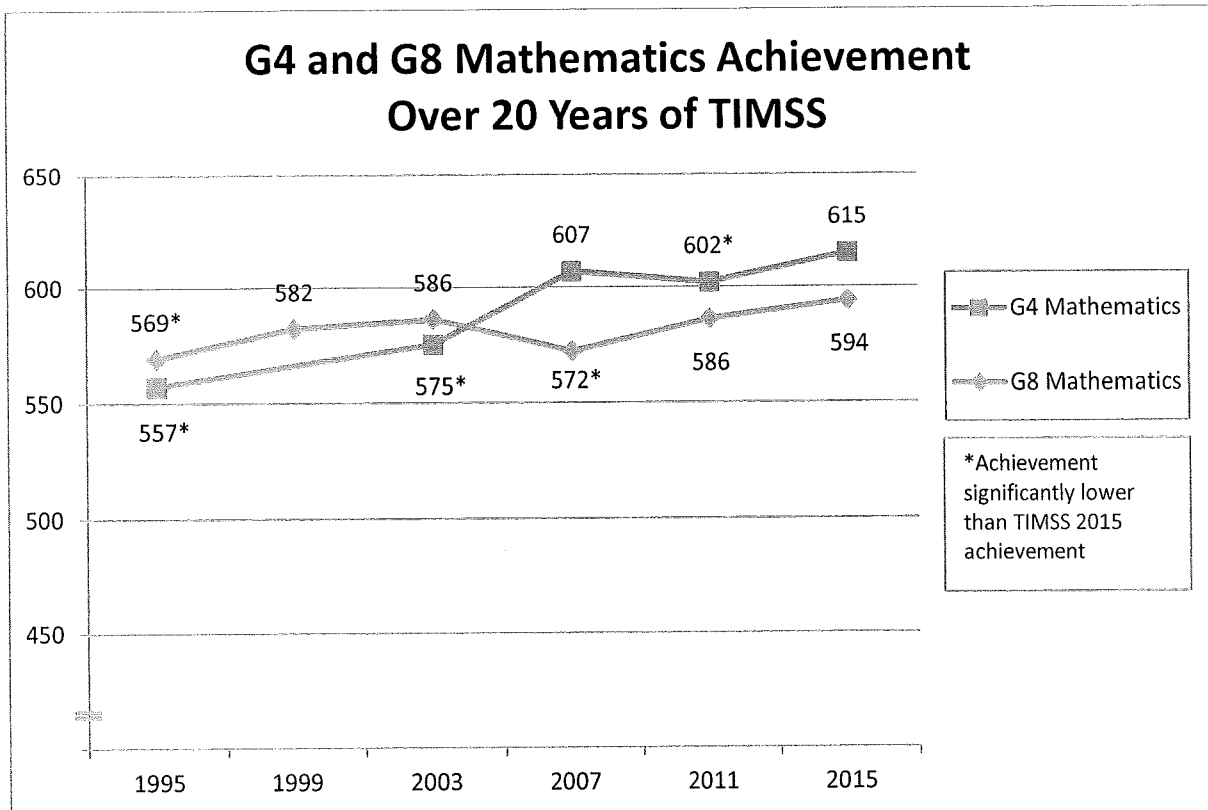


Grade 4 & Grade 8 – Mathematics



Grade 4 & Grade 8 – Science

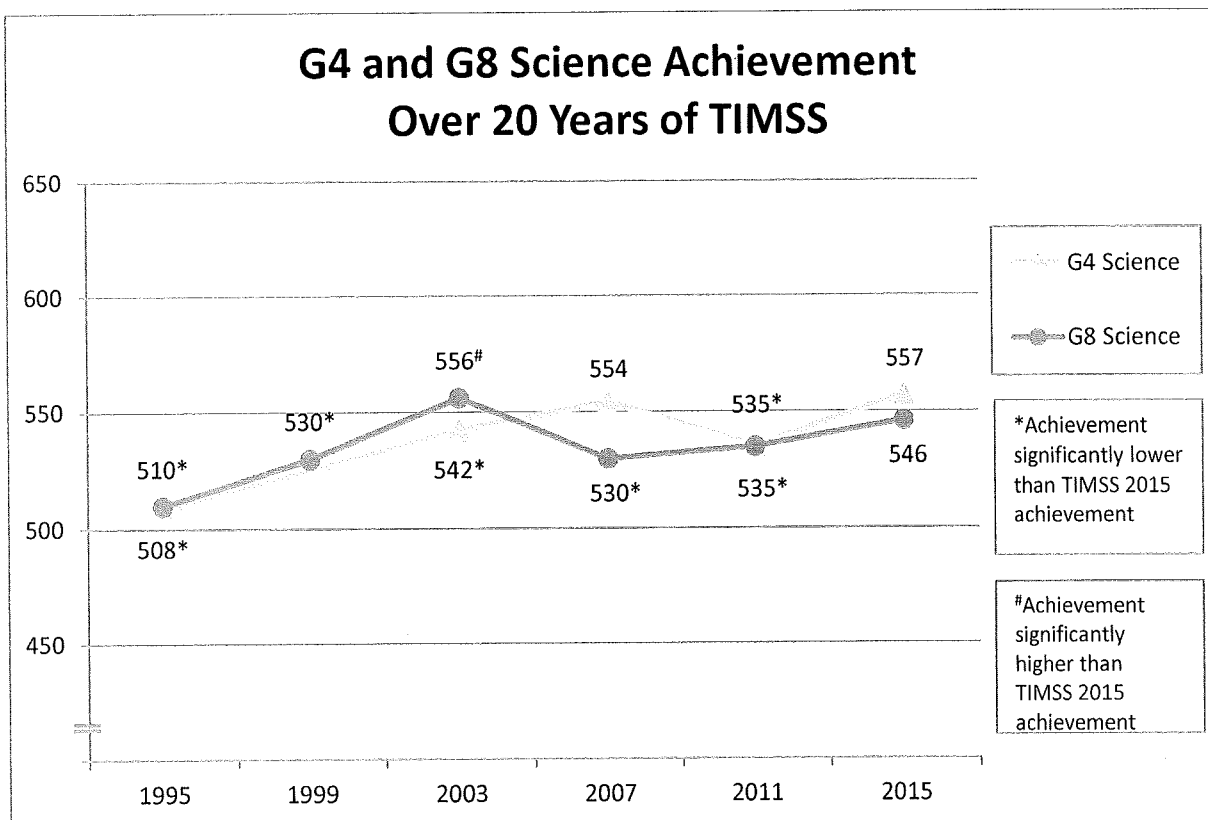
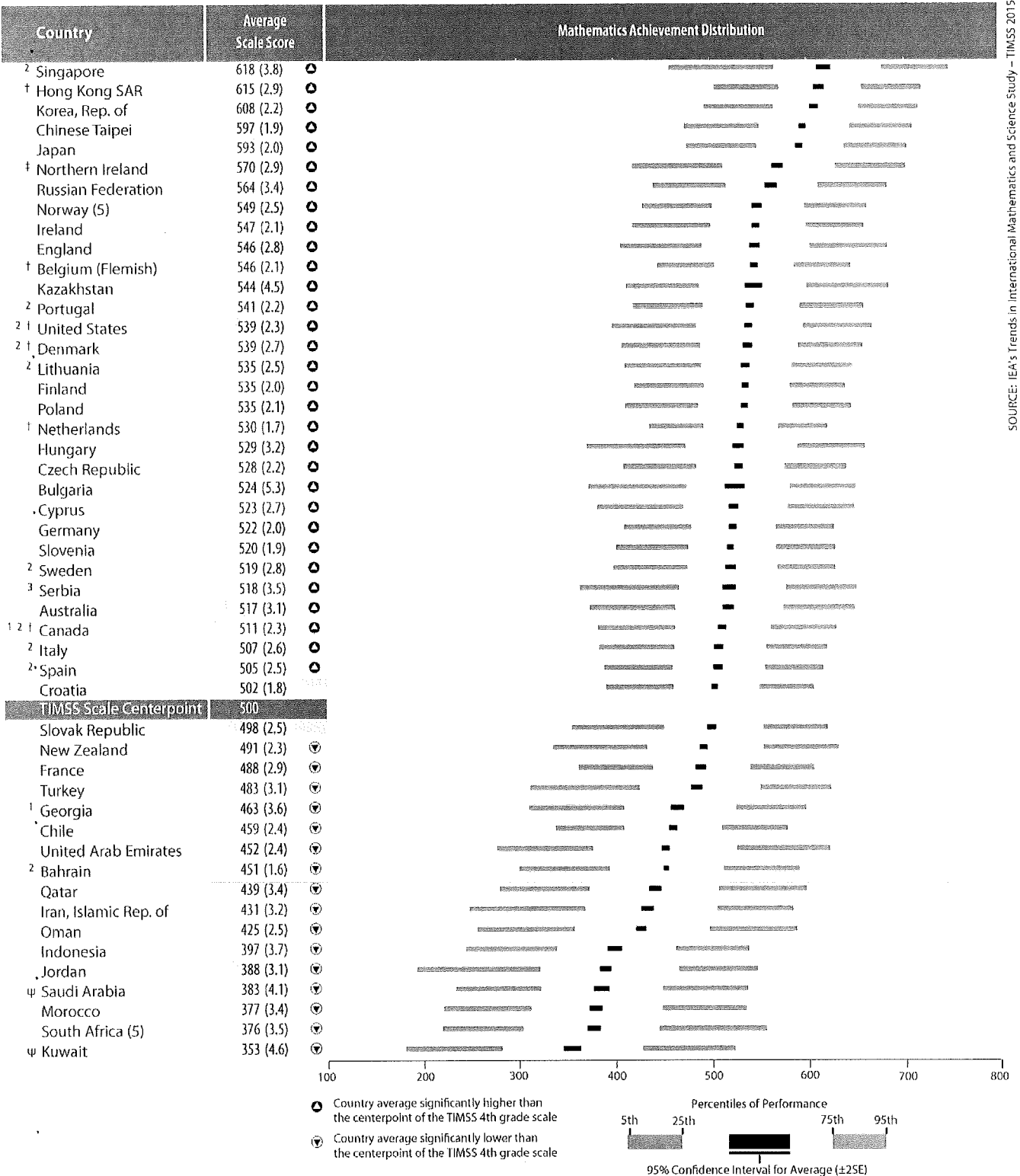


