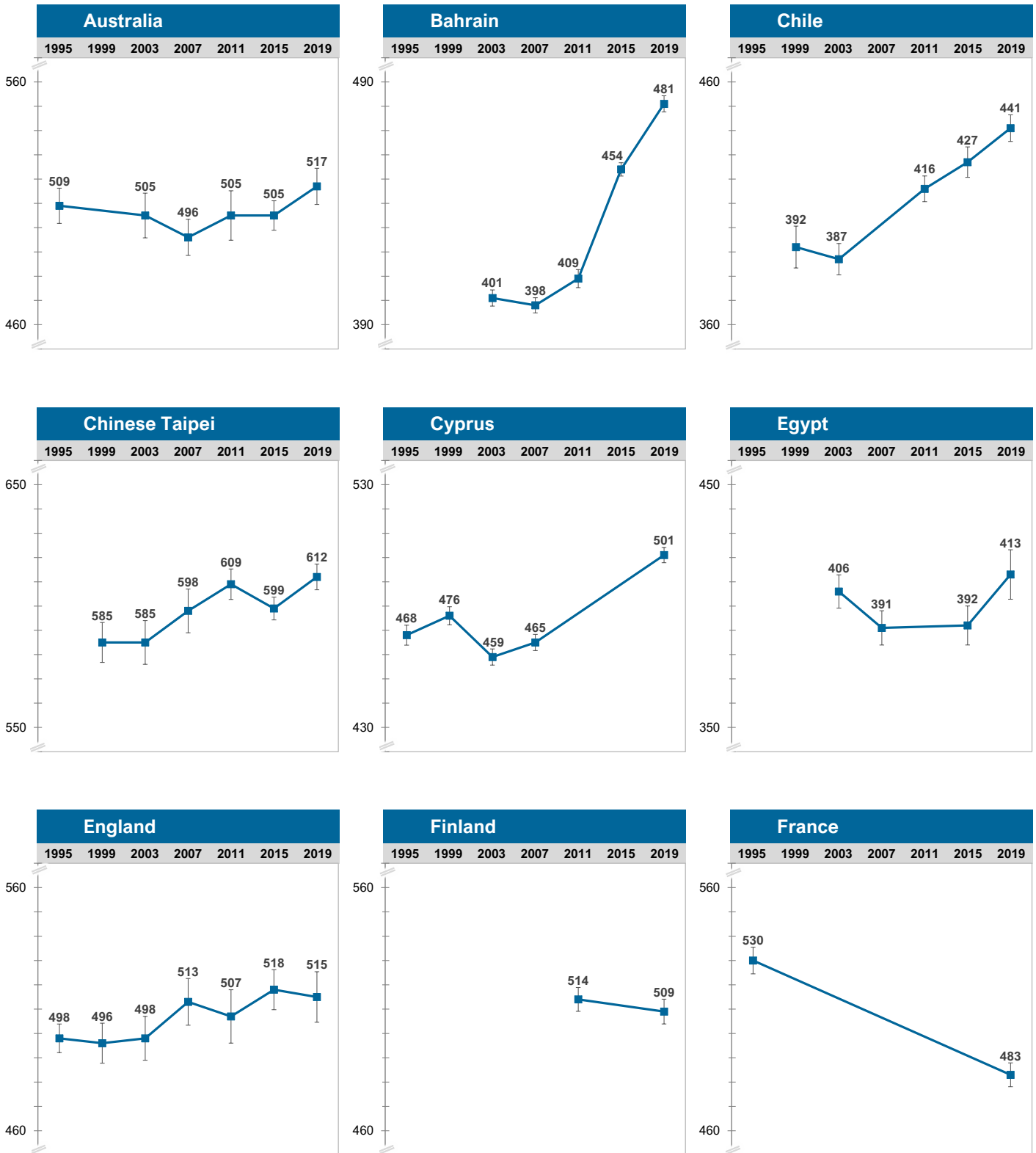


Exhibit 3.3: Trend Plots of Average Mathematics Achievement Across Assessment Years

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 3.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

