Latin America Solvency Regulation

Non-Life Solvency Calculations for Selected Latin American Countries

May 2011

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Overview

This paper provides a view of the non life solvency requirements for selected countries in Latin America. The aim of this document is to create a clear understanding and benchmark of the various existing methodologies enforced by regulators. Considering the many changes that are foreseen to these regulations over the coming years, it will be necessary to track the impact of these changes to companies and their minimum capital and solvency requirements. The regulatory changes occurring in Europe with the implementation of Solvency II are serving as the catalysts for like changes in Latin America; regulators in Mexico, Brazil and Chile among others, are keen on implementing the Solvency II view of minimum capital requirements in the region.

This topic is important for indigenous and multinational insurance companies operating in the region. Latin America has been identified as an area of growth, and as new capital flows in, companies will continue to take advantage of these opportunities; hence, a clear understanding of the status quo and future regulatory changes is very important.

This document provides the current regulatory solvency framework for the following countries:

Argentina	Dominican Republic
Brazil	Mexico
Chile	Peru
Colombia	Venezuela

This paper provides a summary of the overall methodology used in Latin America for determining Minimum Capital Requirements, as well as recent developments within key countries. In addition, specific regulatory frameworks to determine minimum capital or solvency requirements are presented by country, as well as a discussion of the view of reinsurance capital from a regulatory standpoint with a supporting example.

Summary of Current Solvency Margin

The solvency regulation in Latin America, with the exception of certain countries, is broadly based on the former European Solvency I approach, with modifications made to meet the needs of specific countries. The adoption of the European model by Latin American countries intends to bring a regulatory system that is relatively similar across various insurance regulations.

Solvency margin requirements are based on the following two components:

- Minimum solvency requirements, which are generally based on premiums and reserves
- Resources available to cover those requirements, which are defined as capital plus certain admitted assets

Some countries have amended the minimum solvency requirements to include additional components beyond premiums and reserves to better reflect the increasingly complex insurance and financial environment such as asset risk, credit risk, market risk, and inflation.

The solvency margin is calculated as the excess of insurer's capital over the Minimum Required Capital (MRC). The MRC is the *maximum* of the following two criteria calculations:

First criteria: Comparison to absolute minimum paid capital required to operate

- Minimum capital requirement for a non-life company plus additional capital requirements by line of business

Second criteria: Minimum solvency capital requirements based on the greater of the following two risks:

- Premiums: Considers the premiums written during the period, multiplied by the retention ratio of the insurer and a market premium deviation factor
- Claims: Considers claims incurred during the period, adjusted for inflation and multiplied by the retention ratio of the insurer and a market claims deviation factor. To avoid the use of "fronting" by insurers as a way to mitigate excessive growth, the retention ratio of the insurers must be the same or greater than the market retention ratio.

The greater of these two criteria is the MRC, which is then compared to insurer's capital plus certain admitted assets to determine the solvency margin. In general, capital available to cover minimum required capital includes:

- Paid capital
- Capital reserves (contingency and equalization reserves)
- Retained earnings
- Current earnings
- Prepaid commission to agents and advance payment to employees are deducted

The methodology to determine the deviation factors for premiums and claims, which is expressed as a percentage, is based on probability distribution functions of potential losses in the actuarial models. In general, the factors applied to each risk are considered sufficient to cover probable losses at the 95th% confidence level. The deviation factors for each country depend on the quality and quantity of the historical data, statistical functions that determine the factors for each line of business, and the desired confidence level for each regulator.

To summarize, most solvency requirements in Latin America are based on Solvency I guidelines and are calculated as the excess of adjusted surplus over the greater of the following two tests:

- First test: compared to minimum capital required to operate
- Second test: compared to higher of two solvency margin calculations
  - Premium based: factor x premium x retention ratio
  - Claims based: factor x claims (usually 3 year average) x retention ratio

Recent Developments

In order to follow the worldwide trend towards more rigorous insurance solvency rules, insurance regulators in several Latin American countries are moving in the direction of (or have already initiated studies to adopt) the European Solvency II project for its solvency supervision and control. Further, several countries are in the process of adopting IFRS accounting standards. Below are some of the key recent changes various Latin American countries have implemented:

Argentina

In February, 2011, the SNN (Argentine superintendent of insurance) enacted legislation to require local insurance companies to reinsure only with Argentine reinsurers or domestic subsidiaries or branches of foreign companies that have local capital of at least AR$20 million (US$5 million) plus additional capital required by local solvency regulations. Foreign reinsurers that have not set up an Argentinian reinsurance subsidiary or branch will only be able to underwrite risks from Argentinian insurance companies if they register with the SNN and approval will only be granted per policy on a case-by-case basis.

Brazil

In Brazil, the CNSP (Conselho Nacional de Seguros Privados) issued in December 2006 resolutions establishing revised capital and solvency requirements for the insurance sector incorporating credit, market, legal, underwriting and operating risks. In December 2007, SUSEP (Superintendencial de Seguros Privados) amended the formula as the new requirements were considered excessive by many insurers. Insurers are required to meet 70% of the new minimum capital requirements by end of 2010 and 100% by end of 2011. Thus far only underwriting risk and credit risk capital requirements have been defined. In addition, Brazil is expected to adopt IFRS accounting in 2011.