Exhibit 1.1: Distribution of Mathematics Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

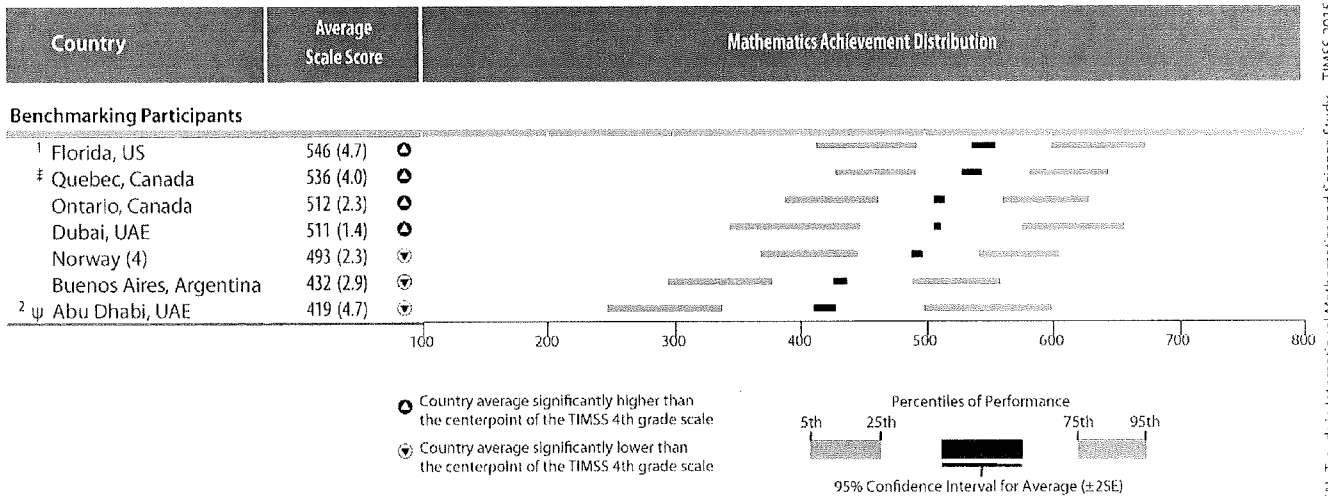
Note: Seven countries and 1 benchmarking entity participated in the TIMSS Numeracy assessment: Bahrain, Indonesia, Iran, Jordan, Kuwait, Morocco, and South Africa as well as Buenos Aires. Except for Jordan and South Africa, they also participated in the TIMSS fourth grade assessment and their mathematics achievement results are based on an average of both assessments.

The TIMSS achievement scale was established in 1995 based on the combined achievement distribution of all countries that participated in TIMSS 1995. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

[†] Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%. See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.7 for sampling guidelines and sampling participation notes †, ‡, and §.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

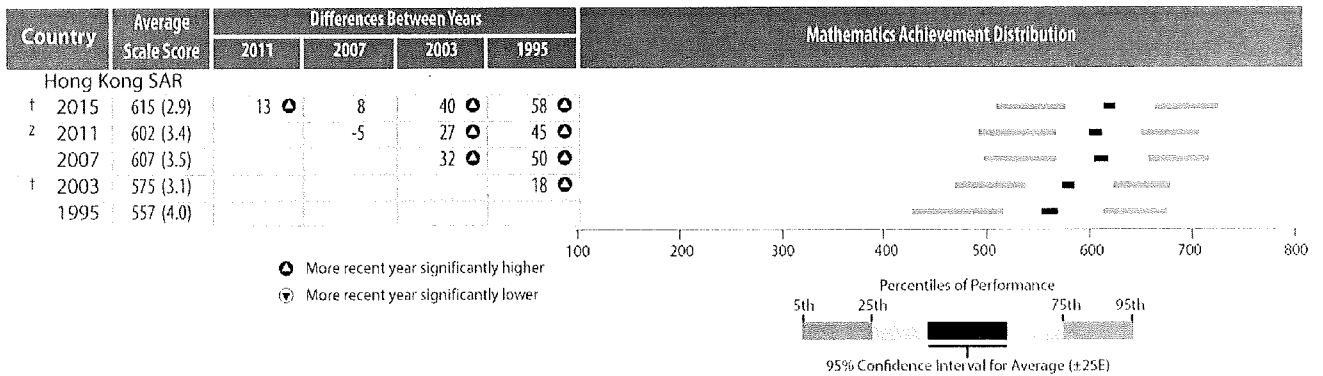
Exhibit 1.1: Distribution of Mathematics Achievement (Continued)



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Exhibit 1.7: Differences in Mathematics Achievement Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (●) or significantly lower (▼) than the performance in the column year.



Trend results for Kuwait do not include private schools. Trend results for Lithuania do not include students taught in Polish or in Russian.