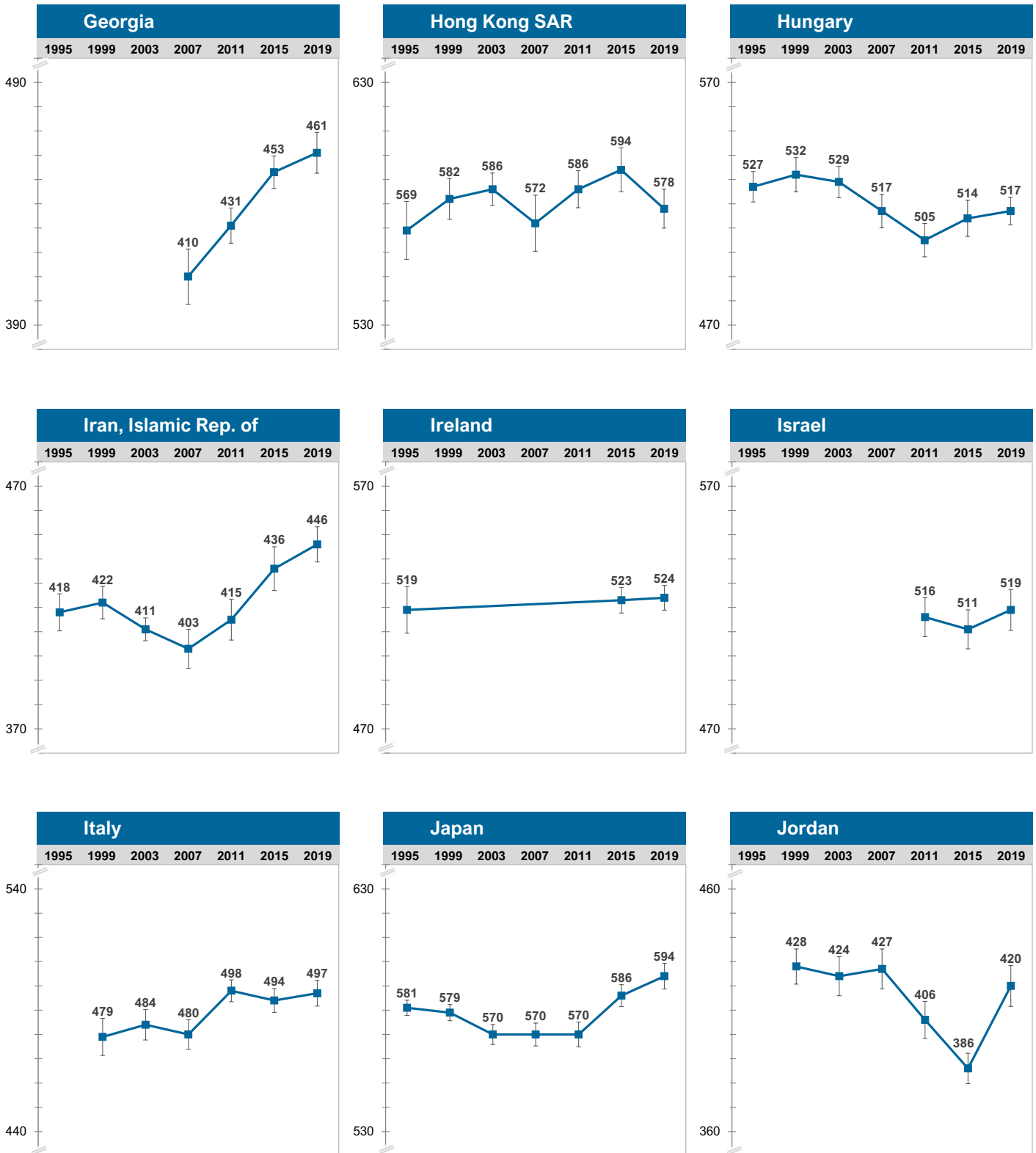


See Appendix A for country participation in previous TIMSS assessments.
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
 I. The black bars represent the 95% confidence interval.

Exhibit 3.3: Trend Plots of Average Mathematics Achievement Across Assessment Years

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 3.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

