

- 1 **Q. Coyne Evidence: Please provide the underlying data used in the Duff and Phelps**
2 **and Morningstar publications referenced on page 30 with the referenced to the**
3 **underlying source data. Please indicate the fixed income instrument used for the**
4 **risk free rate in these studies.**
5
- 6 A. Please see Attachment A for the underlying data.
7
- 8 Morningstar specifies that they calculate the historical market risk premium by
9 subtracting the income only return on 20-year government bonds from the total return on
10 large company stocks over the period from 1929-2014. Duff and Phelps also calculates
11 the historical market risk premium using the income only return on government bonds.
12 Since Duff and Phelps acquired its historical data from Morningstar, Mr. Coyne assumes
13 that Duff and Phelps is also using the 20-year government bond as the risk free rate.

Underlying Data

Canada Long-Horizon Equity Risk Premia

Long-Horizon Equity Risk Premia in Local Currency (Canadian Dollar – CAD)
in Percent

End Date	1919	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2014
1997	5.7	5.6	5.9	5.0	5.9	5.8	6.1	5.6	4.0	3.5	2.8	3.0	4.2	1.5	3.0	2.5	13.7				
1998	5.5	5.5	5.8	4.9	5.7	5.6	5.9	5.4	3.8	3.3	2.6	2.7	3.8	1.2	2.4	1.7	9.2				
1999	6.0	6.0	6.2	5.4	6.3	6.2	6.5	6.1	4.6	4.3	3.6	4.0	5.3	3.2	5.0	5.6	15.4				
2000	5.9	5.9	6.2	5.4	6.2	6.2	6.5	6.0	4.6	4.2	3.6	3.9	5.2	3.2	4.9	5.4	13.4	3.3			
2001	5.6	5.6	5.8	5.0	5.8	5.7	6.0	5.5	4.0	3.6	3.0	3.2	4.3	2.1	3.4	3.2	8.5	-8.8			
2002	5.3	5.3	5.5	4.7	5.4	5.3	5.6	5.0	3.5	3.1	2.4	2.5	3.4	1.1	2.1	1.4	5.0	-12.3			
2003	5.5	5.5	5.7	4.9	5.7	5.6	5.8	5.3	3.9	3.5	2.9	3.0	4.0	2.0	3.1	2.9	6.9	-3.8			
2004	5.6	5.5	5.7	5.0	5.7	5.7	5.9	5.4	4.0	3.6	3.0	3.2	4.2	2.3	3.4	3.3	7.1	-1.3			
2005	5.7	5.7	5.9	5.2	5.9	5.9	6.1	5.7	4.3	4.0	3.5	3.7	4.7	3.0	4.3	4.4	8.3	2.4	21.0		
2006	5.8	5.8	6.0	5.3	6.1	6.0	6.3	5.8	4.5	4.2	3.7	4.0	5.0	3.4	4.7	4.9	8.8	4.0	17.4		
2007	5.8	5.8	6.0	5.3	6.1	6.0	6.3	5.8	4.6	4.3	3.8	4.0	5.1	3.5	4.7	5.0	8.6	4.3	13.6		
2008	5.4	5.3	5.5	4.8	5.5	5.4	5.6	5.1	3.8	3.5	2.9	3.0	3.9	2.1	3.1	2.9	5.4	-0.1	1.4		
2009	5.6	5.6	5.8	5.1	5.8	5.8	6.0	5.5	4.3	4.0	3.5	3.7	4.6	3.1	4.1	4.2	7.1	2.9	7.1		
2010	5.7	5.7	5.9	5.2	5.9	5.8	6.1	5.6	4.4	4.1	3.6	3.9	4.8	3.3	4.4	4.6	7.3	3.6	7.7	11.1	
2011	5.5	5.5	5.7	5.0	5.6	5.6	5.8	5.3	4.1	3.8	3.3	3.5	4.3	2.8	3.8	3.7	6.1	2.2	4.7	-1.1	
2012	5.5	5.5	5.7	5.0	5.6	5.6	5.8	5.3	4.1	3.8	3.3	3.5	4.3	2.9	3.8	3.8	6.1	2.4	4.8	0.9	
2013	5.5	5.5	5.7	5.0	5.7	5.6	5.8	5.4	4.2	3.9	3.5	3.7	4.5	3.1	4.1	4.1	6.3	3.1	5.5	3.5	
2014	5.6	5.6	5.8	5.1	5.7	5.7	5.9	5.5	4.3	4.0	3.6	3.8	4.6	3.3	4.2	4.3	6.4	3.4	5.8	4.5	8.7

Source of underlying data: 1.) Morningstar Direct database. Used with permission. All rights reserved. All calculations performed by Duff & Phelps LLC.

