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Moody's RiskCalc

RiskCalc Insurance Property and Casualty 3.1 Model

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Introduction

This document describes the functions and their associated parameters available in the *RiskCalc Insurance Property and Casualty 3.1* model.

This document works in conjunction with the document, *RiskCalc External Integration Specification* to describe how to access RiskCalc directly via its integration interface. The interface uses Extensible Markup Language (XML) as its communication protocol. The *RiskCalc External Integration Specification* describes the XML protocol and this document describes the functions and parameters specific to this particular model.

Description

This model is used for analyzing property and casualty insurance companies.

It is beyond the scope of this document to describe how the RiskCalc models work or to give detailed definitions of their various inputs and outputs. For technical information about the *RiskCalc Insurance Property and Casualty 3.1* model, please refer to the following document(s) available from the Moody's KMV Support Web site:

RiskCalc® v3.1 Model: U.S. Insurance

Subscription Level

Access to this model is authorized by either of two subscription levels, Financial Statement Only or Credit Cycle Adjusted. Those organizations subscribing to the Financial Statement Only level will be restricted to receiving EDF scores without the influence of regularly updated macro-economic variables. In this subscription configuration, the client must submit the input XML document with the input argument 'FinancialStmntOnly' set to 'True'. Other settings will result in a returned subscription error code / message. Organizations subscribing to the Credit Cycle Adjusted configuration will have complete control over the definition of the input argument 'FinancialStmntOnly'.

Model IDs

Model ID: PRV

SubModel ID: INSPCEDF

Supported Currencies:

USD

U.S. Dollar

For those models that support multiple currencies, the currency is specified in the **CURRENCY=** attribute of the **<OPERATION>** tag in the XML data stream. If not specified, by default this model will interpret the inputs as Euros.

Functions Available:

EDFCLC – Calculate EDF for a private company

Notes:

1. Unless otherwise noted values should be entered in thousands of currency units.
2. All arguments required by the model are identified in the “R” column in the *Input Arguments* table. Operations submitted omitting these parameters will not be processed and will return an appropriate error code and description. If any non-required argument is omitted, the model will assume a mean value for that argument unless otherwise noted.
3. The formatting of entered values must adhere to these following elements:
 - a. Unless specified otherwise, all values entered should be numeric (example 1000).
 - b. Negative amounts must include the negative sign before the number (example –127.54).
 - c. The decimal point must be included to represent fractional units (example -302461.75).
 - d. Digit grouping symbols must not be included.

Input Arguments

Argument Type	Description	R
FirmID	Identifier used for obligor-based subscriptions. When scoring companies using an obligor-based agreement, this field should contain the FirmID provided from a previous RiskCalc operation. If empty, RiskCalc will generate a unique FirmID identifier consuming one obligor of the subscription.	
Verbose	Determines the amount of data that is returned. The default is “0” (terse) if this argument is omitted. Valid values are 0 through 8. The arguments that are returned for a given verbosity level or higher are indicated in the “V” column in the <i>Output Arguments</i> table.	
CurrentYear	Current year. If omitted the model will default to the current year. Valid values are 1986 to current, future dates are prohibited. NOTE: Care must be exercised when omitting the Current date parameters CurrentYear and CurrentMonth as the default substitution may result in setting an invalid future date. It is recommended that Current date parameters be explicitly defined, or if either parameter is omitted – assure both are.	
CurrentMonth	Current month. If omitted the model will default to the current month. Valid values are 1 to 12 (where 1=Jan, ..., 12=Dec), future dates are prohibited. NOTE: Care must be exercised when omitting the Current date parameters CurrentYear and CurrentMonth as the default substitution may result in setting an invalid future date. It is recommended that Current date parameters be explicitly defined, or if either parameter is omitted – assure both are.	
StatementYear	Statement year. Value provided must be equal to or greater than 1986. Future dates are accepted only when the FinancialStmntOnly parameter is set to 'True'.	Yes
StatementMonth	Statement month. Valid values are 1 to 12 (where 1=Jan,..., 12=Dec), future dates are accepted only when the FinancialStmntOnly parameter is set to 'True'.	Yes