⌘ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

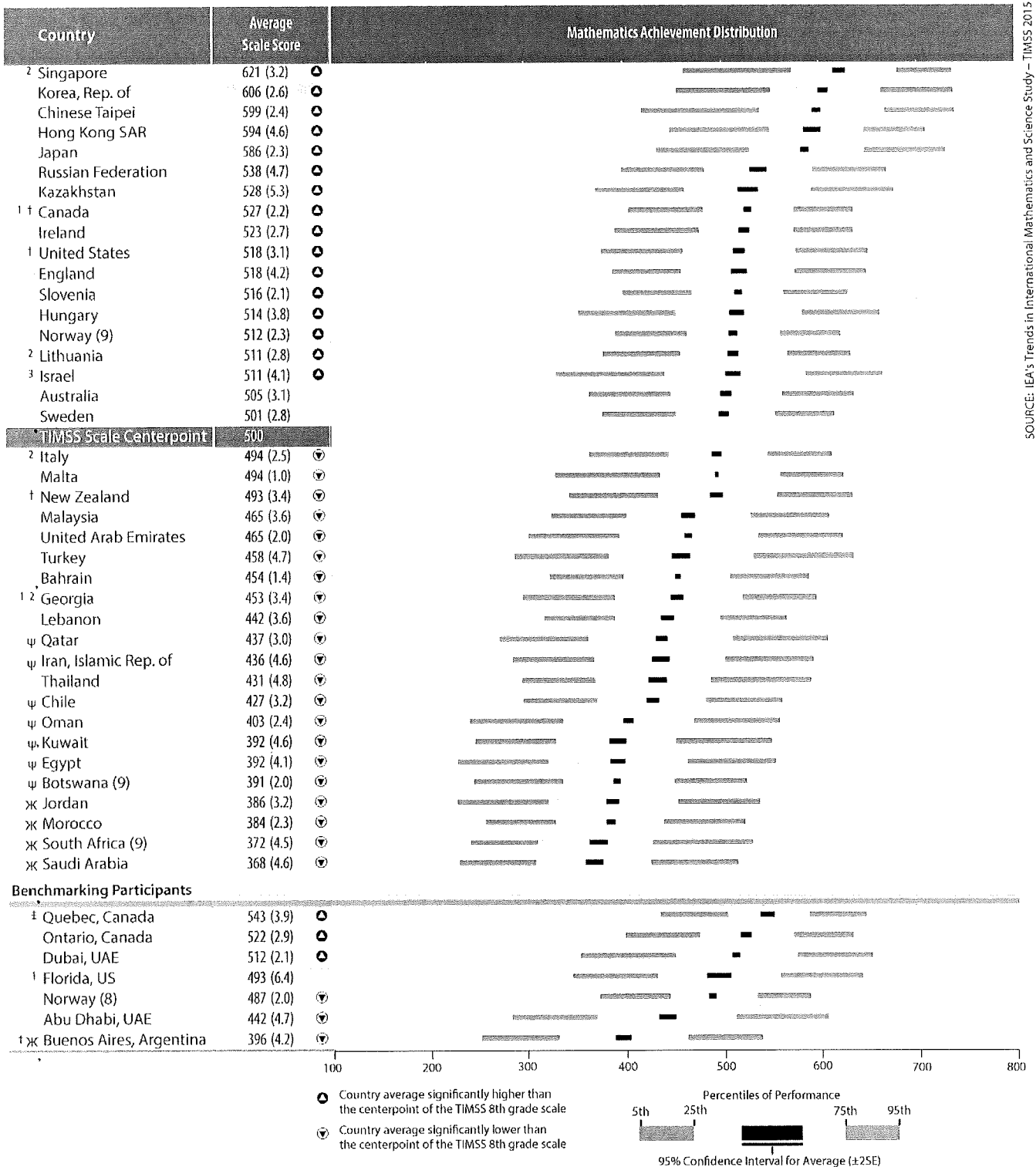
See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.7 for sampling guidelines and sampling participation notes †, ‡, and †.

⌘ Tested the same cohort of students as other countries, but later in the assessment year at the beginning of the next school year.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Exhibit 1.2: Distribution of Mathematics Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

The TIMSS achievement scale was established in 1995 based on the combined achievement distribution of all countries that participated in TIMSS 1995. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

✕ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

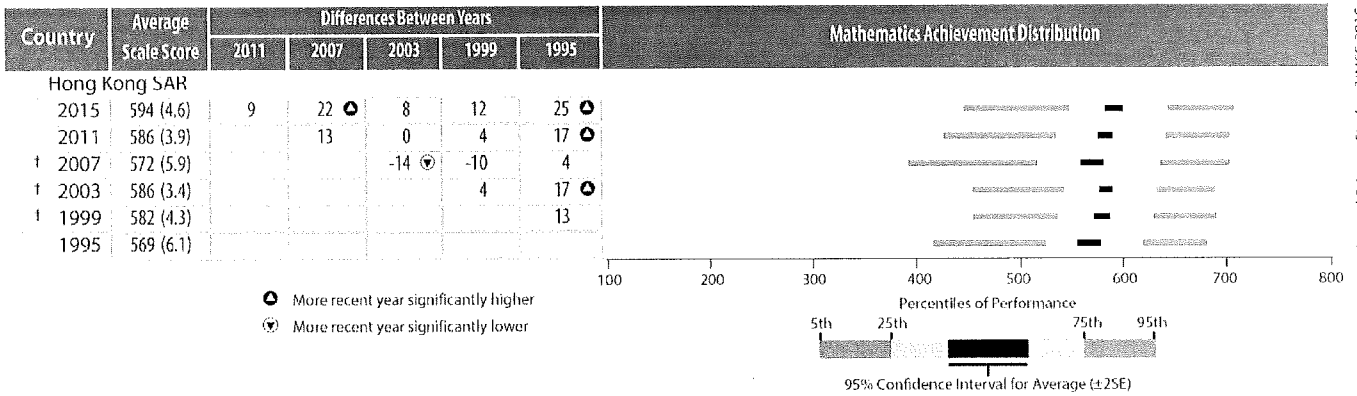
ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and †.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.8: Differences in Mathematics Achievement Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.



Trend results for Kuwait do not include private schools. Trend results for Lithuania do not include students taught in Polish or in Russian. South Africa (9) tested one year later.

‡ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

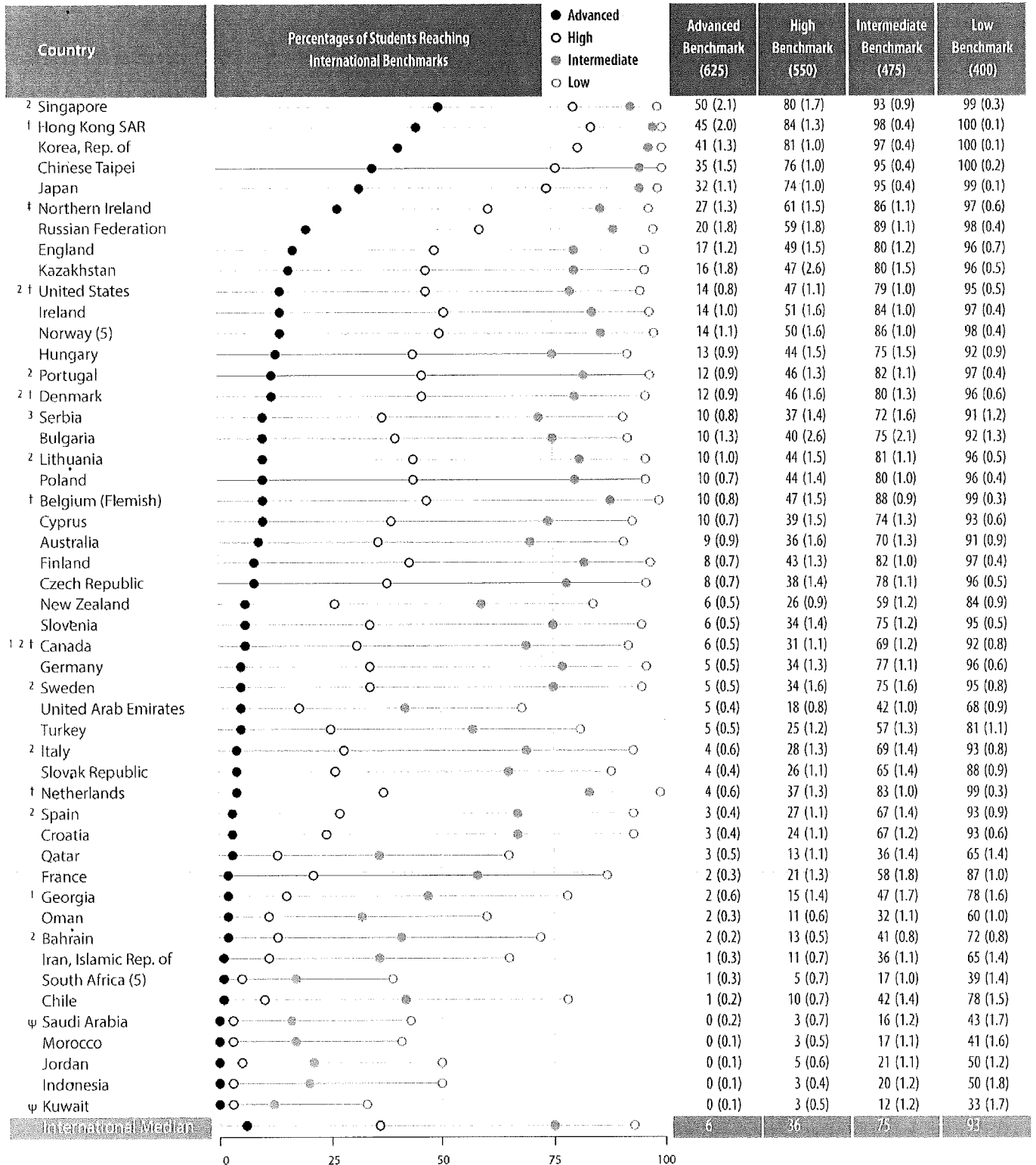
‡ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and §.