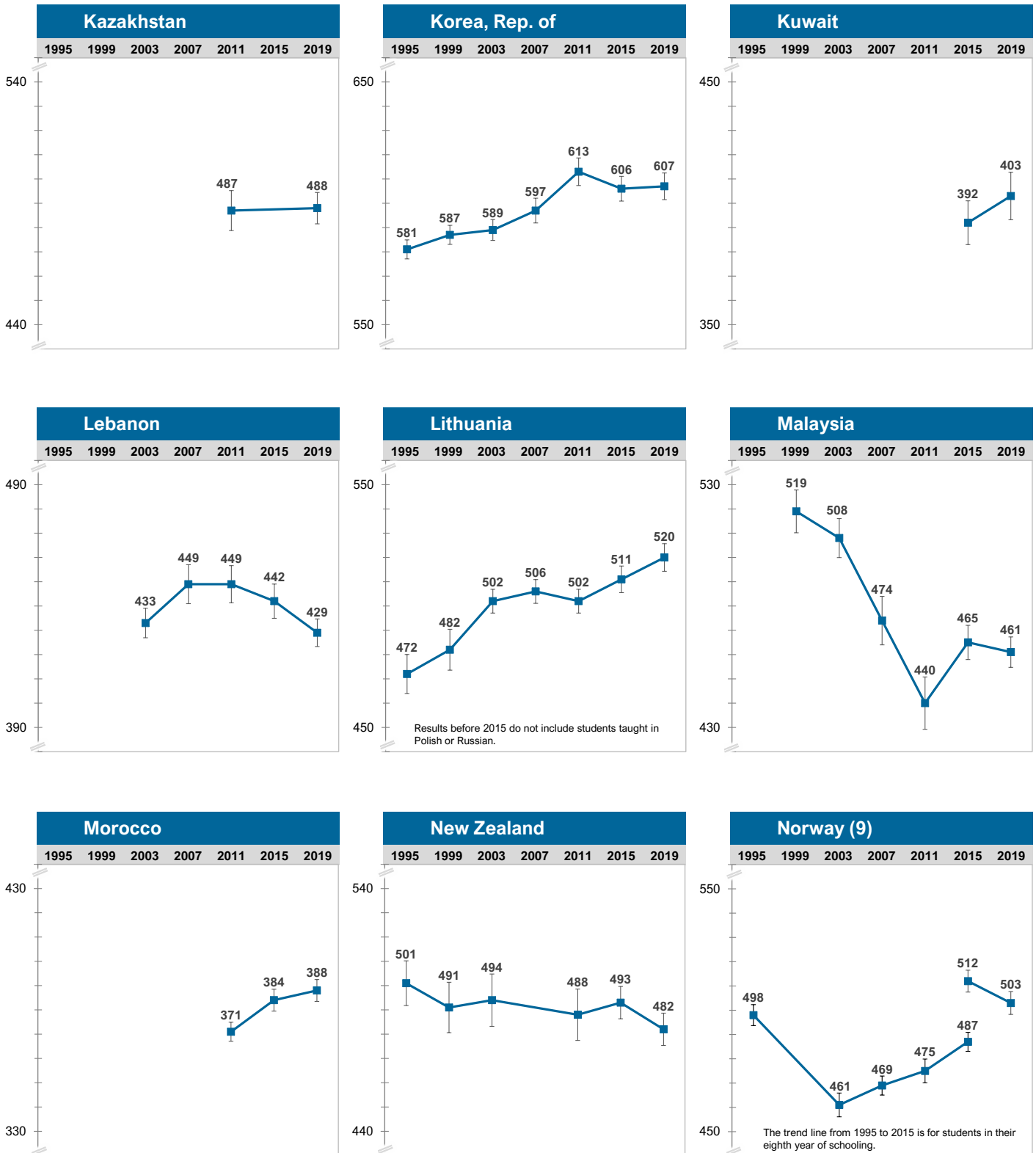


See Appendix A for country participation in previous TIMSS assessments.
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
 I. The black bars represent the 95% confidence interval.

Exhibit 3.3: Trend Plots of Average Mathematics Achievement Across Assessment Years

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 3.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

