STRI SCORING METHODOLOGY

The STRI scoring methodology uses binary scores. Most measures in the STRI database have binary answers (yes/no) and binary scores are applied directly. Measures that have numerical answers are broken down on thresholds to which binary scores are applied.

Some measures constitute hierarchies where one or a combination of a few measures would close a market segment or a mode of supply to foreign suppliers. In other cases a restriction on one measure would render others irrelevant. The scoring methodology captures such hierarchies by conditioning the scoring on measures on the answers to questions higher up in the hierarchy of measures.

Some measures are complementary. These are bundled together in the scoring methodology such that if one measure in the bundle is scored as a restriction, all of them are.

This note explains the thresholds, hierarchies and bundling of measures. It starts with the horizontal measures that are included in all sectors, followed by sector-specific scoring methodologies.

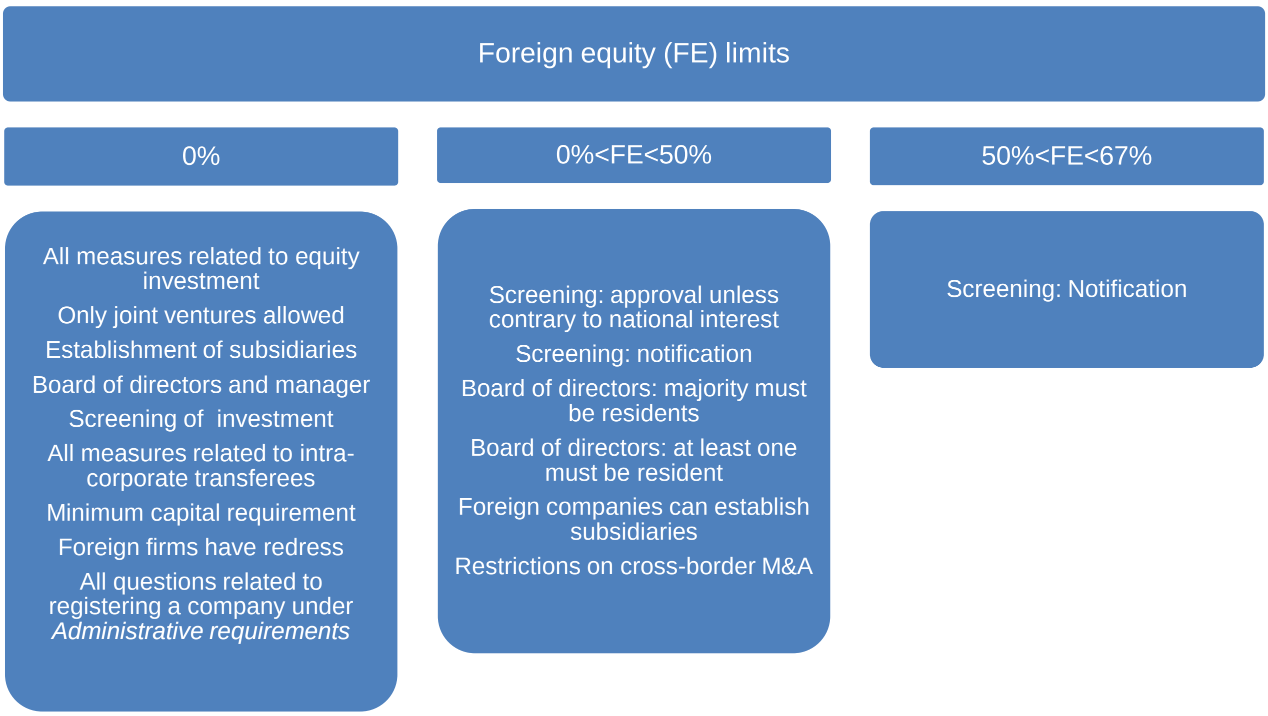
Horizontal measures included in all sectors

Maximum foreign equity share

There are four thresholds here: Less than 100%, less than 50%, less than 33% and zero. If there is a foreign equity limit of 49%, there will be two scores of one: less than 100% and less than 50%. If foreign investment is not allowed at all, there will be four scores of one.

