

MPER China Methodology

Fundamental Risk Scores

China



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Introduction

China's financial markets present big opportunities for global investors, but persistent differences between China's political and economic model and democratic market economies pose ethical and legal challenges. Rhodium Group's MPER China **data solution** helps global investors manage these risks through two datasets:

Fundamental Risk Scores quantify the level of a PRC security issuer's misalignment with open market democracy norms and values. We use a set of fundamental metrics across three Dimensions (Military, Political, and economic) to produce comparable and transparent scores for each company. We also include an override variable that captures any security issuer's exposure to sanctions and other policy regimes that impact a security's investability.

Controversy Exposure Scores quantify a PRC security issuer's direct and indirect connections to China-related policy discussions and public discourse. They can be used to identify emerging vulnerabilities and manage related business and reputational risk.

This document summarizes the framework, data compilation process, and scoring methodology for the **Fundamental Risk Scores**.

1. Data Framework

The MPER China Fundamental Risk Score quantifies a security issuer's risk level arising from its affiliation with an autocratic state's military, regime, or illiberal economic practices. Scores are produced quarterly by evaluating a security issuer's fundamental characteristics through a set of regular metrics across military, political, and economic dimensions (such as ownership, key personnel, products, operational setup, clients, etc.). Regular Fundamental Scores are supplemented by a **Sanctions Exposure** score, which captures an issuer's direct and indirect exposure to sanctions and red-flag lists issued by major advanced economy governments and international organizations.

Dimensions, Categories, and Metrics

Our MPER framework relies on the following three dimensions:

- **Autocratic Military Affiliation (M)** captures an issuer's association with military entities controlled by an autocratic government.
- **Autocratic Regime Affiliation (P)** captures an issuer's ties to an authoritarian government and its participation in autocratic practices at home and abroad.
- **Illiberal Economic Practices (E)** captures an issuer's affiliation with problematic economic practices that undermine the principles of open market economies.

For Fundamental Risk Scores, each of these three dimensions is grouped into a hierarchy of categories. At the highest level, each dimension is broken into four or five categories that reflect the most important concerns. Each category is further operationalized through several metrics that allow us to produce a score. Table 1 shows an overview of all 41 metrics across the 13 categories. The full list of categories and metrics along with their definitions can be found in Appendix I.

TABLE 1
MPER China Fundamental Risk Scores: Dimension, Categories, and Metrics

Dimension	Category	Metric
Autocratic Military Affiliation	Direct Military Ties	Percentage of Military Ownership Military Designations
	Indirect Military Ties	Military-Civil Fusion (MCF) Participation Invested by MCF Funds Investment in Defense Companies Executive Military Ties
	Supply of Goods and Services to the Military	Military Procurement Participation Strategic Agreements (Military) Business Scope Linked to the Military
	Development of Dual Use Goods and Technology	Development of Established Dual Use Goods and Technology Development of Emerging Dual Use Technology
Autocratic Regime Affiliation	Government Ownership	Percentage of Autocratic State Ownership Equity and Other Financial Transfers to Government
	Personnel and Financial Ties	Strategic Agreements (Government) Market Dependency on Authoritarian Home Country Institutional Party Influence
	Domestic Repression	Affiliated to Repressive Programs: 1st Degree Exposure Affiliated to Repressive Programs: 2nd Degree Exposure Operations in Repressive Geographic Areas Development of Tools of Repression
	External Statecraft	HQ Location in a Country without Rule of Law Active Propaganda Dissemination BRI Participants Participation in State-Guided Overseas Lending
	International Autocratic Patronage	Trading with Pariah States Military Support to Pariah States Operations in Pariah States Investments in Pariah States
Illiberal Economic Practices	Subsidies and State Aid	Percentage of State Ownership Recipient of Government Grant Transfer Recipient of Government Fund Investments
	Protected Domestic Market	Operations in Sector Protected from Foreign Competition Operations in Sector Protected from Domestic Competition Trade Barriers Beneficiary of Discriminatory Public Procurement Practices Member of Strategic Industry
	Unethical Practices in Overseas Markets	Implication in International Litigations Violations of International Procurement Regulations
	Illicit IP Acquisition	Transparency Requirement in Listing Location Illicit IP Transfer Operations in Sectors with Forced Tech Transfers

Source: Rhodium Group MPER China

Sanctions Exposure

Another element of the data framework is our Sanctions Exposure Scores, which quantify the direct and indirect (through a subsidiary, affiliate, or holding company) exposure of security issuers to sanctions and red-flag lists we track. Our Sanctions Exposure coverage includes a broad range of sanctions programs by major market economy governments and international organizations that were designed to punish entities and individuals associated with human rights violations, terrorism, money laundering, corruption, problematic weapons development, and other serious offenses (a detailed list of covered programs can be found in Table 2).

Security issuers implicated by sanctions are assigned a Sanctions Exposure score based on the severity of punishment executed by the respective regime, which would override the Fundamental Risk Score until the entity is removed from the sanctions list. The Sanctions Exposure scores range from 5 for indirect exposure to less severe regimes (for example, a subsidiary of an issuer is put on the World Bank ***Listing of Ineligible Firms and Individuals***) to 10 for regimes that render the security un-investable for most investors (for example, an issuer is put on the US Treasury Department's ***Non-SDN Chinese Military-Industrial Complex Companies List***, requiring divestment from that security). For a summary of Sanctions Exposure variable scores, please see Table 4. Users can turn off the Sanctions Exposure variable and revert to the regular score, which will be maintained even if an entity is sanctioned.

