The Equity Premium in 150 Textbooks

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ABSTRACT

I review 150 textbooks on corporate finance and valuation published between 1979 and 2009 by authors such as Brealey, Myers, Copeland, Damodaran, Merton, Ross, Bruner, Bodie, Penman, Arzac… and find that their recommendations regarding the equity premium range from 3% to 10%, and that 51 books use different equity premia in various pages. The 5-year moving average has declined from 8.4% in 1990 to 5.7% in 2008 and 2009.

Some confusion arises from not distinguishing among the four concepts that the phrase *equity premium* designates: the Historical, the Expected, the Required and the Implied equity premium. 129 of the books identify Expected and Required equity premium and 82 identify Expected and Historical equity premium.

Finance textbooks should clarify the equity premium by incorporating distinguishing definitions of the four different concepts and conveying a clearer message about their sensible magnitudes.

JEL Classification: G12, G31, M21

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1. Introduction

The equity premium (also called *market risk premium, equity risk premium, market premium* and *risk premium*), is one of the most important and discussed, but elusive parameters in finance. Part of the confusion arises from the fact that the term equity premium is used to designate four different concepts:

1. **Historical** equity premium (HEP): historical differential return of the stock market over treasuries.
2. **Expected** equity premium (EEP): expected differential return of the stock market over treasuries.
3. **Required** equity premium (REP): incremental return of a diversified portfolio (the market) over the risk-free rate required by an investor. It is used for calculating the required return to equity.
4. **Implied** equity premium (IEP): the required equity premium that arises from assuming that the market price is correct.

I review 150 textbooks on finance and valuation and find that, as shown in **Table 1**, different books propose different identities among the four equity premiums defined above:

- 129 claim that the REP = EEP.
- 12 do not say how they calculate the REP that they use.
- Damodaran (2001a, 2009) and Arzac (2005, 2007) assume that REP = IEP.
- Penman (2001, 2003) maintains that *"no one knows what the REP is."*
- Fernandez (2002, 2004) claims that *"different investors have different REPs"* and that *"there is not a premium for the market as a whole"*
- Black *et al.* (2000) calculate the EEP as an average of surveys and HEP.

Table 1. Assumptions and recommendations of the 150 textbooks

Assumption	Number of books	Recommendation		
		Max	Min	Average
REP = EEP	129	10.0%	3.0%	6.7%
Do not say how they calculate the REP	12	9.0%	3.0%	6.1%
REP = IEP	4	6.5%	4.0%	4.8%
"No one knows what the REP is"	2	6.0%	6.0%	6.0%
"different investors have different REPs"	2	4.0%	4.0%	4.0%
"Average HEP and surveys"	1			4.2%
Total	150	10.0%	3.0%	6.5%

Table 2 contains some details about the 129 books that explicitly assume that the REP is equal to the EEP:

- 82 books use the HEP as the best estimation of the EEP.
- 12 books use the HEP as a reference to calculate the EEP: 10 maintain that the EEP is higher than the HEP and 2 that it is lower.
- 27 books do not give details of how they calculate the HEP.
- Brealey and Myers (2000, 2003, 2005) *"have no official position."*
- 2 claim that EEP is proportional to the risk-free rate.
- Bodie and Merton (2000) calculate EEP = A σ^2_M = 8%.[1]
- Titman and Martin (2007) use the EEP "*commonly used in practice."* Young and O'Byrne (2000) propose the *"widely used".*

[1] *"The variance of the market portfolio (σ^2_M) times a weighted average of the degree of risk aversion of the holders of wealth (A). Suppose that σ_M = 20% and A = 2. Then the risk premium on the market portfolio is 8%."*

Table 2. Assumptions and recommendations of the 129 books that assume that REP = EEP

Assumption	Number of books	Recommendation		
		Max	Min	Average
EEP= HEP	82	9.5%	3.0%	6.9%
EEP = arithmetic HEP vs. T-Bills	*26*	*9.5%*	*7.1%*	*8.5%*
EEP = arithmetic HEP vs. T-Bonds	*6*	*7.8%*	*5.0%*	*7.0%*
EEP = geometric HEP vs. T-Bills	*8*	*8.1%*	*5.3%*	*6.7%*
EEP = geometric HEP vs. T-Bonds	*28*	*7.5%*	*3.5%*	*5.5%*
do not say which HEP they use	*14*	*8.5%*	*3.0%*	*6.8%*
EEP < HEP	10	7.8%	3.0%	4.8%
EEP > HEP	2	9.0%	9.0%	9.0%
Do not say how they get EEP	27	10.0%	3.0%	6.6%
No official position	3	8.0%	6.0%	7.3%
REP proportional to RF	2	3.3%	4.7%	4.0%
REP = A σ^2_M	1			8.0%
"commonly used in practice"; "widely used"	2	3.5%	5.0%	4.3%
Total	129	10.0%	3.0%	6.7%

119 of the books explicitly recommend using the CAPM for calculating the required return to equity, which continues being, in Warren Buffett's words, *"seductively precise."* The CAPM assumes that REP and EEP are unique and equal**.**

Section 2 is a review of the recommendations of 150 finance and valuation textbooks about the risk premium. Section 3 comments on the four different concepts of the equity premium and mentions the most commonly used sources in the textbooks. Section 4 argues that REP and EEP may be different for different investors and provides the conclusion.

2. The equity premium in the textbooks

Figure 1 contains the evolution of the Required Equity Premium (REP) used or recommended by 150 books, and helps to explain the confusion that many students and practitioners have about the equity premium. The average is 6.5%. **Figure 2**

shows that the 5-year moving average has declined from 8.4% in 1990 to 5.7% in 2008 and 2009.

Figure 1. Evolution of the Required Equity Premium (REP) used or recommended in 150 finance and valuation textbooks

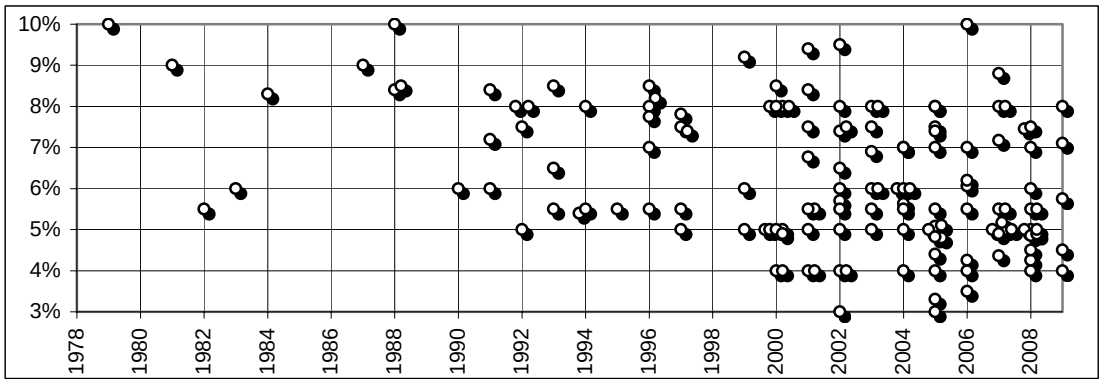
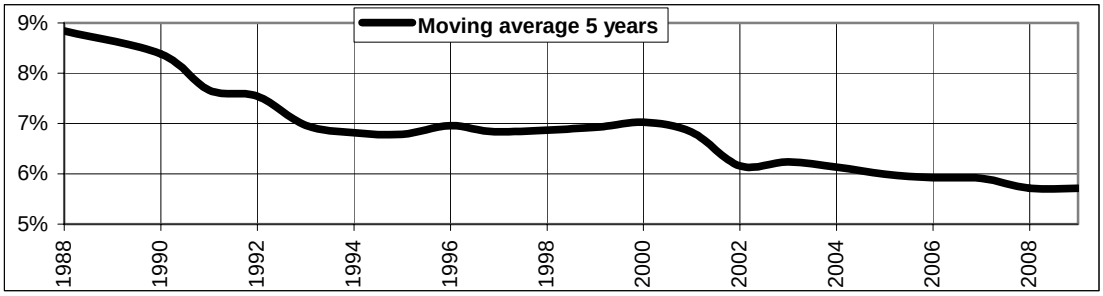