Foreign equity restrictions have implications for other measures as well. In the extreme case where foreign equity is not allowed at all, most trade through commercial presence (mode 3) is closed, but there is still the possibility that foreign firms may establish branches. The hierarchy implied by foreign equity restrictions is presented in Figure 1:

Figure 1. Measures that are automatically scored one when foreign equity limits are in place



Statutory monopolies

If there is a statutory monopoly covering all activities under the definition of a sector, the STRI index is scored one, no matter what the other regulations are. If there is a statutory monopoly covering some activities in the sector, this is scored and weighted as follows:

- The measure recording whether there is a statutory monopoly is scored 1
- This measure is given a weight corresponding to the share of the market covered by the monopoly (x %). The share has been calculated as the average for all countries where possible to avoid endogeneity problems.
- The weights of all other measures are adjusted by (1-x).

Duration of stay for temporary services suppliers

There are three categories of temporary services suppliers: intra-corporate transferees, contractual services suppliers and independent services suppliers. Duration of stay longer than or equal to three years (36 months) is not considered a restriction and scored 0. There are two thresholds below that limit: less than 36 months and less than 12 months. There is one score of one if duration of stay is between 12 and 36 months and two scores of one if the duration is less than 12 months. The measure records the maximum duration of the first permit.

Public procurement

Public procurement is covered by one measure in sectors where public procurement is a small share of the overall market. In sectors where public procurement is an important market, notably construction, restrictions on access to the public procurement market is covered in more detail. In such cases, if there is *Explicit access discrimination in favour of local firms,* all other measures on public procurement are scored one.

Numerical measures under the Administrative procedures heading

The administrative procedures heading contains measures on time, number of procedures and costs of establishing a business and obtaining a construction permit, and the time it takes to get a business visa. These are scored using one threshold as explained in Table 1. Visa processing days and procedures to establish a business are used in all sectors, procedures related to construction permits are used in construction and distribution services, procedures related to resolving insolvency are used in commercial banking, and custom procedures in distribution and courier services.

Table 1. Thresholds for continuous measures under policy heading "Regulatory transparency and administrative requirements"

Measure	Threshold above which the score is one
Range of visa processing time (days)	**10 working days**
Time to complete all official procedures required to register a company (in calendar days)	World Bank Doing Business Indicators – Starting a business: value of the 25^{th} percentile for 183 countries taking the average over 2004-2011: **20 days**
Total cost to complete all official procedures required to register a company (in USD)	World Bank Doing Business Indicators – Starting a business: value of the 25^{th} percentile for 183 countries taking the average over 2004-2011: **8.6% of income per capita**
Number of official procedures required to register a company	World Bank Doing Business Indicators – Starting a business: value of the 25^{th} percentile for 183 countries taking the average over 2004-2011: **7 procedures**
Time to complete all official procedures required to build a warehouse (in calendar days)	World Bank Doing Business Indicators – Dealing with construction permit: value of the 25^{th} percentile for 182 countries taking the average for 2004-2011: **138 days**
Total cost to complete all official procedures required to build a warehouse (in USD)	World Bank Doing Business Indicators – Dealing with construction permit: value of the 25^{th} percentile for 182 countries taking the average for 2004-2011: **57.6% of income per capita**
Number of official procedures required to build a warehouse	World Bank Doing Business Indicators – Dealing with construction permit: value of the 25^{th} percentile for 182 countries taking the average for 2004-2011: **14 procedures**
Time of resolving insolvency (in years)	World Bank Doing Business Indicators – Resolving insolvency: value of the 25^{th} percentile for 137 countries taking the average for 2004-2011: **2 years**
Cost of resolving insolvency (in % of the estate value)	World Bank Doing Business Indicators – Resolving insolvency: value of the 25^{th} percentile for 137 countries taking the average for 2004-2011: **9% of the estate value**
Time taken between the submission of an accepted customs declaration and customs clearance (days)	World Bank Doing Business Indicators – Trading across borders: 2 days
A de minimum regime is in place (in USD)	**100 USD**