TABLE 2
MPER China Sanctions Exposure Scores: Covered Programs*

Jurisdiction	Authority	Sanctions List	Sanctions Program
Australia	DFAT	Consolidated List	1718 (DPRK)
Australia	DFAT	Consolidated List	Autonomous (DPRK)
Australia	DFAT	Consolidated List	Autonomous (Iran)
Australia	DFAT	Consolidated List	Autonomous (Syria)
Canada	GAC	Consolidated Canadian Autonomous Sanctions List	Special Economic Measures (PRC) Regulations
European Union	EC	EU Consolidated Financial Sanctions List	PRK - North Korea
European Union	EC	EU Consolidated Financial Sanctions List	CYB - CYBER-ATTACKS
European Union	EC	EU Consolidated Financial Sanctions List	HR - Human Rights
European Union	EU Council	EU 13th Sanctions Package Against Russia	Annex IV to Regulation (EU) No 833/2014
European Union	EU Council	EU 14th Sanctions Package Against Russia	Annex IV to Regulation (EU) No 833/2014
United Kingdom	OFSI	Consolidated List of Asset Freeze Targets	Cyber

United Kingdom	OFSI	Consolidated List of Asset Freeze Targets	Global Human Rights
United Kingdom	OFSI	Consolidated List of Asset Freeze Targets	Russia Sanctions
United Kingdom	OFSI	Consolidated List of Asset Freeze Targets	UN Resolutions on North Korea
United Nations	UNSC	United Nations Security Council Consolidated List	UN Resolutions on North Korea
United States	BIS	Entity List	Supplement No. 4 to Part 744 of the EAR
United States	BIS	Military End User (MEU) List	Supplement No. 7 to part 744 of the EAR
United States	BIS	Unverified List	Supplement No. 6 to Part 744 of the EAR
United States	Congress	5949 List	Section 5949 of the James M. Inhofe National Defense Authorization Act for FY 2023
United States	DHS	Uyghur Forced Labor Prevention Act Entity (UFLPA Entity) List	Uyghur Forced Labor Prevention Act
United States	DOC	Executive Order on Securing the Information and Communications Technology and Services Supply Chain	Executive Order 13942/13943
United States	DOD	889 List	Section 889 of the John S. McCain National Defense Authorization Act for FY 2019
United States	DOD	1260H List (List of Chinese Military Companies Operating in the US)	Section 1260H of the National Defense Authorization Act
United States	DOS	Nonproliferation Sanctions	Chemical and Biological Weapons Control and Warfare Elimination Act (CBW Act)
United States	DOS	Nonproliferation Sanctions	Iran, North Korea, and Syria Nonproliferation Act Sanctions (INKSNA)
United States	DOS	Nonproliferation Sanctions	Missile Sanctions laws
United States	DOS	Nonproliferation Sanctions	Executive Order 12938
United States	FCC	Covered List	Section 2 of The Secure Networks Act
United States	OFAC	Non-SDN Correspondent Account or Payable-Through Account (CAPTA) Sanctions List	561-Related

United States	OFAC	Non-SDN Chinese Military-Industrial Complex Companies (CMIC) List	CMIC-EO14032
United States	OFAC	Non-SDN Communist Chinese Military Companies (CCMC) List	CCMC-EO13959
United States	OFAC	Non-SDN Sectoral Sanctions Identifications (SSI) List	UKRAINE-EO13662
United States	OFAC	Specially Designated Nationals and Blocked Persons (SDN) List	BELARUS-EO14038
United States	OFAC	SDN List	CAATSA - RUSSIA
United States	OFAC	SDN List	CYBER2
United States	OFAC	SDN List	DPRK
United States	OFAC	SDN List	DPRK2
United States	OFAC	SDN List	DPRK3
United States	OFAC	SDN List	DPRK4
United States	OFAC	SDN List	DPRK-NKSPEA
United States	OFAC	SDN List	ELECTION-EO13848
United States	OFAC	SDN List	GLOMAG
United States	OFAC	SDN List	IFCA
United States	OFAC	SDN List	IFSR
United States	OFAC	SDN List	ILLICIT-DRUGS-EO14059
United States	OFAC	SDN List	IRAN
United States	OFAC	SDN List	IRAN-EO13871
United States	OFAC	SDN List	NPWMD
United States	OFAC	SDN List	RUSSIA-EO 14024
United States	OFAC	SDN List	SDGT
United States	OFAC	SDN List	SDNTK
United States	OFAC	SDN List	SYRIA
United States	OFAC	SDN List	TCO
United States	OFAC	SDN List	UKRAINE-EO13661
United States	OFAC	SDN List	VENEZUELA
United States	OFAC	SDN List	VENEZUELA-EO13850
World Bank Group	WB	Listing of Ineligible Firms and Individuals (Debarred Firms)	Sanctions for Fraud and Corruption in Bank Financed Projects

Source: Rhodium Group based on government documentation. *As of July 2024.

2. Data Compilation

Our data compilation process combines machine-generated input with multiple layers of human review by Rhodium Group's China analysts. It involves the following steps:

Step 1: Data Collection - Our raw data is gathered through an automated collection of policy documents, company reports, and other relevant documents based on a curated list of key terms and concepts in both English and Chinese. Our team of analysts then review collected data and include additional information, if necessary, based on their expertise.

Step 2: Data Processing - Our model uses automated processes, including data wrangling techniques, to extract and filter essential information from raw data. Once the data is cleaned, advanced algorithms are applied to efficiently identify risk findings and categorize them into relevant metrics, categories, and dimensions. The results are automatically populated into the appropriate schema. To ensure data integrity, a final round of machine cleaning is conducted, encompassing tasks such as imputation for handling missing data, fuzzy matching for removing duplicate records, and standardization for addressing inconsistent data.

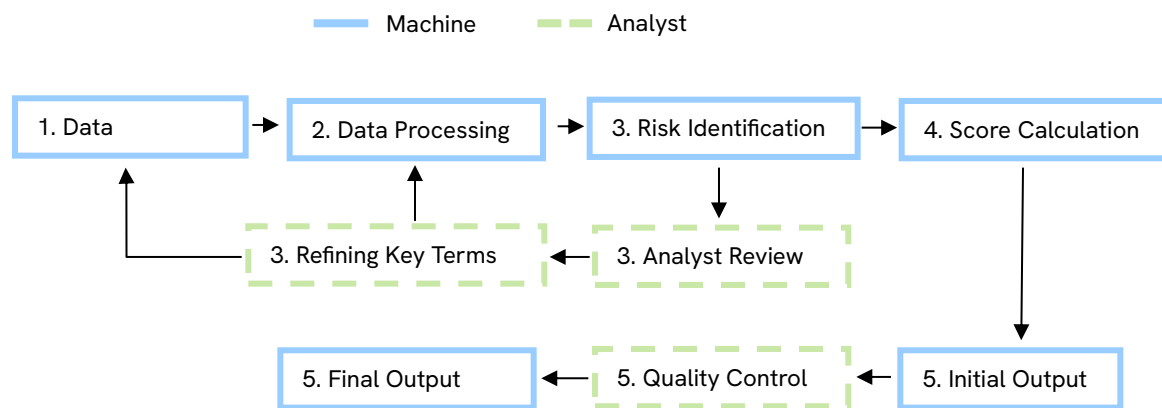
Step 3: Risk Identification/Review - Analysts review the processed data to verify accuracy, assess the level of entity-level exposure, confirm automatically calculated risk-finding scores, and consolidate findings for clarity. This step also includes a regular feedback loop for refining key terms for machine crawling and further optimizing search strategies to include new developments and address identified blind spots. If necessary, analysts also provide suggestions for new sources of raw data to our data scientists to ensure that all relevant risks are comprehensively identified.

