance for the residual market (cover for those producers rejected by voluntary market insurers). A key component of the regime is the *fondos de aseguramiento*. These are meso-level mutuals providing micro-insurance to farmers.⁹ They receive subsidies for premiums, training, education, catastrophe protection and excess-of-loss reinsurance cover from Agroasemex.

Mexico's CADENA is a macro-level catastrophe insurance program for vulnerable farmers.

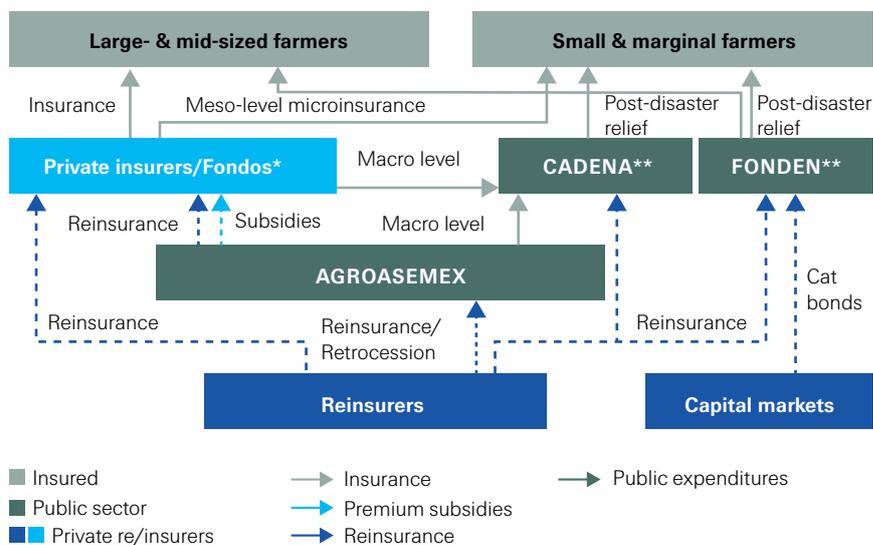
Two emergency funds in Mexico provide post-disaster financing: the Agricultural Fund for Natural Disasters (*Componente de Atención a Desastres Naturales, CADENA*), and the Natural Disaster Fund (*Fondo de Desastres Naturales, FONDEN*). The former comprises: (1) sovereign/macro-level parametric and index-based crop and livestock catastrophe insurance; and (2) direct support (*Apoyo Directo*) payments to vulnerable farmers for losses resulting from climatic disasters.¹⁰ State governments purchase insurance from Agroasemex or private insurers and indemnify small-scale, low-income farmers following a major disaster event. In cases where the local government fails to purchase coverage, the federal government steps in with direct support.¹¹

⁹ Meso-level insurance cover the assets or loan portfolios of risk aggregators such as farmers' associations, banks and micro-finance institutions.

¹⁰ Mexico: Agriculture Insurance Market Review, World Bank, June 2013.

¹¹ The federal government, represented by the Ministry of Agriculture, Livestock and Fisheries (SAGARPA), compensates around 60% of the total estimated or assessed costs of damages. The state must fund the remainder. See: Mexico: Agriculture Insurance Market Review, World Bank, June 2013.

Figure 6
Mexico's PPP model



*Mutual insurance funds; ** Agricultural Fund for Natural Disasters (*Componente de Atención a Desastres Naturales*), *** Natural Disaster Fund (*Fondo de Desastres Naturales*)
Source: Swiss Re Economic Research & Consulting.

FONDEN provides economy-wide protection of infrastructure and public assets.

CADENA, a social safety net for small-scale farmers, targets the most vulnerable segments in agriculture. FONDEN, on the other hand, focuses on property insurance to protect the infrastructure and public assets on which the rural economy depends. It is the fund into which the federal government allocates budget *ex-ante* for post-disaster response and reconstruction. It was launched in 1996 as a way to channel federal funds for recovery and reconstruction of damaged public assets, and to coordinate the actions of intergovernmental agencies. Since then it has expanded into disaster prevention through the creation of the Fund for Disaster Prevention (*Fondo para la Prevención de Desastres Naturales*, FOPREDEN). This program identifies hazards, exposures and vulnerabilities. It formulates *ex-ante* disaster-risk reduction strategies and builds local capacity to improve resilience.¹²

Reinsurance and cat bonds provide protection to the Mexican government from various specified natural catastrophes.

In order to cover budget shortfalls arising from less frequent but worse-than-expected disasters, the Mexican government supplements its annual budget appropriations with: (1) an indemnity-based excess-of-loss reinsurance treaty; and (2) a series of catastrophe bonds (cat bonds). The former covers the government's assets and low-income housing limited to USD 400 million of replacement costs. The latter consists of USD 315 million (according to the latest *MultiCat 2012* issue) parametric insurance cover that expedites pay-out to the government in the event of a specified catastrophic event. Triggers are: (1) an earthquake of certain magnitude, depth and epicentre occurring within three pre-defined zones around Mexico City; and (2) hurricanes of a given pressure striking pre-defined zones along the Atlantic or Pacific coasts.

¹² FONDEN: Mexico's Natural Disaster Fund – A Review, World Bank, 2012.

Industry growth drivers

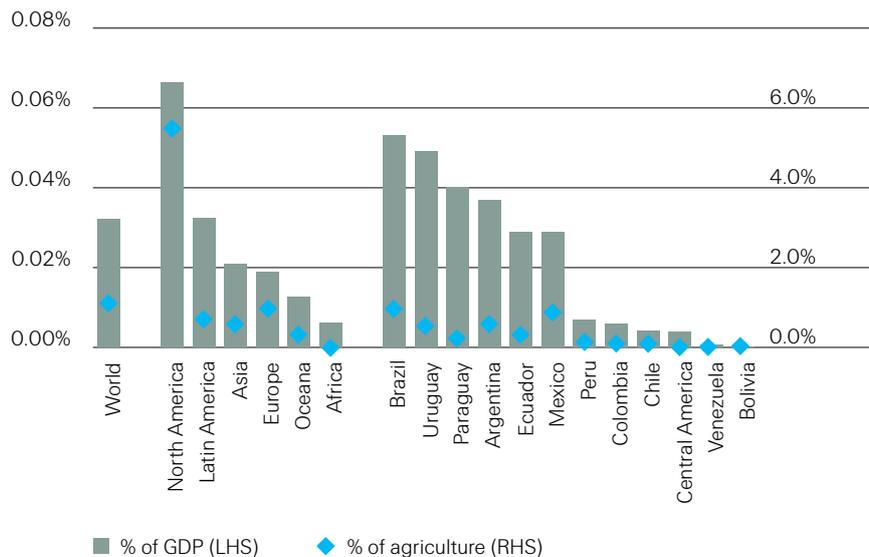
The region accounts for about 6% of global agriculture premiums.