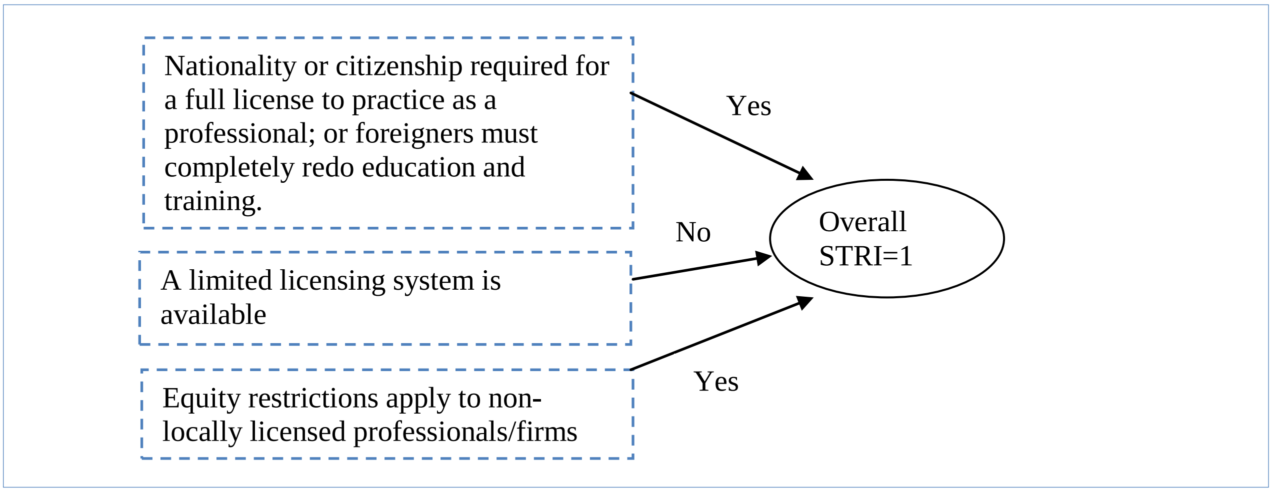
Note: While the cost to complete all official procedures for the registration of a company is collected in USD, the threshold is calculated using the cost as a percentage of income per capita.

Sector-specific scoring regulated professions

In regulated professions a license is required to provide a service. The sector-specific measures relate to conditions and requirements for obtaining a license, and the scope of activities reserved for licensed professionals.