Step 4: Score Calculation - Once risk findings are reviewed by analysts, they are then assigned scores based on pre-set rules. This enables the computation of metric scores, category scores, dimension scores, and finally the Fundamental Risk Scores, all adjusted based on their assigned weights. This step also includes an automated review of each security issuer against our constantly updated Sanctions Exposure lists.

Step 5: Quality Control - We follow a rigorous quality control process to ensure the accuracy of the risk findings and overall scores. This final step involves a detailed review by analysts and managers of any major changes in scores on the entity level as well as a discussion of scoring trends by industry and the marginal impact of new risk findings or policy developments on our scoring framework.

While we follow a rigorously designed process and strict quality control measures, the reliance on open-source data means that our scoring may be subject to a certain bias rooted in the varying degrees of availability of such open-source data in different domains.

FIGURE 1
MPER China Fundamental Risk Scores: Data Compilation Process



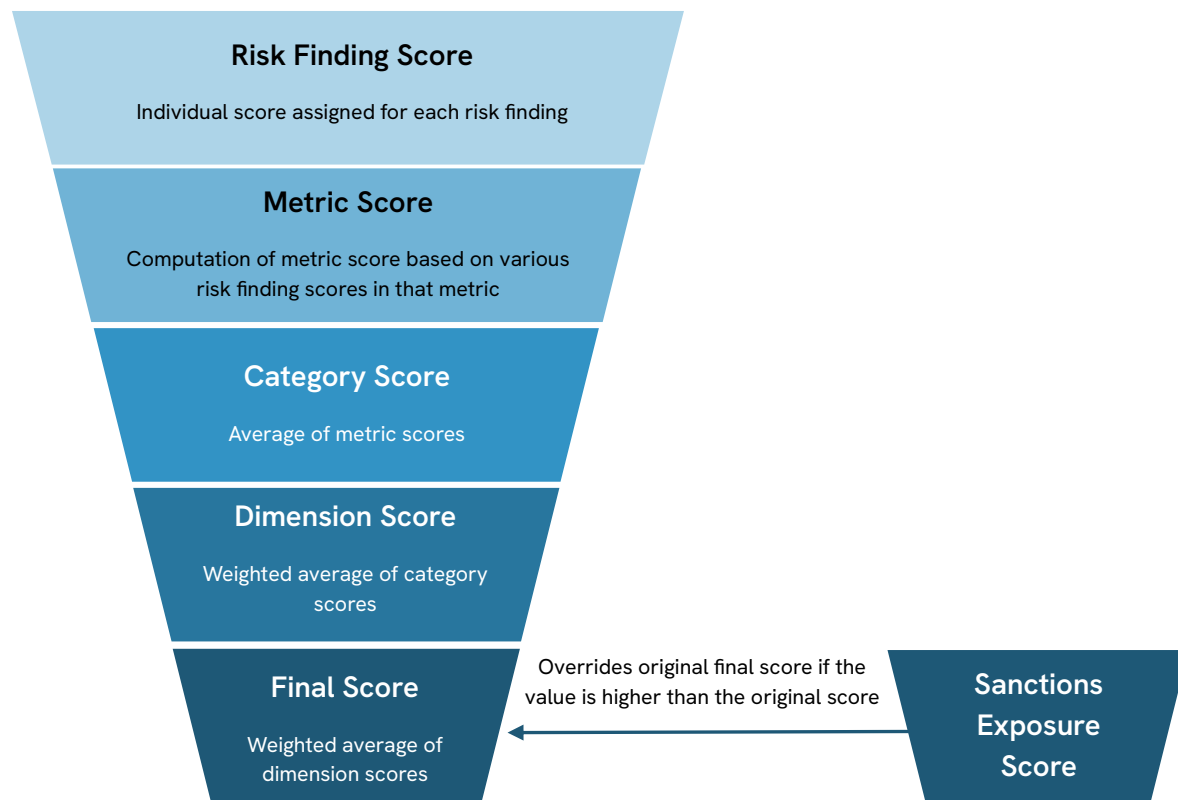
Source: Rhodium Group MPER China

3. Scoring Methodology

Score Compilation

Our Fundamental Risk Scores are produced through a rigorous scoring process that aggregates individual risk findings into metric scores, category scores and dimension scores. An overview is shown in Figure 2.

FIGURE 2
MPER China Fundamental Risk Scoring Process
 Stylized overview



Source: Rhodium Group MPER China

Fundamental Score

Risk findings are the most granular datapoints in the database and form the basis for metric scores. They are captured through different types of variables including:

- **Numerical discrete**, such as the metric “Strategic Agreements (Government)” where risk finding output is the number of strategic agreements a company has with the government;
- **Numerical continuous**, such as the metric “Percentage of Military Ownership” where risk finding output is any value within the range of 0-100%;
- **Categorical nominal**, such as the metric “Military Procurement Participation” where risk finding output is categorized as military suppliers, suppliers of blacklisted military companies, and suppliers to core defense conglomerates;

- **Categorical ordinal**, such as the metric "Institutional Party Influence" where risk finding output follows an order of identified party ties of past key personnel (low risk), current director-level staff (medium risk), and current C-suite executives (high risk).

For calculating the risk score of each individual risk finding, all variables are converted to discrete numerical scores, i.e., a whole number within the range of 0 to 10 representing the risk score. These risk scores are pre-set to a variety of risk findings for each metric and are calculated automatically. For example, Table 3 shows the pre-set configuration for the metric "Percentage of Military Ownership". That would assign a score of 10 to a firm with majority military ownership (e.g., CGN Power Co., Ltd., with a 58.82% military ownership) for that particular risk finding.