Figure 7

Agricultural insurance penetration rates, as a percentage of GDP (left-hand side) and of agricultural output (right-hand side), 2014

Agricultural insurance market overview

Despite the importance of agriculture in Latin America, agricultural insurance remains relatively undeveloped, with penetration estimated at 0.03% of GDP, higher than in Africa and Asia but well below levels in industrialized economies (see Figure 7). In terms of share of agricultural output, penetration in the region was only 0.6% in 2014. Latin America and the Caribbean accounted for about 6% (USD 1.6 billion) of global agricultural insurance premiums (about USD 25 billion). By comparison, the US and China generated USD 15 billion (60%) and USD 6 billion (24%) of premiums, respectively.



Source: Swiss Re Economic Research & Consulting.

In terms of premiums, Brazil is the biggest market in the region.

The top three agricultural insurance markets in the region are also the largest insurance markets overall. Brazil dominates with 61% of the agricultural premiums written in 2015 (USD 982 million), followed by Mexico (more than 15%) and Argentina (15%). The remainder, including Central America, make up 8% of the market. The highest penetration rates are in Uruguay and Paraguay. Like Argentina and Brazil, these countries have large underlying agricultural sectors and well-established agricultural insurance systems dating back a century. Mexico too has a long history in the field, but its share of agriculture premiums has diminished steadily to just 15.4% of the regional total in 2015, from 48.6% in 2000, as Brazil has come up to be the dominant market in the region.

Agricultural insurance is a relatively low-margin business.

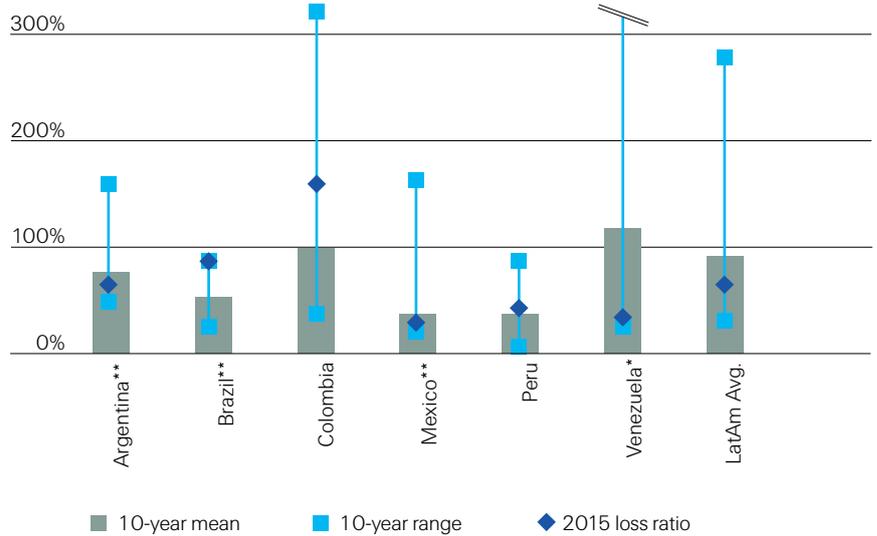
Agricultural loss ratios are relatively high and volatile.

Figure 8
Gross loss ratio, paid claims divided by premiums written

Industry performance

Profitability in the agricultural insurance industry is a function of multiple overlapping variables, such as the degree of state support/intervention, the depth and breadth of distribution channels, insurers' retention levels and others. Accordingly, underwriting performance varies widely from country to country and from firm to firm. Even so, there are certain common characteristics – relatively high loss ratios, high operating cost structures, high volatility of losses and premiums, and high price competition – that together conspire to make agriculture insurance a relatively low-margin business.

Agriculture loss ratios generally exceed non-life market averages largely because of the segment's higher exposure to catastrophe risks compared to other lines of business. Claims are subject to the vagaries of weather and climate, and hence loss experience tends to be volatile and uncorrelated with trends in the rest of the insurance industry. The aggregate gross loss ratio in the Latin American agricultural segment averaged 78% during the past decade, compared to 51% in non-life overall. The variance of losses has also been greater, often with big jumps from one year to the next. For instance, the loss ratio in Mexico jumped from 51% in 2010 to 125% in 2011 as a result of a severe frost.



*2014 latest. ** Only crop and livestock insurance.

Source: National statistics, Swiss Re Economic Research & Consulting.

High operating cost structures eat into insurers' profit margins.

High operating cost structures also erode profit margins, especially in less developed markets such as Mexico and Colombia. Small policy size, poor infrastructure and widespread exclusion from formal markets amplify per-policy transaction costs (ie, acquisition, inspection and loss adjustment costs), while the general paucity of historical loss data leads to higher risk loadings on premiums.¹³ At the same time, price pressure is intense since most small- and medium-scale farmers lack the means to purchase insurance on a pure-risk basis, hence the need for government support. By contrast, the larger-scale agribusiness insurance common in Argentina and Uruguay benefits from economies of scale and more predictable loss experience, and tends to produce better bottom-line results.