Argument Type	Description	R
FinancialStmntOnly	Financial statement only. This argument instructs the model the manner in which macro-economic variables are to influence the calculated results. This argument should be 'True' ('Yes', 'On', or '1' may be used as well) if the EDF calculation results should not be influenced by the macro-economic variable, or 'False' if the EDF calculation results should be influenced by the macro-economic variable. If the value is either omitted or set to anything but 'True', it will default to 'False'. Reference the prior discussion of Subscription Level for additional restrictions related to this parameter.	
MappingSource	Bond default rate mapping source. This argument instructs the model how the one and five year bond default rate mappings are to be resolved. Setting this argument to 'Dynamic' will instruct the model to access a mappings database table (updated monthly) to acquire the 1 and 5 Yr Bond Default Rates returned in the output. If this argument is set to 'Static', the model will internally resolve and return the 1 and 5 Yr Bond Default Rates. Omitting this argument or setting its value to anything but 'Dynamic' or "Static", will default to 'Static' behavior.	
TotalNetAdmittedAssets	Total net admitted assets. TotalNetAdmittedAssets must be greater than zero.	Yes
TotalLiabilities	Total liability.	Yes
SurplusToPolicyHold	Current year's surplus to policy holders.	
PrevSurplusToPolicyHold	Previous year's surplus to policy holders.	
PremiumEarned	Premiums earned.	
LossIncurred	Loss incurred.	
LossExpIncurred	Loss expenses incurred.	
DivToPolicyHolders	Dividends to policy holders.	
NetIncome	Net income.	
NetCashFromOperations	Net cash from operations.	
TotalNetPremiumWritten	Total net premiums written.	
BusinessType	Business type.	
CompanyType	Company type.	
ChangeInNetWritings	Change in net writings.	
SurplusAidToSurplusToPolicyHold	Surplus aid to surplus-to-policyholders.	
GrossAgentBalToSurplustoPolicyHold	Gross agent's balances to Surplus-to-policyholders.	
IndustryClassification	This argument is used by client applications to disclose the industry code system used to specify the industry definition. Values supported by this model include NDY and SECTOR. Any other value will result in an error message. For example, this parameter would be defined as: <pre><ARGUMENT TYPE="IndustryClassification">NDY</ARGUMENT></pre> NOTE: *If both IndustryClassification and IndustryDefinition are omitted the model will default to Sector – Unassigned and successfully compute an EDF.	Yes*

Argument Type	Description	R						
IndustryDefinition	<p>This argument is used in conjunction with IndustryClassification to specify the industry code. Acceptable values are dependent on the setting of IndustryClassification, these relationships are shown below:</p> <table border="0"> <thead> <tr> <th><u>IndustryClassification</u></th> <th><u>Allowable Values</u></th> </tr> </thead> <tbody> <tr> <td>NDY</td> <td>Three character alphanumeric code identifying industry sector.</td> </tr> <tr> <td>SECTOR</td> <td>String identifying industry sector:</td> </tr> </tbody> </table> <p>For example, assuming industry classification has been set to NDY, the following argument sets the industry definition: <code><ARGUMENT TYPE="IndustryDefinition">N01</ARGUMENT></code></p> <p>NOTE: *If both IndustryClassification and IndustryDefinition are omitted the model will default to Sector – Unassigned and successfully compute an EDF.</p>	<u>IndustryClassification</u>	<u>Allowable Values</u>	NDY	Three character alphanumeric code identifying industry sector.	SECTOR	String identifying industry sector:	Yes*
<u>IndustryClassification</u>	<u>Allowable Values</u>							
NDY	Three character alphanumeric code identifying industry sector.							
SECTOR	String identifying industry sector:							