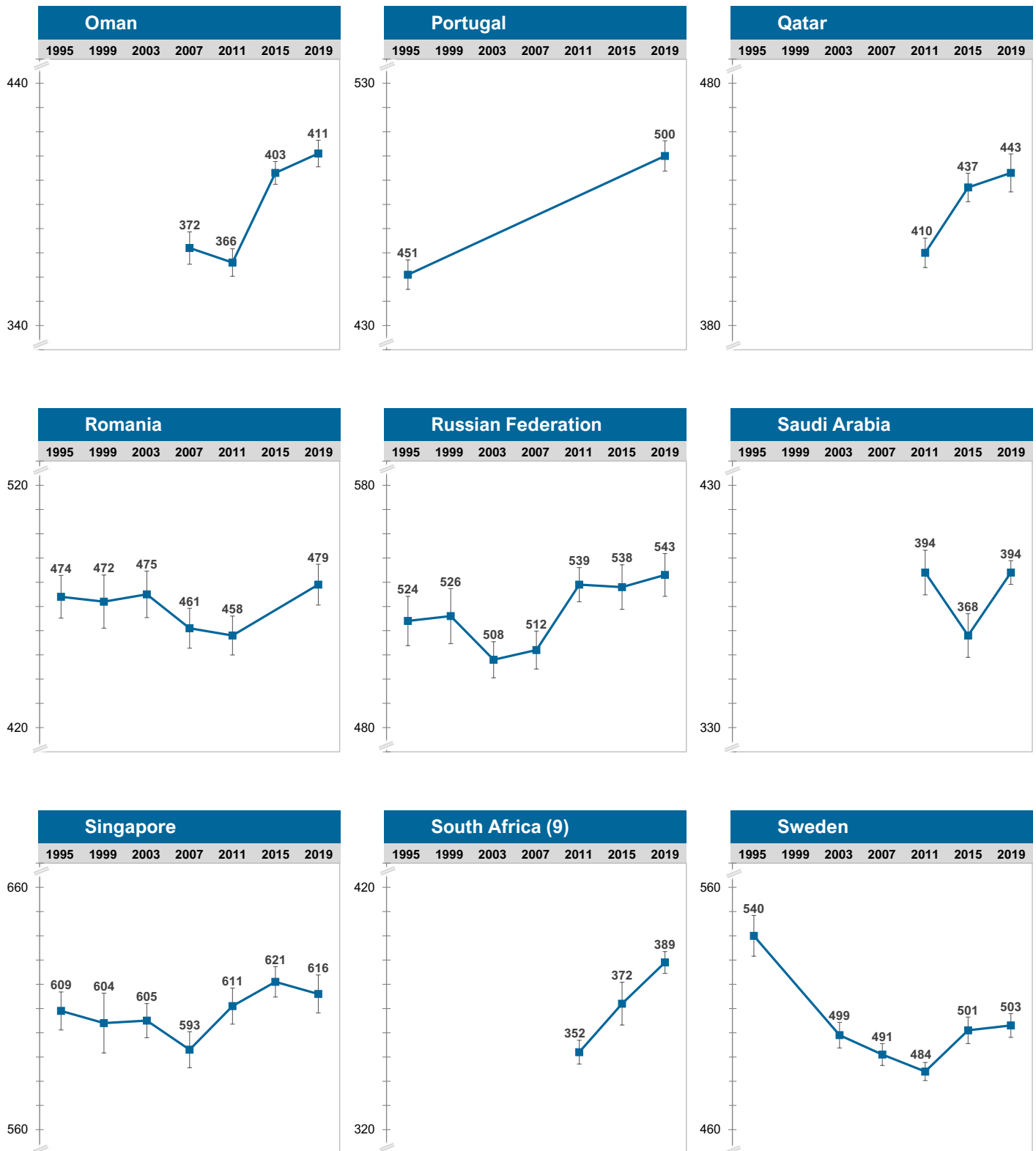


See Appendix A for country participation in previous TIMSS assessments.
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
 I. The black bars represent the 95% confidence interval.

Exhibit 3.3: Trend Plots of Average Mathematics Achievement Across Assessment Years

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 3.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

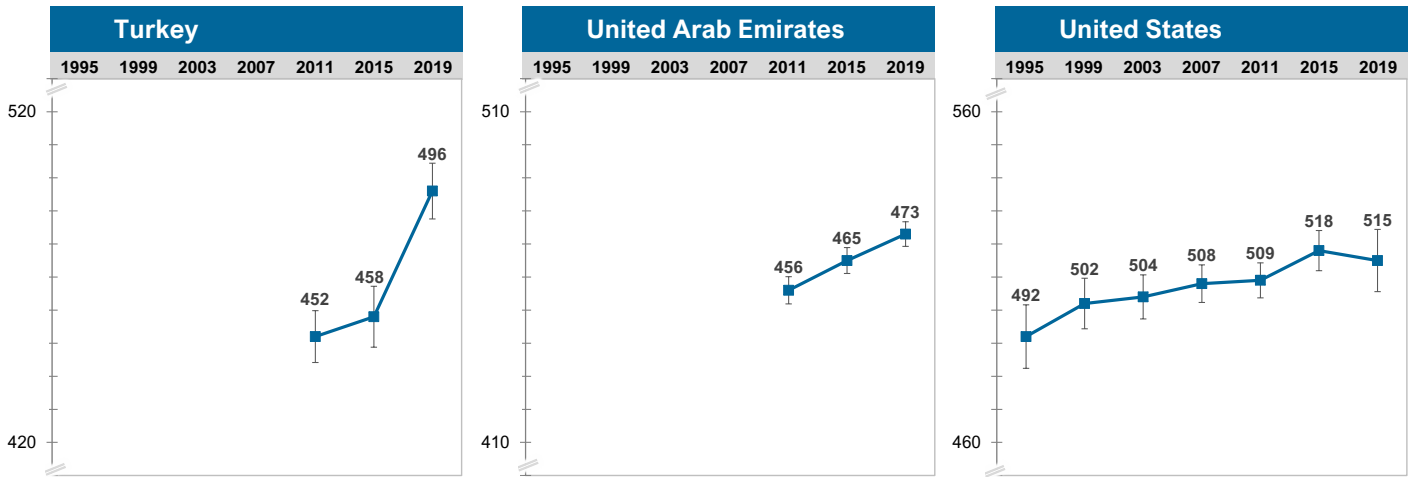


See Appendix A for country participation in previous TIMSS assessments.
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
 I. The black bars represent the 95% confidence interval.

