APPLIED MATERIALS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

A valuation allowance is recorded to reflect the estimated amount of net deferred tax assets that may not be realized. Changes in the valuation allowance in each fiscal year were as follows:

	 2020	2019		2018	
Beginning balance	\$ 257	\$	230	\$	227
Increases	57		27		8
Decreases	_		_		(5)
Ending balance	\$ 314	\$	257	\$	230

At October 25, 2020, Applied has state research and development tax credit carryforwards of \$327 million, including \$309 million of credits that are carried over until exhausted and \$15 million that are carried over for 15 years and begin to expire in fiscal 2031. It is more likely than not that all tax credit carryforwards, net of valuation allowance, will be utilized.

Applied maintains liabilities for uncertain tax positions. These liabilities involve considerable judgment and estimation and are continuously monitored based on the best information available. Gross unrecognized tax benefits are classified as non-current income taxes payable or as a reduction in deferred tax assets. A reconciliation of the beginning and ending balances of gross unrecognized tax benefits in each fiscal year is as follows:

	2020	2020		2020		019		2018	
			(In millio	ns)					
Beginning balance of gross unrecognized tax benefits	\$	845	\$	374	\$	391			
Settlements with tax authorities		(446)		(1)		(152)			
Lapses of statutes of limitation		(3)		(2)		(37)			
Increases in tax positions for current year		44		33		91			
Increases in tax positions for prior years		91		441		83			
Decreases in tax positions for prior years		(35)		_		(2)			
Ending balance of gross unrecognized tax benefits	\$	496	\$	845	\$	374			

The increases in tax positions for prior years of \$441 million for fiscal 2019 include the effect of adoption of Accounting Standard Update 2016-16 Income Tax (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory. Tax expense for interest and penalties on unrecognized tax benefits for fiscal 2020, 2019 and 2018 was \$24 million, \$24 million and \$12 million, respectively. The income tax liability for interest and penalties for fiscal 2020, 2019 and 2018 was \$74 million, \$50 million and \$26 million, respectively, and was classified as non-current income taxes payable.

Included in the balance of unrecognized tax benefits for fiscal 2020, 2019 and 2018 are \$410 million, \$758 million, and \$294 million, respectively, of tax benefits that, if recognized, would affect the effective tax rate.

In fiscal 2020, Applied settled tax audits in Singapore related to fiscal 2012 through fiscal 2019 for additional tax payments of \$72 million and a reduction of future tax deductions of \$374 million. The tax expense impact of these settlements was \$26 million. In fiscal 2019, Applied paid an immaterial amount as a result of settlements with tax authorities. In fiscal 2018, Applied paid \$158 million, including interest and penalties, as a result of a settlement in Israel for fiscal 2011 through fiscal 2015 resulting in the recognition of a tax expense of \$6 million.

Applied's tax returns remain subject to examination by taxing authorities. These include U.S. returns for fiscal 2015 and later years, and foreign tax returns for fiscal 2010 and later years.

The timing of the resolution of income tax examinations, as well as the amounts and timing of various tax payments that may be part of the settlement process, is highly uncertain. This could cause fluctuations in Applied's financial condition and results of operations. Applied continues to have ongoing negotiations with various taxing authorities throughout the year.