Our database also includes a lingering effect rule to capture the real-life time span of a risk finding. The rule, ranging from one to three years based on the specifics of the finding, measures the continuation of a specific risk. For example, a company with a strategic agreement with the military will see that risk finding carrying over to the following 12 quarters since the duration of these agreements generally lasts for three years.

TABLE 3
MPER China Fundamental Risk Scores: Scoring Rules for the Metric "Percentage of Military Ownership"

Risk Finding	Score
No output	NA
Output but no value	4
0% < ownership ≤ 5%	5
5% < ownership ≤ 20%	7
20% < ownership ≤ 50%	8
Above 50%	10

Source: Rhodium Group MPER China

Once each risk finding is assigned a score, the **metric score** is computed based on the maximum score among the risk finding scores within that metric for the respective time period. For instance, if a company has both a director and a CEO tied to the Chinese Communist Party, with the CEO receiving a score of 10 and the director receiving a score of 8, the metric risk score for "Institutional Party Influence" would be 10.

The **category score** represents the simple average of the metric scores within that category. It is calculated using the following formula:

$$S_c = \frac{\sum_{m=1}^n S_m^c}{n}, \forall S_m^c \neq NA$$

where S_c is the category score for category c , and S_m^c is the metric score for metric m under category c

The **dimension score** is computed through weighted averages of category scores. The weights of the categories are determined by the severity of the risk captured by that specific category to the specific dimension. For example, in the dimension “Autocratic Military Affiliation,” the category “Direct Military Ties” (40% weight), which captures percentage of military ownership, is more severe than the category “Indirect Military Ties” (30% weight), which captures the companies’ participation in military-civil fusion and investments in military companies (Figure 3). The formula for the quarterly dimension score for a security issuer is:

$$S_d = \sum_{c=1}^n S_c w_c$$

where S_d is the dimensional score for dimension d , w_c is the weight of category c

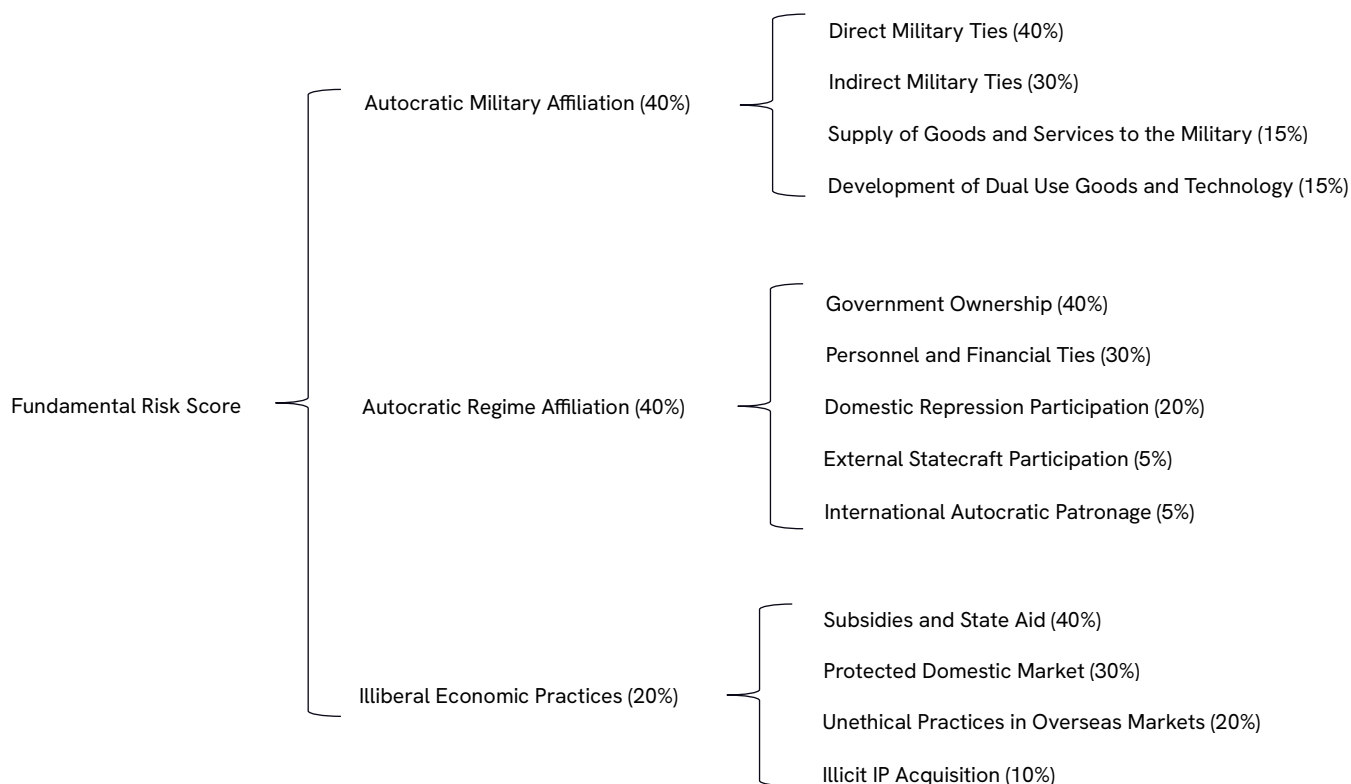
The final **Fundamental Risk Score** is determined by combining the scores of the three dimensions, with each score weighted accordingly.

The “**Autocratic Military Affiliation**” dimension is assigned a 40% weight to reflect rising concerns about increasing military competition with China and growing relevance of civil businesses to China’s military modernization. Consequently, a company merits a higher military dimension score if it is owned by a military entity, invests in military companies, or its business scope is closely intertwined with the military modernization of China.

The “**Autocratic Regime Affiliation**” dimension also receives a 40% weight to reflect concerns about China’s increasingly authoritarian governance including mass surveillance, political repression, and forced labor. A company merits a higher regime dimension score if it is owned by a government entity, its business scope is closely intertwined with the autocratic regime, or it has exposure to repressive state activities.

The “**Illiberal Economic Practices**” dimension is assigned a lower weight of 20%. The systemic market distortion of China’s state interventionist economic model has been a long-standing concern among OECD policymakers but remains a lower risk for investors from an ethical and reputational perspective than the two other dimensions above. A company is assigned a higher dimensional score if it benefits from explicit and implicit subsidies and other protectionist policies that would be deemed unacceptable under open market economy norms.