Figure 2. Moving average (last 5 years) of the REP used or recommended in 150 finance and valuation textbooks



Figures 1 and 2 are in line with an update of Welch (2000), who reports that in December 2007, 90% of the professors used in their classrooms equity premiums between 4% and 8.5%; with Fernandez (2008) who reports that in June 2008 finance professors in Spain used equity premiums between 3.5% and 10% (average 5.5%); and with Fernandez (2009) who reports that the average REP used in 2008 by professors in the USA (6.3%) was higher than the one used by their colleagues in Europe (5.3%).

Exhibit 1 contains the main assumptions and recommendations about the equity premium of the 150 books. A wide variety of premiums are used and recommended by academics. Now, I will briefly review the ones with greatest unit sales according to two publishers.

Brealey and Myers considered until 1996 that REP = EEP = arithmetic HEP over T-Bills according to Ibbotson: 8.3% in 1984 and 8.4% in 1988, 1991 and 1996. But in 2000 and 2003, they stated that *"Brealey and Myers have no official position on the exact market risk premium, but we believe a range of 6 to 8.5% is reasonable for the United States."* In 2005, they increased that range to *"5 to 8 percent."*

Copeland *et al.* (1990 and 1995), authors of the McKinsey book on valuation, advised using a REP = geometric HEP versus Government T-Bonds, which were 6% and 5.5% respectively. However, in **2000** and **2005** they changed criteria and advised using the arithmetic[2] HEP of 2-year returns versus Government T-Bonds reduced by a survivorship bias. In 2000 they recommended 4.5-5% and in 2005 they used a REP of 4.8% because *"we believe that the market risk premium as of year-end 2003 was just under 5%."*

Damodaran recommended in 1994, 1996, 1997, 2001b, 2001c and 2002 REP = EEP = geometric HEP versus T-bonds = 5.5%.[3] In 2001a and 2006, he used a REP = IEP = 4%. However, in 1994 and in 1997 he calculated the cost of equity of PepsiCo using, respectively, REPs of 6.41% (geometric HEP 1926-90 using T-Bills) and 8.41% (arithmetic HEP 1926-90 using T-Bills). Damodaran (2005) used different *market risk premiums*: 4%, 4.82%, 5.5% and 6%.

Ross *et al.* recommended in all editions that REP = EEP = arithmetic HEP vs. T-Bills: 8.5% (1988, 1993 and 1996), 9.2% (1999), 9.5% (2002) and 8.4% (2005). However, Ross *et al.* (2003a and 2003b) used different REPs: 10%; 9.1%; 8.6%; 8%; 7% and 6%.

Bodie *et al.* (1993) used a REP = EEP = 6.5%. In 1996, they used a REP = EEP = HEP – 1% = 7.75%.[4] In 2002, they used a REP = 6.5%, but in 2003 and 2005, they used different REPs: 8% and 5%.

Copeland and Weston (1979 and 1988) used a REP = 10%, Weston and Copeland (1992) used a REP of 5%, and Weston, Mitchel and Mulherin (2004) used REP = EEP = 7%.

[2] Although in the 2nd edition they stated (page 268) "*we use a geometric average of rates of return because arithmetic averages are biased by the measurement period."*

[3] Damodaran (2001c, page 192): *"we must confess that this is more for the sake of continuity with the previous version of the book and for purposes of saving a significant amount of reworking practice problems and solutions."*

[4] They argue that *"although the HEP is a guide to the EEP one might expect from the market, there is no reason that the risk premium cannot vary somewhat from period to period."*

Van Horne (1983) used a REP = EEP = 6%. In 1992, he used a REP = 5% because: *"the 'before hand' or ex ante market risk premium has ranged from 3 to 7%."*

According to **Penman** (2001), *"the market risk premium is a big guess… No one knows what the market risk premium is."* In 2003, he admitted that *"we really do not have a sound method to estimate the cost of capital… Estimates [of the equity premium] range, in texts and academic research, from 3.0% to 9.2%,"* and he used 6%.

Bodie and Merton (2000) and Bodie *et al*. (2009) used 8% for USA.

Stowe *et al.* (2002, Chartered Financial Analysts Program) use a REP = Geometric HEP using T-Bonds during 1926-2000, according to Ibbotson = 5.7%.[5]

Bruner (2004) used a REP of 6% because *"from 1926 to 2000, the risk premium for common stocks has averaged about 6% when measured geometrically."*

Arzac (2005) used a REP of 5.08%, the EEP calculated using a Gordon equation.

Titman and Martin (2007) mention that *"Historical data suggest that the equity risk premium for the market portfolio has averaged 6% to 8% a year over the past 75 years. However… for the examples of this book we will use a REP of 5% which is commonly used in practice."*

Siegel (2002) concluded that *"the future equity premium is likely to be in the range of 2 to 3%, about one-half the level that has prevailed over the past 20 years"* [6]. Siegel (2007) affirms that *"the abnormally high equity premium since 1926 is certainly not sustainable."*

According to **Shapiro** (2005, pp 148) *"an expected equity risk premium of 4 to 6% appears reasonable. In contrast, the historical equity risk premium of 7% appears to be too high for current conditions."* However, he uses different REPs in his examples: 5%, 7.5% and 8%.

The REPs used to calculate the cost of equity in the teaching notes published by the Harvard Business School have decreased over time. Until 1989 most teaching notes used REPs between 8 and 9%.[7] In 1989, the teaching note for the case Simmons Japan Limited admitted that the equity premium was in the 6-9% range and the teaching note for the 2000 case Airbus A3XX used 6%. On the contrary, the REPs used in the teaching notes published by the Darden Business School have increased slightly over time. The teaching notes in Bruner (1999) use REPs in the 5.4-5.6% range, whereas the teaching note of the 2002 case The Timken Company uses 6%.

It is easy to conclude that there is not a generally accepted equity premium point estimate and that there is not either a common method to estimate it: the recommendations regarding the equity premium of the textbooks range from 3% to 10% and some books use different equity premia in different pages.

[5] They also mention the *"bond yield plus risk premium method."* Under this approach, the cost of equity is equal to the *"yield to maturity on the company´s long-term debt plus a typical risk premium of 3-4%, based on experience."*

[6] Siegel also affirms that: *"Although it may seem that stocks are riskier than long-term government bonds, this is not true. The safest investment in the long run (from the point of view of preserving the investor's purchasing power) has been stocks, not Treasury bonds."*

[7] For example, the teaching notes of the cases Levitz Furniture Corp. (9%, 1986), Richardson Vicks (8.8%, 1985), Gulf Oil Corporation (8.8%, 1984). Goodyear Restructuring (8.8%, 1986), Owens Corning Fiberglas (8.5%, 1986), Atlantic Corporation (8.5%, 1984) and RJR Nabisco (8%, 1988). Gilson (2000) uses 7.5% and mentions that *"the market risk premium has historically been about 7.5%, on average, although academic estimates of the ex ante premium range from 0.5% to 12%."*

3. Four different concepts

The four concepts (HEP, REP, EEP and IEP) designate different realities[8]. The **HEP** is easy to calculate and is equal for all investors, provided they use the same time frame, the same market index, the same risk-free instrument and the same average (arithmetic or geometric). But the **EEP,** the **REP** and the **IEP** may be different for different investors and are not observable magnitudes.