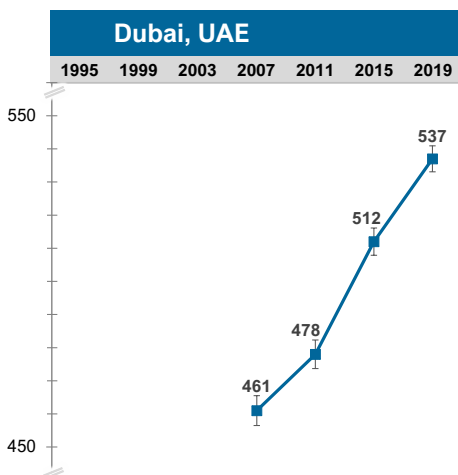
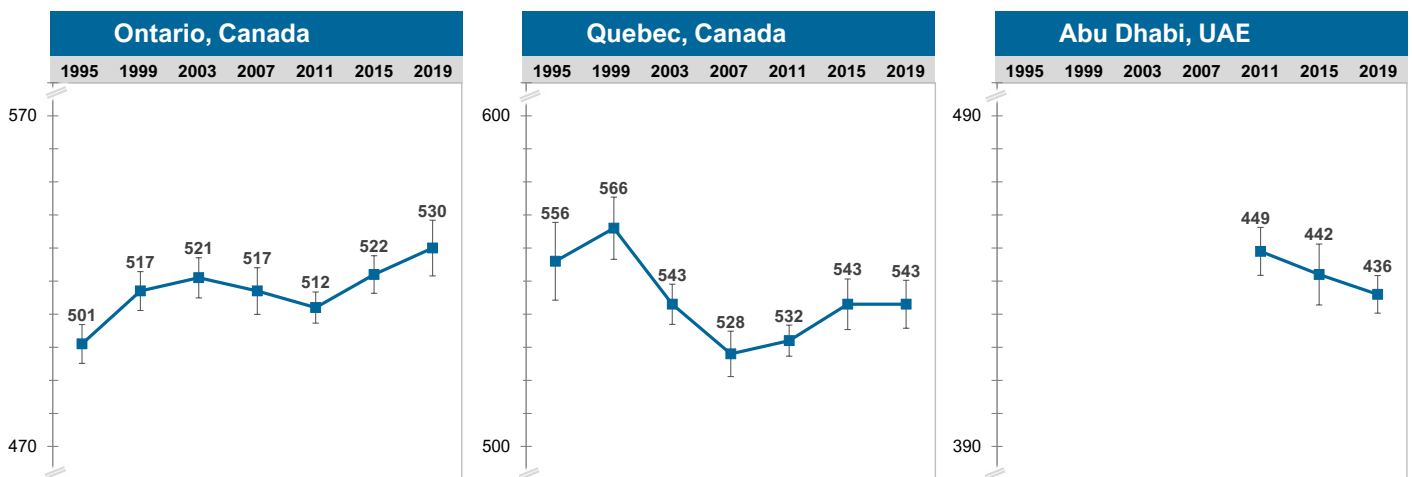
Exhibit 3.3: Trend Plots of Average Mathematics Achievement Across Assessment Years

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 3.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.



Benchmarking Participants



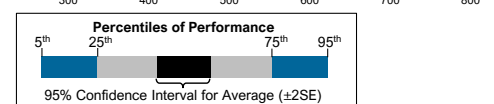
See Appendix A for country participation in previous TIMSS assessments.
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
 I. The black bars represent the 95% confidence interval.

Exhibit 3.4: Differences in Average Mathematics Achievement Across Assessment Years

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.