Chile

In Chile, a new solvency calculation has been proposed by the Superintendencia de Valores y Seguros (SVS) to introduce changes to the current insurance regulation[1], which is based on risk based capital requirements covering insurance risk, investment risk and operational risk calculated in accordance with a standard formula. The proposed solvency calculation would replace the current solvency margin requirements, and will be structured on the basis of a total balance sheet approach, taking into account the equity measurements associated with assets and liabilities. Further, Chile intends to adopt IFRS as their basis of accounting beginning 2012.

Colombia

In Colombia, the solvency regulation was modified to include market risk, which will be based on value at risk, and asset risk in its solvency margin calculation. Insurers have 12 months beginning in August 2010 to comply with the proposed changes.

Mexico

In 2012 Mexico will adopt a new set of solvency requirements that closely resemble the European Solvency II directive. The new law will set the responsibilities for Boards of Directors and frame corporate governance by defining the actuarial function, risk management, internal controls and internal auditing

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[1] Insurance Law, DFL No 251.

that will impact insurance companies' capital requirements. Small companies, in particular, will find it difficult to comply with the new regulations. These changes represent a major challenge for the industry and are expected to influence future regulations in the entire Latin American region.
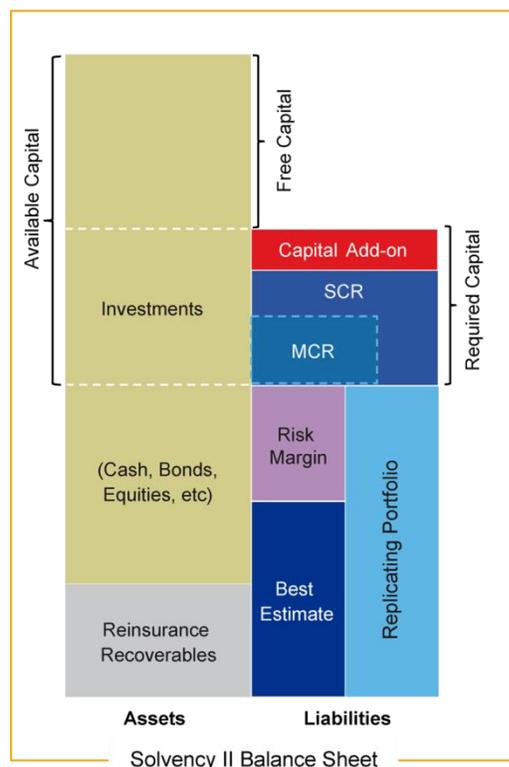
Solvency II

Solvency II represents one of the most wide-ranging reforms to any existing regulatory regime. The aim of Solvency II is to harmonize insurance regulation across Europe, replacing Solvency I (established in 1973) as well as local regimes (e.g. UK ICAS). The planned implementation date is January 2013 plus a transitional period of up to 5-10 years for certain components of the regulation. Solvency II is a three pillar approach:

Pillar 1 Quantitative Requirements	Pillar 2 Supervisory Review	Pillar 3 Disclosure Requirements
- Fair value balance sheet - Capital Requirements - Solvency Capital Requirement (SCR) - Minimum Capital Requirement (MCR)	- Systems of governance - Own Risk Solvency Assessment (ORSA) - Supervisory review process - Assessment of quantitative and qualitative requirements	- Solvency and Financial Condition Report (SFCR) - Greater transparency to investors - Report to Supervisors (RSR) - Quarterly and annual reporting requirements

Pillar 1 capital charges under Solvency II are expected to be finalized in Dec 2011 and these will be largely based on Quantitative Impact Study (QIS) 5. QIS 5, which was the final of a series of tests to calibrate the Solvency Capital Requirement (SCR), was completed in the autumn of 2010 and results were released in the winter of 2011. Pillars 2 and 3 have not yet been finalized and released for comment across Europe.

Solvency II incorporates a risk-based approach to required capital that demands insurers to develop robust risk management practices, which will have a significant impact on the European insurance industry. The average non-life solvency ratio is expected to decrease from about 200% under Solvency I to 165% under Solvency II. Captives and mono-lines are at a significant disadvantage as the standard formula penalizes those writing less diverse portfolios – both geographically and in terms of class of business. The capital charges for counterparty default risk may drive a flight to quality for reinsurance counterparties (rating 'A' or better), and catastrophe risk is a key concern within the Solvency II Standard formula as the local catastrophe scenarios under QIS 5 often lead to a materially higher result than the commercial catastrophe models.

The Solvency II balance sheet represents a significant change from the current presentation of the balance sheet.