Canada Long-Horizon Equity Risk Premia

**Long-Horizon Equity Risk Premia in Local Currency (Canadian Dollar – CAD)
in Percent**

End Date	1919	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2010	2014
1958	7.8	7.8	8.7	7.2	9.9	10.7	13.5	14.8	9.2											
1959	7.6	7.6	8.5	7.0	9.5	10.2	12.6	13.3	7.3											
1960	7.4	7.4	8.1	6.6	9.0	9.5	11.6	11.8	5.5	-3.5										
1961	7.9	7.9	8.6	7.3	9.7	10.3	12.5	13.1	8.7	12.0										
1962	7.4	7.4	8.1	6.7	8.9	9.4	11.2	11.2	6.1	4.0										
1963	7.5	7.5	8.2	6.8	8.9	9.4	11.1	11.1	6.6	5.6										
1964	7.7	7.7	8.5	7.2	9.3	9.8	11.6	11.7	7.9	8.5										
1965	7.6	7.6	8.3	7.0	9.1	9.5	11.1	11.1	7.3	7.4	1.6									
1966	7.2	7.2	7.8	6.5	8.4	8.7	10.0	9.7	5.7	4.5	-5.5									
1967	7.3	7.3	7.9	6.7	8.5	8.8	10.1	9.8	6.2	5.5	0.4									
1968	7.5	7.5	8.1	6.9	8.7	9.1	10.4	10.2	6.9	6.6	4.3									
1969	7.2	7.1	7.7	6.5	8.2	8.5	9.6	9.2	5.9	5.2	1.8									
1970	7.0	7.0	7.6	6.4	8.0	8.2	9.3	8.8	5.5	4.7	1.5	0.1								
1971	7.0	7.0	7.5	6.3	8.0	8.2	9.1	8.7	5.5	4.8	2.1	3.0								
1972	7.4	7.3	7.9	6.8	8.4	8.7	9.7	9.4	6.7	6.4	5.1	10.6								
1973	7.0	7.0	7.5	6.4	8.0	8.1	9.0	8.6	5.8	5.2	3.4	5.4								
1974	6.3	6.2	6.7	5.5	6.9	6.9	7.6	6.8	3.7	2.5	-0.5	-2.7								
1975	6.3	6.3	6.7	5.6	6.9	7.0	7.6	6.9	4.0	3.0	0.4	-0.7	9.4							
1976	6.2	6.2	6.6	5.4	6.8	6.8	7.4	6.7	3.8	2.8	0.4	-0.6	4.6							
1977	6.1	6.0	6.4	5.3	6.6	6.5	7.1	6.4	3.5	2.5	0.2	-0.9	2.3							
1978	6.3	6.3	6.7	5.6	6.9	6.9	7.5	6.9	4.3	3.5	1.7	1.7	7.1							
1979	6.9	6.9	7.3	6.3	7.6	7.8	8.5	8.0	5.8	5.4	4.3	5.6	13.9							
1980	7.0	7.0	7.4	6.4	7.8	7.9	8.6	8.2	6.0	5.7	4.8	6.2	13.6	12.4						
1981	6.5	6.5	6.9	5.9	7.1	7.1	7.7	7.2	4.9	4.4	3.1	3.7	8.3	-5.7						
1982	6.3	6.2	6.6	5.6	6.8	6.8	7.3	6.7	4.4	3.8	2.5	2.7	6.2	-6.7						
1983	6.5	6.5	6.9	5.9	7.1	7.1	7.6	7.1	5.0	4.6	3.5	4.1	7.9	0.5						
1984	6.2	6.2	6.5	5.5	6.7	6.6	7.1	6.5	4.4	3.8	2.7	2.9	5.8	-2.3						
1985	6.3	6.3	6.6	5.6	6.7	6.8	7.2	6.7	4.6	4.1	3.1	3.5	6.3	0.0	11.5					
1986	6.2	6.2	6.5	5.5	6.6	6.6	7.0	6.5	4.5	4.0	2.9	3.2	5.7	-0.1	5.5					
1987	6.1	6.0	6.4	5.4	6.5	6.4	6.8	6.3	4.3	3.8	2.7	3.0	5.2	-0.2	3.2					
1988	6.0	5.9	6.2	5.3	6.3	6.3	6.6	6.1	4.1	3.6	2.5	2.7	4.7	-0.4	1.9					
1989	6.0	6.0	6.3	5.4	6.4	6.4	6.7	6.2	4.3	3.8	2.9	3.2	5.1	0.7	3.8					
1990	5.6	5.6	5.9	4.9	5.9	5.8	6.1	5.5	3.6	3.0	1.9	2.0	3.4	-1.3	-0.5	-22.1				
1991	5.6	5.6	5.8	4.9	5.8	5.7	6.0	5.4	3.5	2.9	1.9	1.9	3.3	-1.1	-0.3	-10.4				
1992	5.4	5.3	5.6	4.6	5.5	5.4	5.7	5.0	3.1	2.5	1.4	1.3	2.5	-1.9	-1.7	-10.8				
1993	5.5	5.5	5.7	4.8	5.7	5.6	5.8	5.2	3.4	2.9	1.9	1.9	3.1	-0.7	0.2	-4.3				
1994	5.4	5.3	5.6	4.6	5.5	5.4	5.6	5.0	3.2	2.7	1.7	1.7	2.8	-0.9	-0.3	-4.3				
1995	5.4	5.3	5.6	4.7	5.5	5.4	5.7	5.1	3.3	2.8	1.9	1.9	3.0	-0.4	0.4	-2.4	6.9			
1996	5.6	5.6	5.8	4.9	5.8	5.7	6.0	5.4	3.8	3.3	2.5	2.6	3.9	0.9	2.2	1.1	14.7			