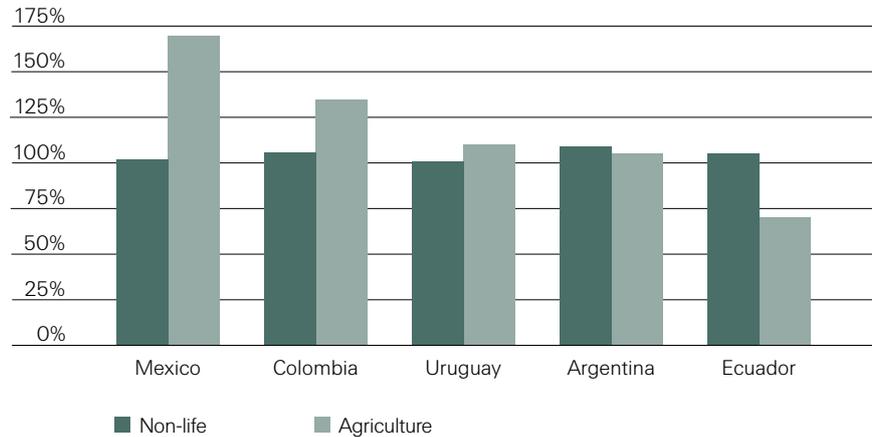
¹³ Ibid. 2010.

Industry growth drivers

Agriculture insurance combined ratios are higher in Mexico and Colombia than elsewhere in the region.

Figure 9

Average aggregate combined ratios*, 10-year averages.



*Net operating expenses plus net claims incurred divided by net earned premiums.

Note: a full breakdown of operating expenses by line of business are not available in the Latin American countries not listed here.

Source: National statistics, Swiss Re Economic Research & Consulting.

There are five main drivers of agricultural insurance premium growth.

Five key drivers have had a discernible impact on agricultural insurance growth: (1) the underlying value (ie, prices) of agricultural output; (2) the volume of agricultural trade between countries; (3) access to financial services; (4) the level of government support; and (5) reinsurance.

1. Commodity prices

Premiums are highly correlated with agricultural commodities prices.

Agricultural premium growth in Latin America has exhibited a high degree of correlation with commodity prices. Higher crop and livestock prices imply corresponding increases in insured values and premium volumes. This relationship has been especially strong in the soybean market, which accounted for nearly 1/10th of regional crop output in 2014, most of it (98%) from Brazil, Argentina, Uruguay and Paraguay.¹⁴ The doubling of soybean prices between 2006 and 2008 was mirrored by a commensurate jump in insurance premiums, as were the subsequent collapse and rebound of soft commodity prices in 2009 to 2011. Since 2011, growth patterns of key commodity prices have diverged notably – up for aquaculture and livestock, down for most major crop classes, – and the relationship has been less clear.

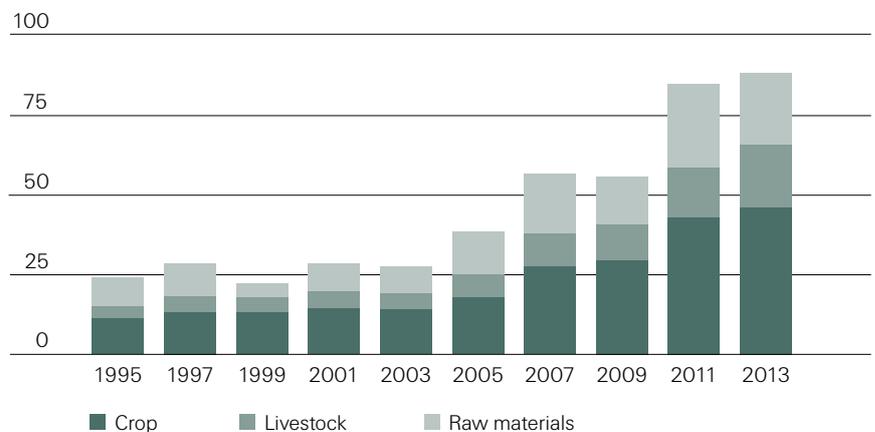
¹⁴ Data taken from FAOStat. See: <http://faostat3.fao.org/home/>

Trade liberalization has boosted agricultural production.

2. International trade

Related to higher prices for soft commodities is the rise in the volume of agricultural raw materials and food exports from Latin America. These have expanded by 8% per annum during the past two decades, nearly the same rate of growth as for manufactured goods. Underpinning this general uptrend were rising demand in major export markets, in particular China, as well as progressive trade liberalization and ongoing commercialization of agriculture across the region. Chinese imports of Latin American food products grew by 17% per year between 1995 and 2014, increasing China's share of total food exports fivefold to 13%. During the same period, the average import tariff faced by Latin American agricultural producers fell by 36%.¹⁵ The implementation of the North American Free Trade Agreement (NAFTA) in 1994, China's accession to the World Trade Organization in 2001, and the establishment of numerous bilateral and regional free trade agreements since 2000 have improved market access for the region's agricultural exporters.

Figure 10
Latin American agricultural exports
(USD billions, in nominal terms)



Source: UNCTAD.

Product innovation is helping to improve affordability and address supply-side constraints.

3. Financial deepening

Product innovation has facilitated the diffusion of agricultural insurance in hard-to-reach areas and underserved populations by addressing three supply-side constraints: (1) a lack of affordable delivery mechanisms; (2) inadequate insurance or bank branch networks; and (3) insufficient quality or quantity of data for actuarial analysis and claims adjustment.¹⁶ Microinsurance and index-based products have been key innovations in this regard, but they are at early stages of development and still rely heavily on government support. Private-sector players have been hesitant to enter this segment, mostly because traditional insurance models have historically failed to produce commercially viable businesses when applied to small-scale, low-income farming.¹⁷ Nevertheless, the sheer size of the target market and protection gap represent a big opportunity for insurers.

¹⁵ Developed countries tariffs, as per the 1995 Uruguay Round Agriculture Agreement.

¹⁶ D.A. Carballo and Laura dos Reis, *The Agricultural Insurance Market in the Caribbean*, World Bank en breve, no 183, 2013, p1.

¹⁷ *Assessing the Effectiveness of Agricultural Interventions*, Inter-American Development Bank, 2010.