‡ Tested the same cohort of students as other countries, but later in the assessment year at the beginning of the next school year.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

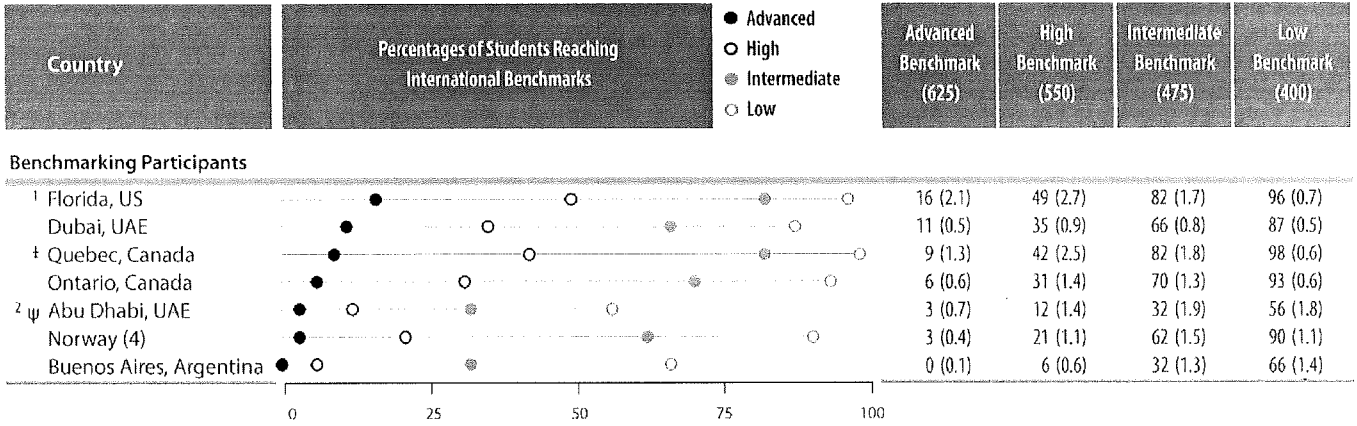
Exhibit 2.2: Performance at the International Benchmarks of Mathematics Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2015

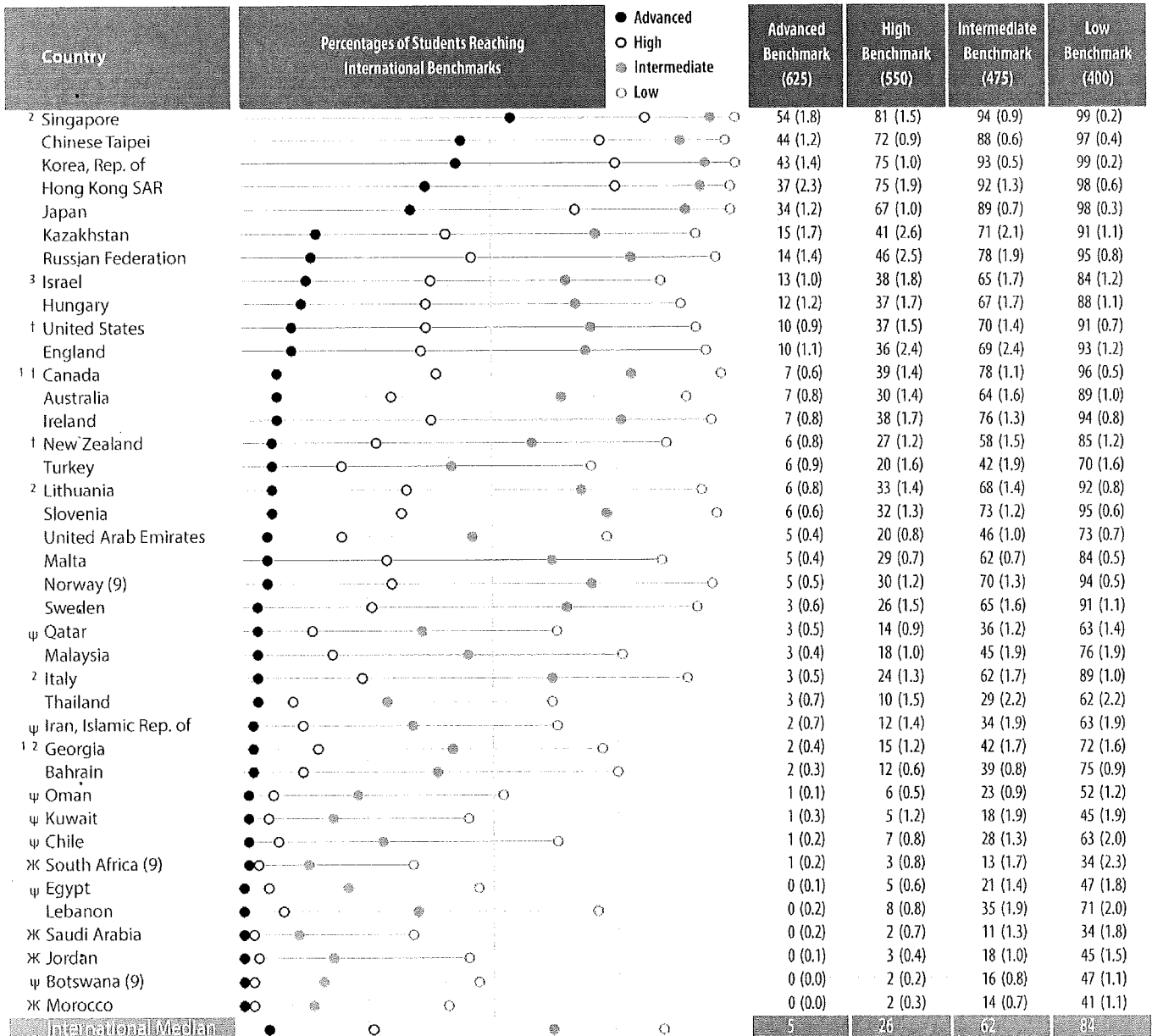
[†] Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%. See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.7 for sampling guidelines and sampling participation notes †, ‡, and §. () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 2.2: Performance at the International Benchmarks of Mathematics Achievement (Continued)



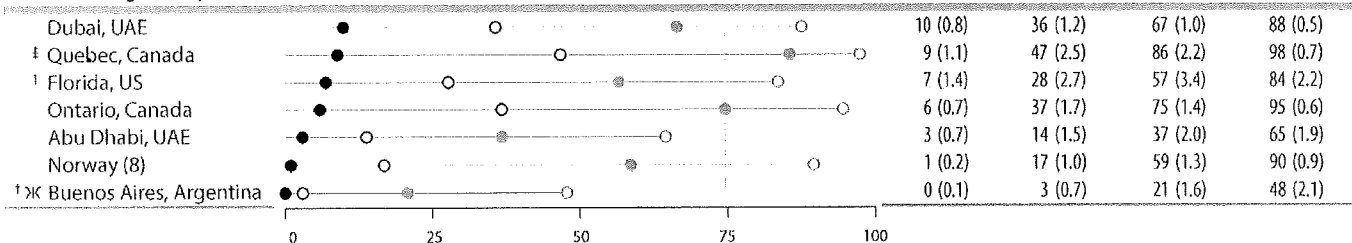
SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2015

Exhibit 2.9: Performance at the International Benchmarks of Mathematics Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Benchmarking Participants



[⋈] Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

^ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and §.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.12: Trends in Mathematics Achievement by Gender^o