FIGURE 3

MPER China Fundamental Risk Scoring: Dimension and Category Weights

Source: Rhodium Group MPER China

Sanctions Exposure Score

If a security issuer is directly or indirectly implicated by the red-flag lists or sanctions regimes we track, its final score is automatically replaced by the **Sanctions Exposure** score, provided it is higher than the regular score.

The formula for the quarterly Fundamental Risk Score is:

If a company is not sanctioned, then

$$S_f = \sum_{d=1}^n S_d w_d$$

where S_f is the Fundamental Risk Score of the company, and w_d is the weight of dimension d

If a company is sanctioned, then

$$S_f = \max (S_t^l)$$

where $t \in \{direct, indirect\}$, l is the specific list of sanctions the company hit(s).

A company's Sanctions Exposure score is determined by two primary factors: the severity of the respective red flag or sanctions list and the proximity of the issuer to the sanctioned legal entity.

The severity of a sanctions list is determined by the legal and reputational consequences of the sanctions list. The highest score is assigned to sanctions lists that require foreign investors to divest equity in the issuer or prohibit them from doing business with the entity. For example, the Non-SDN Chinese Military-Industrial Complex Companies (CMIC) List and the Specially Designated Nationals and Blocked Persons (SDN) List. The next highest score is assigned to lists that have less severe direct legal implications but carry highly problematic ethical and reputational consequences. For example, the Uyghur Forced Labor Prevention Act Entity (UFLPA Entity) List. The lowest score is assigned to sanctions lists that carry relatively low business and ethical consequences, such as the World Bank Listing of Ineligible Firms and Individuals (Debarred Firms List). Additionally, we incorporate red-flag lists that, while not currently associated with legal repercussions, pose potential reputational risks to investors. We assign a minimum Sanctions Exposure score of five for indirect exposure and six for direct exposure to indicate that these companies are under scrutiny for potential legal implications in the future. An illustrative case is the DOD List of China's Military Companies Operating in the US (1260H List).

The proximity of an issuer is determined by the relationship of the issuer with the sanctioned legal entity. Direct exposure occurs when the company itself is included in a sanctions list, while indirect exposure refers to situations where the company is a shareholder (with a stake of at least 5%), a subsidiary (with a stake of at least 50%), or an affiliate (with a stake between 5% and 50%) of a sanctioned entity.

Typically, we trace indirect exposure to the second degree, which includes immediate shareholders and subsidiaries/affiliates of sanctioned entities. However, there are two exceptions. First, wholly owned/controlled subsidiaries and parent companies (with 100% formal equity ownership) are traced beyond the second degree. Second, if a sanctions list explicitly specifies that the sanctions cover relationships beyond our standard approach, we ensure that we track those entities and adjust the Sanctions Exposure score accordingly.

The primary basis for scoring is the degree of ownership between the company and the sanctioned entity unless legal requirements dictate otherwise, using a three-tier approach:

- **Control:** The highest score is assigned when a company is either controlled by a sanctioned entity or exerts control over a sanctioned entity, with an ownership stake equal to or exceeding 50%.
- **Direct investment:** A company that has a direct investment in or is owned (with an ownership stake between 10% and 50%) by a sanctioned entity receives a score one point lower than the control tier.
- **Portfolio investment:** A company that has a portfolio investment in or is owned (with an ownership stake between 5% and 10%) by a sanctioned entity receives a score one point lower than the direct investment tier. To allocate a Sanctions Exposure score to an affected company, a threshold of 5% for indirect exposure is required.

Each quarter, we conduct a thorough review of changes in ownership relationship between issuers and sanctioned entities, updating our Sanctions Exposure Scores to accurately reflect any developments.

In Table 4, we describe some of the most important sanctions and the corresponding exposure scores that we have assigned to them. If a company is implicated by multiple sanctions programs, the higher score will be assigned.

TABLE 4
MPER China Sanctions Exposure Scores
 Selected sanctions programs only

Sanctions List	Significance	Indirect Exposure			Direct Exposure
		(5-10%)	(10 - 50%)	(≥50)	N/A
OFAC - SDN List ¹	Designated individuals and entities see their assets blocked by the US and US persons are prohibited from conducting business activities with them. Due to its severity, in practice, the sanction renders a sanctioned company un-investable.	7	8	10 (subsidiary) 9 (shareholder)	10
OFAC - CMIC List	CMIC lists entities that are deemed to be part of China's military-industrial complex. The OFAC-announced legislation is the most potent US sanction focusing on PRC companies to date as it prohibits US persons from buying or selling publicly traded securities on the CMIC list and requires US investors to divest their holdings within a specified time frame.	7	8	9	10
OFAC - CCMC List	CCMC lists entities that are deemed to be part of China's military-industrial complex; it prohibits US persons from buying or selling publicly traded securities on the CCMC list and requires US investors to divest their holdings within a specified timeframe. The CCMC list was replaced and superseded by the CMIC list in June 2021.	7	8	9	10

¹ We track beyond the second degree for the SDN list, assigning the same score to subsidiaries of a sanctioned entity as to the sanctioned entity itself. This is in accordance with OFAC's 50 Percent Rule, which imposes sanctions on entities owned 50% or more in aggregate by one or more blocked persons.

OFAC - CAPTA List	It prohibits foreign financial institutions (FFIs) from opening or maintaining correspondent or payable-through accounts in the US, except under strict conditions.	6	7	8	9
DOC - Executive Order 13942/13943 ²	The Executive Order prohibits certain transactions that fall under US jurisdiction which involve ByteDance Ltd and its subsidiaries (including TikTok Inc.), as well as WeChat, Tencent Holdings Ltd, and its subsidiaries.	6	7	9 (subsidiary) 8 (shareholder)	9
DHS - UFLPA Entity List ³	Entities that are found to be engaged in the manufacture of goods using forced labor in Xinjiang or collaborating with the Chinese government in the recruitment or transfer of Uyghurs for forced labor will be included on the UFLPA List. The purpose of this list is to prevent the importation of goods mined, produced, or manufactured by these entities into the United States.	6	7	8	9
DOS - Nonproliferation List ⁴	Entities are added to this sanction list due to their involvement in proliferation activities in Iran, North Korea, and Syria. Sanctions imposed on these entities include procurement restrictions, import/export bans, and asset freezing.	6	7	8	9
BIS - MEU List	Companies identified by BIS as a “military end user” potentially aiding the armed forces of China, Russia, or Venezuela. Amid growing concerns about China’s military modernization and geopolitical posture, Chinese military end users come with high reputational risk for global investors.	6	7	8	9
BIS - Entity List	Companies on the Entity List are deemed as conducting activities either sanctioned by the State Department or contrary to US national security and/or foreign policy interests. Companies will thus be subject to US license requirements for the export or transfer of specified items, e.g., certain US technologies.	6	7	8	9

² The list states that the subsidiaries of Tencent and ByteDance are also subject to the sanction, thereby, these subsidiaries are treated equally to direct exposure in terms of sanctions exposure scores.