Solvency II Balance Sheet

Key Components of Solvency II Balance Sheet Changes

Market Consistent Valuation	Liabilities that can be reliably replicated using liquid traded instruments should be valued as the observed market value of a replicating portfolio.
	For non-hedgeable liabilities, the fair value is estimated as the best estimate plus the risk margin.
Best Estimate Liabilities	This is the probability weighted average of future cash-flows taking account of the time value of money
	Binary events should be included when appropriate
	Discount curve swap based and includes liquidity premium
Risk Margin	This is a loading on top of the best estimate to reach the fair value of the liabilities under an arms-length transaction
	Computed under a cost of capital methodology: present value of future SCR's multiplied by cost of capital (6%)
SCR	The Solvency Capital Requirement is computed as the potential reduction in assets and increase in liabilities following a 1 in 200 year event over a 1 year time horizon
	Calculated using Standard Formula or an internal model
Capital Add-on	If SCR is not representative of the risks of the insurer's risk profile, the supervisor can impose a capital add-on
MCR	The Minimum Capital Requirement represents an absolute regulatory minimum level of capital needed by a firm
	Supervisory intervention if the MCR is breached
	Computed as a linear formula with corridor of 25-45% of SCR
Asset Valuation	Assets are measured using a mark to market approach
	Reinsurance recoverables valued on best estimate basis with a haircut to reflect expected losses according to credit rating

In summary, Latin America is witnessing a rapid series of changes that are significantly altering the way local companies think about risk and capital. The region is on a path to have regulatory standards in line with the mature insurance markets of the world.

Solvency Requirements by Country

Below is a comparison of the Minimum Required Capital as a percentage of Gross Premiums Written for each of the solvency regimes analyzed. For purposes of this analysis we only considered required capital for premiums and reserves, as countries that have adopted other elements have not always fully disclosed the underlying calculations. Therefore, in the interest of achieving a consistent view, we focused on the key drivers behind capital requirements, which are premiums and reserves, and this will likely not change even with the introduction of asset risk and credit risk. We used a consistent data set across each model to ensure a comparative analysis.

Minimum Required Capital as % of GPW
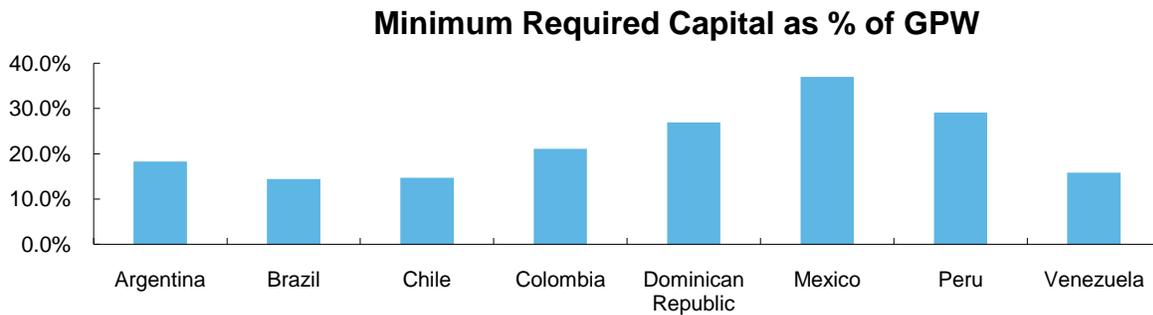
Argentina

The Argentinean solvency regulation is similar to European Solvency I with some modifications. The Superintendence of Insurance has begun a study to evaluate the possible adoption of a new scheme based on Solvency II, though the study is in its early stages and no timetable for adoption has yet been set.

Minimum required capital is the largest of the following three measures:

- Minimum paid capital required to operate by class of business

- Required capital for premiums

- Required capital for claims

Minimum capital required to operate by line of business:

Line of Business	Minimum Additional Capital Requirements
Motor	ARS 5 million (USD 1.27 million)
Liability, bond insurance, personal accident, healthcare and burial insurance	ARS 2 million (USD 509,424) for each line
Burial Insurance only	ARS 1 million (USD 254,712)
Property (fire, theft, glass, transport, livestock, hail, engineering and others)	ARS 1.5 million (USD 382,068)
Personal Insurance (life, health, personal accident and burial insurance)	ARS 5 million (USD 1.27 million)
Motor, liability, bonds and property	ARS 8 million (USD 2.04 million)
Motor, liability, bonds and property plus life , personal accident, health and burial insurance	ARS 10 million (USD 2.55 million)
Workers compensation	ARS 5 million (USD 1.27 million) or ARS 8 million (USD 2.04 million)
Motor third party liability for public transportation service vehicles	ARS 6 million (USD 1.53 million)
Motor third party liability for public transportation service vehicles for mutual insurers	ARS 3 million (USD 761,137)

Required Capital:

- Premiums: gross premiums x 16% x retention ratio (net claims paid / gross paid claims) Retention ratio cannot be lower than 50%

- Claims: gross claims (average of last 36 months) x 23% x retention ratio

Brazil

Brazil has proposed regulations to establish new capital and solvency requirements based on the following risks: credit, market, legal, underwriting and operations[2]. These rules require insurers to maintain a base level of capital plus additional capital for the aforementioned risks. Until all capital requirements have been defined for these risks (so far only the underwriting and credit components are known), the current Solvency Margin is compared to the new Risk Based Capital requirement, and the greater number would be the required capital.