Source of underlying data: 1.) Morningstar Direct database. Used with permission. All rights reserved. All calculations performed by Duff & Phelps LLC.

Canada Long-Horizon Equity Risk Premia

Long-Horizon Equity Risk Premia in Local Currency (Canadian Dollar – CAD) in Percent

End Date	1919	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2010	2014
Start Date	1919	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2010	2014
	7.8	-2.1	4.7	5.7	6.1	5.8	5.8	7.1	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
		-12.0	6.6	2.4	7.0	5.5	5.5	7.5	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
		-9.3	6.4	2.0	9.0	5.5	5.5	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
			17.4	2.0	3.1	5.8	5.8	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
			25.0	0.4	0.3	2.6	2.6	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
			25.9	-0.5	0.9	6.0	6.0	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
			17.4	-11.1	0.9	5.6	5.6	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
				-35.6	0.6	3.8	3.8	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
				-36.6	6.7	4.4	4.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
				-30.4	1.8	4.1	4.1	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
				-11.1	27.0	-1.5	-1.5	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
				-5.6	24.7	4.4	4.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					10.1	1.8	1.8	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					9.1	-22.4	-22.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					6.7	-11.8	-11.8	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					2.9	-4.2	-4.2	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					2.9	1.0	1.0	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					4.8	4.2	4.2	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					4.8	4.8	4.8	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					33.1	7.4	7.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					38.1	7.4	7.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					14.5	6.2	6.2	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					8.9	5.2	5.2	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					9.0	6.0	6.0	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					11.1	6.9	6.9	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					16.9	7.0	7.0	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					45.6	10.5	10.5	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					33.2	11.4	11.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					20.8	10.2	10.2	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					15.2	9.4	9.4	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					19.3	11.1	11.1	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					20.2	12.0	12.0	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					24.7	16.1	16.1	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					17.1	15.6	15.6	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					3.2	13.3	13.3	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
					9.1	9.8	9.8	8.0	8.2	8.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7

Source of underlying data: 1.) Morningstar Direct database. Used with permission. All rights reserved. All calculations performed by Duff & Phelps LLC.