Output Values

Output Type	Description	V
FirmID	Returns the RiskCalc FirmID for obligor based subscriptions, otherwise returns empty.	0
CumulativeEDF_1Yr	Cumulative EDF @ 1 Yr	0
Custom1Yr	1Year Custom Mapping <i>If no custom mappings are defined, this parameter is omitted.</i>	0
CumulativeEDF_2Yr	Cumulative EDF @ 2 Yr	1
CumulativeEDF_3Yr	Cumulative EDF @ 3 Yr	1
CumulativeEDF_4Yr	Cumulative EDF @ 4 Yr	1
CumulativeEDF_5Yr	Cumulative EDF @ 5 Yr	1
Custom5Yr	5 Year Custom Mapping <i>If no custom mappings are defined, this parameter is omitted.</i>	1
1YrBondDefaultRateMapping	1 Yr Moody's Rating	1
5YrBondDefaultRateMapping	5 Yr Moody's Rating	1
Percentile1YrEDF	1 Year Percentile	1
Percentile5YrEDF	5 Year Percentile	1
RatioSurplusToPolicyHoldToPremEarned	Ratio: Surplus-to-policyholders to Premiums Earned	2
RatioNetCashFlowsAndDivToPolicyHoldToNetPremWrt	Ratio: Net Cash Flows and Dividend to Policy Holders / Net Premiums Written	2
RatioChangeInNetWritings	Ratio: Change in Net Writings	2
RatioSurplusAidToSurplusToPolicyHold	Ratio: Surplus aid to Surplus-to-policyholders	2
RatioGrossAgentBalToSurplustoPolicyHold	Ratio: Gross agent's balances to Surplus-to-policyholders	2
RatioTotalLiabilitiesToTotalAssets	Ratio: Total Liabilities to Total Assets	2
RatioSize	Ratio: Size	2
RatioLossToPremEarned	Ratio: Loss to Premiums Earned	2
RatioNetIncomeToSurplus	Ratio: Net Income to Surplus	2
PercentileSurplusToPolicyHoldToPremEarned	%-tile: Surplus-to-policyholders to Premiums Earned	3
PercentileNetCashFlowsAndDivToPolicyHoldToNetPremWrt	%-tile: Net Cash Flows and Dividend to Policy Holders / Net Premiums Written	3
PercentileChangeInNetWritings	%-tile: Change in Net Writings	3
PercentileSurplusAidToSurplusToPolicyHold	%-tile: Surplus aid to Surplus-to-policyholders	3
PercentileGrossAgentBalToSurplustoPolicyHold	%-tile: Gross agent's balances to Surplus-to-policyholders	3
PercentileTotalLiabilitiesToTotalAssets	%-tile: Total Liabilities to Total Assets	3
PercentileSize	%-tile: Size	3
PercentileLossToPremEarned	%-tile: Loss to Premiums Earned	3
PercentileNetIncomeToSurplus	%-tile: Net Income to Surplus	3

Output Type	Description	V
RelativeContribution1YrSurplusToPolicyHoldToPremEarned	1-Yr. Relative Contribution: Surplus-to-policyholders to Premiums Earned	4
RelativeContribution1YrNetCashFlowsAndDivToPolicyHoldToNetPremWrt	1-Yr. Relative Contribution: Net Cash Flows and Dividend to Policy Holders / Net Premiums Written	4
RelativeContribution1YrChangeInNetWritings	1-Yr. Relative Contribution: Change in Net Writings	4
RelativeContribution1YrSurplusAidToSurplusToPolicyHold	1-Yr. Relative Contribution: Surplus aid to Surplus-to-policyholders	4
RelativeContribution1YrGrossAgentBalToSurplustoPolicyHold	1-Yr. Relative Contribution: Gross agent's balances to Surplus-to-policyholders	4
RelativeContribution1YrTotalLiabilitiesToTotalAssets	1-Yr. Relative Contribution: Total Liabilities to Total Assets	4
RelativeContribution1YrSize	1-Yr. Relative Contribution: Size	4
RelativeContribution1YrLossToPremEarned	1-Yr. Relative Contribution: Loss to Premiums Earned	4
RelativeContribution1YrNetIncomeToSurplus	1-Yr. Relative Contribution: Net Income to Surplus	4