³ Xinjiang Production and Construction Corps (XPCC) and Hoshine Silicon Industry (Shanshan) Co., Ltd (Hoshine), are mapped beyond the second degree as UFLPA sanctions “Xinjiang Production and Construction Corps (XPCC) and its subordinate and affiliated entities” and “Hoshine Silicon Industry (Shanshan) Co., Ltd and subsidiaries.” Consequently, a company indirectly exposed to XPCC and Hoshine is treated on par with direct exposure when it comes to sanctions exposure scores.

⁴ Subsidiaries of certain entities on the Nonproliferation Sanctions List are subject to direct sanction, they are thus treated equally to direct exposure in terms of sanctions exposure scores.

FCC- Covered List ⁵	The blacklist identifies foreign telecommunication companies deemed to pose a national security risk for the US and its citizens.	5	8	8	8
BIS - Unverified List	Companies are placed on the Unverified List when BIS or federal officials are unable to confirm the legitimacy and reliability of the end use and end user of items subject to the Export Administration Regulations (EARs). Inclusion on this list is not intended as a punitive measure, like the Entity List, but companies listed on it will no longer be eligible for license exemptions for items under EARs. However, companies can be removed from the Unverified List if BIS is able to verify the end user.	5	6	7	8
WB - Debarred Firms ⁶	Entities and individuals sanctioned for illicit activities such as corruption and bribery are prevented from participating in World Bank-financed contracts for a set period.	5	6	7	8
Congress - 5949 List	The list prohibits federal procurement of certain semiconductor products and services provided by three PRC companies, their subsidiaries, and their affiliates.	7	7	7	7
DOD - 889 List	The list prohibits contractors from providing the USG with equipment from five PRC companies, their subsidiaries, and their affiliates.	7	7	7	7
DOD - 1260H List ⁷	The list identifies Military-Civil Fusion contributors directly or indirectly operating in the US. While the designation currently has no legal implications, Section 805 of the FY 2024 NDAA prohibits DOD from contracting with any designated companies, effective on June 30, 2026.	5	5	5	6

Source: Rhodium Group MPER China.

⁵ Our tracking extends beyond the second degree for the FCC Covered List as sanctions apply to any entity with ownership stakes of over 10% that "(directly or indirectly) owns, controls, or is owned or controlled" by the listed companies.

⁶ The subsidiaries and affiliates of some sanctioned entities marked specifically in the list are also subject to punishment. Consequently, a company indirectly exposed to these entities is treated on par with direct exposure when it comes to sanctions exposure scores and be mapped beyond the second degree.

⁷ The 1260H List currently does not impose sanctions. However, we assign a minimum sanctions exposure score to help investors assess reputational risks when making investment and business decisions.

Score Maintenance and Governance

Rhodium Group's MPER China Fundamental Scores are updated on a quarterly basis. Each new data release will generally be published during the second week of each quarter, but may occur later if major government data releases are delayed. Users will receive data updates through the online database system or via customized alerts.

The underlying framework and methodology will also be periodically updated and communicated via our online database system, as well as through email. Rhodium Group is constantly evaluating, refining, and improving MPER's Dimensions, Categories, and Metrics, risk scoring, and other methodological fundamentals to ensure the integrity and usefulness of the data. Rhodium Group is also constantly monitoring the availability of datasets and may be forced to respond to regulatory action that leads to the loss of access to previously available data and disclosures.

The MPER China Fundamental Score methodology is supervised by Rhodium Group's MPER China Data Committee, which consists of partners and senior staff members across the firm's China Practice. The Committee meets regularly to review the scoring methodology to ensure it is up to date, transparent, and robust. It also consults external experts and researchers to stress test internal assumptions. The Committee reserves the right to modify the scoring weights and implement other methodology modifications based on the evaluation of new information and/or any relevant developments. Clients will be notified about relevant changes through the client portal.

4. Applications

Rhodium MPER China Fundamental Risk Scores can be used to quantify risk associated with a PRC-based security issuer and objectively compare risk levels of various issuers against each other. Users can also separately assess risk levels across different dimensions (Military, Political, Economic) and trace down the reasoning behind each sub score all the way back to specific risk findings for due diligence purposes. The scoring weights are customizable and adaptable to a user's specific interests or risk management needs. As a complement to the Fundamental Risk Scores, Rhodium Group also offers a dataset that tracks risk momentum for security issuers arising from emerging policy discussions and other public discourse (MPER China Controversy Exposure).

Appendix I – Data Framework Terminology

These definitions outline the scope of the database and the terminology used in its operation.

Key - Dimensions and Categories

Term	Definition
Autocratic Military Affiliation	A company's affiliation and alignment with military entities directed by an autocratic government.
Autocratic Regime Affiliation	A company's entanglement with an autocratic regime at home and abroad.
Illiberal Economic Practices	A company's complicity in illiberal economic policies undermining the principles of open market economies.
Direct Military Ties	A company directly owned by or intrinsically linked to an autocratic military entity.
Indirect Military Ties	A company's indirect ties to an authoritarian military entity. Affiliation may be manifested as investments in defense companies, collusion with Military-Civil Fusion activities or being run by autocratic military cadres.
Supply of Goods and Services to the Military	A company's supply of goods and services to an autocratic military entity, including the active participation in military procurement and the signing of strategic military agreements.
Development of Dual Use Goods and Technology	A company's development of goods or technology that have both civilian and military applications. This may serve as force multipliers for an autocratic military's modernization.
Government Ownership	A company's direct ownership relationship with the autocratic regime at home.
Personnel and Financial Ties	A company's bilateral linkage with an autocratic regime. Such ties include direct state ownership of the company and equity transfers to the government.
Domestic Repression Participation	A company's participation or alignment with domestic repression policies or campaigns administered by a foreign autocratic regime.
External Statecraft Participation	A company's complicity in implementing an autocratic regime's external objectives. Such entanglement may be reflected in propaganda dissemination or state-directed overseas lending.
International Autocratic Patronage	A company's commercial activities in or military support to autocratic countries isolated from the international community due to their non-conformance with established international norms.
Subsidies and State Aid	A company benefiting from various direct or indirect forms of state aid provided by an autocratic state or state-controlled entity, with the potential to distort market competition.
Protected Domestic Market	A company benefiting from an autocratic state's protected domestic market. Such protectionist economic policies range from discriminatory public procurement and import tariffs to outright protection of sensitive sectors and the creation of "national champions".