United States Long-Horizon Equity Risk Premia

Long-Horizon Equity Risk Premia in U.S. Dollars (USD, which is also the "Local" currency) in Percent

End Date	Start Date	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	2000	2005	2010	2014				
		7.9	21.0	27.5	17.6	8.5	-0.7	-2.3	4.3	3.3	7.5	9.6	5.7	7.4	6.7	5.5	4.3	5.1	6.1	6.7	8.1	7.2	7.0	6.9	7.3	8.2	8.7	8.5	9.9	10.5	10.3	9.5	10.5	10.4									
						-28.2	-37.4	-28.9	-9.0	-8.1	44.9	5.1	-0.3	2.9	2.3	1.0	-0.2	1.2	2.8	3.8	5.7	4.7	4.7	4.6	5.2	6.4	7.0	7.4	7.0	8.7	9.4	9.2	8.4	9.5	9.4								
												38.0	12.8	16.7	12.8	8.7	5.5	7.0	8.9	9.7	11.9	10.1	9.6	9.1	9.6	10.9	11.5	11.7	10.9	12.9	13.6	13.2	12.0	13.1	12.9								
																-12.0	-12.8	-2.6	3.9	6.6	11.2	8.2	7.6	7.1	8.0	10.0	11.0	11.3	10.2	12.9	13.9	13.3	13.2	13.0									
																					34.1	12.0	9.2	9.4	12.8	12.8	14.1	14.3	12.3	16.0	17.2	20.8	16.4	15.6	15.1								
																									29.6	29.6	25.6	22.3	15.8	22.6	23.6	28.8	16.2	6.1	14.6	17.9	13.2						

Source of underlying data: 1.) Morningstar Direct database. Used with permission. All rights reserved. All calculations performed by Duff & Phelps LLC.

United States Long-Horizon Equity Risk Premia

Long-Horizon Equity Risk Premia in U.S. Dollars (USD, which is also the "Local" currency) in Percent

End Date	1926	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	2000	2010	2014
1960	10.0	9.0	12.3	12.2	13.9	15.9	10.4	-3.8									
1961	10.4	9.4	12.7	12.7	14.4	16.5	12.2	9.6									
1962	9.7	8.8	11.8	11.6	12.9	14.3	9.1	2.2									
1963	10.0	9.1	12.0	11.9	13.3	14.6	10.2	6.4									
1964	10.0	9.2	12.0	11.9	13.2	14.5	10.4	7.6									
1965	10.0	9.1	11.9	11.7	13.0	14.1	10.2	7.7	8.3								
1966	9.4	8.5	11.1	10.8	11.7	12.4	8.1	4.5	-3.1								
1967	9.6	8.8	11.3	11.1	12.1	12.8	9.0	6.4	4.4								
1968	9.5	8.7	11.2	10.9	11.8	12.4	8.8	6.3	4.7								
1969	9.0	8.1	10.4	10.0	10.7	11.1	7.2	4.2	0.8								
1970	8.7	7.9	10.1	9.6	10.2	10.4	6.6	3.6	0.2	-2.9							
1971	8.7	7.9	10.0	9.6	10.1	10.3	6.7	3.9	1.3	2.5							
1972	8.8	8.0	10.1	9.7	10.2	10.4	7.0	4.6	2.8	6.1							
1973	8.2	7.3	9.3	8.8	9.2	9.1	5.5	2.8	0.1	-0.7							
1974	7.3	6.4	8.2	7.6	7.7	7.4	3.6	0.4	-3.3	-7.3							
1975	7.8	6.9	8.7	8.2	8.4	8.2	4.8	2.2	-0.3	-1.2	29.2						
1976	7.9	7.1	8.9	8.4	8.7	8.5	5.3	3.0	1.1	1.2	22.6						
1977	7.5	6.6	8.4	7.8	8.0	7.7	4.5	2.0	-0.1	-0.7	10.3						
1978	7.3	6.5	8.1	7.5	7.7	7.4	4.2	1.8	-0.2	-0.8	7.4						
1979	7.4	6.6	8.2	7.6	7.7	7.5	4.4	2.2	0.5	0.3	7.9						
1980	7.6	6.9	8.5	8.0	8.2	7.9	5.1	3.2	1.8	2.3	10.3	22.5					
1981	7.2	6.4	8.0	7.4	7.5	7.2	4.3	2.3	0.8	0.7	6.5	3.0					
1982	7.2	6.4	8.0	7.4	7.5	7.2	4.5	2.6	1.2	1.3	6.7	4.7					
1983	7.3	6.6	8.0	7.5	7.6	7.4	4.7	3.0	1.7	2.1	7.3	6.6					
1984	7.1	6.3	7.8	7.2	7.3	7.0	4.4	2.6	1.4	1.6	6.0	4.2					
1985	7.3	6.6	8.0	7.5	7.6	7.4	4.9	3.3	2.3	2.7	7.3	6.9	20.5				
1986	7.4	6.6	8.1	7.6	7.7	7.4	5.1	3.5	2.6	3.2	7.5	7.3	15.1				
1987	7.2	6.5	7.9	7.3	7.4	7.2	4.8	3.3	2.4	2.8	6.7	6.0	9.2				
1988	7.2	6.5	7.9	7.3	7.4	7.2	4.9	3.5	2.6	3.1	6.8	6.2	8.8				
1989	7.5	6.8	8.1	7.7	7.8	7.6	5.4	4.1	3.4	4.1	7.9	7.9	11.6				
1990	7.2	6.5	7.8	7.3	7.4	7.1	5.0	3.6	2.9	3.3	6.7	6.1	7.8	-11.3			
1991	7.4	6.7	8.0	7.6	7.7	7.5	5.4	4.2	3.6	4.2	7.6	7.5	9.9	5.5			
1992	7.3	6.6	7.9	7.4	7.5	7.3	5.3	4.1	3.5	4.0	7.2	6.9	8.7	3.8			
1993	7.2	6.6	7.8	7.4	7.4	7.2	5.2	4.1	3.4	4.0	7.0	6.6	8.0	3.6			