The Historical Equity Premium (HEP) is the historical average differential return of the market portfolio over the risk-free debt. The most widely cited sources are: Ibbotson Associates whose U.S. database starts in 1926; Dimson *et al.* (2007) that calculate the HEP for 17 countries over 106 years (1900-2005), and the Center for Research in Security Prices (CRSP) at the University of Chicago. 40 books use data from Ibbotson, 6 from Dimson *et al.*, 3 from CRSP, 10 use their own data, and the rest do not mention which data they use.

Table 2 shows the range of the recommendations of the 82 books that assume that REP = EEP = HEP goes from 3.5% to 9.5%. However, as shown in Table 3, different authors do not get the same result of the HEP even using the same time frame (1926-2005), average (geometric or arithmetic) and risk-free instrument (Long-Term Government Bonds or T-Bills). The differences are mainly due to the stock indexes chosen.

The estimates of Dimson *et al.* (2007) (see Table 3) incorporate the earlier part of the 20th century as well as the opening years of the 21st century but, as the authors point out, *"virtually all of the 16 countries experienced trading breaks… often in wartime":* World War I, World War II, Spanish Civil War… They claim that *"we were able to bridge these gaps,"* but this assertion is questionable[9]. Brailsford *et al.* (2008) also document concerns about data quality in Australia prior to 1958.

Table 3. Different Historical Equity Premiums (HEP) according to different authors

		U.S. 1926-2005					Dimson *et al.* 1900-2005				
		Ibbotson	Shiller	WJ	Damodaran	Siegel	U.S.	Germany	Spain	Average 17 countries	World ex U.S.
HEP vs. LT Gov. Bonds	Geometric	4.9%	5.5%	4.4%	5.1%	4.6%	4.5%	5.3%	2.3%	4.0%	4.1%
	Arithmetic	6.5%	7.0%	5.8%	6.7%	6.1%	6.5%	8.4%	4.2%	6.1%	5.2%
HEP vs. T-Bills	Geometric	6.7%	6.0%	6.2%	6.3%	6.2%	5.5%	3.8%	3.4%	4.8%	4.2%
	Arithmetic	8.5%	7.7%	7.9%	8.2%	8.2%	7.4%	9.1%	5.5%	7.1%	5.9%

Sources: Ibbotson Associates (2006). *http://aida.econ.yale.edu/~shiller/data.htm*. WJ: updated from Wilson and Jones (2002). Damodaran: http://pages.stern.nyu.edu/~adamodar/. Siegel: updated from Siegel (2005). Dimson *et al.*: Table 3 of Dimson, Marsh and Staunton (2007).

Some authors try to find the Expected Equity Premium (EEP) by conducting surveys. Welch (2000) performed two surveys with finance professors in 1997 and 1998, asking them what they thought the EEP would be over the next 30 years. He obtained 226 replies, ranging from 1% to 15%, with an average arithmetic EEP of 7% above T-Bonds.[10] Welch (2001) presented the results of a survey of 510 finance and economics professors performed in August 2001 and the consensus for the

[8] We agree with Bostock (2004): *"understanding the equity premium is largely a matter of using clear terms."*

[9] Dimson et al (2007) explain in their footnote 7 that *"In Spain, trading was suspended during the Civil War from July 1936 to April 1939, and the Madrid exchange remained closed through February 1940; over the closure we assume a zero change in nominal stock prices and zero dividends."* They also mention an *"unbridgeable discontinuity, namely, bond and bill (but not equity) returns in Germany during the hyperinflation of 1922–23, when German bond and bill investors suffered a total loss of –100%. … When reporting equity premiums for Germany … we thus have no alternative but to exclude the years 1922–23."*

[10] At that time, the most recent Ibbotson Associates Yearbook reported an arithmetic HEP versus T-bills of 8.9% (1926–1997).

30-year arithmetic EEP was 5.5%, much lower than just 3 years earlier. In an update published in 2008, the mean was 5.69%, but the answers of about 400 finance professors ranged from 2% to 12%. Welch also reports that the equity premium "used in class" in December 2007 was on average 5.89%, and 90% of the professors used equity premiums between 4% and 8.5%.

Table 4. Estimates of the EEP (Expected Equity Premium) according to different surveys

Authors	Conclusion about EEP	Respondents
Pensions and Investments (1998)	3%	Institutional investors
Graham and Harvey (2007)	Sep. 2000. Mean: 4.65%. Std. Dev. = 2.7%	CFOs
Graham and Harvey (2007)	Sep. 2006. Mean: 2.93%. Std. Dev. = 2.47%	CFOs
Graham and Harvey (2009)	Feb. 2009. Mean: 4.74%. Std. Dev. = 4.11%	CFOs
Welch (2000)	Oct. 1997. Mean: 7%. Range from 2% to 13%	Finance professors
Welch (2001)	August 2001. Mean: 5.5%. Range from 0% to 25%	Finance professors
Welch update	December 2007. Mean: 5.69%. Range 2% to 12%	Finance professors
O'Neill, Wilson and Masih (2002)	3.9%	Global clients Goldman

Graham and Harvey (2007) indicate that U.S. CFOs reduced their average 10-year EEP from 4.65% in September 2000 to 2.93% by September 2006, but the standard deviation of the 465 responses in 2006 was 2.47%. Graham and Harvey (2009) indicate that U.S. CFOs increased again their average EEP to 4.74% with a standard deviation of 4.11%. Goldman Sachs (O'Neill, Wilson and Masih, 2002) conducted a survey of its global clients in July 2002 and the average long-run EEP was 3.9%, with most responses between 3.5% and 4.5%. The magazine *Pensions and Investments* (12/1/1998) carried out a survey among professionals working for institutional investors: the average EEP was 3%.

An anecdote from Merton Miller (2000, page 3) about the expected market return in the Nobel context: *"I still remember the teasing we financial economists, Harry Markowitz, William Sharpe, and I, had to put up with from the physicists and chemists in Stockholm when we conceded that the basic unit of our research, the expected rate of return, was not actually observable. I tried to tease back by reminding them of their neutrino –a particle with no mass whose presence was inferred only as a missing residual from the interactions of other particles. But that was eight years ago. In the meantime, the neutrino has been detected."*

I report in Table 1 that 129 books explicitly affirm that REP = EEP. 82 of them assume that REP = EEP = HEP and presume that the historical record provides an adequate guide for future expected long-term behaviour. However, as the mentioned surveys report, the EEPs change over time, have a great dispersion and it is not clear why averages from past decades should determine expected returns in the 21st century.

Numerous papers and books assert or imply that there is a "market" EEP. However, investors and professors do not share "homogeneous expectations," do not hold the same portfolio of risky assets and may have different assessments of the expected equity premium. Tables 2 and 4 also highlight that different investors have different EEPs.