Country	Average Scale Score	Differences Between Years						Mathematics Achievement Distribution
		2015	2011	2007	2003	1999	1995	
Australia								
2019	517 (3.8)	12 ▲	12	21 ▲	13 ▲		8	
2015	505 (3.1)		0	9	0		-4	
2011	505 (5.2)			9	0		-4	
2007	496 (3.8)				-8		-13 ▼	
2003	505 (4.7)						-4	
‡ 1995	509 (3.7)							
Bahrain								
2019	481 (1.7)	27 ▲	72 ▲	83 ▲	80 ▲			
2015	454 (1.4)		45 ▲	56 ▲	53 ▲			
ψ 2011	409 (1.9)			11 ▲	8 ▲			
2007	398 (1.6)				-3			
2003	401 (1.7)							
Chile								
ψ 2019	441 (2.8)	13 ▲	24 ▲		54 ▲	48 ▲		
ψ 2015	427 (3.2)		11 ▲		41 ▲	35 ▲		
2011	416 (2.7)				29 ▲	24 ▲		
2003	387 (3.3)					-6		
1999	392 (4.4)							
Chinese Taipei								
2019	612 (2.7)	13 ▲	3	14 ▲	27 ▲	27 ▲		
2015	599 (2.4)		-10 ▼	1	14 ▲	14 ▲		
2011	609 (3.2)			11	24 ▲	24 ▲		
2007	598 (4.6)				13 ▲	13 ▲		
2003	585 (4.6)					0		
1999	585 (4.2)							
Cyprus								
2019	501 (1.6)			36 ▲	42 ▲	25 ▲	34 ▲	
2007	465 (1.7)				6 ▲	-11 ▼	-2	
2003	459 (1.7)					-17 ▼	-8 ▼	
1999	476 (1.9)						9 ▲	
1995	468 (2.1)							
Egypt								
² ψ 2019	413 (5.2)	21 ▲		22 ▲	7			
ψ 2015	392 (4.1)			2	-14 ▼			
2007	391 (3.6)				-16 ▼			
2003	406 (3.5)							
England								
2019	515 (5.3)	-3	8	2	16 ▲	19 ▲	17 ▲	
2015	518 (4.2)		11	5	20 ▲	22 ▲	21 ▲	
‡ 2011	507 (5.6)			-7	8	10	9	
† 2007	513 (4.9)				15 ▲	17 ▲	16 ▲	
≡ 2003	498 (4.6)					2	1	
† 1999	496 (4.2)						-1	
³ † 1995	498 (3.0)							
Finland								
2019	509 (2.6)		-5					
2011	514 (2.5)							
France								
2019	483 (2.5)						-47 ▼	
1995	530 (2.8)							
Georgia								
¹ 2019	461 (4.3)	8	30 ▲	52 ▲				
^{1,2} 2015	453 (3.4)		22 ▲	44 ▲				
¹ 2011	431 (3.7)			22 ▲				
¹ 2007	410 (5.8)							
Hong Kong SAR								
† 2019	578 (4.1)	-16 ▼	-7	6	-8	-4	9	
2015	594 (4.6)		9	22 ▲	8	12	25 ▲	
2011	586 (3.9)			13	0	4	17 ▲	
† 2007	572 (5.9)				-14 ▼	-10	4	
† 2003	586 (3.4)					4	17 ▲	
† 1999	582 (4.3)						13	
1995	569 (6.1)							

▲ Average from more recent year significantly higher
▼ Average from more recent year significantly lower



See Appendix A for country participation in previous TIMSS assessments.

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

See Appendix B.7 for population coverage notes 1, 2, and 3. See Appendix B.10 for sampling guidelines and sampling participation notes †, ‡, and ≡.

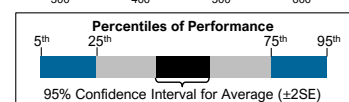
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 3.4: Differences in Average Mathematics Achievement Across Assessment Years

(Continued)

Country	Average Scale Score	Differences Between Years						Mathematics Achievement Distribution
		2015	2011	2007	2003	1999	1995	
Hungary								
2019	517 (2.9)	2	12 ▲	0	-13 ▼	-15 ▼	-10 ▼	
2015	514 (3.8)		10	-2	-15 ▼	-17 ▼	-12 ▼	
2011	505 (3.5)			-12 ▼	-24 ▼	-27 ▼	-22 ▼	
2007	517 (3.5)				-12 ▼	-15 ▼	-10 ▼	
² 2003	529 (3.3)					-2	3	
1999	532 (3.6)						5	
1995	527 (3.2)							
Iran, Islamic Rep. of								
2019	446 (3.7)	10	31 ▲	43 ▲	35 ▲	24 ▲	28 ▲	
^ψ 2015	436 (4.6)		21 ▲	33 ▲	25 ▲	14 ▲	18 ▲	
^ψ 2011	415 (4.3)			12	4	-7	-3	
2007	403 (4.1)				-8	-19 ▼	-15 ▼	
² 2003	411 (2.4)					-11 ▼	-7	
1999	422 (3.4)						4	
1995	418 (3.9)							
Ireland								
2019	524 (2.6)	0					5	
2015	523 (2.7)						5	
1995	519 (4.9)							
Israel								
³ 2019	519 (4.3)	8	3					
³ 2015	511 (4.1)		-5					
³ 2011	516 (4.1)							
Italy								
2019	497 (2.7)	3	-1	18 ▲	14 ▲	18 ▲		
² 2015	494 (2.5)		-4	15 ▲	11 ▲	15 ▲		
2011	498 (2.3)			19 ▲	15 ▲	19 ▲		
2007	480 (3.1)				-4	0		
2003	484 (3.2)					4		
² 1999	479 (3.9)							
Japan								
2019	594 (2.7)	8 ▲	24 ▲	24 ▲	24 ▲	16 ▲	13 ▲	
2015	586 (2.3)		17 ▲	17 ▲	17 ▲	8 ▲	5	
2011	570 (2.6)			0	0	-9 ▼	-11 ▼	
2007	570 (2.4)				0	-9 ▼	-11 ▼	
2003	570 (2.1)					-9 ▼	-11 ▼	
1999	579 (1.7)						-2	
1995	581 (1.6)							
Jordan								
^ψ 2019	420 (4.3)	35 ▲	14 ▲	-7	-4	-7		
[✕] 2015	386 (3.2)		-20 ▼	-41 ▼	-39 ▼	-42 ▼		
^ψ 2011	406 (3.9)			-21 ▼	-18 ▼	-22 ▼		
2007	427 (4.2)				3	-1		
2003	424 (4.1)					-3		
1999	428 (3.7)							
Kazakhstan								
² 2019	488 (3.3)		1					
2011	487 (4.2)							
Korea, Rep. of								
2019	607 (2.8)	1	-6	10 ▲	18 ▲	20 ▲	26 ▲	
2015	606 (2.6)		-7	8 ▲	17 ▲	19 ▲	25 ▲	
2011	613 (2.9)			16 ▲	24 ▲	26 ▲	32 ▲	
2007	597 (2.6)				8 ▲	10 ▲	17 ▲	
2003	589 (2.2)					2	8 ▲	
1999	587 (2.0)						6 ▲	
1995	581 (2.0)							
Kuwait								
^ψ 2019	403 (5.0)	10						
^ψ 2015	392 (4.6)							
Lebanon								
2019	429 (2.9)	-13 ▼	-20 ▼	-20 ▼	-4			
2015	442 (3.6)		-7	-7	9			
2011	449 (3.9)			0	16 ▲			
2007	449 (4.1)				16 ▲			
2003	433 (3.1)							