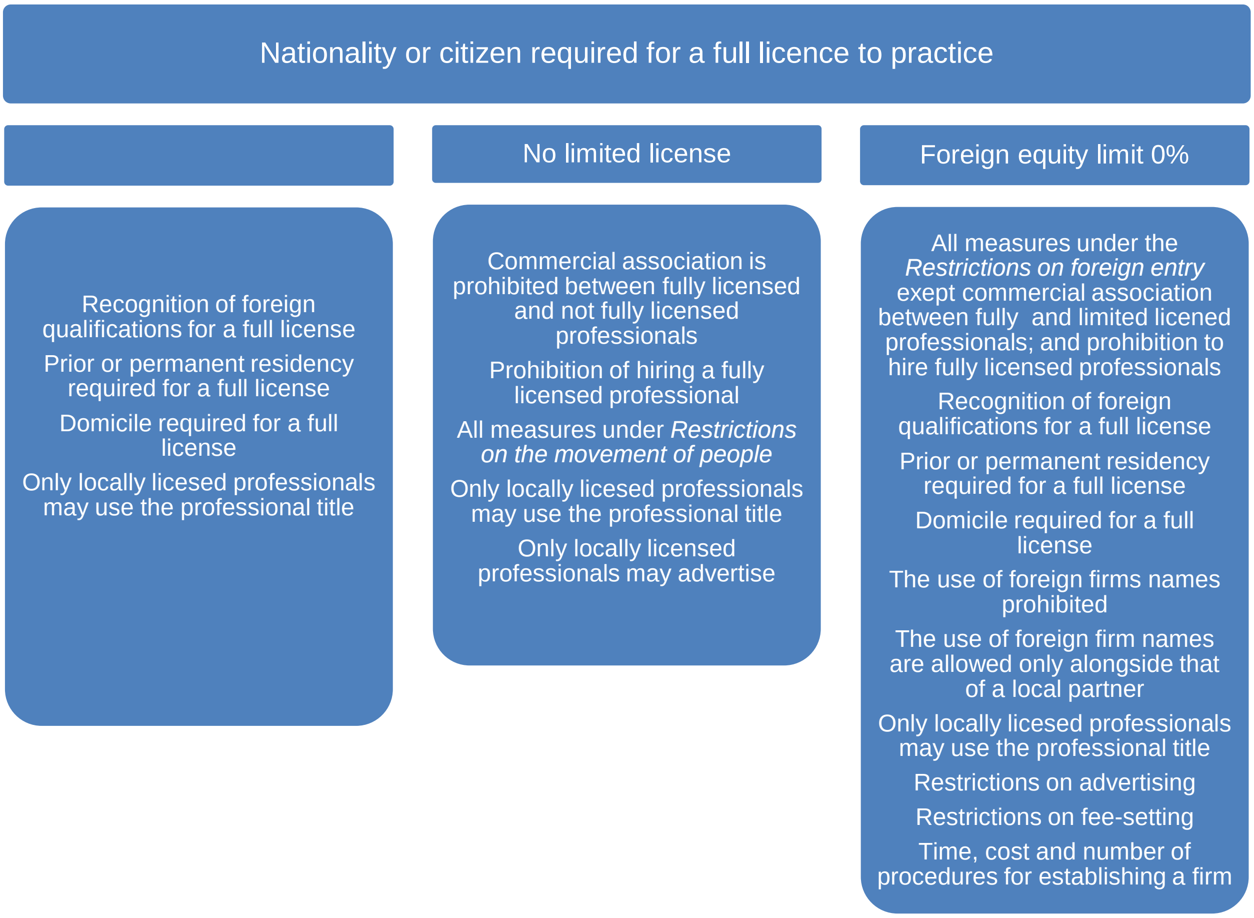
If only nationals or citizen may obtain a license, only licensed professionals may own shares in companies and all activities covered by the definition of the sector are reserved for licensed professionals, then the sector is completely closed to foreign services providers and the STRI index value is one. This is illustrated in Figure 2.

Figure 2. Combination of restrictions that close professional services markets completely



Excluding foreign services providers from obtaining a license does not preclude foreign professionals to enter the market through foreign investment, e.g. through establishing a firm and hiring locally licensed professionals. Figure 3 depicts combinations of key measures and their impact on scoring given that there is a nationality or citizenship requirement for obtaining a license. The left hand side box shows the measures that are scored one based on the nationality requirement alone, the box in the middle the measures that are scored one if there is a nationality requirement for a full license that covers all activities in the sector. Finally the right-hand side box shows scoring if nationality requirement is combined with a prohibition of establishment in any activity through FDI.

Figure 3. Measures scored one in case of nationality requirement for license



Foreign equity limits alone in the professional services have similar scoring implications as those represented in Figure 1.

Sector-specific scoring telecoms

The sector-specific scoring under telecoms is found under the policy area *Barriers to competition.* Best practice regulation in telecoms starts with a market assessment by the regulatory body (either sector-specific regulator or the competition authority). If the assessment results in identifying a supplier with significant market power, a set of measures should be introduced to make sure that the markets stay competitive and open to new entrants. The memo whether there is a dominant supplier serves as a switch between two scoring regimes as follows:

Figure 4. Scoring under barriers to competition, telecoms, competitive markets

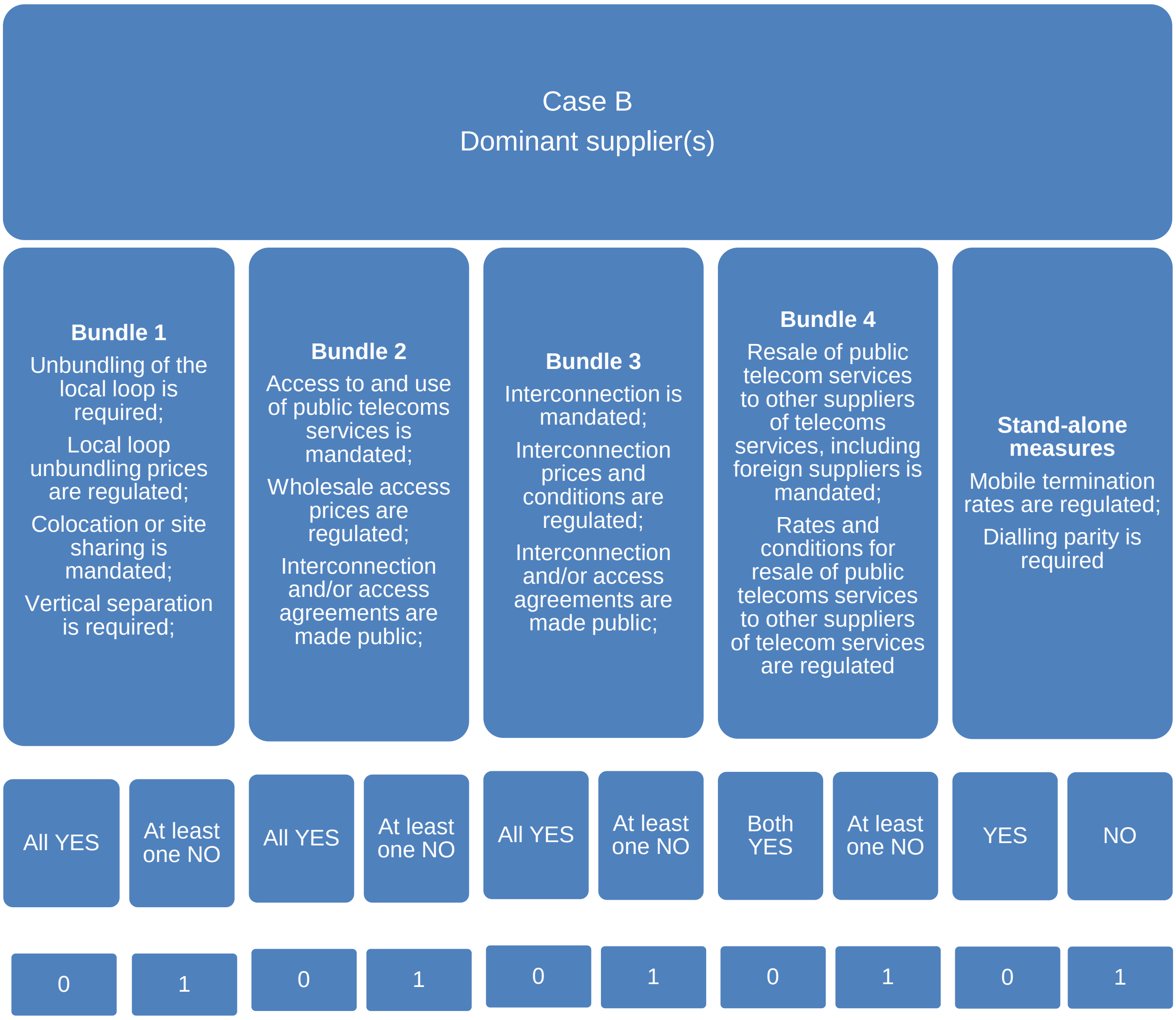
Case A
No dominant supplier; facilities based competition

Measures not considered	**Regulations considered a barrier to competition**	**Regulation considered necessary for competition**
Unbundling of the local loop is required; Colocation or site sharing is mandated; Access to and use of public telecommunications services is mandated; Dialling parity is required;	Local loop unbundling prices are regulated; Vertical separation is required; Wholesale access prices are regulated; Interconnection prices and conditions are regulated; Interconnection and/or access agreements are made public; Mobile termination rates are regulated; Resale of public telecommunications services to other suppliers of telecommunications services, including foreign suppliers is mandated; Rates and conditions for resale of public telecommunications services to other suppliers of telecommunications services are regulated	Interconnection is mandated
YES: 0 / NO: 0	YES: 1 / NO: 0	YES: 0 / NO: 1

There are different views on whether or not access regulation is a burden or a necessity to keep markets competitive in the absence of a supplier with significant market power. In the absence of a clear conclusion, the measures in the left box are not considered and scored zero whether or not there is a regulation. Price regulation, on the other hand, is considered a burden since competitive markets are known for "getting the prices right", and scored one in this case. Even in competitive markets interconnection should be mandated and is scored 1 in the absence of regulation.