Unethical Practices in Overseas Markets

A company's non-adherence to established commercial practices while conducting business overseas. Such unethical or criminalized illiberal economic activities include both business disputes as well as outright illicit acts such as corruption and fraud.

Illicit IP Acquisition

A company's exploitation of an autocratic state's illiberal economic practices to acquire know-how or technology via illicit or inequitable means.

Variable - Metrics

Term	Definition
Percentage of Autocratic State Ownership	A company owned by an autocratic government or state-controlled entity. This can include ownership through direct investment, state-controlled funds, or other forms of state ownership.
Percentage of Military Ownership	A company owned by an autocratic military entity. Shareholders range from defense companies classified by Rhodium as problematic to military organizations sanctioned by Western governments.
Percentage of State Ownership	A company owned by an autocratic state. This can include ownership through direct investment, state-controlled funds, or other forms of state ownership.
Active Propaganda Dissemination	A company's documented propagating of autocratic regime narratives with the goal of consolidating and promoting the regime's ideology signaling.
Affiliated to Repressive Programs – 2nd Degree Exposure	A company's indirect exposure to repressive policies or campaigns carried out by an autocratic regime. Indirect exposure includes being a shareholder, supplier or client of a problematic entity directly connected to human rights abuses.
Affiliation to Repressive Programs – 1st Degree Exposure	A company's direct exposure to repressive policies or campaigns carried out by an autocratic regime. This includes human rights abuses facilitated and/or committed by the company.
Beneficiary of Discriminatory Public Procurement Practices	A company benefiting from discriminatory procurement initiated by Government Governance Funds, State Owned Enterprises, core military conglomerates, and other agents of autocratic power.
BRI Participants	A company investing in the Belt and Road Initiative, a Chinese state-directed infrastructure development and investment project in various countries around the world.
Business Scope Linked to the Military	A company's business operations are directly affiliated with the aims of an autocratic military regime.
Development of Emerging Dual-Use Technology	A company developing emerging dual-use technologies that have the potential to advance the military aims of an autocratic state. To evaluate the exposure, both proprietary analysis of open-source data as well as sanctions imposed by Western governments are scrutinized.
Development of Established Dual-Use Goods and Technology	A company developing dual-use technologies that have the potential to advance the military aims of an autocratic state. To evaluate the exposure, both proprietary analysis of open-source data as well as licenses issued by autocratic governments are scrutinized.
Development of Tools of Oppression	A company developing technology or equipment potentially of use by an autocratic state for oppression and/or to further the aims of an autocratic regime.

Equity and Other Financial Transfers to Government	A company transferring financial resources such as equity or loans to an autocratic government or a state-directed enterprise.
Executive Military Ties	A company employing high-ranking personnel, both past and present, with military backgrounds or individuals known to have contributed to the goals of an autocratic military.
Transparency Requirement in Listing Location	A company listed on a stock exchange that requires transparent disclosure of company information, subject to scrutiny by both investors and the broader public.
HQ Location in a Country without Rule of Law	A company headquartered in an autocratic state where rule of law principles are not respected. The rule of law concept is compared against established global norms and widely recognized international rankings.
Illicit IP Transfer	A company engaging in illicit IP transfers in an autocratic state, including patents and trade litigations as well as investigations by the USITC.
Implication in International Litigations	A company implicated in an international legal dispute.
Institutional Party Influence	A company's degree of institutionalization of Chinese Communist Party influence. The company is evaluated per the seniority of party members. The metric aims to grasp the sway a dominant autocratic regime has over a nominally independent commercial entity.
Invested by MCF Funds	A company's shareholder is Military-Civil Fusion structures that may serve as force multipliers for an autocratic military's modernization.
Investment in Defense Companies	A company investing in either entities forming the backbone of an autocratic state's military or entities sanctioned by Western governments.
Investments in Pariah States	A company's investments in autocratic states isolated from the international community due to their non-conformance with established international norms.
Market Dependency on Authoritarian Home Country	A company's market share in an autocratic home country.
Member of Strategic Industry	A company certified by the government as a key player in China's industrial policy—for instance, an industry leader in a specific strategic sector or a high-tech SME—benefits from a comprehensive system of state support.
Military Designations	A company identified or classified by domestic and foreign governments as being related to the defense or military industry.
Military Support to Pariah States	A company contributing military aid to autocratic states isolated from the international community due to their non-conformance with established international norms.
Military-Civil Fusion (MCF) Participation	A company's participation in Military-Civil Fusion projects that may serve as force multipliers for an autocratic military's modernization.
Operations in Pariah States	A company's operations in autocratic states isolated from the international community due to their non-conformance with established international norms.
Operations in Repressive Geographic Areas	A company is active in geographical areas where state oppression activities are documented. Such activities may demonstrate alignment with an autocratic regime's repressive campaigns and make the company vulnerable to sanctions and reputational damage.