- Current solvency margin: greater of 20% x retained premiums for the last 12 months, or 33% x average retained claims for the last 3 years
- Risk based capital: base capital + additional required capital for underwriting risk and credit risk
- Base capital: BRL 1.2 million + amount that depend on the region of operation.

The chart below outlines the capital requirements by state:

Region	Number of States	Minimum Additional Capital Requirements
1	6	BRL 120,000 (USD 75,000)
2	3	BRL 120,000 (USD 75,000)
3	4	BRL 180,000 (USD 112,500)
4	2	BRL 180,000 (USD 112,500)
5	5	BRL 600,000 (USD 375,000)
6	3	BRL 2,800,000 (USD 1,750,000)
7	3	BRL 1,000,000 (USD 625,000)
8	1	BRL 8,800,000 (USD 5,500,000
Nationwide	27	BRL 15,000,000 (USD 9,375,000)

States with the highest additional capital requirements are in regions 6 (Espirito Santo, Minas Gerais, and Rio de Janeiro) and region 8 (Sao Paulo). Insurers operating nationwide would be required to hold BRL 15 million including base minimum capital of BRL 1.2 million.

Underwriting risk: insurers must maintain capital in relation to premium and claim amounts by class of business and region of operation. SUSEP (Superintendence of Private Insurance) has provided factor tables for 17 business classes and 3 regions that would be used for calculation

$$CA_{UW} = \sqrt{\sum_{i=1}^{51} \sum_{j=1}^{51} \left(f_i^{prem} \cdot premium_i^m\right)\left(f_j^{prem} \cdot premium_j^m\right) p_{ij}^{prem} + \sum_{k=1}^{17} \sum_{l=1}^{17} \left(f_k^{prov} \cdot claims_k^m\right)\left(f_l^{prov} \cdot claims_l^m\right) p_{kl}^{prov}}$$

$f_i^{prem} =$ Factors related to pricing risk, where I is the segment (class of business by region).

There are 51 segments (17 classes and 3 regions = 51 segments)

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[2] Resolutions CNSP 155, 156, 157, and 158 and subsequent amendments by resolution 200/2008 in 2008.

f_k^{prov} = Factors related to provision risk, where k is the class of business (17 classes)

p_{ij}^{prem} = Correlation between segments

p_{kl}^{prov} = Correlation between classes of business

Credit Risk: The CNSP (National Council of Private Insurance) of Brazil issued on December 6, 2010 Resolution CNSP No 228 to include capital requirements for credit risk exposures as part of the additional risk based capital requirements. The Resolution divides the credit risk exposures into two sections, and credit risk charges are applied to those sections individually to determine the additional capital requirement for credit risk.

Section 1: represents credit risk from insurance and reinsurance companies, EAPC (private pension funds), and Capitalization companies (savings bond issuing companies). The required capital for Section 1 Credit Risk depends on the type and degree of the counterparty risk:

- Counterparties are divided into 3 types
  - Type1: local insurers and reinsurers, private pension funds and capitalization companies. Type 1 counterparties are assigned as Level 1 for risk charges.
  - Type 2: Admitted Reinsurers
  - Type 3: Eventual Reinsures (A foreign reinsurer not wishing to establish a representative office in Brazil, though it must meet certain requirements; companies cannot cede more than 10% of business in total to all Eventual Reinsurers)
- The risk charges for counterparty credit risk are divided into 3 levels according to ratings from approved rating agencies (Standard & Poor's, Moody's Investor Service, Fitch Ratings, and A.M. Best)
- Risk charges are then applied according to the counterparty risk types and risk levels - Type 1 and level 1 would receive the lowest risk charge and type 3 and level 3 the highest charge

$$CA_{cred1} = \sqrt{\sum_{i=1}^{r} \sum_{j=1}^{r} (f_i \times \exp_i)(f_j \times \exp_j) p_{ij}}$$

CA_{cred1} = Additional capital based on credit for section 1

f_i = Risk factor corresponding to counterparty i

$\exp_i$ = Value of credit risk from counterparty i

p_{ij} = Correlation coefficient between credit risk from counterparty I and j

r = Total number of counterparties

Risk Factors for Counterparties:

	Type 1	Type 2	Type 3
Level 1	1,93%	2,53%	3,04%
Level 2	-	4,56%	5,48%
Level 3	-	11,36%	13,63%

Risk Charges According to Ratings:

	Standard & Poor's Co.	Moody's Investor Service	Fitch Ratings	AM Best
Level 1	AAA AA+ AA AA-	Aaa Aa1 Aa2 Aa3	AAA AA+ AA AA-	A++ A+
Level 2	A+ A A-	A1 A2 A3	A+ A A-	A A-
Level 3	BBB+ BBB BBB-	Baa1 Baa2 Baa3	BBB+ BBB BBB-	BB+ B+