If the regulator has identified one or more suppliers with significant market power, Case B as depicted in Figure 5 applies. Access regulation is necessary to facilitate entry of new suppliers in this case. Mandating access alone does usually not suffice and conditions such as access prices are necessary in addition. Finally, the regulator can only enforce its decision if it has information on cost and price structures. The four bundles shown in Figure 5 represent complementary measures that introduce competition and enable the regulator to enforce the regulation. Only if all of the measures in the bundle are in force will any of them be scored zero.

Figure 1. Figure 5. Scoring of barriers to telecoms, dominant supplier



There is one additional conditional scoring in the telecoms sector. If the government owns a dominant firm *and* the government can overrule the decision by the regulator, then “the decision of the regulator can be appealed” is scored 1, whether the decision can formally be appealed or not.

Sector-specific scoring, transport services

Transport services are traded through all modes of supply and sometimes subject to complex regulation. Sector-specific hierarchies and complementary measures are explained below:

Air transport services, establishment

Additional sector-specific hierarchies in air transport are related to foreign equity limits, which can affect airlines in either domestic and international traffic, or both. This has implications for the scoring of other measures. If foreign equity is not allowed with respect to both types of traffic, most the automatic scoring of additional measures follows the same principles as in Figure 1. If foreign equity is not allowed in, say, international traffic only, the impact on other measures will be more limited.

Furthermore, cumulative scoring is used for measures relating slot allocation and slot trading. There are five mutually exclusive ways of allocating slots, which form a hierarchy as follows:

1. Discretionary,
2. Grandfathering
3. First come-first served
4. Auctioning *or* first come first served + monetary slot trading

Auctioning is considered best practise and the score is zero for all alternatives when this is the slot allocation method. Equivalent to this is a first-come, first-served regime combined with secondary slot trading in monetary terms. If any of the other slot allocation regimes applies, the measure itself and all the alternatives below it in the hierarchy are scored one.

Maritime transport services

There are five measures under cargo reservation schemes. These are aggregated into two measures in the scoring: The unilateral cargo reservation scheme and other cargo reservation schemes, which includes bilateral cargo sharing agreements, plurilateral cargo reservations, government cargo and other cargo reservations and preferential schemes. If there are any cargo reservation schemes of these categories, the aggregated measure is scored one, zero otherwise.

Two other measures are also aggregated into one and scored zero if there are no restrictions on either of them and one of at least one contains a restriction. These are:

- Restrictions on the type of vessels and
- Restrictions on the type and quantity of cargo transported

Rail freight

Rail transport is a network industry where two types of market structure are observed: Vertically integrated rail services and vertically separated services. In the former case the same company manages the infrastructure and operates the transport services. In the latter case the two activities are separated, organisationally, functionally or in relation to accounting. In the 40 countries included in the STRI so far, vertical separation has been imposed by a regulator.

There is no clear conclusions on under which circumstances vertical separation result in a more competitive and open market. It depends on topography of the country, population density, market size and the level of competition from other modes of transport. Once the market structure is given, however, best practise regulation can be assessed.

The STRI database contains two sets of measures under barriers to competition for the rail sector, one reflecting best practice regulation in the case of vertical integration, the other in the case of vertical separation. The question on whether vertical separation is mandated serves as a switch between the two regimes.

In the vertical separation case, four measures are complementary and each are scored zero only if all of them are in place, and one if at least one is missing:

- Access to the network is mandated
- Access fees are regulated
- Access fees and conditions are made public
- Access capacity is regulated

The other measures under this market structure are scored independently from each other.

In the vertical integration case, mandated access to bottlenecks/essential facilities in the infrastructure is considered necessary if the integrated supplier is found to have significant market power. It is, however, not clear from the literature that prices and other access conditions should be regulated as long as the sector is subject to general anti-trust legislation. Therefore measures related to prices and other access conditions are not considered (scored 0) in the case of vertical integration where a supplier has significant market power. If the vertically integrated supplier is found to operate in a competitive market (by the local regulator), price regulation and regulation on other conditions is considered a barrier to competition and scored 1.