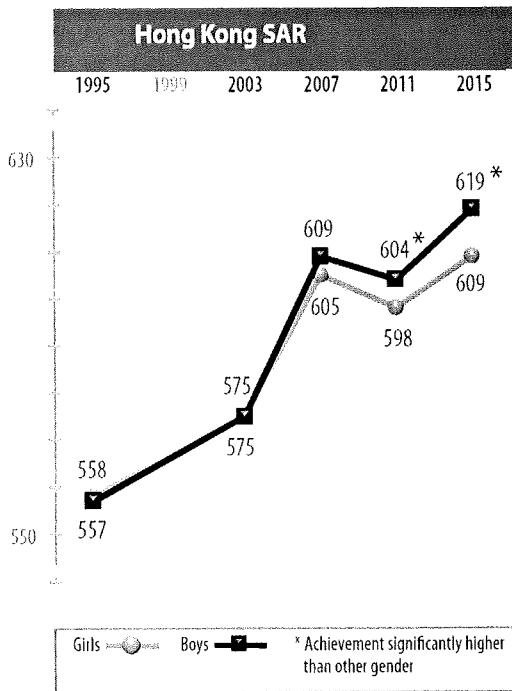
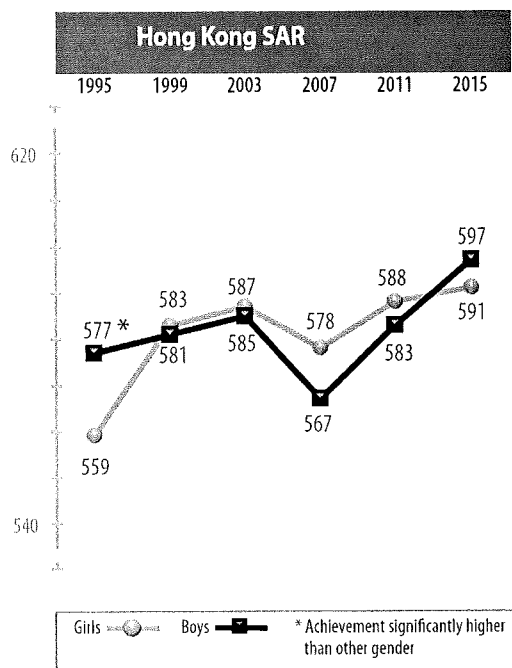


Exhibit 1.13: Trends in Mathematics Achievement by Gender



Attitudinal Results

▪ Percentages of Students in Various Attitudinal Indices of Mathematics

P.4:

	Students Very Much Like Learning Mathematics	Students Like Learning Mathematics	Students Do Not Like Learning Mathematics
% (Scale Avg.)	35% (631)	38% (612)	27% (596)
Int'l Avg. (Scale Avg.)	46% (521)	35% (495)	19% (483)

	Students Very Confident in Mathematics	Students Confident in Mathematics	Students Not Confident in Mathematics
% (Scale Avg.)	19% (660)	45% (622)	36% (583)
Int'l Avg. (Scale Avg.)	32% (546)	45% (502)	23% (460)

Attitudinal Results

▪ Percentages of Students in Various Attitudinal Indices of Mathematics

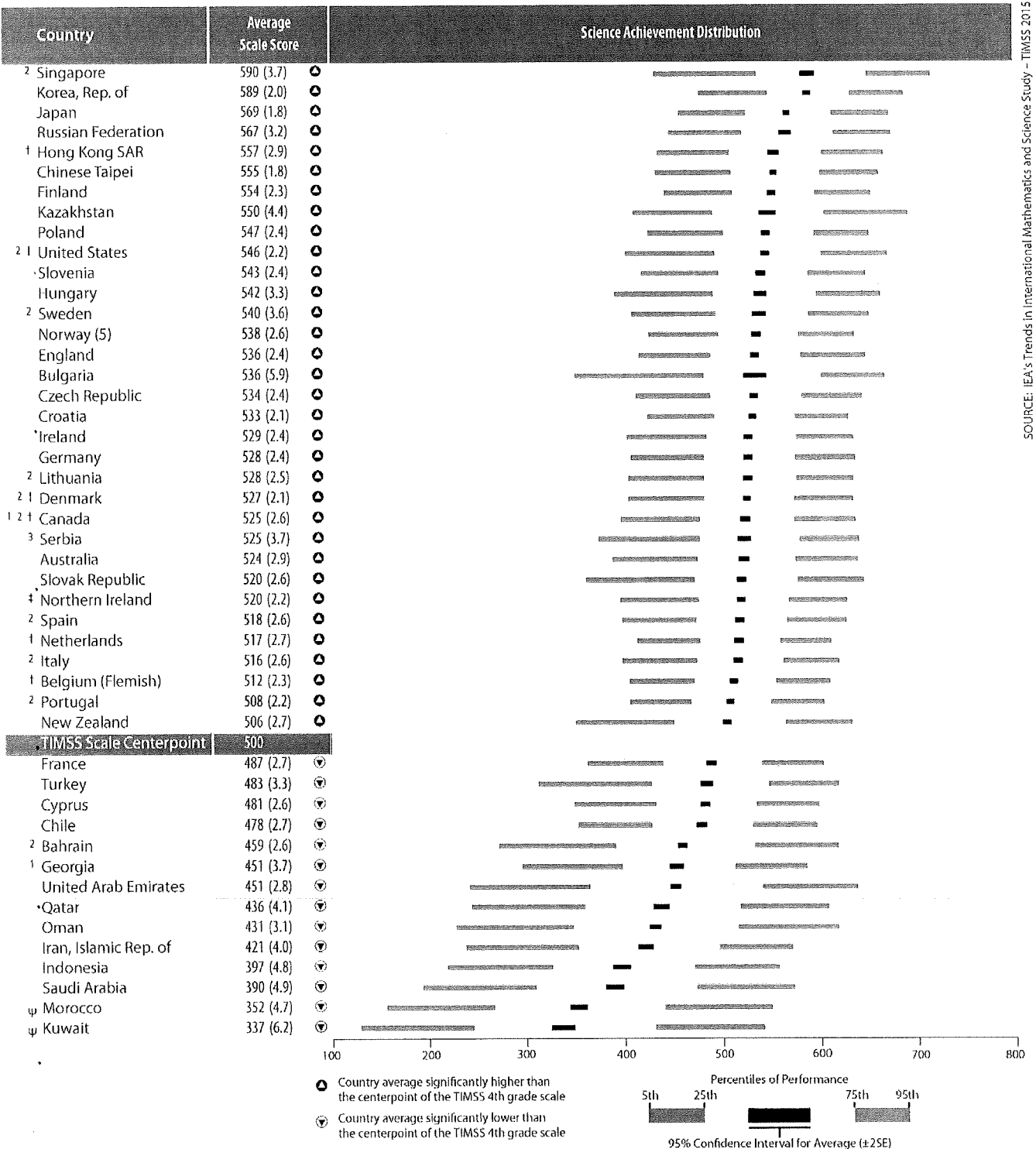
S.2:

	Students Very Much Like Learning Mathematics	Students Like Learning Mathematics	Students Do Not Like Learning Mathematics
% (Scale Avg.)	15% (638)	39% (605)	46% (572)
Int'l Avg. (Scale Avg.)	22% (518)	39% (485)	38% (462)

	Students Strongly Value Mathematics	Students Value Mathematics	Students Do Not Value Mathematics
% (Scale Avg.)	19% (617)	52% (602)	29% (567)
Int'l Avg. (Scale Avg.)	42% (498)	45% (477)	13% (449)

	Students Very Confident in Mathematics	Students Confident in Mathematics	Students Not Confident in Mathematics
% (Scale Avg.)	10% (660)	36% (611)	54% (571)
Int'l Avg. (Scale Avg.)	14% (554)	43% (494)	43% (449)

Exhibit 1.1: Distribution of Science Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