A conclusion about the expected equity premium may be that of Brealey *et al.* (2005, page 154): *"Out of this debate only one firm conclusion emerges: Do not trust anyone who claims to know what returns investors expect"*. In order for all investors to share a common EEP, it is necessary to assume homogeneous expectations (or a representative investor) and, with our knowledge of financial markets, this assumption is not a reasonable one. With homogeneous expectations it is also difficult to explain why the annual trading volume of most exchanges is more than twice their market capitalization.

The required equity premium (REP) is the answer to the following question: What incremental return do I require for investing in a diversified portfolio of shares (a stock index, for example) over the risk-free rate? It is a crucial parameter because the REP is the key to determining the company's required return to equity, the weighted average cost of capital (WACC) and the required return to any investment project.

Different investors and different companies may use, and in fact do use, different **REPs**. Many valuations refer as source of the equity premium used to some of the 150 books analyzed and, given the dispersion of their recommendations reflected in Figure 1, it is not surprising that different investors use different REPs.

The Implied Equity Premium (IEP) is the implicit REP used in the valuation of a stock (or market index) that matches the current market value. The most widely used model to calculate the IEP is the dividend discount model. According to this model, the current price per share (P_0) is the present value of expected dividends discounted at the required rate of return (Ke). If d_1 is the dividend (equity cash flow) per share expected to be received at time 1, and g the expected long term growth rate in dividends per share,

$$P_0 = d_1 / (Ke - g), \text{ which implies: } IEP = d_1/P_0 + g - R_F \quad (1)$$

Fama and French (2002), using a discounted dividend model, estimated the IEP for the period 1951-2000 between 2.55% and 4.32%, far below the HEP (7.43%).

The estimates of the IEP depend on the particular assumption made for the expected growth. Even if market prices are correct for all investors, there is not an IEP common for all investors: there are many pairs (IEP, g) that accomplish equation (1). If equation (1) holds, the *expected* return for the shareholders is equal to the *required* return for the shareholders (Ke), but there are many *required* returns (as many as expected growths, g) in the market. Many papers in the financial literature report different estimates of the IEP with great dispersion, as for example, O'Hanlon and Steele (2000, IEP = 4 to 6%), Jagannathan *et al.* (2000, IEP = 3.04%), Claus and Thomas (2001, IEP = 3%), Harris and Marston (2001, IEP = 7.14%), Goedhart *et al.* (2002, 5% 1962-79 and 3.6% in 1990-2000.), Ritter and Warr (2002, IEP = 12 in 1980 and -2% in 1999), and Harris *et al.* (2003, IEP = 7.3%).

It seems that there is no a common **IEP** in the market. For a particular investor, the **REP** and the IEP are equal, but the **EEP** is not necessary equal to the REP (unless he considers that the market price is equal to the value of the shares). Obviously, an investor will hold shares if his EEP is higher (or equal) than his REP and will not hold otherwise. We can find out the REP and the EEP of an investor by asking him, although for many investors the REP is not an explicit parameter but, rather, it is implicit in the price they are prepared to pay for the shares. However, it is not possible to determine the REP for the market as a whole, because it does not exist: even if we knew the REPs of all the investors in the market, it would be meaningless to talk of a REP for the market as a whole. There is a distribution of REPs and we can only say that some percentage of investors have REPs contained in a range. The average of that distribution cannot be interpreted as the REP of the market.

The rationale for this is to be found in the aggregation theorems of microeconomics, which in actual fact are non-aggregation theorems. One model that works well individually for a number of people may not work for all of the people together[11].

4. Discussion and conclusion

The recommendations regarding the equity premium of 150 finance and valuation textbooks published between 1979 and 2009 range from 3% to 10%. Several books use different equity premia in different pages and most books do not distinguish among the four different concepts that the phrase

[11] According to Mas-Colell et al. (1995, page 120): *"it is not true that whenever aggregate demand can be generated by a representative consumer, this representative consumer's preferences have normative contents. It may even be the case that a positive representative consumer exists but that there is no social welfare function that leads to a normative representative consumer."*

equity premium designates: Historical equity premium, Expected equity premium, Required equity premium and Implied equity premium.

There is not a generally accepted equity premium point estimate and that there is not either a common method to estimate it, even for the HEP.

Although some books mention that *"the true Equity Risk Premium is an expectation"* and also that *"the goal is to estimate the true Equity Risk Premium as of the valuation date"*, I think that we cannot talk of a "true Equity Risk Premium". Different investors have different REPs and different EEPs. A unique IEP requires assuming homogeneous expectations for the expected growth (g), but there are several pairs (IEP, g) that satisfy current market prices. We could only talk of an EEP = REP = IEP if all investors had the same expectations. If they did, it would make sense to talk of a market risk premium and all investors would have the market portfolio.

However, different investors have different expectations of equity cash flows and different evaluations of their risk (which translate into different discount rates, different REPs and different EEPs). There are investors that think that a company is undervalued (and buy or hold shares), investors that think that the company is overvalued (and sell or not buy shares), and investors that think that the company is fairly valued (and sell or hold shares). The investors that did the last trade, or the rest of the investors that held or did not have shares do not have a common REP nor common expectations of the equity cash flows.

A reasonable REP may be constant for all maturities, while reasonable EEPs may be different for different maturities. EEPs may be negative for some maturities (for example, in 2000, in 2007 and in 2008 many were negative) while REPs should be always positive.

Which equity premium do I use to value companies and investment projects? In most of the valuations that I have done in the 21st century I have used REPs between 3.8 and 4.3% for Europe and for the U.S. Given the yields of the T-Bonds, I (and most of my students and clients) think that an additional 4% compensates the additional risk of a diversified portfolio.

Finance textbooks should clarify the equity premium by incorporating distinguishing definitions of the four different concepts and conveying a clearer message about their sensible magnitudes. It is necessary to distinguish among the different concepts and to specify to which equity premium we are referring to.

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Exhibit 1. Equity premiums recommended and used in textbooks

Author(s) of the Textbook		Assumption	Period for HEP	REP recommended	REP used	Pages in the text book
Brealey and Myers	2nd edition. 1984	REP=EEP=arith HEP vs. T-Bills	1926-81	8.3%	8.3%	119, 132. [12]
	3rd edition. 1988	REP=EEP=arith HEP vs. T-Bills	1926-85	8.4%	8.4%	126, 139, 140, 185
	4th edition. 1991	REP=EEP=arith HEP vs. T-Bills	1926-88	8.4%	8.4%	131, 194, 196
	5th edition. 1996	REP=EEP=arith HEP vs. T-Bills	1926-95	8.4%	8.4%	180, 181, 218,
	6th edition. 2000	No official position		6.0 - 8.5%	8.0%	160, 195
	7th edition. 2003	No official position		6.0 - 8.5%	8.0%	160, 195[13]
	8th edition. 2005 (with Allen)	No official position		5.0 - 8%	6-8.5%	75, 154[14], 178(8.5%); 222 (8%); 229 (6%)
Copeland, Koller and Murrin (McKinsey)	1st edition. 1990	REP=EEP=geo HEP vs. T-Bonds	1926-88	5 - 6%	6%	193 (5-6%); 205 (6%); 196[15]
	2nd ed. 1995	REP=EEP=geo HEP vs. T-Bonds	1926-92	5 - 6%	5.5%	268
	3rd ed. 2000	REP=EEP=arith HEP – 1.5-2%	1926-98	4.5 - 5%	5%	221 (4.5-5%); 231 (5%)[16]
	4th ed. 2005. Goedhart, Koller & Wessels	REP=EEP=arith HEP – 1-2%	1903-2002	3.5 – 4.5%	4.8%	297 (REP=EEP); 298[17]; 539 (4.8%); 303[18]