<u>Section 2:</u> Represents credit risk emanating from assets (fixed-income investments, premiums receivable and other assets).

$$CA_{cred2} = 0.11 \times \sum_i FPR_i \times exp_i$$

CA_{cred2} = Additional capital based on credit risk from section 2
FPR_i = weighting factor for credit exposure i
exp_i = credit risk value

The required capital for Section 2 Credit Risk depends on the type and maturity of assets

- 20% risk charge for short term assets maturing in less than 3 months
- 50% risk charge for assets maturing in more than 3 months
- 75% risk charges for receivables arising from insurance operations
- 100% risk charge for securities from non-federal and non-financial institutions, and other assets

The overall required capital for credit risk is calculated as:

$$CA_{cred} = \sqrt{CA_{cred1}^2 + CA_{cred2}^2 + 1.50 \times CA_{cred1} \times CA_{cred2}}$$

CA_{cred} = additional capital based on credit risk
CA_{cred1} = additional capital based on credit risk related to section 1
CA_{cred2} = additional capital based on credit risk related to section 2

Chile

Minimum required capital is defined as the largest of the following 3 measures:

- Minimum Capital
- Solvency margin
- Statutory debt relationship

Minimum Capital:
Current minimum capital is UF 92,000 (USD 3.76 million)[3]. No change is expected as the UF is indexed and adjusted for inflation on a daily basis. Minimum capital for reinsurance companies is UF 120,000 (USD 5 million)

Statutory Debt Relationship: Maximum total debt is 5 times capital for non-life and 15 times for life; debt to 3rd parties (excluding technical reserves) may not exceed capital

Solvency Margin: Higher of premium based or claims based
- Premium based: gross premiums written (excluding earthquake) x premium factor x reinsurance factor
  - Premium factor: 0.45 for fire, 0.10 for Auto, and 0.40 for other
  - Reinsurance factor: ratio of net incurred claims to gross claims; for large risks, the reinsurance factor must be multiplied by 2
    - Large risk = UF (Unidad de Fomento) > 2 million
    - Unidad de Fomento is a currency unit indexed on the inflation, which is often used for major economic transactions in Chile
- Claims based: average gross claims for the last 3 years (excluding earthquake) x loss factor x reinsurance factor
  - Loss factor: 0.67 for fire, 0.13 for Auto, and 0.54 for others

Factors	Fire	Auto	Others	Fire Large Risks	Others Large Risks
Premium Factor	0.45	0.10	0.40	0.45	0.4
Loss Factor	0.67	0.13	0.54	0.67	0.54
Reinsurance Factor*	0.15	0.57	0.29	0.2	0.2

* If actual Insurer's reinsurance factor is lower than these factors, then these factors must be used

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[3] Article 7 of Law No 251

Colombia

The Colombian regulatory agency initially modified their solvency calculation in 2001. The solvency calculation was again modified in 2010, and changes were made to the underwriting, market and asset risk components. Insurers have 12 months from the beginning of August 2010 to adopt the amended solvency requirements.

The changes to the rules can be summarized as follows:

Underwriting risk: the values are expressed in UVR (Unidad de Valor Real), which are currencies adjusted for the consumer price index. The components of underwriting risks are: premium, claims and mathematical reserves (for Life risks)

- Premiums: The sum of (a) the first 41 million of UVR is multiplied by 18%; and (b) the amount in excess of UVR 41 million is multiplied by 16%. This sum is then multiplied by the retention ratio (net claims / gross claims), which cannot be lower than 50%

- Claims: The sum of (a) the first 25 million of UVR is multiplied by 27%; and (b) the amount in excess of UVR 25 million is multiplied by 24%. This sum is then multiplied by retention ratio

- Mathematical reserves: reported life reserves: 6% of life reserve x net/gross mathematical reserves

Market risk: the Value at Risk (VaR) method will be utilized to determine market risk. The Financial Superintendency of Colombia will define the methodology of the calculation (date unknown)

Asset risk: risk charges will be applied to assets, ranging from 0% (risk free assets) to 8.5% (highest risk assets).

- Category I – 0% risk charge

  - Cash and cash equivalents deposited on entities under the supervision of Superintendencia Financiera de Colombia (SFC)

  - Investments in Colombian Government securities (or backed by the Government)

  - Bonds and mortgage loans guaranteed by Government

  - Receivables for credit insurances and outstanding losses guaranteed by Government

  - Securities wholly guaranteed by credit entities

  - Sovereign bonds emitted by member countries of G-10 and securities guaranteed by central banks of those countries

  - Net exposure resulting from repo agreements and temporary transfer of securities when the counterparty is the nation, central bank, or a risk mitigating vehicle of the nation

  - Credit exposure from derivatives when the counterparty is a nation, Government bank or a branch of the nation