Industry growth drivers

Microinsurance is extending coverage to low-income farmers.

Microinsurance can provide income-constrained farmers with affordable insurance solutions through innovative product design and efficient distribution and claims management processes. Distribution is generally through existing insurance networks (eg, agents, brokers, bancassurance, cooperatives). For instance, in 2013 La Positiva in Peru launched a commercial agriculture insurance product aimed at small- and medium-sized producers that it distributes via Agrobanco, a public rural finance institution. Non-traditional channels such as mobile platforms or input suppliers (eg, fertilizer stores or seed distributors) are also under development, albeit at a slower pace in Latin America than in Africa or Asia.

Product bundling aids distribution.

Product bundling – tie-ups with existing products and services – also aids distribution. Agricultural insurance can be combined with, for example, credit or surety products through banks or microfinance institutions. For instance, Brazil's public Insurance for Family Agriculture program (*Seguro da Agricultura Familiar, SEAF*) bundles multi-peril insurance with seasonal credit for smallholder farmers. And in Guatemala, the private-sector Microinsurance Catastrophic Risk Organization (MiCRO) is registering a parametric micro-insurance product that covers low income segments of the population, including the entire rural value chain, against business interruption caused by natural catastrophes.

Index-based insurance is at the forefront of product innovation.

Index-based agricultural insurance instruments are also at the forefront of product innovation. By paying claims according to local weather parameters rather than individual damages, index products reduce the costs of underwriting and processing claims.¹⁸ Because index-based insurance relies on modelled data, it can be developed in markets where insurers do not have existing claims portfolio data for actuarial assessment. The greater simplicity, transparency, objectivity and speed of pay-outs of index-based products also enhances their attractiveness to low-income customers, whose lack of experience, risk awareness and trust have held them back from buying insurance before. That said, basis risk – the risk that claims are not triggered by the parameter index even if an individual loss occurs, or vice versa – is a challenge for index-based insurance. Ongoing innovation in index development and satellite technology is needed to extend coverage more broadly.

Sound legal and regulatory frameworks provide the seedbed for the development of agricultural insurance.

4. Government support

Sustainable development of agricultural insurance markets requires an enabling environment for growth, which in turn demands effective legal and regulatory underpinning. Governments must balance the core objectives of guaranteeing policyholder protection and ensuring financial sector stability with their developmental goals for the agriculture sector. Enabling policies such as micro-insurance specific regulation or "market-enhancing" measures, can lower the barriers to entry and improve the competitive landscape for insurers.¹⁹ Conversely, excessive or misguided government interference in agricultural markets can hamper insurance segment growth. Public intervention can distort price signals, crowd out private-sector insurers and generate unsustainable costs for the state.²⁰

¹⁸ *sigma* 5/2015, Underinsurance of property risks: closing the gap, Swiss Re.

¹⁹ O. Mahul and C.J. Stutley, *Government Support to Agricultural Insurance: Challenges and Options for Developing Countries*, World Bank, Washington D.C., 2010, p 46.

²⁰ *Ibid.* p 44.

Governments have been steadily turning over more insurance to the private sector in Latin America.

In Latin America, the general trend has been one of gradual state retreat from direct participation in agricultural re/insurance and steady improvement in the operating conditions for the private sector. Liberalizing structural reforms in the 1980s and early 1990s were in part motivated by the expectation that private entities would reduce costs and improve the efficiency and quality of agricultural insurance.²¹ Private re/insurers did move into the space opened up by the state's withdrawal, albeit hesitantly and largely with a focus on commercial farming. Although national or parastatal insurance companies remain in several countries (Costa Rica, Dominican Republic, Nicaragua, Panama and Uruguay), they are on equal footing with private insurers. Competitive pressures have spurred product innovation, evidenced by the proliferation of index-based agricultural insurance solutions, which has gradually allowed for deeper penetration. In reinsurance, increased private sector and foreign participation expanded the range of risk-financing products available to local insurers.

Direct support complements legal and regulatory reform.

Strong legal and regulatory frameworks are a necessary, but not a sufficient condition to catalyse broad-based and sustainable development of the agricultural insurance market. Often direct public support is needed to help lower-income farmers break out of the "protection trap" – where market failures restrict supply and push up prices, curtailing demand from low-income households.

Public premium subsidies have been a major catalyst of agriculture insurance premium growth in Latin America.

The most common form of direct support is premium subsidies. These are typically passed on to farmers via reduced insurance prices charged by insurers, who receive the difference from the government. The increased affordability of insurance and loans has been a major catalyst for premium growth in Latin America in recent years. Thus, the introduction of the Brazilian Federal State Subsidy program (PSR) in 2005 helped produce a near twentyfold increase in insurance premiums over the subsequent 10 years, from BRL 53 million (USD 22 million) in 2005 to BRL 1.0 billion (USD 431 million) in 2014. The subsidization rate – subsidies as a percentage of total agricultural insurance premiums – during this period increased from 4% to 68%, a level that sits between North American (~70%) and Asian (~50%) norms.²² Other markets have had similar growth patterns following the introduction of premium subsidies.

Subsidies are susceptible to fiscal risks.