Operations in Sector Protected from Domestic Competition	A company operates in an industry or sector where market access is limited or restricted by government regulations or policies.
Operations in Sector Protected from Foreign Competition	A company operates in an industry or sector where foreign competition is limited or restricted by government regulations or policies.
Operations in Sectors with Forced Tech Transfers	A company operates in a sector where forced tech transfers are documented. An autocratic regime implicitly or explicitly requiring entities to transfer techs to local partners is an illiberal economic practice often derided by proponents of fair market competition.
Participation in State-Guided Overseas Lending	A company participates in overseas lending directed by an autocratic country.
Military Procurement Participation	A company participates in an autocratic state's military procurement. The degree of entanglement ranges from business activities with military-affiliated entities to participation in Military-Civil Fusion tenders.
Recipient of Government Fund Investments	A company receives investments from autocratic government-controlled funds.
Recipient of Government Grant Transfer	A company receives grants or financial transfers from an autocratic government.
Strategic Agreements (Government)	A company signing a strategic agreement with an autocratic government.
Strategic Military Agreements	A company signing a strategic agreement with an autocratic military entity.
Trade Barriers	A company operating in an industry with product categories classified under the international harmonized system (HS) that are subjected to foreign import tariffs.
Trading with Pariah States	A company has trading activities in autocratic states isolated from the international community due to their non-conformance with established international norms.
Violations of International Procurement Regulations	A company barred from participating in projects funded by multilateral development banks due to violations of international procurement regulations, such as corruption and fraud.

Appendix II – Database Fields

Fundamental Risk Scores Dataset

Term	Definition
Score_ID	A unique identifier (key) generated for the security issuer's every risk score.
Entity_ID	An identifier serving as a linking mechanism between Rhodium's internal back-end and the external user dataset.
Ticker	The unique stock code of publicly traded companies.

ISIN	The International Securities Identification Number (ISIN) is a unique code assigned by the International Organization for Standardization (ISO) to identify specific securities.
Issuer_EN	The English name of the security issuer.
Sector_GICS	The sector of the security issuer as per the Global Industry Classification Standard (GICS).
Industry_GICS	The industry of the security issuer as per the Global Industry Classification Standard (GICS).
Score_Type	The type of risk score, namely Fundamental or Dimensional, assigned to each security issuer.
Score	The score assigned to each issuer according to Rhodium's fundamental risk scoring methodology.
Sanctions_Exposure	Sanctions_Exposure (TRUE or FALSE) indicates whether the Fundamental Risk Score is overridden due to issuer's exposure to sanctions.
Score_Date	The score date of the risk finding visualized in the YYYY QQ format.

Fundamental Risk Findings Dataset

Term	Definition
Record_ID	A unique identifier (key) generated for each risk finding of a security issuer.
Entity_ID	An identifier serving as a linking mechanism between Rhodium's internal back-end and the external user dataset.
Ticker	The unique stock code of publicly traded companies.
ISIN	The International Securities Identification Number (ISIN) is a unique code assigned by the International Organization for Standardization (ISO) to identify specific securities.
Issuer_EN	The English name of the security issuer.
Issuer_CN	The Chinese name of the security issuer.
Sector_GICS	The sector of the security issuer as per the Global Industry Classification Standard (GICS).
Industry_GICS	The industry of the security issuer as per the Global Industry Classification Standard (GICS).
Risk_Finding	A description of the security issuer's exposure to the MPER China fundamental risks.
Metric	The third tier of the MPER China fundamental risk framework.
Category	The second tier of the MPER China fundamental risk framework.
Dimension	The first tier of the MPER China fundamental risk framework.
Risk_Level	A score ranging from 0 to 10 quantifying the severity of the risk finding.
Source_Type	The type of source used to identify the risk finding.
Score_Date	The score date of the risk finding visualized in the YYYY QQ format.

Fundamental Risk Sanctions Exposure Dataset

Term	Definition
Sanctions_ID	A unique identifier (key) assigned to each sanctions record in the dataset.
Entity_ID	An identifier serving as a linking mechanism between Rhodium's internal back-end and the external user dataset.
Ticker	The unique stock code of a publicly traded company.
ISIN	The International Securities Identification Number (ISIN) is a unique code assigned by the International Organization for Standardization (ISO) to identify specific securities.
Issuer_EN	The English name of a security issuer.
Jurisdiction	The country or organization enacting the sanctions or red-flag lists.
Sanctions_List	The official name of a sanctions/red-flag list.
Sanctions_Program	The official name of a sanctions/red-flag program.
Sanctions_Exposure	The sanctions exposure type: direct exposure indicates an issuer's legal entity is mentioned on the sanctions or red-flag list; indirect exposure indicates that an issuer is a shareholder, a subsidiary, or an affiliate of a sanctioned entity.
Relationship_to_Sanctioned_Entity	The relationship between the issuer and the sanctioned/red-flagged entity.
Sanctioned_Entity	The English name of a sanctioned/red-flagged entity.
Ownership_Percentage	The formal equity ownership percentage of an issuer in the sanctioned/red-flagged entity, or the ownership percentage in an issuer held by a sanctioned/red-flagged entity.
Start_Date	The date in M/D/YYYY format when an entity is included in a sanctions/red-flag list we track.
End_Date	The date in M/D/YYYY format when an entity is removed from a sanctions/red-flag list we track.
Score_Start	The date in YYYY QQ format when the sanctions exposure score is integrated into the fundamental risk score of the issuer.
Score_End	The date in YYYY QQ format when the sanctions exposure score is removed from the fundamental risk score of the issuer.
Sanctions_Exposure_Score	A score assigned to each sanctions record, reflecting both the severity of the sanctions program and the extent of the issuer's exposure to it.

Appendix III – Acronyms and Abbreviations

Abbreviation	Description
CMIC	Chinese Military-Industry Complex
BIS	Bureau of Industry and Security
CMIC	Chinese Military-Industry Complex
DHS	Department of Homeland Security

DOD	Department of Defense
ESG	Environment, Social, Governance
FCC	Federal Communications Commission
FCDO	Foreign, Commonwealth & Development Office
GAC	Global Affairs Canada
GGF	Government Guidance Funds
HK	Hong Kong
HKSE	Hong Kong Stock Exchange
HQ	Headquarter
IP	Intellectual Property
MCF	Military-Civil Fusion
MEU	Military End User
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
OFAC	Office of Foreign Assets Control
OFSI	Office of Financial Sanctions Implementation
PRC	People's Republic of China
SASAC	State-owned Assets Supervision and Administration Commission of the State Council
SDN	Specially Designated Nationals and Blocked Persons
SHSE	Shanghai Stock Exchange
SOE	State Owned Enterprise
UFLPA	Uyghur Forced Labor Prevention Act
UNSC	United Nations Security Council
US	United States
USITC	United States International Trade Commission
UVL	Unverified List
WB	World Bank

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