- Category II – 1.5% risk charge
  - Term deposits in credit institutions under the supervision of the SFC
  - Deposits in foreign banks with an investment grade rating from an internationally recognized rating agency
  - Credits unconditionally guaranteed with securities issued by a nation or government banks which are explicitly authorized by the SFC
  - Securities issued by a foreign entity with an investment grade rating from an internationally recognized rating agency
  - Reinsurance recoverables from foreign reinsurers with an investment grade rating, net of deposits
  - Recoverables from coinsurance contracts with insurers under the supervision of the SFC with an investment grade rating from risk rating entity
  - Net exposure resulting from repo agreement and temporary transfer of securities when the counterparty is an entity under the SFC different from the Central Bank, or a public entity or a mutual fund
  - Credit exposure from derivatives when the counterparty is an entity under supervision of the SFC different from the Central bank, or a public entity or mutual fund
- Category III
  - Securities will be classified according to ratings from authorized agencies by the SFC and the following risk charges will be applied:
    - Long term credit risk
      - AAA to AA-: 1.5%
      - A+ to A-: 4.5%
      - BBB+ or lower or not rated: 8.5%
    - Short term credit risk
      - 1+ to 1-: 1.5%
      - 2+ to 2-: 4.5%
      - 3 or lower or not rated: 8.5%
  - Net exposures from the temporary transfer of financial instruments and credit exposures on derivatives of counterparties not included in Category I and II
    - AAA to AA-: 1.5%
    - A+ to A-: 4.5%
    - BBB+ or lower or not rated: 8.5%
  - Stock issued by foreign entities, stocks subscribed in the national registry of securities and RNVE, negotiable CD of mentioned entities (ADRs and GRDs) and participation in investment funds will receive a risk charge of 4.5%
  - All other assets are subject to 8.5% risk charge

There is also a minimum capital that insurer must maintain in order to operate, which is adjusted annually in accordance with the consumer price index. As of 2010, the Required Base Capital was COP 7.9 billion. In addition, companies must hold the following minimum additional capital for each line of business:

Line of Business	Minimum Additional Capital Requirements
Auto	COP 1,716 million
Auto, Fire, Earthquake, Business interruption	COP 2,411 million
Auto, Fire, Earthquake. Business interruption, and others	COP 3,454 million
Other than Auto, Fire, Earthquake, and Business interruption	COP 1,042 million
Fire, Earthquake, and Business interruption	COP 695 million
Pension	COP 1,772 million
Professional Liabilities	COP 1,182 million
Individual Life	COP 1,592 million
Credit	COP 1,359 million
Disability	COP 590 million

Dominican Republic

The Dominican Republic regulator requires a minimum capital of DOP 8.5 million or the equivalent of USD 500,000. In addition, a guarantee fund must be established for the following amounts: 1.5% of net retained premiums up to DOP 50 million, DOP 750 thousand and 1% of net retained premiums over DOP 50 million up to DOP 100 million, and 0.5% of net retained premiums in excess of DOP 100 million.

Minimum solvency requirements are calculated as the sum of the following three components, provided they are not less than minimum capital required to operate established by law:

- For non life, accident, health and life insurance, the greater of:
  - Premium based: 27% of net earned premiums. For health and group life, this amount is multiplied by 5%
  - Claims based: 41% of the average gross losses incurred in the past 3 years (excluding catastrophe losses), multiplied by the retention factor (retained claims / gross claims).
- 5% of ceded premiums
- For individual life: 7% of mathematical reserves for the period including reserves for additional bonuses

Mexico

As previously discussed, the Mexican insurance industry is moving towards adoption of a Solvency II type regulation in 2012. Based on the proposed laws, several changes are expected as a result of the new rules:

- Strengthening the definition of corporate governance (risk management)
- Technical reserves based on estimated cash flows discounted to present value
- Solvency capital requirements will be determined at 99.95% confidence level; for catastrophic risks regulators will define the return period appropriate for the nature of these risks
- Companies would have the option to develop internal models to determine solvency capital requirements
- Rules for maintaining reserves for catastrophe risks and minimum capital requirement based on fixed amount in UDIs (inflation indexed units) are not expected to change

Currently, the solvency capital requirements are defined as the Minimum Capital Guarantee (MCG) and these provide a more risk-based capital approach depending on the characteristics of each class of business. The current guidelines provide mathematical formulae for each class of business, applying multipliers to written premiums, net claims ratio and the quality of reinsurance. The solvency margin for earthquake exposure considers the net retained Probable Maximum Loss (PML) based on the modeling techniques established by the CNSF.

In addition to solvency margins, insurers are required to maintain minimum paid up capitals that are required to operate in Mexico. These capital requirements have been stated in units known as UDIs. UDIs were introduced in April 1995 to adjust for heavy interest rates in the 90s and are adjusted for inflation.