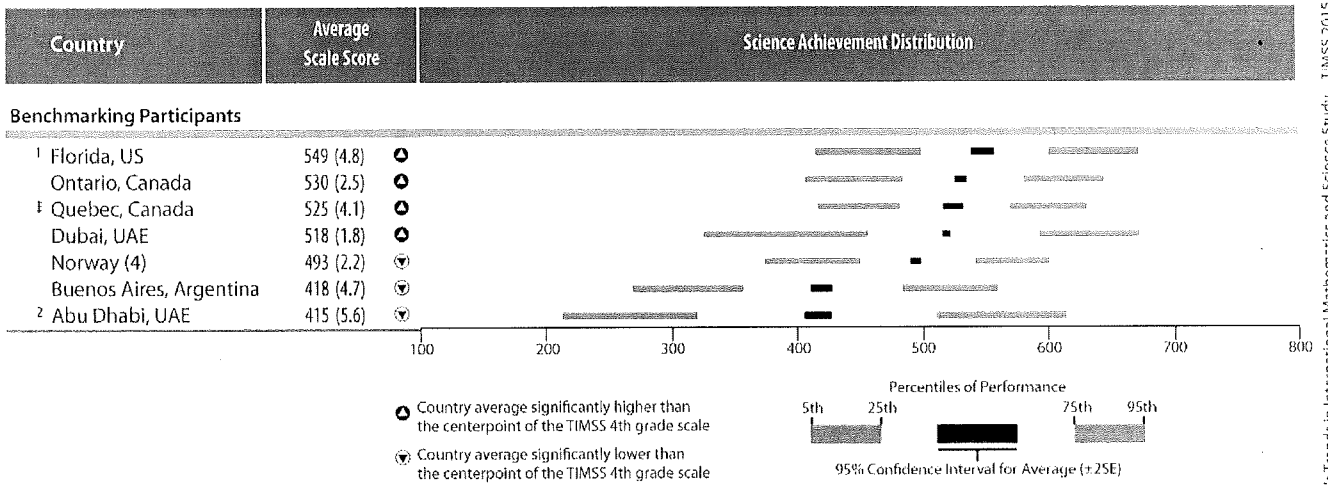
The TIMSS achievement scale was established in 1995 based on the combined achievement distribution of all countries that participated in TIMSS 1995. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

^ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.7 for sampling guidelines and sampling participation notes †, ‡, and §.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

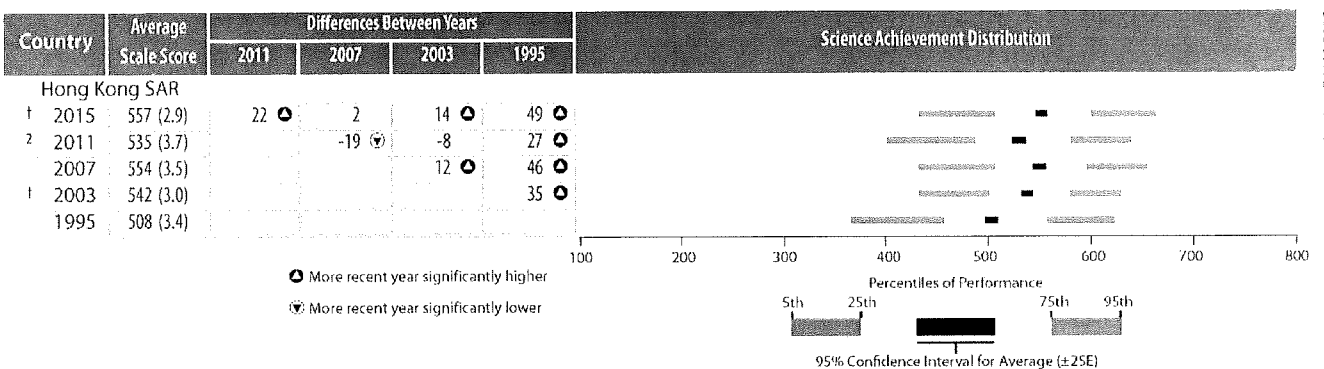
Exhibit 1.1: Distribution of Science Achievement (Continued)



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Exhibit 1.7: Differences in Science Achievement Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (⬆) or significantly lower (⬇) than the performance in the column year.



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Trend results for Kuwait do not include private schools. Trend results for Lithuania do not include students taught in Polish or in Russian.

* Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

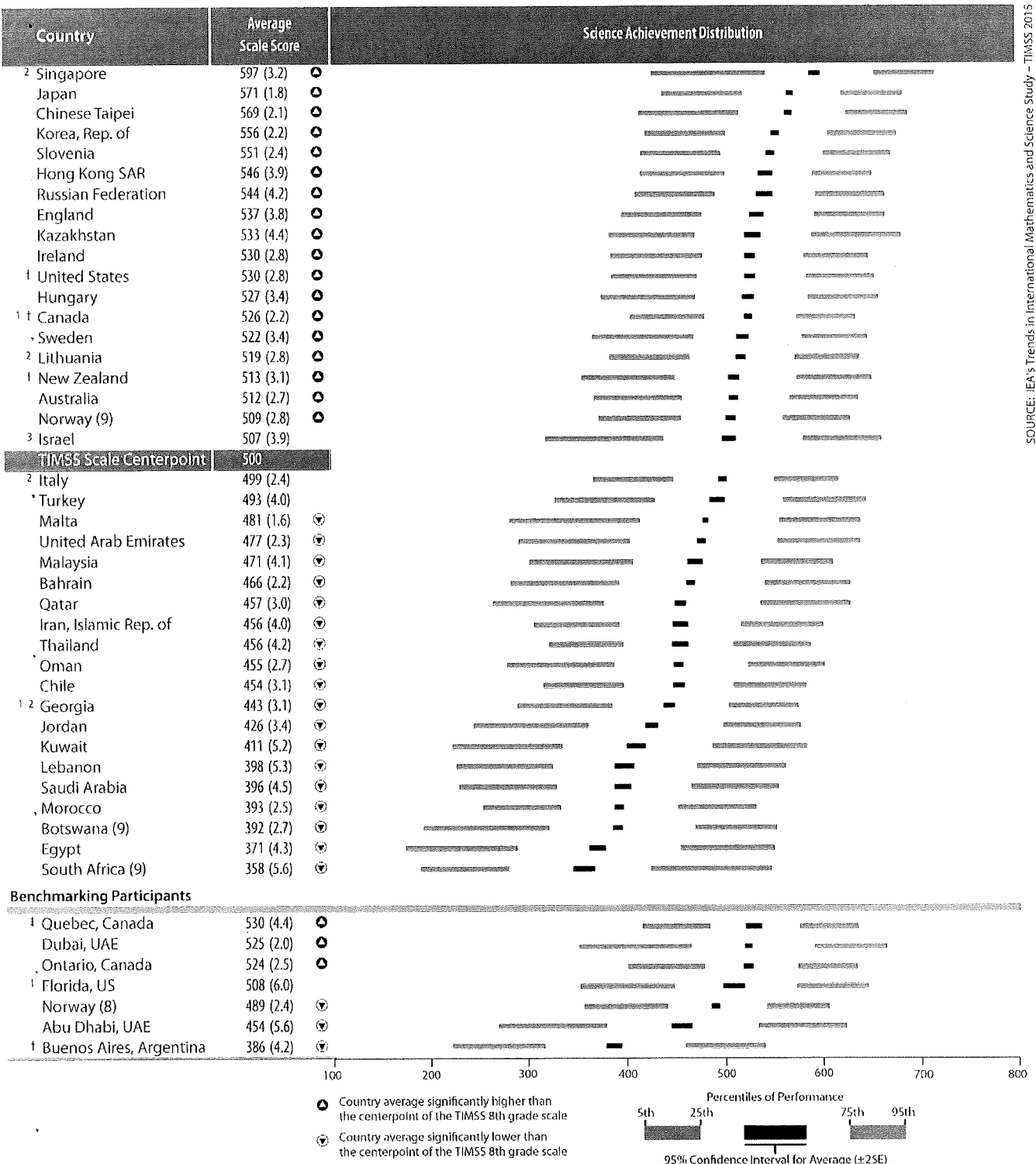
ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.7 for sampling guidelines and sampling participation notes †, ‡, and ††.