Source of underlying data: 1.) Morningstar Direct database. Used with permission. All rights reserved. All calculations performed by Duff & Phelps LLC.

United States Long-Horizon Equity Risk Premia

Long-Horizon Equity Risk Premia in U.S. Dollars (USD, which is also the "Local" currency) in Percent

End Date	1926	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2014	
1994	7.0	6.4	7.6	7.1	7.2	6.9	5.0	3.8	3.2	3.6	6.4	5.9	6.7	1.8						
1995	7.4	6.7	8.0	7.5	7.6	7.4	5.6	4.5	4.0	4.6	7.5	7.4	8.8	6.5	30.0					
1996	7.5	6.9	8.1	7.7	7.8	7.6	5.8	4.8	4.4	5.1	7.9	7.9	9.5	8.0	23.4					
1997	7.8	7.2	8.4	8.0	8.2	8.0	6.3	5.4	5.1	5.9	8.7	9.0	10.8	10.3	24.5					
1998	8.0	7.4	8.6	8.3	8.4	8.3	6.7	5.9	5.6	6.4	9.3	9.7	11.7	11.7	24.1					
1999	8.1	7.5	8.7	8.4	8.6	8.5	6.9	6.1	5.9	6.7	9.6	10.0	11.9	12.1	22.3					
2000	7.8	7.2	8.4	8.0	8.1	8.0	6.4	5.6	5.3	6.0	8.6	8.8	10.2	9.5	16.0	-15.6				
2001	7.4	6.9	8.0	7.6	7.7	7.5	5.9	5.0	4.7	5.3	7.6	7.6	8.6	7.3	11.2	-16.5				
2002	7.0	6.4	7.5	7.0	7.1	6.8	5.2	4.3	3.8	4.3	6.4	6.0	6.6	4.6	6.4	-20.2				
2003	7.2	6.6	7.7	7.3	7.4	7.2	5.6	4.7	4.3	4.9	7.0	6.8	7.5	6.0	8.3	-9.2				
2004	7.2	6.6	7.7	7.3	7.3	7.1	5.6	4.7	4.4	4.9	6.9	6.7	7.4	6.0	8.1	-6.2				
2005	7.1	6.5	7.6	7.2	7.2	7.0	5.5	4.6	4.3	4.8	6.7	6.5	7.0	5.6	7.4	-5.1	0.2			
2006	7.1	6.6	7.6	7.2	7.3	7.1	5.6	4.8	4.4	4.9	6.9	6.7	7.2	5.9	7.7	-2.8	5.7			
2007	7.1	6.5	7.5	7.1	7.2	7.0	5.5	4.7	4.4	4.8	6.7	6.4	6.9	5.6	7.1	-2.4	4.0			
2008	6.5	5.9	6.9	6.4	6.4	6.2	4.6	3.7	3.3	3.6	5.2	4.8	4.9	3.2	3.7	-6.7	-7.4			
2009	6.7	6.1	7.1	6.7	6.7	6.4	5.0	4.1	3.8	4.1	5.8	5.4	5.6	4.2	5.0	-3.7	-1.3			
2010	6.7	6.2	7.1	6.7	6.7	6.5	5.1	4.3	3.9	4.3	5.9	5.6	5.8	4.5	5.3	-2.4	0.7	10.8		
2011	6.6	6.1	7.0	6.6	6.6	6.4	4.9	4.2	3.8	4.1	5.7	5.3	5.6	4.2	4.9	-2.4	0.4	4.6		
2012	6.7	6.2	7.1	6.7	6.7	6.5	5.1	4.3	4.0	4.4	5.9	5.6	5.9	4.6	5.4	-1.1	2.0	7.6		
2013	7.0	6.5	7.4	7.0	7.0	6.8	5.5	4.8	4.5	4.9	6.5	6.3	6.7	5.6	6.7	1.1	5.1	13.1		
2014	7.0	6.5	7.4	7.0	7.1	6.9	5.6	4.9	4.6	5.1	6.6	6.4	6.8	5.8	6.8	1.7	5.6	12.5	10.4	