Class	UDI	MXN	USD
Life	6,816,974	29,040,309	2,200,023
Accident and Health	1,704,243	7,260,075	550,006
Healthcare	1,704,243	7,260,075	550,006
Pensions	28,000,000	119,280,000	9,036,364
Non-Life			
One class	5,112,730	21,780,230	1,650,017
Two class	6,816,974	29,040,309	2,200,023
Three class or more	8,521,217	36,300,384	2,750,029
Bonding			
One class	7,310,308	31,141,912	2,359,236
Two class	9,747,077	41,522,548	3,145,648
Three class or more	12,183,846	51,903,184	3,932,059

Solvency margin
The Solvency Margin is calculated as surplus plus certain admitted asses less MCG

The MCG is determined by calculating the gross solvency requirement (GSR) and subtracting from GSR the deductions (D) allowed by the regulators

$$MCG = GSR - D$$

Gross solvency requirement is equal to sum of individual solvency requirement for each line of business in which the insurer operates

$$GSR = \sum_{i=1}^{15} Ri$$

Ri = solvency requirement for each LOB
15 = number of line of business

Capital requirements for each line of business (Ri) are defined as:

$$Ri = Max(premiums, claims) \times Irenr + \% \times (Pceded + Cost) \times (1 - Iqrer) \times Icrer$$

- Premiums = Gross written premiums for the last 12 months x the premium factor for this line of business x retained claims ratio
- Claims = Average annual net incurred claims for the last 36 month adjusted for consumer price index x claims factor for this line of business x retained claims ratio
- Irenr = Ratio of unregistered foreign reinsurers
- Pceded = premium ceded to registered foreign reinsurers
- Cost = reinsurance (non-proportional) cost paid to registered foreign reinsurers
- Igrer = Ratio of quality of registered foreign reinsurers
- Icrer = Ratio of concentration of registered foreign reinsurers
- For Earthquake and Hurricane:
    - Retained risk + required capital from reinsurance deficiency of such risk
        - Retained risk = PML (EQ or HU) retained by the insurer
        - Required capital from reinsurance deficiency of such risk = PML retained (EQ or HU) x (Irenr – 1)

From the sum of all capital requirements, certain items are deducted (D) to determine the minimum capital guarantee as listed below:

- Contingency reserves for pension, surety,
- Catastrophe reserves for earthquake, Hurricane
- Special technical reserve for financial guaranty
- Other special reserves explicitly approved by the regulator

Factors for Premiums and Claims

Class	Premiums	Claims
Accident & sickness	14.77%	22.80%
Health	11.76%	16.27%
Agriculture	50.23%	72.86%
Auto	16.40%	25.41%
Credit	101.41%	165.94%
Civil liability	43.29%	100.10%
Others	32.78%	56.87%

Reinsurance Quality Factors

Class	S&P	A.M. Best	Moody's	Fitch	Quality Factors
Superior	AAA	A++, A+	Aaa	AAA	0.95
Excellent	AA+, AA, AA-	A, A-	Aa1, Aa2, Aa3	AA+, AA, AA-	0.90
Very Good / Good	A+, A, A-	B++, B+	A1, A2, A3	A+, A, A-	0.85
Adequate	BBB+, BBB, BBB-		Baa1, Baa2, Baa3	BBB+, BBB, BBB-	0.80

Dynamic Solvency Testing

In May 2004, Mexico introduced Dynamic Solvency Testing[4], requiring insurers to calculate future solvency on a projected basis incorporating "what if" scenarios. All Mexican insurers must test their current and projected surplus positions in relation to the minimum required capital using a set of scenarios.

- Insurers are required to use at least 3 years of historical information for an assumption development

- Insurers must test the impact of the scenarios in relation to the required minimum capital levels

- The objective of the test are to identify:

    - Possible risks that could affect the insurer's financial condition

    - The actions that an insurer should take to reduce the probability that these risks materialize

    - The actions that an insurer must take in case the adverse risks materialize

- Satisfactory condition is achieved if throughout the projected period:

    - The insurer is able to meet all of its future obligations under the baseline scenario as well as under the adverse scenarios tested

    - The insurer is able to meet the minimum capital requirements under the baseline scenario

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[4] Circular S - 20.12

- The projected period starts with the most recent financial balance sheet, and must be long enough to capture all adverse effects and for management to react to these risks. The minimum period is two years for non-life and five years for life companies

- Scenarios should include a baseline scenario, at least three adverse scenarios, an integrated scenario and the statutory scenarios (prescribed by the CNSF)

- The actuarial report must include the baseline and adverse scenarios tested as well as comments related to each identified risk

- The dynamic solvency testing and report are the responsibility of a licensed actuary

  - The test must be performed annually

  - The actuary must research and identify the main factors impacting solvency, as well as perform the analysis and file a report

  - The CEO and actuary must present the report to the board of directors during the first six months of the following year

  - The report must include an actuarial opinion with language similar to that of the actuarial opinion in the United States

Peru

Minimum capital required to operate:

	PEN (millions)	USD (millions)
Life or Non- life company	4.19	1.51
Life and non-life company	5.76	2.08
Reinsurance company	8.90	3.21
Direct insurance and reinsurance company	14.66	5.29

Minimum solvency requirements for non-life insurance are based on premiums and claims:

- Premium based: 24% of gross written premium income of the previous 12 months x retention ratio (cannot be lower than 50%)

- Claims based: 46% of average annual net losses of the last four years, but deducting six months of greatest losses and six months of lowest losses, resulting in 36 months x retention ratio

The largest of the above represents the solvency requirement.