[12] (1984, page 119), (1988, page 127) and (1991, page 131): *"the crucial assumption here is that there is a normal, stable risk premium on the market portfolio, so that the expected future risk premium can be measured by the average past risk premium. One could quarrel with this assumption, but at least it yields estimates of the market return that seem sensible."*

[13] *"How about the market risk premium? As we have pointed out in the last chapter, we can't measure EEP with precision. From past evidence it appears to be about 9%, although many economists and financial managers would forecast a lower figure. Let's use 8% in this example."*

[14] *"Brealey, Myers and Allen have no official position on the exact market risk premium, but we believe that a range of 5 to 8 percent is reasonable for the risk premium in the United States." "It seems that the EEP over this period was … 5.3%. This is 2.3% lower than the realized risk premium in the period 1900-2003."*

[15] *"Our opinion is that the best forecast of the risk premium is its long-run geometric average."* Ibbotson geom. HEP vs. T-Bonds in 1926-1988 was 5.4% (page194).

[16] *"It is unlikely that the U.S. Market index will do as well over the next century as it has in the past, so we adjust downward the historical arithmetic average market risk premium. If we substract a 1.5 to 2% survivorship bias from the long-term arithmetic average of 6.5%, we conclude that the market risk premium should be in the 4.5-5% range."* 6.5% was the arithmetic HEP of 2-year returns in the period 1926-1998 (page 220). The geometric HEP of 1-year returns was 5.9%.

[17] *"we believe that the market risk premium as of year-end 2003 was just under 5%."*

[18] *"Using data from Jorion and Goetzmann, we find that between 1926 and 1996, the U.S. arithmetic annual return exceeded the median return on a set of 11 countries with continuous histories dating to the 1920s by 1.9% in real terms, or 1.4% in nominal terms. If we subtract a 1% to 2% survivorship bias from the long-term arithmetic average of 5.5 percent (*arithmetic mean of 10-year holding periods returns from 1903 to 2002*) the difference implies the future range of the U.S. market risk premium should be 3.5% to 4.5%."*

Author(s) of the Textbook		Assumption	Period for HEP	REP recommended	REP used	Pages in the text book
Ross, Westerfield and Jaffe	2nd edition. 1988	REP = EEP = arith HEP vs. T-Bills	1926-88	8.5%	8.5%	243-4, 287[19]
	3rd edition. 1993	REP = EEP = arith HEP vs. T-Bills	1926-93	8.5%	8.5%	
	4th edition. 1996	REP = EEP = arith HEP vs. T-Bills	1926-94	8.5%	8.5%	241, 280
	5th edition. 1999	REP = EEP = arith HEP vs. T-Bills	1926-97	9.2%	9.2%	259[20], 261
	6th edition. 2002	REP = EEP = arith HEP vs. T-Bills	1926-99	9.5%	9.5%	259, 274, 324
	7th edition. 2005	REP = EEP = arith HEP vs. T-Bills	1926-02	8.4%	8%	259 (8.4%), 286 (8%)
Ross, Westerfield and Jordan (2003a) 4th edition.		REP = EEP = arith HEP vs. T-Bills	1926-01	8.8%	6-9%	6% (352); 7% (380); 8% (356, 367, 382): 9% (374)
Ross, Westerfield and Jordan (2003b) 6th edition.		REP = EEP = arith HEP vs. T-Bills	1926-00	9.1%	6-10%	6% (517); 7% (449); 8% (445, 509, 520, 522); 8.6% (441) 9.1% (395, 504); 10% (521)
Damodaran	Damodaran on Valuation (1994) 1st ed.	REP = EEP = geo HEP vs.T-Bonds	1926-90	5.5%	5.5%	22[21]
	Investment Valuation (1996), 1st ed.	REP = EEP = geo HEP vs.T-Bonds	1926-90	5.5%	5.5%	251
	Corporate Finance (1997) 1st ed	REP = EEP = geo HEP vs.T-Bonds	1926-90	5.5%	5.5%	128[22]
	The Dark Side of Valuation (2001a)	average IEP	1970-2000	4%	4%	67 (4%)[23];
	The Dark Side of Valuation (2009) 2nd ed.	IEP			5 - 6.5%	5% (241), 6% (398, 494), 6.5% (431, 558)
	Corporate Finance (2001b) 2nd ed	REP = EEP = geo HEP vs.T-Bonds		5.5%	5.5%	237, 339, 425 and 426
	Corporate Finance (2001c) 2nd intl ed	REP = EEP = geo HEP vs.T-Bonds – 0.88%	1926-98	5.5%	5.5%	192[24]
	Investment Valuation (2002), 2nd ed.	REP = EEP = geo HEP vs.T-Bonds	1928-2000	5.51%	5.51%	170; 171; 174
	Applied Corporate Finance (2005)	REP = EEP = geo HEP vs.T-Bonds	1928-03	4.82%	4 – 6%	4% (355); 4.82% (349, 368, 562); 5.5% (271, 389, 401, 481); 6% (335, 336).
	Damodaran on Valuation (2006) 2nd ed.	REP = EEP = geo HEP vs.T-Bonds	1928-2004	4.84%	4%	41; 4% (160, 173, 189); 5% (341); 47[25]
	Damodaran on Valuation (1994) 1st ed.	REP = EEP = geo HEP vs.T-Bonds	1926-90	5.5%	5.5%	22[26]
	Investment Valuation (1996), 1st ed.	REP = EEP = geo HEP vs.T-Bonds	1926-90	5.5%	5.5%	251

[19] *"REP depends on (1) the average risk aversion of investors and (2) the variance of the market return. If these two don't change much, the EEP should not change either, and we may estimate REP from historical data."*

[20] *"financial economists use [the HEP] as the best estimate to occur in the future. We will use it frequently in the text."*

[21] However, on page 24 he used a REP of 6.41% (geometric HEP 1926-1990 using T-Bills). For Germany (page 164) he used a REP of 3.3%.

[22] On page 128 he used a REP of 8.41% (arithmetic HEP 1926-1990 using T-Bills).

[23] *"The average implied equity-risk premium between 1970 and 2000 is approximately 4%."*

[24] HEP vs. T-bonds 1926-98 = 6.38%. *"In this book we use a premium of 5.5% in most of the examples involving US companies."* In a footnote *"we must confess that this is more for the sake of continuity with the previous version of the book and for purposes of saving a significant amount of reworking practice problems and solutions."*

[25] Using a dividend discount model, he concludes that *"the implied premium for the US and the average implied equity risk premium has been between about 4% over the past 40 years."*

[26] However, on page 24 he used a REP of 6.41% (geometric HEP 1926-1990 using T-Bills). For Germany (page 164) he used a REP of 3.3%.