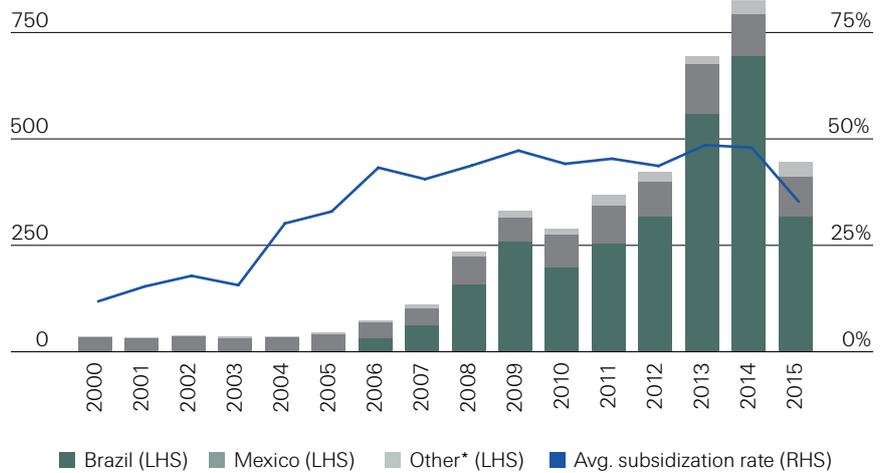
A corollary of such support is that agricultural insurance market conditions are subject to government budget constraints. This ties the level of subsidization to the health of the public finances. Accordingly, public outlays on agricultural insurance may be cut in times of fiscal tightening, leaving it to insurers to absorb the difference or to producers to pay the full market premium. This can produce dramatic shifts in demand and supply, as seen in Brazil recently. Having originally budgeted BRL 694 million (USD 295 million) of subsidies for the fiscal year 2015, the Federal government cut that amount by more than half as it was forced to redirect funds to cover arrears dating back to 2014. Insurance premiums covering winter crops fell sharply in the first half of the year, and summer crop premiums were lower also.

²¹ *Assessing the Effectiveness of Agricultural Interventions*, Inter-American Development Bank, 2010, p 32.

²² Correspond to estimated 2012 values according to Mahul. See: T. Sandmark, J.C. Debar, and C. Tatin-Jaleran, *The Emergence And Development of Agriculture Microinsurance – A Discussion Paper*, Microinsurance Network, Luxembourg, 2013, p 13.

Figure 11

Latin American agricultural premium subsidies, USD million (left-hand side, LHS) and average subsidization rate (RHS)



*Chile, Colombia. Colombia's subsidies are equal to the maximum total subsidy amount allocated to the Fondo Nacional de Riesgos Agropecuarios.

Source: Official statistics, Swiss Re Economic Research & Consulting.

Governments can use a number of other support measures in addition to premium subsidies.

Other support measures that influence the demand and supply of agriculture insurance include:

- *Provision of public goods* such as physical infrastructure (eg. weather stations), human capital (research & development, training, extension services, etc) and data (weather patterns, crop yields etc). These are common throughout the region.
- *Lower solvency capital requirements* for microinsurers. For instance, in Brazil the paid-in capital requirement of firms exclusively dedicated to microinsurance is set at 20% of the normally-required base capital for insurance companies.
- *Compulsory agricultural insurance*, which typically applies to seasonal crop production loans, is present to varying extents in Brazil, Chile, Ecuador and Honduras. The loans themselves often carry subsidized interest rates or soft terms, thereby improving access to finance.
- *Tax exemptions* on agricultural insurance premiums. These exist in Brazil, the Dominican Republic, Honduras, Nicaragua and Uruguay.
- *Price support mechanisms* or government guaranteed minimum prices are used to smooth price fluctuations to ensure stable income and provide support to marginal farmers. Nearly all countries in the region employ some degree of price support.

5. Reinsurance

Reinsurance makes agricultural insurance more attractive for insurers and governments alike.

Risk transfer is a critical link in the agricultural insurance value chain. It follows from the inherently volatile nature of agricultural production and is evident in the relatively high cession rates in agriculture insurance compared to other lines of business. In addition to helping primary insurers smooth their operating earnings over highly volatile agricultural production cycles, reinsurers also provide technical expertise (eg. designing loss-adjustment and operating manuals, risk ratings, contract wordings, etc.) and capital management solutions. By fostering a more predictable operating environment, building capacity and freeing up capital, reinsurers have made the agriculture insurance segment a more attractive value proposition for primary insurers and governments.

Agricultural insurance market outlook

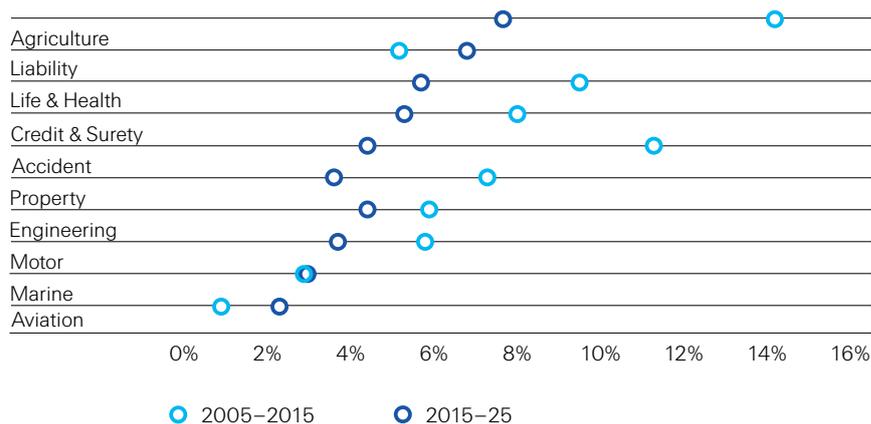
Global and local factors shape agricultural insurance markets.

The medium to long-term outlook for agriculture insurance in Latin America is positive...

Trends in agricultural insurance are intertwined with developments in the underlying market for agricultural goods. Therefore, an assessment of the outlook for agriculture insurance in Latin America in the coming decade needs to take account of global trends in commodity prices and trade, and local factors such as government support programs. The inherent volatility of agricultural markets and unpredictability of policymaking in Latin America means any outlook assessment is subject to considerable uncertainty.

The medium to long-term growth prospects for agricultural insurance in Latin America are good. Penetration rates across the region are well below those in other regions, indicating significant catch-up potential. Ongoing improvements in product design and delivery are expected to improve uptake by both commercial and subsistence farmers, albeit gradually. However, adverse economic and weather conditions, notably the economic crisis in Brazil and the region-wide La Niña, are likely to weigh on top-line growth and profitability in the next two years. Agricultural insurance premiums in Latin America are forecast to grow by an annual average of 8% between 2015 and 2025 in real terms (see Figure 12), down from 14% in 2010–2015. This would take nominal premiums to USD 3.7 billion by 2025, or USD 5.9 billion assuming a constant 2015 exchange rate (FX).²³ The penetration rate is forecast to inch up to 0.05% of GDP by 2025 (could be 0.1% of GDP if FX remains constant), from 0.03% in 2015.