Reinsurers not established in the country must register in order to conduct business in Mexico. Reinsurers with a non-vulnerable rating by an internationally recognized rating agency are automatically accepted to register and conduct business.

	Minimum Ratings
Standard & Poor's	BBB-
Moody's	Baa3
Fitch Ratings	BBB-
A.M. Best	B+

Insurers and reinsurers are also required to maintain a guarantee fund equivalent to 35% of the assets required for solvency purposes. This is to offset any fluctuation in value of investments and to cover future obligation to clients.

Venezuela

Beginning in 2010, the minimum capital required to operate is expressed in tax units known as "Unidades Tributarias" (UT), which are valued at VEF 65 (USD 25), and are defined as:

- Single non-life class or two related non-life classes: UT 90,000 (VEF 5.85 million or USD 2.25 million)
- Non-life *or* life business: UT 120,000 (VEF 7.80 million / USD 23.00 million)
- Non-life *and* life business: UT 210,000 (VEF 13.65 million / USD 5.25 million)
- Reinsurers are required to have UT 290,000 (VEF 18.85 million / USD 7.25 million)

The minimum solvency requirement is the greater of the premium or claims based calculations:

- Premiums: premium collected in the last 12 months x 17% x retention ratio
- Claims: average annual claims for the last 36 months x 25% x retention ratio

Appendix

Benefit of Reinsurance on Solvency

Reinsurance is a form of capital that has been widely used by insurers for numerous reasons. Reinsurance is a source of low cost capital that permits insurers to protect themselves against potential losses, support growth, or as a solution to satisfy regulatory and rating agency capital requirements. For casualty driven insurers, reserves are the main factor driving capital requirements; for property driven insurers, premiums and PML are the key contributors of capital requirements. Reinsurance can provide capital relief to these insurers via the cession of premiums and reserves.

Two of the most common forms of reinsurance are excess of loss and quota share. Using an excess of loss reinsurance contract to lower retentions will improve underwriting volatility by ceding losses over certain level. Companies will cede a certain amount of premium in order to obtain a defined level of protection. In a quota share reinsurance contract, an insurer cedes a proportional share of its premiums and the resulting losses to a reinsurer, so the reinsurer shares in the results of the insurer. Quota share also reduces premiums and reserves, though also generally increases capital through ceding commissions.

Reinsurance benefits the solvency requirements in Latin America by reducing the retention ratio (ceding loss reserves), which is a driving component of the solvency calculation in several countries. In addition, catastrophe reinsurance reduces the catastrophe PML requirements by reducing the retained PML in catastrophe prone regions.

Illustration

Solvency capital requirements for Argentina

	Quota Share 20%	XOL 5M x 1M
Gross Premium = 14,000,000	Loss Ratio = 65%	10% ROL = 500,000
Incurred claims = 10,000,000	Expense Ratio = 30%	Ceded premium = 500,000
Gross paid claims = 9,500,000	Combined Ratio = 95%	Ceded losses = 1,300,000
	Ceded premium = 2,800,000	Net claims = 8,700,000
	Ceded losses = 1,820,000	Net claims paid = 8,178,000
	Ceded expense = 840,000	Expected loss = 423,000
	Ceded margin = 140,000	Reinsurance margin = 77,000
	Tax rate = 30%	Tax rate = 30%
	After tax ceded margin = 98,000	After tax ceded margin = 53,900
	Net claims = 8,180,000	Retention ratio = 0.86
	Net claims paid = 7,680,000	

Premium based	Gross	Net of 20% Quota Share	Net of XOL 5M x 1M
Gross Premium	14,000,000	14,000,000	14,000,000
*Factor**	X 0.16	X 0.16	X 0.16
Retention Ratio	X 1	X 0.81	X 0.86
	2,240,000	**1,523,200**	**1,680,000**
Claims based			
Incurred Claims	10,000,000	10,000,000	10,000,000
*Factor***	X 0.23	X 0.23	X 0.23
*Retention Ratio****	X 1	X 0.81	X 0.86
	2,300,000	**1,564,000**	**1,725,000**
Solvency Requirement[5]	**2,300,000**	**1,564,000**	**1,725,000**
After tax cost of Reinsurance		98,000	53,900
Gross requirement		2,300,000	2,300,000
Net of Reinsurance requirement		1,564,800	**1,725,000**
Reinsurance benefit		**736,000**	**575,000**
Cost of reinsurance capital		**13.3%**	**9.4%**

Solvency Requirement as % of GPW	**16%**	

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*Gross premium factor = 16%
**Claims factor = 23%
***Retention ratio = NCP/GPC
[5] Greater of Premium Based or Claims Based capital requirements

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