Output Type	Description	V
RelativeContribution5YrSurplusToPolicyHoldToPremEarned	5-Yr. Relative Contribution: Surplus-to-policyholders to Premiums Earned	4
RelativeContribution5YrNetCashFlowsAndDivToPolicyHoldToNetPremWrt	5-Yr. Relative Contribution: Net Cash Flows and Dividend to Policy Holders / Net Premiums Written	4
RelativeContribution5YrChangeInNetWritings	5-Yr. Relative Contribution: Change in Net Writings	4
RelativeContribution5YrSurplusAidToSurplusToPolicyHold	5-Yr. Relative Contribution: Surplus aid to Surplus-to-policyholders	4
RelativeContribution5YrGrossAgentBalToSurplustoPolicyHold	5-Yr. Relative Contribution: Gross agent's balances to Surplus-to-policyholders	4
RelativeContribution5YrTotalLiabilitiesToTotalAssets	5-Yr. Relative Contribution: Total Liabilities to Total Assets	4
RelativeContribution5YrSize	5-Yr. Relative Contribution: Size	4
RelativeContribution5YrLossToPremEarned	5-Yr. Relative Contribution: Loss to Premiums Earned	4
RelativeContribution5YrNetIncomeToSurplus	5-Yr. Relative Contribution: Net Income to Surplus	5
RelativeSensitivity1YrSurplusToPolicyHoldToPremEarned	1-Yr. Relative Sensitivity: Surplus-to-policyholders to Premiums Earned	5
RelativeSensitivity1YrNetCashFlowsAndDivToPolicyHoldToNetPremWrt	1-Yr. Relative Sensitivity: Net Cash Flows and Dividend to Policy Holders / Net Premiums Written	5
RelativeSensitivity1YrChangeInNetWritings	1-Yr. Relative Sensitivity: Change in Net Writings	5
RelativeSensitivity1YrSurplusAidToSurplusToPolicyHold	1-Yr. Relative Sensitivity: Surplus aid to Surplus-to-policyholders	5
RelativeSensitivity1YrGrossAgentBalToSurplustoPolicyHold	1-Yr. Relative Sensitivity: Gross agent's balances to Surplus-to-policyholders	4
RelativeSensitivity1YrTotalLiabilitiesToTotalAssets	1-Yr. Relative Sensitivity: Total Liabilities to Total Assets	5
RelativeSensitivity1YrSize	1-Yr. Relative Sensitivity: Size	5
RelativeSensitivity1YrLossToPremEarned	1-Yr. Relative Sensitivity: Loss to Premiums Earned	5
RelativeSensitivity1YrNetIncomeToSurplus	1-Yr. Relative Sensitivity: Net Income to Surplus	
RelativeSensitivity5YrSurplusToPolicyHoldToPremEarned	5-Yr. Relative Sensitivity: Surplus-to-policyholders to Premiums Earned	5
RelativeSensitivity5YrNetCashFlowsAndDivToPolicyHoldToNetPremWrt	5-Yr. Relative Sensitivity: Net Cash Flows and Dividend to Policy Holders / Net Premiums Written	5
RelativeSensitivity5YrChangeInNetWritings	5-Yr. Relative Sensitivity: Change in Net Writings	5
RelativeSensitivity5YrSurplusAidToSurplusToPolicyHold	5-Yr. Relative Sensitivity: Surplus aid to Surplus-to-policyholders	5
RelativeSensitivity5YrGrossAgentBalToSurplustoPolicyHold	5-Yr. Relative Sensitivity: Gross agent's balances to Surplus-to-policyholders	4
RelativeSensitivity5YrTotalLiabilitiesToTotalAssets	5-Yr. Relative Sensitivity: Total Liabilities to Total Assets	5
RelativeSensitivity5YrSize	5-Yr. Relative Sensitivity: Size	5
RelativeSensitivity5YrLossToPremEarned	5-Yr. Relative Sensitivity: Loss to Premiums Earned	5
RelativeSensitivity5YrNetIncomeToSurplus	5-Yr. Relative Sensitivity: Net Income to Surplus	6
Forward_1YR_EDF_1Yr	Forward 1Yr EDF @ 1 Yr	6
Forward_1YR_EDF_2Yr	Forward 1Yr EDF @ 2 Yr	6
Forward_1YR_EDF_3Yr	Forward 1Yr EDF @ 3 Yr	6
Forward_1YR_EDF_4Yr	Forward 1Yr EDF @ 4 Yr	6
Forward_1YR_EDF_5Yr	Forward 1Yr EDF @ 5 Yr	6
AnnualizedEDF_1Yr	Annualized EDF @ 1 Yr	7
AnnualizedEDF_2Yr	Annualized EDF @ 2 Yr	7
AnnualizedEDF_3Yr	Annualized EDF @ 3 Yr	7
AnnualizedEDF_4Yr	Annualized EDF @ 4 Yr	7
AnnualizedEDF_5Yr	Annualized EDF @ 5 Yr	7
UserDefinedTime_EDF	User defined time period EDF.	8