Figure 12
Compound average annual real premium growth in Latin America, by line of business, in percent, %



Source: Swiss Re Economic Research & Consulting.

Demand side

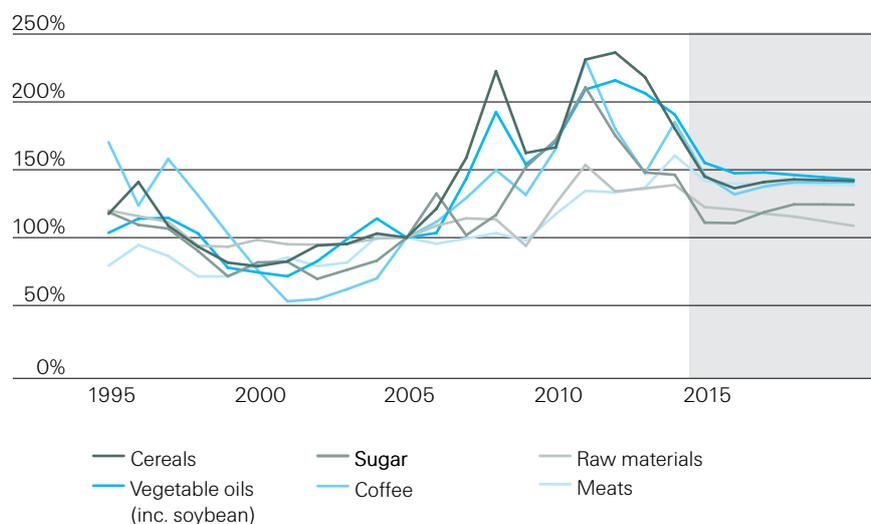
...but agricultural insurance premiums will likely stagnate in 2016.

The shorter-term view of the agricultural insurance market and the underlying agriculture sector is less optimistic. It is predicated on assumptions of weak global demand for agricultural goods and services, a “low-for-long” commodity price scenario and sluggish regional economic growth. Latin America’s real GDP is forecast to stagnate in 2016 and recover only gradually over the medium term, mainly because of a protracted economic crisis in Brazil. Real growth in non-life insurance premiums will mirror this pattern with a lag, growing by between 2–3% in 2016 compared to an annual average of 7% in the decade to 2015. Agricultural insurance premiums are projected to be flat in real terms in 2016, again, largely due to dislocations in the Brazilian agricultural insurance market and anticipated declines in soft commodity prices.

²³ The forecast assumes Latin American currencies depreciate against the USD along with their higher inflation rates (purchasing power parity terms). However, given the recent large currency depreciations, the pace of depreciation in the future may not be as rapid as purchasing power parity terms imply.

Weak demand is likely to weigh on agricultural insurance premiums.

Figure 13
Select agricultural commodity price indices, 100 = 2005



Source: IMF World Economic Outlook.

Supply side

Global supply is expected to outstrip demand.

With softer prices and weaker demand, much of the growth in agricultural goods and related insurance services will have to come from the supply side. For the agriculture sector, global commodity supply will likely outpace demand driven by ongoing productivity gains, area expansion and lower input prices.²⁵ Latin America plays an important role in this story. Productivity growth in the region has exceeded that of other developing regions, in part because of the diffusion of cost-saving technologies (eg, global positioning systems for fertilization and harvesting), and also due to investments in infrastructure and improvements in the business environment.²⁶ This trend is likely to continue in those markets with sound public finances and firm commitments to productivity-enhancing structural reforms such as Mexico, Colombia, Chile and Peru. For example, in Colombia the USD 11 billion fourth generation (4G) transport infrastructure program and prospects of a resolution to decades-long internal conflict have the potential to open up large swathes of the rural sector to development and commercialization. Meanwhile, lower oil prices reduce the cost of energy and fertilizer, which should boost output.

²⁴ *Agricultural Outlook 2015–2024*, OECD-FAO, 2015, p 31.

²⁵ *Agricultural Outlook 2015–2024*, OECD-FAO, 2015.

²⁶ C. Ludena, *Agricultural Productivity Growth, Efficiency Change and Technical Progress in Latin America and the Caribbean*, Inter-American Development Bank Working Paper, No. IDB-WP-186, May 2010, p 9–10.

Deeper trade integration, particularly with Asian countries, should be a net positive for farmers in Latin America.

Whether this additional output will be absorbed by the international market will depend partly on the direction of trade policy. Here the short-outlook is mixed. The “Doha round” of world-trade negotiations remain stalled and there is little sign of a revival anytime soon. The immediate benefits of multi-lateral trade liberalization have largely been exhausted, and the fillip of having China join the WTO will not be repeated. Nevertheless, there is still significant scope for deeper trade integration on a bilateral or regional basis, particularly between Latin America and Asia. The Trans-Pacific Partnership (TPP) agreement, if and when implemented, promises to enhance market access to protected markets such as Japan for farmers in Chile, Mexico and Peru.²⁷ TPP’s impact on agricultural trade will likely be a net positive for the existing Latin American signatories, raising the possibility that others will join.²⁸ The risk of exclusion from TPP or other future trade deals will also put pressure on Brazil and Argentina’s policymakers to secure better terms for their exporters.

Fiscal pressures amid weaker economic growth present a downside risk for insurance premium subsidies.