Exhibit 1 (cont.). Equity premiums recommended and used in textbooks

Author(s) of the Textbook		Assumption	Period for HEP	REP recommended	REP used	Pages in the text book
Copeland and Weston	(1979)	REP = EEP			10%	321
	(1988)	REP = EEP			9.83%, 10%	204, 458, 531
	Weston and Copeland (1992)	REP = HEP = EEP		6 -8%	5%, 7.5%	5% (407, 944); 7,5% (610)
	and Shastri (2005)	REP = EEP = arith.HEP vs. T-Bonds	1963-02	5%	5,5%	173[27]; 526
Weston *et al.*	Weston & Brigham (1982), 6th ed.			5-6%		393[28]
	Weston, Chung and Siu (1997)			7.5%		
	Weston, Mitchel and Mulherin (2004)	REP = EEP = arith.HEP vs. T-bonds	1926-2000	7.3%	7%	260[29]
	Weaver, Weston and Weaver (2004)				5.63%	308, 309
	Weston, Weaver and Weaver (2004),	REP = EEP = arith.HEP vs. T-bonds	1926-2000	7.3%	7%	153, 161
Case Problems in Finance	Butters, Fruhan, Mullins and Piper (1981)	REP = EEP = geo. HEP vs.T-Bonds + 4%	1926-74	9%	9%	150[30], 151
	Butters, Fruhan, Mullins and Piper (1987)	REP = EEP = geo. HEP vs.T-Bonds + 4%	1926-74	9%	9%	330, 331
	Fruhan, Kester, Mason, Piper and Ruback (1992)	REP = EEP = arith. HEP vs.T-Bills	1926-90	8.4%	8%	417, 418
	Kester, Fruhan, Piper and Ruback (1997)	REP = EEP = arith. HEP vs.T-Bills	1926-95	7.4%%	7%, 8%	558, 559
	Kester, Ruback and Tufano (2005)	REP = EEP = arith. HEP vs.T-Bonds	1926-95	7.4%	7%	443, 444
Bodie, Kane and Marcus	2nd edition. 1993	REP = EEP		6.5%	6.5%	549[31]
	3rd edition. 1996	REP = EEP = arith HEP vs. T-Bills - 1%	1926-94	7.75%	7.75%	535
	5th edition. 2002	REP = EEP		6.5%	6.5%	575[32]
	6th edition. 2003	REP = EEP = arith HEP vs. T-Bills	1926-2001	8.64%	5%; 8%	8% (426,431); 5% (415); 157[33]

[27] They argue that using 1963-2002 data, *"our estimate of the market risk premium would be 11,9% (the average arithmetic return on the S&P 500 index) minus 7% (the average arithmetic return on intermediate-term U.S. government bonds. Thus, our estimate of the market risk premium would be roughly 5% in nominal terms."*

[28] *"the market risk premium can be considered relatively stable at 5 to 6% for practical application."*

[29] They mention that the geometric HEP over T-bonds in the period 1926-2000 according to Ibbotson was 5.7%.

[30] "*In recent years, the rate of return on Treasury bills has averaged about 5 to 8%. A reasonable estimate might be 6%. The average annual return on the market as a whole (or an index such as the S&P 500) over the past 25 to 35 years has been in the range of 10% to 12%. Adjusting for higher long-term inflation might yield an estimate in the range of 14% to 16% with a midpoint of 15%."*

[31] They justified a REP = EEP = 6.5% (14.5%-8%): *"Suppose the consensus forecast for the expected rate of return on the market portfolio in 1990 was about 14.5%"*

[32] They argue that *"the HEP has been closer to 9.14%... Although the HEP is one guide as to the EEP one might expect from the market, there is no reason that the risk premium cannot vary somewhat from period to period. Moreover, recent research suggests that in the last 50 years the HEP was considerably better than the market participants at the time were anticipating. Such a pattern could indicate that the economy performed better than initially anticipated during this period, or that the discount rate declined."* 9.14% was the arithmetic HEP using T-Bonds in the period 1926-1999.

[33] *"The instability of average excess return over the 19-year subperiods calls into question the precision of the 76-year average HEP (8.64%) as an estimate of the EEP… There is an emerging consensus that the HEP is an unrealistic high estimate of the EEP."*

Exhibit 1 (cont.). Equity premiums recommended and used in textbooks

Author(s) of the Textbook	Assumption	Period for HEP	REP recommended	REP used	Pages in the text book
Adair (2005)	REP = EEP[34]; geo. HEP			3,3%-8,6%	169 (3.3%), 175 (6%), 179 (8.6%)
Adsera and Vinolas (1997)			3 – 7%	5%, 4%	185, 188, 193, 249
Amor (2005)	REP = EEP		3-4%		94
Antill and Lee (2008)	REP = EEP= HEP	1900-2005	3-4%	3.5 – 4%	34, 4% (202, 217, 288); 3.5% (45, 49, 51)
Arnold (2005)	REP = EEP = HEP	101 years		4.4%	229
Arzac (2005)	REP = IEP		5.08%	5.08%	Exhibit 3.4
Arzac (2007)	REP = IEP		4.36%	4.36%	Exhibit 3.4
Benninga and Sarig (1997)	REP = EEP			8%	242, 259, 266, 298, 365, 367
Berk, DeMarzo, and Harford (2008)	EEP< HEP			5%	[35]
Black, Wright and Bachman (2000)	Average HEP and surveys			3.5%-4.8%	3.5% (57); 4-4.8%(304, 316)
Block and Hirt (2004)	REP = EEP = HEP	1926-00		6%	345
Bodie and Merton (2000)	REP = A σ^2_M			8%	347[36]
Bodie, Merton and Cleeton (2009)				8%	369
Booth and Cleary (2007)	REP = HEP		5.17%		
Bossaerts and Degaard (2006)	REP = EEP = HEP			2.5-6%	59, 61
Brigham and Houston (2004)	REP = EEP		5%	4%, 5%	195, 331, 365
Brigham and Houston (2009), 12th ed.	REP = EEP			4%, 5%	253, 374, 432
Brigham, Gapenski and Daves (1999)	REP = EEP		5%	5%	156, 956
Brigham, Gapenski & Ehrhardt (1999)			6%	5%, 6%	215, 415, 416
Bruner (2004)	REP = EEP = geo HEP vs.T-Bonds	1926-2000	6%	6%	265, 269, 294
Butler (2000)	REP = EEP = arith. HEP vs.T-Bills			8.5%	618
Chisholm (2002)				5%	170
Clayman, Fridson & Troughton (2008)	REP = EEP			4%, 7%	140, 157
Crundwell (2008)	REP = EEP = HEP			4.85%-8.5%	369, 382, 401, 588
Davies (2008)	REP = EEP			6% -9%	9% (212), 7% (222), 6% (230)
DePamphilis (2007)	REP = EEP = HEP[37]	1900-2002	5.5%		257
Eiteman and Stonehill (1986)	REP = EEP		8.2%		465, 466
Elton and Gruber (1991)				7.2%	472
English (2001)	REP = 5% < HEP			5%	228, 305

[34] According to the Philadelphia Federal Reserve's Survey of Professional Forecasters. Arzac (2007, 2nd ed.) uses 4.36% as of dec 2006

[35] "*Some researches believe that the future expected returns for the market are likely to be even lower than these historical numbers, in a range of 3% to 5% over T bills.*"

[36] *"In the CAPM, the equilibrium risk premium on the market portfolio is equal to the variance of the market portfolio (σ^2_M) times a weighted average of the degree of risk aversion of the holders of wealth (A). Suppose that σ_M = 20% and A = 2. Then the risk premium on the market portfolio is 8%."*