Independent of market structure, there is one other conditional scoring: If there are no access rights to railway infrastructure for international services, then *Interoperability/interlinking is required* is scored one automatically.

Sector-specific scoring, courier services

In most countries, the designated postal operator (DPO) is a dominant supplier of courier services at least for delivery of letters. A memo in the STRI database records whether or not there is a dominant supplier in each of the market segments (letters, parcels and express delivery), and the memo constitutes a switch between the two scoring systems. When there is a dominant player in the market, accounting separation and appropriate cost allocation system are scored zero only when both measures are in place. These measures are bundled together to reflect the complementarities between them. In addition, non-discriminatory access to the postal network is scored zero when the regulator chooses to impose or maintain the regulation in the case that there is a dominant supplier. On the other hand, price regulations are considered a burden and barrier to competition if imposed in a competitive market without any dominant supplier. The STRI score is zero whether or not *ex ante* price regulation is in place, as long as anti-trust laws apply to the sector.

In addition to the general scoring methodology on a statutory monopoly, four thresholds are included for delivery of letters; a monopoly up to 50 g, up to 1 kg, up to 2 kg, and a monopoly of the whole segment. In the STRI, letters up to 2 kg are assumed to account for 80% of delivery of letters in volume, and 60% for letters up to 50g. When a monopoly is applied up to 1 kg, the STRI assumes that this covers 70% of the letter delivery market. If the whole segment of the delivery of letter is subject to monopoly, it is obvious that the market is completely closed for the letter delivery.

Sector-specific scoring, financial services

Commercial banking

Several measures are rendered irrelevant if foreign banks are not allowed to establish subsidiaries or branches in the host country. For instance, whether foreign-owned banks can be participants in national payment systems under conditions as favourable as domestic banks is of little relevance if banks that are majority-owned by foreigners are not allowed to operate in the first place. Therefore, if foreign subsidiaries are prohibited, discrimination in access to the discount window, access to capital, coverage by deposit insurance and access to payment and clearing systems are scored one. If foreign branches are prohibited, discrimination in access to the discount window and access to payment and clearing systems are scored one. If both foreign subsidiaries and foreign branches are prohibited, such that foreign investment is only permitted through minority stakes in local banks, then several measures related to commercial presence (licensing criteria, ATM networks, services reserved for domestic suppliers) are also scored one.

The measures on ATM networks are aggregated into one restriction, which records whether there exists any limitation on the expansion of ATM networks by foreign banks. The combined measure is scored one if either only domestic banks can establish their own ATM networks, or there are limits on the number of ATMs per bank, or each ATM must be licensed as a separate branch. The score is zero is none of these three regulations is in force.

One of the measures assessing the independence of the supervisor from the government is the length of the term of the head of the supervisory authority. It is scored one if there is no fixed term or if the term duration is less than five years.

Insurance

Several measures capture whether cross-border trade is allowed in general or under specific conditions for different categories of insurance. In some countries, there is a general commercial presence requirement for insurers but cross-border trade is allowed for insurance risks that cannot be covered by insurers established in the country, or for which the premium charged by domestic insurers is significantly higher. The absence of such exception when there is a general commercial presence requirement is considered as an additional trade barrier. The exception is only relevant if cross-border trade is ordinarily not permitted; if cross-border trade is allowed in general for a class of insurance, exception for domestically unavailable insurance is automatically scored zero.

If commercial presence is required for a class of insurance and there is no exception for domestically unavailable policies, then cross-border trade is entirely prohibited for that class of insurance. Therefore, the measure recording whether cross-border transactions must be carried through a resident insurance intermediary is automatically scored one. By the same token, if cross-border reinsurance provision is entirely prohibited, the measures on discriminatory financial requirements for foreign reinsurers are also scored one.

Finally, some measures regarding auxiliary services are linked under restrictions on the movement of people. If insurance intermediaries or actuaries must be nationals of the host country, so that foreigners cannot provide the service regardless of their qualifications, the corresponding measures on residency requirements and the recognition of foreign qualifications are also scored as restrictive.