As for the factors driving insurance supply, these are for the most part a function of government support programs, natural catastrophes and longer-term trends in distribution. With subsidies constituting more than a quarter of nominal premium volumes in Mexico and Brazil, the public finances of these countries may have considerable bearing on regional premium growth. Slower economic growth has led to deteriorating fiscal positions across the region, and most countries face a period of budget cuts. The pressures are most acute in Brazil, where the premium subsidy budget was cut by more than half in 2015 as part of an austerity drive. In accordance with Brazil’s medium-term fiscal consolidation plans, the subsidy budget allocations for the next three years were slashed by one-third.²⁹ Insurers could be forced to charge their customers market premiums if they wish to avoid heavy underwriting losses. This is likely to result in a fall in demand, especially from the more income-constrained small and medium-sized farmers. The effect on headline agricultural premiums is a function of how farmers respond to an insurance price increase, and this may have decreased because farmers have become accustomed to the benefits of insurance coverage. In other countries, sound fiscal policy frameworks will limit the potential fallout of the economic slowdown on their respective agricultural insurance markets, though Brazil’s disproportionate weight means that the regional premiums are likely to fall.

Natural catastrophe may cause agricultural supply disruptions and large insurance claims.

Natural catastrophes could disrupt agricultural supply disruptions, boosting soft commodity prices. If large insurance claims are also involved in these disruptions, those prices would also rise. The frequency and severity of adverse weather events such as El Niño could also be increasing as a result of climate change. The impact of these changes will not be uniform, but vary by crop type and location. Thus, soybeans have historically had higher production in El Niño years owing to more favourable growing conditions in the US and Brazil, while sugar and coffee output tends to fall during these periods.³⁰ The diffusion of risk mitigation strategies should also increase farmers’ resilience and ability to recover quickly from disaster events, and should also help to make insurance more affordable.

²⁷ As of December 2015, the participants in the TPP agreement were Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the US and Vietnam. Colombia is reportedly considering joining.

²⁸ Recent empirical analysis of the TPP agreement on Latin American members finds a net increase in annual agricultural exports to TPP partners of USD 142 million for Chile, USD 99 million for Mexico, and USD 85 million for Peru. See: M. E. Burfisher, J. Dyck, B. Meade, L. Mitchell, J. Wainio, S. Zahniser, S. Arita, and J. Beckman, *Agriculture in the Trans-Pacific Partnership*, US Department of Agriculture Economic Research Service, Washington DC, 2014.

²⁹ L. Sousa, *Os impactos do corte no seguro rural*, *Revista Apólice*, December 28 2015.

³⁰ The 2015 El Niño came on the back of a severe drought in Brazil, which may limit the potential upside for soybean supply. *Assessing El Niño Impact Across Food & Ag*, Goldman Sachs Global Investment Research, November 2015.

Agricultural insurance market outlook

Microinsurance is likely to become a more prominent source of growth

Much of the anticipated growth in insurance is expected to be fuelled by improvements in distribution. Microinsurance, while modest at present, is expected to become a more prominent source of growth for the agricultural insurance industry. Assuming a coverage ratio of around 8%, consistent with other “micro” lines of business, the potential market is estimated to be about USD 1 billion of annual premiums for a target population of around 60 million.³¹ Closing this gap, however, will be a gradual and challenging process contingent upon continued improvements in the operating environment for insurers.

Effective distribution is key to making products accessible to farmers.

Overcoming the challenges

Access: The ability to access remote regions is key to broadening the reach of insurance coverage, especially in Andean countries where many small farmers operate in hard-to-reach areas. In addition to microinsurance schemes, technology will become increasingly important in bringing insurance to remote areas, as schemes using mobile technologies and the internet have demonstrated.

Stakeholders need to build awareness among farmers to encourage participation.

Participation: To build higher participation, more promotion of the benefits of insurance is needed. Agricultural insurance products should be affordable and relevant to farmers so that there is an incentive to buy them. Also, products that are attractive to a wider segment of the population need to be developed.

The agricultural insurance business model must be cost-effective to ensure that products are affordable.

Cost effectiveness: Agricultural insurers should aim for efficient distribution networks and increased use of technology to minimize administrative and claims settlement costs. Recent successful insurance programs in Latin America have made use of mobile technology and automated weather stations. Remote sensing technology is also being tried for index-based insurance products. The technology is expected to lower operating costs by simplifying the risk assessment process.

Insurers should strive to base their products on actuarially sound pricing.

Sound pricing: To ensure sustainable insurance programmes, product pricing must be based on actuarially sound principles and not on opportunistic pricing for market penetration. Insurers should strive to design modular schemes that can achieve both socio-economic and commercial objectives.

Having access to accurate and timely data is paramount.

Data/statistics: Actuarially sound pricing and fair loss assessments often depend on the objectivity, accuracy and timeliness of weather and yield data.

Agricultural insurance needs a good infrastructure if it is to thrive.

Infrastructure support: Lack of infrastructure is a major challenge, particularly in emerging markets. Financial services such as credit and banking, logistics, transportation, storage, road networks and the like are critical for effective risk management and agricultural insurance and farming to function.

Emerging market governments play a key role in the growth of agricultural insurance.

Government support: It is difficult for the agricultural insurance sector in emerging markets to develop without a supportive government, given that the authorities play an active role in enabling greater private sector participation. Through premium subsidies, they can stimulate higher agricultural risk protection uptake from low-income farmers. Enabling policies are also important. The regulatory/legal framework, which includes licensing conditions for insurers, agents, loss adjusters, and so forth needs to be aligned with the development of the agricultural insurance sector. Governments can also provide essential infrastructure and services, such as building roads or collecting weather and yield data. Governments can also provide risk mitigation through flood control systems, setting construction standards, etc. It is important also that government initiatives not crowd out private participation.

³¹ Assuming 14 000 subsistence smallholder and family farms in the region, as per Soto Baquero et. al (2007), and average premiums of USD 70 per year. See: *The Landscape of Microinsurance in Latin America and the Caribbean: A Changing Market*, Microinsurance Network, 2015. And: F. Soto Baquero, M. Rodríguez Fazzone, and C. Falconi, *Políticas para la Agricultura Familiar en América Latina y el Caribe*, FAO-BID, Santiago, 2007.

Conclusion

The Latin American agricultural insurance market has evolved rapidly during the past two decades.