†† Tested the same cohort of students as other countries, but later in the assessment year at the beginning of the next school year.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.2: Distribution of Science Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

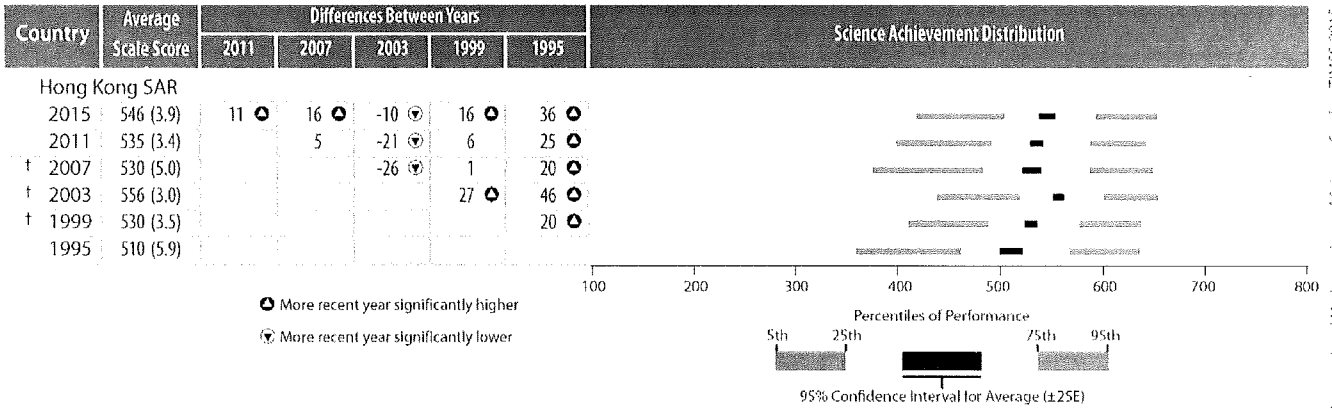
The TIMSS achievement scale was established in 1995 based on the combined achievement distribution of all countries that participated in TIMSS 1995. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and §.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.8: Differences in Science Achievement Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.



Trend results for Kuwait do not include private schools. Trend results for Lithuania do not include students taught in Polish or in Russian. South Africa (9) tested one year later.

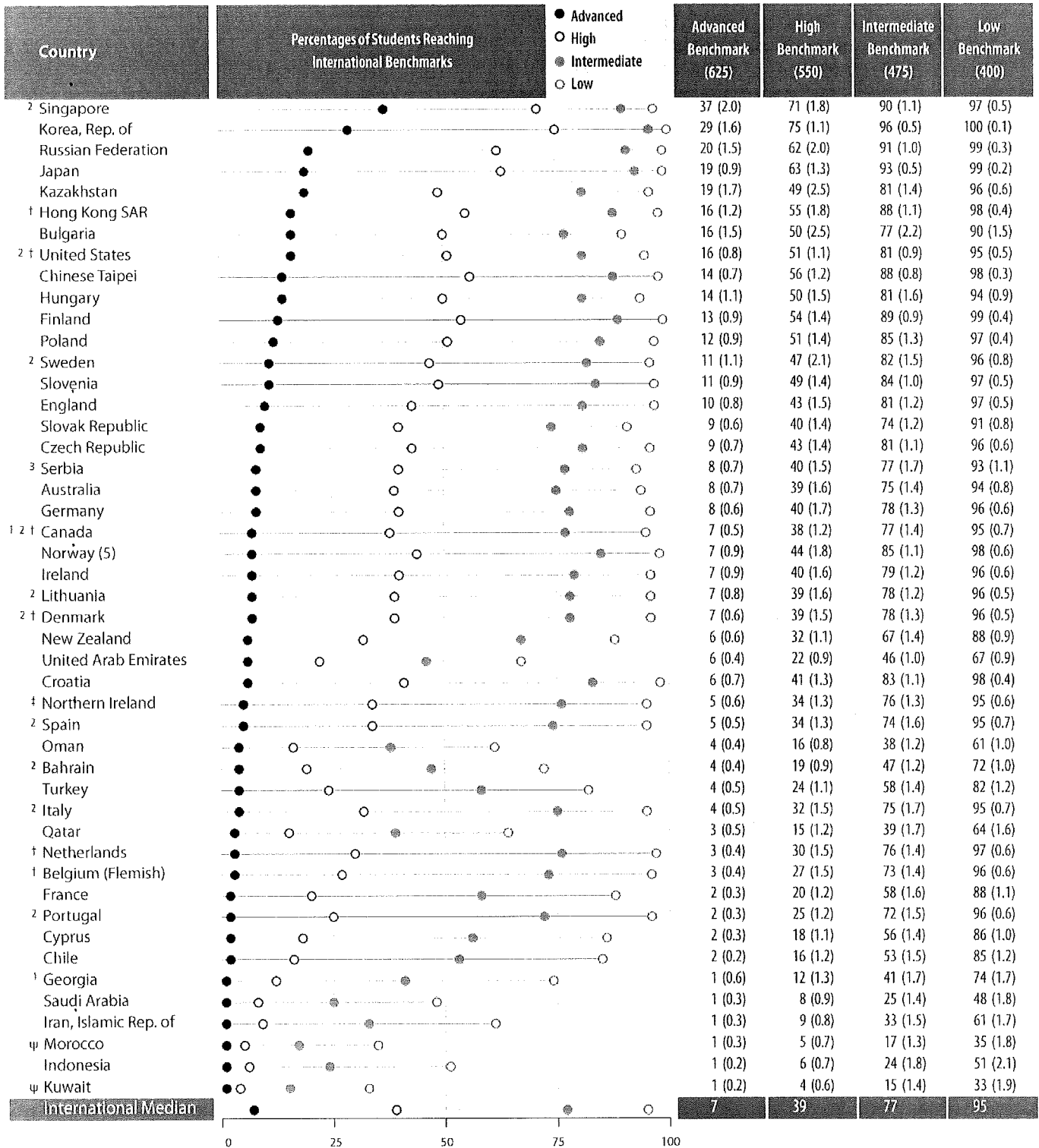
⚠ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%. Such annotations in exhibits with trend data began in 2011, so data from assessments prior to 2011 are not annotated for reservations.

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and †.

†† Tested the same cohort of students as other countries, but later in the assessment year at the beginning of the next school year.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 2.2: Performance at the International Benchmarks of Science Achievement



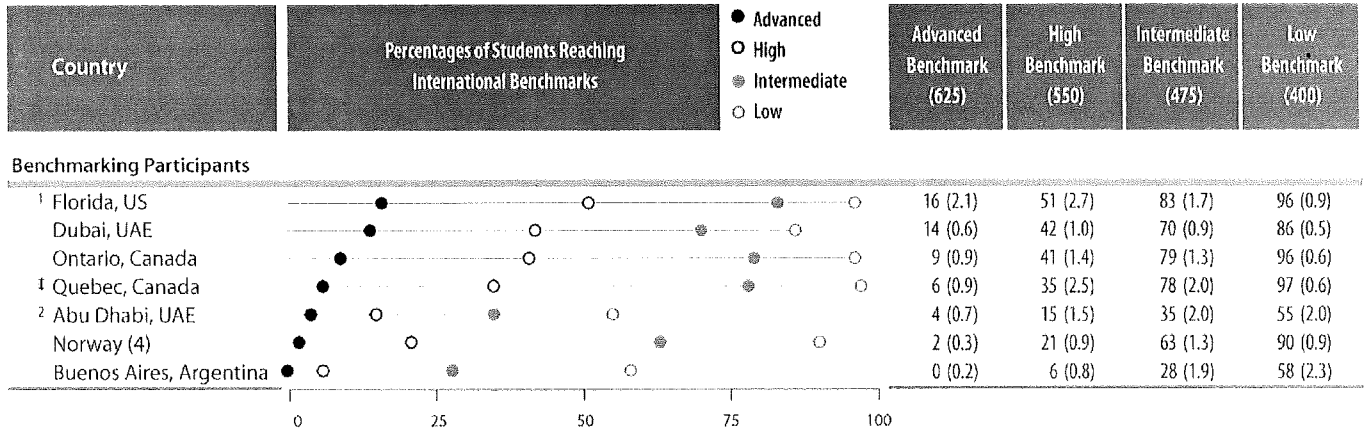
SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2015

^ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.7 for sampling guidelines and sampling participation notes †, ‡, and §.