[37] Simple average of the arithmetic and geometric HEP

Estrada (2006)	REP = EEP. Defines REP correctly		5.5%	5.5%	75[38], 76, 176
Evans and Bishop (2001)	REP = EEP = arith. HEP vs.T-Bonds	1926-00	7.76%	7%, 7,5%	124, 135, 270
Fabozzi and Grant (2000)	REP = EEP = geo HEP vs.T-Bonds	1926-93	5 -6%	5%	82, 83, 154
Feldman (2005)	REP = EEP = HEP	1926-2001		7.4%	70
Fernandez (2002)	Not a premium for the market as a whole		4%		
Fernandez (2001, 2004)	"different investors have different REPs"			4%	608, 623[39]
Ferris and Pecherot (2002)	REP = EEP = arith HEP vs.T-Bills	1926-98	7.5%	7.5%	79, 80
Geddes (2008)			4 - 5%		170, appendix
Goetzmann and Ibbotson (2006)	REP = EEP			6.2%	7[40], 8, 269
Grant (2002)	REP = EEP			6%	66, 160
Grinblatt and Titman (2001)	REP = EEP			8.4%	385
Guerard (2005)	REP = EEP = HEP			7.38%	51
Guerard and Schwartz (2007)	REP = EEP = arith. HEP vs.T-Bills	1926-93		8%, 8.8%	8% (235); 8.8% (188, 276, 456)
Hawawini and Viallet (2002)	REP = EEP = geo HEP vs.T-Bonds	1926-99	6.2%	6.2%	328
Higgins (2003)	REP = HEP		6.9%	6.9%	303
Hitchner (2006)	REP = EEP = geo. HEP vs.T-Bills	1926-99	8.1%	7%, 5.5%	144, 248, 548
Jones, C. P. (1996)	REP = EEP = geo. HEP vs.T-Bills	1926-93	5.3%	7%	154, 246 (7%)
Jones, C. P. (2006)	REP = EEP = geo. HEP vs.T-Bills	1920-04	6.06%	6.06%	160 (6.06%); 255 (6; 7%)
Kasper L. J. (1997)	REP = EEP = geo. HEP vs.T-Bills	1954-1996	7,81%	7,81%	143
Keown, Petty, Martin and Scott (1994)				7%, 9%	251, 360
Kim and Kim (2006)	REP = EEP			10%	402, 420
Lacey and Chambers (2003)	REP = EEP			7-8%	283, 284
Lopez and de Luna (2001)	REP = 0,5 to 0.6 R_F ; IEP			3%-5.5%	16, 18, 19, 3.5% (22, 85); 3.45% (43); 3% (71); 4% (145); 5.5% (111)
Lopez and Garcia (2005)	REP = 0.7 R_F		4.2%,	3%, 3.5%	36, 134, 194, 232
Lumby and Jones (2003)	REP = EEP			5-7%	264 (6%), 267 (7%), 648 (5%)
Madura and Fox (2007)	REP = EEP			6 - 10%	10% (502), 6% (612)
Marin and Rubio (2001)	REP = EEP = geo. HEP vs.T-Bills	1963-1997	6.77%	6.77%	209, 300, 304,
Martin and Petty (2000)	REP = EEP = geo. HEP vs.T-Bills			8%	97
Martin and Trujillo (2000)	REP = EEP			3%,4%	146, 148, 159, 160, 166 (4%)
Mascarenas (1993)	REP = EEP		5-6%		56
Mascarenas (1996)	REP = EEP = HEP		5-6%	5%	104
Mascarenas (2004)	REP = EEP = geo. HEP vs.T-Bonds	1928-2001	5.17%	3.5%, 5.5%	3.5% (40, 165); 5.5% (40, 167)
Mascarenas (2005)	REP = EEP = geo. HEP vs.T-Bonds	1928-2001	5.1%	5.1%, 5.5%	271, 273, 279, 316 (5.5%)
Moyer, McGuigan, and Kretlow (2001)	REP = EEP = arith. HEP vs.T-Bills	1926-98	9.4%	9.4%; 8%	202, 427[41]

[38] Estrada defines correctly the REP: *"the additional compensation required by investors for investing in risky assets as opposed to investing in risk-free assets."*

[39] He mentions that "*the HEP, the EEP and the REP are different concepts*" and that "*different investors have different REPs*."

[40] *"The Equity Risk Premium is the expected return of the stock market minus the expected return of a riskless bond." "It figures into the cost of equity capital." "From the valuation view point, it figures into the discount rate that is used in calculations of present value."*

Palepu and Healy (2007)	REP = EEP = HEP			4,9%	331, 333[42], 334
Parrino and Kidwell (2008)	REP = EEP = HEP	1926-06		6.51 – 8.4%	447, 623
Penman (2001) 1st ed.	*"No one knows what the REP is"*			6%	76, 691[43]
Penman (2003) 2nd ed.	"*we do not have a sound method to estimate the cost of capital*"			6%	445[44], 443
Pereiro (2002)	REP = EEP< HEP		4%	4%	120
Pettit (2007)	REP = EEP = HEP	1900-2003	5%	5%	9, 16
Pike and Neale (2008)	REP = EEP			5%	665
Pratt (2002)	REP = EEP = HEP			7.4%, 8%	68, 74
Pratt and Grabowski (2008)	REP = EEP		3.5-6%	5%	90, 113, 126, 235
Pratt and Niculita (2007)	REP = EEP = arith HEP vs.T-Bills	1926-06	7.17%	7.17%	186, 210, 223, 532
Pratt, Reilly and Schweihs (2000)	REP = EEP = arith HEP vs.T-Bills	1926-98	8%	8%	163, 178, 190
Reilly and Brown (2000)			5%	5%	795, 796
Rojo (2007)	REP = EEP = arith. HEP		5%	5 – 11.71%	5% (122); 5.2% (130); 8.88% (132); 11.71% (153)
Rosenbaum, Pearl & Perella (2009)	REP = EEP = HEP	1926-07	7.1%	7.1%	147, 148
Ryan (2006)	REP = EEP = HEP	1900-2001		3.5%	102, 175, 314, 319
Shapiro (1992)	Defines REP correctly			8%	482
Shapiro (2005)	EEP< HEP		4 - 6%		7,5% (151), 5% (160 and 187), 8% (169), 148[45]
Shim and Siegel (2007),	REP = EEP			4 – 6%	284, 433
Shim, Siegel and Dauber (2008)	REP = EEP			6%	23.70 and 49.05
Siegel and Shim (2000)	REP = EEP			4.9%	124
Sironi and Resti (2007)	REP = EEP. DDM		4-6%	5.5%	742-743
Smart and Megginson (2008)	REP = EEP = arith. HEP vs.T-Bills	1900-05	7.4%	6 - 7%	6% (201, 202, 236); 7% (245)
Stewart (1991)	REP = EEP = geo. HEP vs.T-Bonds	1925-89	6%	6%	438[46], 442
Stowe *et al.* (2002)	REP = EEP = geo HEP vs.T-Bonds	1926-00	5.7%	5.7%	49[47]
Sanjurjo and Reinoso (2003)	REP = EEP = HEP		5 – 8%	5%, 5.5%	69, 240, 311, 328, 387
Siegel (2002)	REP = EEP< HEP		2 – 3%		124[48].