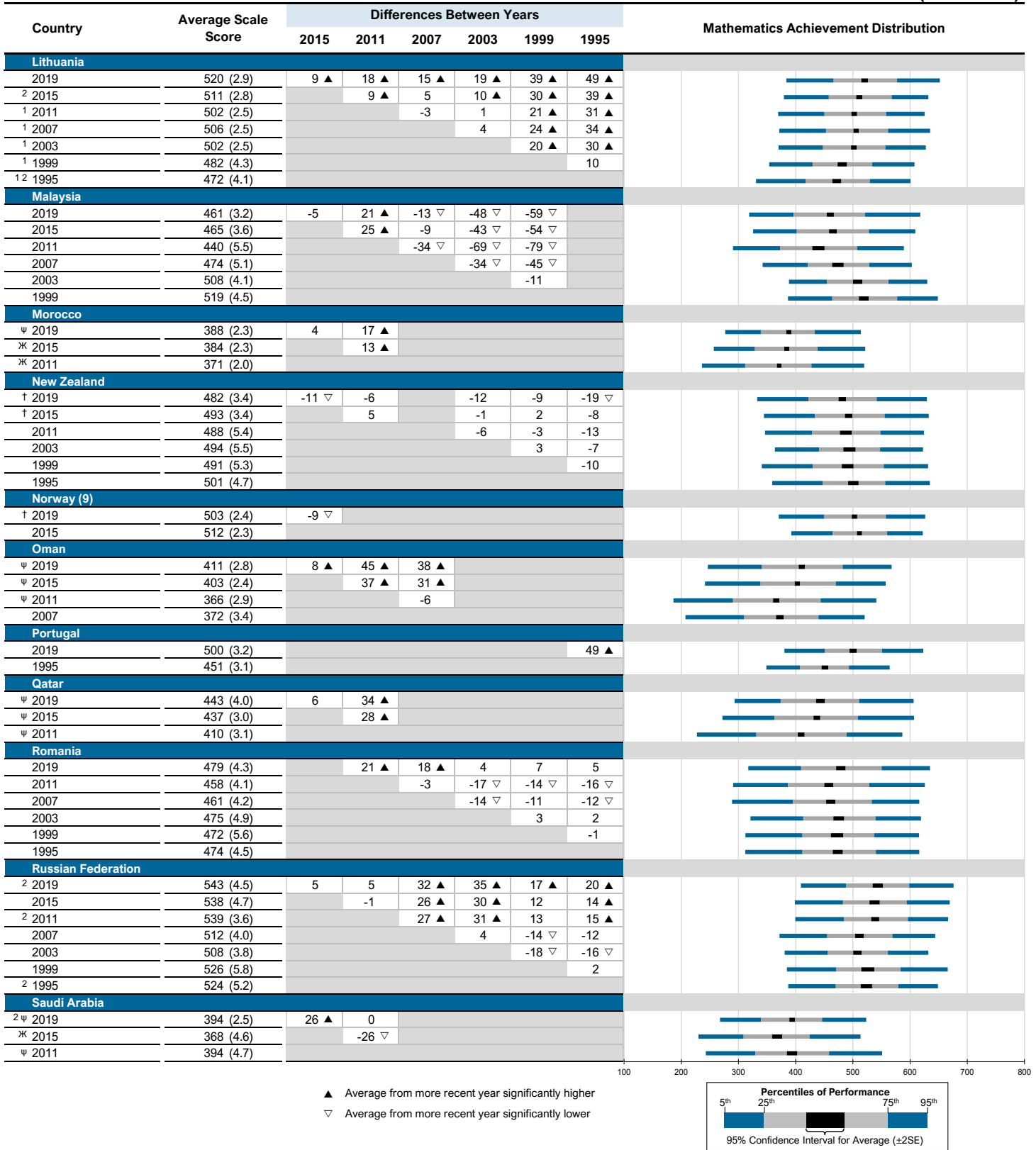
▲ Average from more recent year significantly higher
 ▼ Average from more recent year significantly lower