Source of underlying data: 1.) Morningstar Direct database. Used with permission. All rights reserved. All calculations performed by Duff & Phelps LLC.

Canada

NOTE: In the *2015 International Valuation Handbook – Guide to Cost of Capital* (this book), the time horizon over which the long-term ERP estimates for Canada are calculated has been extended to 1919–2014 (previously calculated from 1970–present in the *2014 International Valuation Handbook – Guide to Cost of Capital*). Note that if the analyst wishes to select a long-term ERP measured over the same time frame as the majority of the other subject countries' ERPs are measured over (1970–present in most cases), that information is *still* provided in the Canada long-term ERP tables. However, if the analyst requires a long-term ERP measured over longer periods (pre-1970), this information is also now available.

Equity Series: From 1919 to 1969, the equity series used is Dimson, Marsh, Staunton (DMS) equity returns for Canada.³²⁶ The main data source for DMS equity returns for Canada from 1926 forward is Panjer and Tan (2002).³²⁷ Prior to 1926, the primary source for DMS equity returns for Canada the equity returns series produced by Moore (2012).³²⁸ From 1970 to present, the equity series used is the MSCI Canada GR Index (total return) series. The MSCI Canada Index is designed to measure the performance of the large and mid-cap segments of the Canada market. With 95 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in Canada.

Long-Horizon Risk-free Rate: From 1919 to 1957, long-term government securities data from the Bank of Canada Data and Statistics Office were used.³²⁹ From 1958 to present, the long-horizon risk-free series used is the IMF Canada LT Gvt Income Return series, calculated from government bond yield issues with original maturity of 10 years or more. It is calculated based on average yield to maturity.

Short-Horizon Risk-free Rate: The short-horizon risk-free series used is the IMF Canada Tbill series. The series is based on the weighted average of the yields on successful bids for 3-month bills. Monthly data relate to the tender rates of the last Wednesday of the month.

³²⁶ Elroy Dimson, Paul Marsh, and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2015* (Credit Suisse, 2015).

³²⁷ Panjer, Harry, and Ken Seng Tan, 2002. *Report on Canadian Economic Statistics 1924–2001*, Canadian Institute of Actuaries. [Updated in: *Report on Canadian Economic Statistics 1924–2008*].

³²⁸ Moore, Lyndon, 2012, "World Financial Markets", 1900–25, Unpublished manuscript.

³²⁹ Source: Bank of Canada website at:

<http://www.bankofcanada.ca/rates/interest-rates/selected-historical-interest-rates/>

Source document for 1919–1935, 1936–1948, and 1949–1957 long-term government securities data: Government of Canada Marketable Bonds, Average Yield, Over 10 years – V122487 – Jan. 1919; "selected_historical_v122487.pdf", Bank of Canada, Data and Statistics Office. Rates for 1919 to 1935 are "monthly averages for selected long-term bond issues". Rates from 1936–1948 are "theoretical 15-year bond yields based on middle of the market quotations". Rates from 1949–1957 "refer to direct debt payable in Canadian dollars, excluding extendible issues and Canada Savings Bonds. Prior to 1975 some extendible issues are included but their inclusion does not materially affect the average yields. The rates shown from 1949 to 1958 are arithmetic averages of yields at month-end".