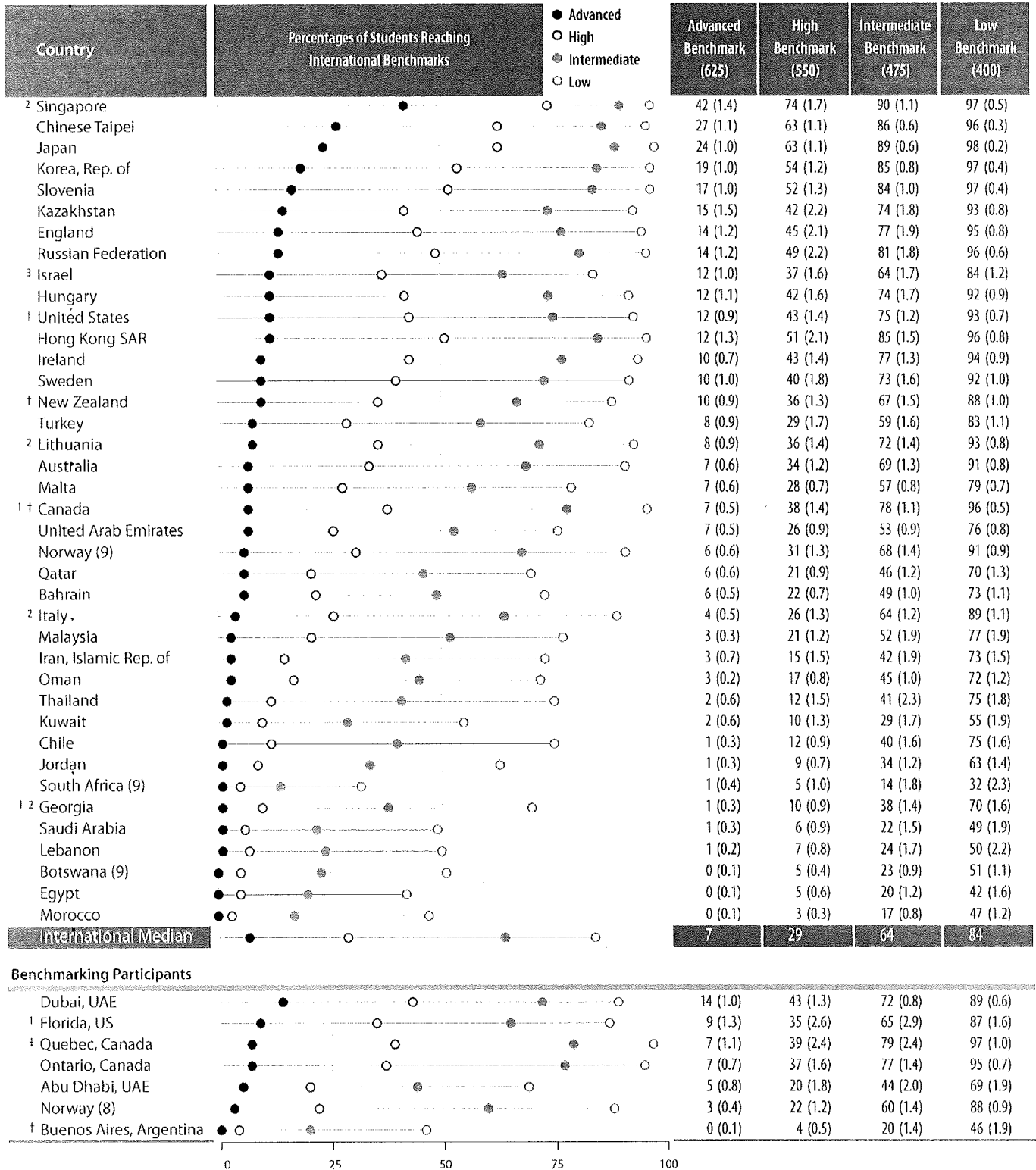
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 2.2: Performance at the International Benchmarks of Science Achievement (Continued)



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Exhibit 2.9: Performance at the International Benchmarks of Science Achievement



SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2015

See Appendix C.2 for target population coverage notes 1, 2, and 3. See Appendix C.8 for sampling guidelines and sampling participation notes †, ‡, and †. () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.12: Trends in Science Achievement by Gender⁰

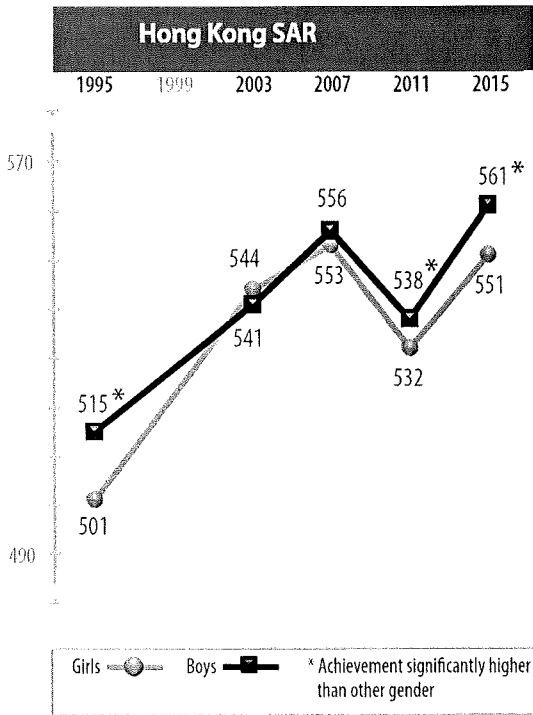
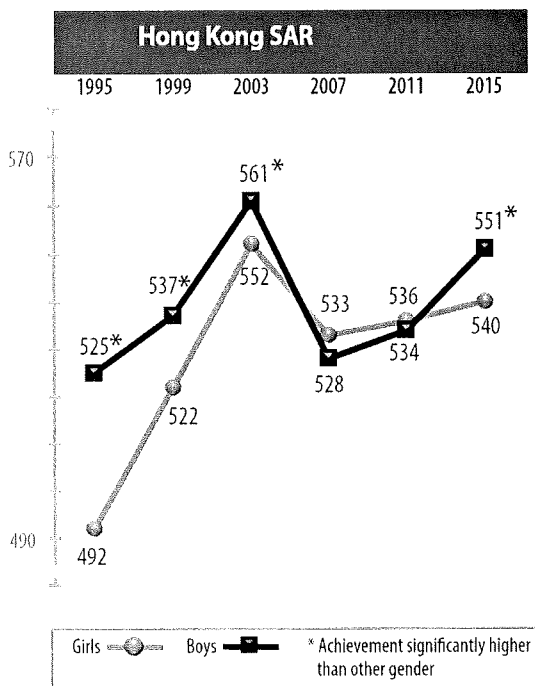


Exhibit 1.13: Trends in Science Achievement by Gender



Attitudinal Results

▪ Percentages of Students in Various Attitudinal Indices of Science

P.4:

	Students Very Much Like Learning Science	Students Like Learning Science	Students Do Not Like Learning Science
% (Scale Avg.)	57% (569)	32% (543)	11% (533)
Int'l Avg. (Scale Avg.)	56% (518)	33% (492)	11% (483)

	Students Very Confident in Science	Students Confident in Science	Students Not Confident in Science
% (Scale Avg.)	25% (588)	48% (558)	27% (526)
Int'l Avg. (Scale Avg.)	40% (532)	42% (501)	18% (464)

Attitudinal Results

▪ Percentages of Students in Various Attitudinal Indices of Science

S.2:

	Students Very Much Like Learning Science	Students Like Learning Science	Students Do Not Like Learning Science
% (Scale Avg.)	30% (574)	51% (542)	19% (512)
Int'l Avg. (Scale Avg.)	37% (516)	44% (475)	19% (453)

	Students Strongly Value Science	Students Value Science	Students Do Not Value Science
% (Scale Avg.)	24% (565)	46% (549)	31% (528)
Int'l Avg. (Scale Avg.)	40% (506)	41% (482)	19% (460)

	Students Very Confident in Science	Students Confident in Science	Students Not Confident in Science
% (Scale Avg.)	13% (592)	38% (560)	49% (523)
Int'l Avg. (Scale Avg.)	22% (538)	39% (490)	40% (452)