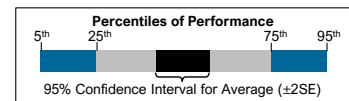
^ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
[✕] Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

Exhibit 3.4: Differences in Average Mathematics Achievement Across Assessment Years

(Continued)



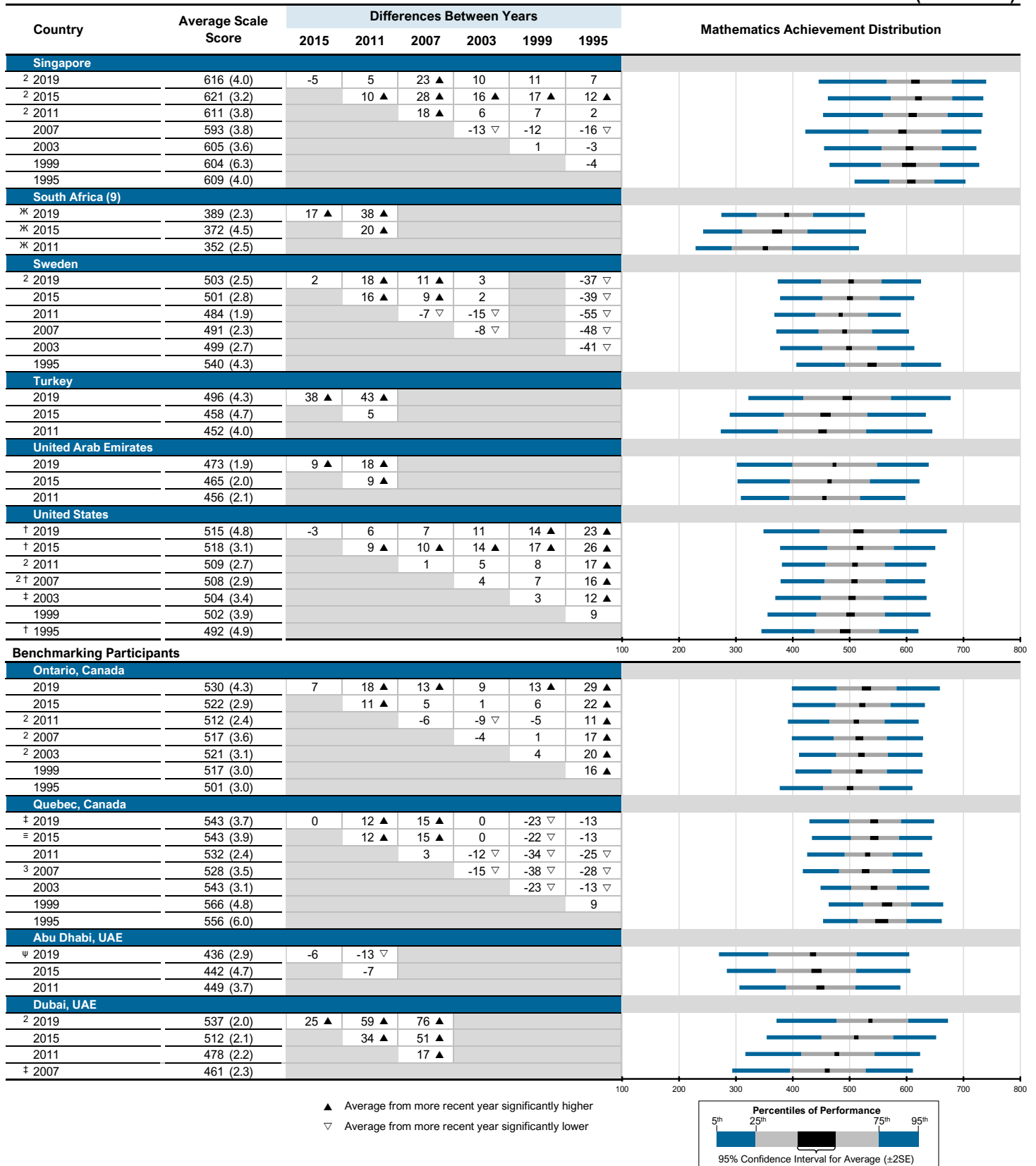
▲ Average from more recent year significantly higher
 ▼ Average from more recent year significantly lower



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

Exhibit 3.4: Differences in Average Mathematics Achievement Across Assessment Years

(Continued)



* 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%.