United States

NOTE: In the *2015 International Valuation Handbook – Guide to Cost of Capital* (this book), the time horizon over which the long-term ERP estimates for the United States are calculated has been extended to 1926–2014 (previously calculated from 1970–present in the *2014 International Valuation Handbook – Guide to Cost of Capital*). The 1926–2014 time horizon matches the time horizon over which the long-term historical ERP is calculated and reported in Appendix 3, “CRSP Deciles Size Premia Study: Key Variables”, of the *2015 Valuation Handbook – Guide to Cost of Capital*, and matches the time frame over which the long-term historical ERP was calculated and reported on the “back page” of the (now discontinued) Morningstar/Ibbotson *SBBI Valuation Yearbook*. If the analyst wishes to select a long-term ERP measured over the same time horizon as the majority of the other subject countries’ long-term historical ERPs are measured in Exhibit 1 (1970–present in most cases), that information is still provided in the U.S. long-term ERP tables. However, if the analyst requires a long-term ERP measured over longer periods (pre-1970), this information is also now available.

Equity Series: U.S. equities are represented by the Standard & Poor’s S&P 500® Index (total return) series. The S&P 500 Index is a readily available, carefully constructed, market-value-weighted benchmark of common stock performance. Market-value-weighted means that the weight of each stock in the index, for a given month, is proportionate to its market capitalization (price times the number of shares outstanding) at the beginning of that month. Currently, this composite index includes 500 of the largest stocks (in terms of stock market value) in the United States; prior to March 1957 it consisted of 90 of the largest stocks.

Long-Horizon Risk-free Rate: The long-horizon risk-free series used is the IA SBBI US LT Govt IR USD series. The total returns on long-term government bonds from 1977 to present are constructed with data from The Wall Street Journal. The data from 1926–1976 are obtained from the Government Bond File at the Center for Research in Security Prices (CRSP) at the University of Chicago Graduate School of Business. To the greatest extent possible, a one-bond portfolio with a term of approximately 20 years and a reasonably current coupon – whose returns did not reflect potential tax benefits, impaired negotiability, or special redemption or call privileges – was used each year. Where “flower” bonds (tenderable to the Treasury at par in payment of estate taxes) had to be used, the bond with the smallest potential tax benefit was chosen. Where callable bonds had to be used, the term of the bond was assumed to be a simple average of the maturity and first call dates minus the current date.

The bond was “held” for the calendar year and returns were computed. From 1977 to present, the income return is calculated as the change in flat price plus any coupon actually paid from one period to the next, holding the yield constant over the period. As in the total return series, the exact number of days comprising the period is used. From 1926–1976, the income return for a given month is calculated as the total return minus the capital appreciation return.

Short-Horizon Risk-free Rate: The risk-free series used is the IA SBBI US 30 Day Treasury bill series. For the U.S. Treasury bill index, data from the Wall Street Journal are used from 1977–present; the CRSP U.S. Government Bond File is the source until 1976. Each month a one-bill portfolio containing the

shortest term bill having not less than one month to maturity is constructed. (The bill's original term to maturity is not relevant.) To measure holding period returns for the one-bill portfolio, the bill is priced as of the last trading day of the previous month-end and as of the last trading day of the current month.

Currency Translation

Currency translation is applied only in cases in which a series not in the needed currency (specifically, USD or "local") is available.

Equities: MSCI provides a total return equity series in USD for each of the 16 countries presented here, and so for these series no currency translation was required. MSCI provides a total return equity series in local for each of the 16 countries presented here, and so for these series no currency translation was required. Dimson, Marsh, Staunton (DMS) total return equity series were available in USD and local for the five countries herein that utilized DMS series (Canada, Ireland, New Zealand, South Africa, and the United Kingdom), and again no currency translation was required for these series.

Risk-free Rates: IMF risk-free series in local currency for all short-horizon and long-horizon risk-free rate series were available, and so for these series no currency translation was required. These series were translated into USD currency.³³⁵ Long-term Canadian risk-free security series prior to 1958 (specifically, 1919–1957), was available in CAD from the source (Bank of Canada Data and Statistics Office); these returns were translated into USD using USD/CAD exchange rates provided by the Dimson, Marsh, and Staunton (DMS) database.³³⁶ Long-term United Kingdom risk-free security series prior to 1970 (specifically, 1900–1969), was available in GBP from the source (Bank of England); these returns were translated into USD using USD/GBP exchange rates provided by the Dimson, Marsh, and Staunton (DMS) database.

