

# SPAN Standard Portfolio Analysis of Risk

SPAN (Standard Portfolio Analysis) is a performance bond requirement calculator which allows users to:

- Load SPAN risk parameter files for the points in time (typically, for the end-of-day settlement for particular business dates) and exchange complexes (typically clearing organizations but also cross-margin agreements and other margining business functions).
- Enter portfolios and their positions, and/or load them from a datafile.
- Calculate performance bond requirements.
- View the results on-line, print the results, and/or export them to a file so that you can import them to other system(s).

## SPAN Business Concepts

SPAN functionality is based upon the following business concepts.

**Exchange Complex** - A clearing organization or exchange for which normal performance bond calculations are being done, OR a business function, such as a cross-margin agreement, involving one or more clearing organizations or exchanges.

**Combined Commodities** - Each exchange complex has a set of defined **combined commodities** defined for it. Each product in an exchange complex is assigned to a specific combined commodity. For a specific portfolio, SPAN performance bond requirements are calculated for each combined commodity represented in the portfolio. For each combined commodity in a portfolio, you will see the overall SPAN performance bond requirement(s). An overall SPAN performance bond requirement for a combined commodity is comprised of the following components:

- **scan risk**
- **intracommodity spread charge** (often called the intermonth, or calendar, spread charge)
- **spot charge** (often called the **delivery charge**)
- **intercommodity spread credit**
- **short option minimum.**

SPAN takes the sum of the scan risk, the intracommodity spread charge and the spot charge, and subtracts the intercommodity spread credit. This result is then compared to the short option minimum, and the larger of the two is then selected as the SPAN requirement. SPAN requirements for the individual combined commodities in the portfolio are then converted to a common portfolio currency and aggregated. The resulting overall portfolio SPAN requirement is then compared to a value consisting of the **ledger balance**, the **open trade equity**, the **available net option value**, and the performance bond (haircutted) value of other collateral assets such as **securities on deposit**.

**Point in Time** - Most PC-SPAN users will process data for the **final end-of-day settlement**, or for the **early (preliminary) end-of-day settlement**. Some users, however, will use PC-SPAN for **intraday points in time**. SPAN uses the term **point in time** to identify either an end-of-day or intraday time.

**Performance Bond Class** - SPAN version 4 supports the calculation of more than one level of performance bond requirement for the same portfolio. These different levels are called **performance bond classes**. The first class, with the lowest performance bond requirement, is called the **core class**, and the next higher one is called the **reserve class**.

**Rate Identifier** - To facilitate separate calculations of requirements for the different performance bond classes, with separate sets of risk arrays and other parameters, SPAN employs a **rate identifier**, or **rate ID**. A rate ID is an integer that fully identifies a set of SPAN margin rates, and the performance bond requirement derived from it. For example, rate ID number one identifies the values pertaining to hedge customers, maintenance-level requirements, in the core performance bond class.

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  - Type C - Expanded Format and Paris Expanded
  - Type P - Paris Expanded
  - Type P Record - Standard and Expanded
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  - Type V - Expanded
- Standard
  - Type 0 Records - Standard
  - Type 1 Records - Standard
  - Type 2 Record - Standard
  - Type 3 Record - Standard
  - Type 4 Record - Standard
  - Type 5 Record - Standard
  - Type 6 Record - Standard
  - Type 8 Records - Standard
  - Type 9 Records - Standard
  - Type B Record - Standard
  - Type C Record - Standard
  - Type E Record - Standard
  - Type R Record - Standard
  - Type S Record - Standard
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