EDF Notes

To reduce ambiguity or further elaborate certain operational conditions the XML response returned for this model contains an EDF Notes XML element. Applications may elect to review or record this information and take additional actions that may be appropriate. The structure of the response and a typical note is shown in following sample XML document.

```

•
•
•
<EDFNOTES>
  <MISSING ARGUMENT="CurrentAssets">Mean</MISSING>
</EDFNOTES>
</OPERATION>

```

The EDFNOTE element will only be returned for successful operations; in the case where an error condition exists the ERROR-CODE and ERROR-INFO tags will provide information on the triggering offense. The current version supports the following EDF Notes:

Node (Tag) Name	Description
MISSING	<p>This tag is used to identify input parameters not explicitly defined in the input request. The node will contain an attribute identifying the omitted parameter while the value of the node indicates the default value assumed by the model. Under special conditions sentinel values may be substituted in the response. These may be one of the following:</p> <ul style="list-style-type: none"> • Mean - this should be interpreted as the mean value of the RiskCalc sample data set for the parameter in question has been used to complete the EDF calculation. • Undisclosed – this should be interpreted as the model has not identified the value substituted in this parameters place to complete the EDF calculation. <p>When included, this note will appear according to the following structure: <MISSING ARGUMENT="CurrentAssets">Mean</MISSING></p>
EXCLUDED	<p>This tag is used to identify NACE or NDY industry codes that are not recommended for use by the model. This will only be added to the notes section if the requested industry code is included in this category. The node will contain an attribute echoing the defined industry code and a value that is an English note elaborating the exclusion. It's structure will follow the sample shown here: <EXCLUDED INDCODE="NACE 5010">not recommended for dealerships</EXCLUDED></p>
MAPPING	<p>This tag positively acknowledges the request for dynamic mapping made using the input parameter MappingSource. The node will contain an attribute describing that dynamic mapping is active and its value will be the date of the mapping data set. When included it will appear according to the following structure: <MAPPING DESCRIPTION="Dynamic Bond Default Rate Mapping Applied">20031202</MAPPING></p>
MAPPEDSECTOR	<p>This tag explicitly defines the mapping applied to the specified industry code. It appears only when a request has been made defining the IndustryClassification to be NACE or NDY. The node will contain an attribute echoing the defined industry code and a value identifying the sector. It's structure will follow the sample shown here: <MAPPEDSECTOR DEFINED="NACE 5010">Trade</MISSING></p>

Revision History

26 March-09

Initial version of this document.