Exhibit 3.2 provides a summary of the data series used to calculate the historical ERPs presented in Data Exhibit 1, "2015 International Equity Risk Premia".

³³⁵ Source of currency conversion data: Morningstar *Direct* database. Exchange rate sources (as reported by Morningstar): 1960–1987 Main Economic Indicators Historical Statistics (Organization for Economic Cooperation & Development); 1988–present the *Wall Street Journal*.

³³⁶ As used in Elroy Dimson, Paul Marsh, and Mike Staunton, *Credit Suisse Global Investment Returns Sourcebook 2015* (Credit Suisse, 2015).

Exhibit 3.2: Data Series Used to Calculate the Equity Risk Premia (ERPs) Presented in Data Exhibit 1

Country	Long Horizon ERP Start Date	Short Horizon ERP Start Date	Equity Series 1 Source	Equity Series 2 Source	Long-Horizon Risk-Free Series 1 Source	Long-Horizon Risk-Free Series 2 Source	Short-Horizon Risk-Free Series 1 Source	Short-Horizon Risk-Free Series 2 Source
Australia	1970	1970	MSCI Australia GR		IMF Australia LT Gvt Inc Ret		IMF Australia ST Gvt	
Austria	1972 USD 1971 Local	1970	MSCI Austria GR		IMF Austria LT Gvt Inc Ret		IMF Austria Discount Rate - disc 1970-1998	IMF Euro Area 3 Mo Interbank Rate 1999-Present
Belgium	1970	1970	MSCI Belgium GR		IMF Belgium LT Gvt Inc Ret		IMF Belgium Money Mkt - disc 1970-1998	IMF Euro Area 3 Mo Interbank Rate 1999-Present
Canada	1919	1970	Dimson, Marsh, Staunton Canada Equity 1919-1969	MSCI Canada GR 1970-Present	Bank of Canada 1919-1957	IMF Canada LT Gvt Inc Ret 1958-Present	IMF Canada Tbill	
France	1970	1970*	MSCI France GR		IMF France LT Gvt Inc Ret		IMF France Money Mkt - disc 1970-1998	IMF Euro Area 3 Mo Interbank Rate 1999-Present
Germany	1970	1970	MSCI Germany GR		IMF Germany LT Gvt Inc Ret		IMF Germany Money Mkt 1970-2011	IMF Euro Area 3 Mo Interbank Rate 2012-Present
Ireland	1970	-	Dimson, Marsh, Staunton Ireland Equity 1970-1987	MSCI Ireland GR 1988-Present	IMF Ireland LT Gvt Inc Ret		-	
Italy	1970	1978	MSCI Italy GR		IMF Italy LT Gvt Inc Ret		IMF Italy Tbill	
Japan	1970	1970	MSCI Japan GR		IMF Japan LT Gvt Inc Ret		IMF Japan Money Mkt	
Netherlands	1970	-	MSCI Netherlands GR		IMF Netherlands LT Gvt Inc Ret		-	
New Zealand	1970	-	Dimson, Marsh, Staunton New Zealand Equity 1970-1987	MSCI New Zealand GR 1988-Present	IMF New Zealand LT Gvt Inc Ret		-	
South Africa	1971 USD 1970 Local	1971 USD** 1970 Local**	Dimson, Marsh, Staunton South Africa Equity 1970-1992	MSCI South Africa GR 1993-Present	IMF South Africa LT Gvt Inc Ret		IMF South Africa Tbill	
Spain	1972 USD 1971 Local	1975	MSCI Spain GR		IMF Euro Area LT Gvt Inc Ret		IMF Spain Tbill TR 1975-Present	
Switzerland	1970	1981	MSCI Switzerland GR		IMF Switzerland LT Gvt Inc Ret		IMF Switzerland Tbill	
United Kingdom	1900	1970	Dimson, Marsh, Staunton United Kingdom Equity 1900-1969	MSCI U.K. GR 1970-Present	Bank of England 1900-1969	IMF U.K. LT Gvt Inc Ret 1970-Present	IMF U.K. Tbill	
United States	1926	1970	S&P 500 TR (IA Extended)		IA SBBI U.S. LT Gvt IR		IA SBBI U.S. 30 Day Tbill	

* 1986 short-horizon risk-free rate estimated (France)

** 1987 short-horizon risk-free rate estimated (South Africa)

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