Agricultural insurance in Latin America has developed rapidly in scale, scope and complexity in the last decade. In terms of premium volumes, the market has doubled in size every five years since 2000, reaching USD 1.6 billion in 2015. Growth of agricultural insurance premiums has outpaced all other lines of business except accident insurance, by a sizeable margin. A range of insurance products are now available at virtually every level of the agriculture production value chain. The provision of coverage, formerly the preserve of state monopoly insurers, is now offered by a diverse mix of local, multi-national, cooperative and parastatal carriers, backed by reinsurance and government support mechanisms. New insurance solutions such as index-based instruments are being developed, and technology is being used to improve the actuarial soundness of risk protection products.

However, there is still a large agricultural insurance protection gap...

Despite these encouraging advancements, there is still a big agriculture protection gap in Latin America. The market remains very small (only 2% of regional non-life premiums), and is subject to binding growth constraints. High claims costs and volatility translate into higher risk premiums and loadings. However, a large proportion of agricultural producers in Latin America are small or subsistence family farmers who lack the necessary income to afford insurance at market rates. For these segments, premium subsidies are often indispensable, but so are enabling regulatory and business environments to foster the growth of micro- and index-based insurance. Numerous challenges pertaining to access, data quality and availability, and infrastructure etc. still need to be overcome.

...and while the sector's growth prospects are positive, a number of challenges need to be overcome, particularly in the area of providing affordable products.

The growth opportunities for agricultural insurance are positive. Insurance penetration as a percentage of agricultural output is only 0.6% in Latin America, compared to 1% in Europe and 5% in North America. This suggests significant catch-up potential. Microinsurance alone is estimated to represent a potential market of USD 1 billion in annual premiums. Closing the protection gap will require a multi-stakeholder approach that employs market-based instruments and public-sector initiatives. To ensure high participation and success, agricultural insurance needs to be made accessible to and relevant for the majority of farmers. Insurance solutions need to be affordable, and insurance programs based on ever-more sound actuarial pricing. In addition, government participation and the availability of an adequate and efficient support infrastructure are key enablers.

Re/insurers can provide risk management solutions at multiple levels.

Re/insurers can provide not only risk protection for farmers and producers, but also agricultural risk management solutions for governments, communities, cooperatives or large public and private institutions. PPPs between the governments, farmers and the insurance industry, have been successful in numerous instances in the emerging markets and have gained strong traction in recent years. By leveraging the strengths of different stakeholders, a strong agricultural risk management regime encompassing the use of insurance risk transfer and financing can contribute significantly to increasing farming investment and productivity in Latin America.

Appendix – data summary

Table 4

Agricultural insurance premiums and growth

Country	Direct premiums written USD million		Constant FX		Premiums, % of non-life market total 2015	Premiums, % of non-life market total 2015	10-year real annual avg. growth (CAGR) 2005–2015	10-year real annual avg. growth (CAGR) 2015–2025
	2000	2015	2025F	2025F				
Brazil	43.7	982.0	2590	3669	61.8%	4.4%	21.4%	8.9%
Mexico	97.7	242.9	351	441	15.3%	2.4%	13.4%	3.0%
Argentina	51.6	225.0	377	1347	14.2%	1.6%	1.8%	4.9%
Uruguay	0.0	31.2	62	90	2.0%	3.7%	14.6%	4.8%
Colombia	0.6	25.7	67	91	1.6%	0.5%	44.3%	9.6%
Rest of*	7.3	23.3	62	62	1.5%	0.4%	n/a	6.8%
Ecuador	0.4	22.1	73	73	1.4%	1.2%	31.9%	9.3%
Peru	0.1	16.1	67	78	1.0%	1.0%	54.4%	13.8%
Chile	6.2	10.4	21	24	0.7%	0.3%	11.8%	5.4%
Paraguay	0.0	10.0	30	40	0.6%	3.1%	52.6%	10.0%
Bolivia	0.0	0.4	1	1	0.0%	0.1%	13.8%	9.3%
Venezuela	1.4	0.1	0	0	0.0%	0.0%	-15.7%	2.1%
Latin America	209	1589	3702	5918	100%	2.4%	14.2%	7.7%

*Countries included: Barbados, Bahamas, Belize, Costa Rica, Cuba, Dominican Republic, Guatemala, Haiti, Honduras, Jamaica, Cayman Islands, Nicaragua, Panama, El Salvador, Trinidad & Tobago, British Virgin Island.

F = forecasts

Source: National statistics, Swiss Re Economic Research & Consulting.

Table 5

Agricultural insurance ratios

Country	Cession rate		Gross Loss ratio		Net Loss ratio		Combined ratio 10-year avg
	2015	10-year avg.	2015	10-year avg.	2015	10-year avg.	
Brazil	58%	77%	74%	52%	30%	32%	n/a
Mexico	62%	60%	21%	37%	52%	104%	166%
Argentina	55%	48%	54%	77%	66%	74%	105%
Uruguay	52%	51%	40%	52%	45%	72%	115%
Colombia	89%	89%	140%	98%	218%	134%	105%
Rest of	42%	35%	n/a	n/a	n/a	n/a	n/a
Ecuador	88%	70%	88%	58%	37%	67%	180%
Peru	65%	67%	37%	37%	23%	50%	n/a
Chile	79%	77%	65%	84%	30%	86%	94%
Paraguay	87%	40%	26%	111%	8%	28%	n/a
Bolivia	89%	22%	69%	122%	18%	248%	n/a
Venezuela	133%	83%	27%	118%	27%	128%	n/a
LatAm	60%	61%	58%	52%	48%	54%	n/a

*Countries included: Barbados, Bahamas, Belize, Costa Rica, Cuba, Dominican Republic, Guatemala, Haiti, Honduras, Jamaica, Cayman Islands, Nicaragua, Panama, El Salvador, Trinidad & Tobago, British Virgin Island.

F = forecasts

Source: National statistics, Swiss Re Economic Research & Consulting.

Published by:

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The editorial deadline for this study was 12 June 2016.

The internet version may contain slightly updated information.

Graphic design and production:
Corporate Real Estate & Logistics/Media Production, Zurich

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Order no: 271_0316_en

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