[41] *"If the 9.4% market risk premium is used, then the risk-free rate must be the short-term Treasury bill rate. When the 8% market risk premium is used, then the risk-free rate must be the long-term government bond rate."*

[42] *"It is prudent to use a range of REP estimates in computing a firm's cost of capital."*

[43] *"the market risk premium is a big guess. Research papers and textbooks estimate it in the range of 4.5% to 9.2%.... Compound the error in beta and the error in the risk premium and you have a considerable problem… No one knows what the market risk premium is."*

[44] *"we really do not have a sound method to estimate the cost of capital… Estimates [of the equity premium] range, in texts and academic research, from 3.0% to 9.2%."*

[45] *"an expected equity risk premium of 4 to 6% appears reasonable. In contrast, the historical equity risk premium of 7% appears to be too high for current conditions."*

[46] *"Is there any fundamental reason why market risk premium should be 6%? Not that I can figure… Don't ask. Just memorize it, and then head out to recess."*

[47] They also mention the *"bond yield plus risk premium method."* Under this approach, the cost of equity is equal to the *"yield to maturity on the company´s long-term debt plus a typical risk premium of 3-4%, based on experience."*

Tham and Velez-Pareja (2004)	REP = EEP = HEP			6-7.5%	314, 319
Titman and Martin (2007)	*commonly used in practice*			5%	143[49]
Van Horne (1983), 6th edition	REP = EEP = HEP			6.0%	215[50]
Van Horne (1992), 8th edition	REP = EEP = HEP		3 - 7%	5.0%	438[51]
Vernimmen et al. (2005)	EEP is not HEP			4.5-5.63%	424, 431
Viebig, Varmaz, and Poddig (2008)	REP = EEP = geo HEP vs.T-Bills	1900-2005	5.5%	4 – 5.5%	7% (15); 4.82 (18); 5,5% (40); 4% (235)
Weaver and Weston (2008)	REP = EEP = geo HEP vs.T-Bonds	1926-05	4.89%	4.89%	
Welch (2009)[52]	REP = EEP			3% - 5%	251 (4%), 252 (5%), 753 (3%)
White (1994)	REP = EEP = geo. HEP vs.T-Bonds	1926-88	5.4%	5.4%	225
Young and O'Byrne (2000)	"widely used"		5%	5%	166, 168, 174

Comments to the previous versions of this paper

- The profession has been all too loose in using the phrase "the equity premium."
- It's very instructive. Choose the number you need as bankers do.
- Just because various authors provide a single number does not mean there is only one number. It depends on the horizon and whether a mean wealth (arithmetic mean) or median EEP is being estimated. Also because it is an expectation, there are various ways to estimate it, giving different answers.
- ERP is a forward looking concept, but can be measured historically (HEP), which is one approach to forecasting it. Most people assume fair pricing (efficient markets, EM) so that EEP =IEP. Some (usually not textbooks) do not assume EM, so that EEP is more of a private forecast. But assuming EM, EEP=REP=IEP, so much of the controversy is artificial. However, even if you clear up the definitions, the ERP can be applied to different horizons (hence equities vs either bonds or bills). It can also be correctly applied as either an arithmetic or geometric mean, depending on the context. Most of the authors are correct, but you are correct that their discussions should be better clarified. Mostly, academics assume EM or even stronger Perfect capital Markets (PCM). Given PCM, many of the distinctions you make disappear.

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[48] He concluded that "*the future equity premium is likely to be in the range of 2 to 3%, about one-half the level that has prevailed over the past 20 years*."

[49] *"The market risk premiums that are used in applications of the CAPM are simply guesses." "Historical data suggest that the equity risk premium for the market portfolio has averaged 6% to 8% a year over the past 75 years. However, there is good reason to believe that looking forward the equity risk premium will not be this high. Indeed, current equity risk premium forecasts can be as low as 3%. For the examples of this book we will use an equity risk premium of 5% which is commonly used in practice."*

[50] 6% =13% - 7%. He justified it: *"Suppose, for easy illustration, that the expected risk-free rate is an average of the risk-free rates that prevailed over the ten-year period and that the expected market return is average of market returns over that period."*

[51] *"Assume that a rate of return of about 13% on stocks in general is expected to prevail and that a risk-free rate of 8% is expected." "The 'before hand' or ex ante market risk premium has ranged from 3 to 7%."*

[52] Welch, I. (2009, pg 259): *"No one knows the true equity premium".* Welch, I. (2009, pg 260): *"Reasonable individuals can choose equity premium estimates as low as 1% or as high as 8%".*

- You showed that the overwhelming majority of textbooks used HEP estimates and the range of those estimates was huge even within close periods of time and under similar methods of statistical estimation. This means that there is no common convention about the basic components of the CAPM model.
- I do not understand why some authors try to find current expectations using simple average of century-long time-series. I suspect that expectations are not fixed. They may change year from year according to investment opportunities and risks involved, as well as risk-averse preferences, which should be different at least across generations. I think that when applying long time-series we should evaluate trends in market returns (using moving averages or rolling regressions). Otherwise short time-series (5 or 7 years) should be used. I know that in the last case the problem of annualization arises, which brings technical distortions (since annualized monthly returns and deviations are not the same as expected annual returns and deviations; and I even object against applying annualized weekly or even daily returns and standard dev.).
- I am not an advocate of stated preferences approach. But I disagree with the assertion that different investors have different EEPs. Different investors have different individual risk preferences. The market EP is just a revealed aggregation of individual risk-aversion preferences and individual assessments. I think that individual investors try to estimate the whole market expected return, which is unobservable, but real substance. So there are no separate EEP for each investor, but there are different estimations of the market EEP.
- There is divergence between stated and revealed preferences. If you ask me my REP, I cannot give you simple answer.
- The HEP is only the basis to determine current EEP (REP) and to forecast EEP (REP). However, the classic view on market premium allows equate REP and EEP (as an aggregated market opinion). At large in a perfect economy every investor is assumed to have full information and even estimates of EEP should coincide. In reality estimates may diverge, but the EEP is not a subjective matter, but rather the revealed market behavior (though the EEP is implicit and hidden among market parameters). The problem is that the expectation is about the future and no one knows the future (future expected cash flows of the market as a collective opinion). Everyone can know only his own expectations, but he can estimate collective expectations, reviewing collective behavior. We just still do not possess methods to make correct estimations.
- It's a good attempt to address real world realities and not ideal world with numerous unrealistic assumptions. You should further develop these conclusions.
- Different customers extract different utilities from goods they consume. However there is single market price that balances the supply and demand. According to portfolio theory the equities are goods traded on the market and they differ only in risks and must have the same price. So the market risk is the reference for the fully (or almost fully) diversified risk of the (national or global) economy portfolio. So should the required rates of return according to CAPM be consistent and unique for all investors? I think, shouldn't. Of course individual investors have their own risk preferences. We know that in commodity markets some individuals reject to buy a commodity if they value it less than the money they should give for it at the current price. The capital markets also have the parameter of trading volumes. The more or less investors decide to invest or not to invest more or less money depending on the current interest rates and equity prices in compliance with their individual expectations about returns and risks of listed instruments. But the market prices for capital assets are just like prices for commodities. You still have to agree with market price if you buy the asset for trading, but you are not obliged to buy the asset for your own "consumption" (investing), if its' utility is below the consideration given. So I also think that the market EP doesn't suite for all investors.
- Modigliani and Miller stated the possible "confusion between investors' subjective risk preferences and their objective market opportunities". That would be an extremely difficult task for management to ascertain the risk preferences of its stockholders and to compromise among their taste. MM concluded that market value maximization is the eventual target. "[A]ny investment project and its concomitant financing plan must pass only the following test: Will the project, as financed, raise the market value of the firm's shares? If so, it is worth undertaking; if not, its return is less than the marginal cost of capital to the firm. Note that such a test is entirely independent of the tastes of the current owners, since market prices will reflect not only their preferences but those of all potential owners as well. If any current stockholder disagrees with management and the market over the valuation of the project, he is free to sell out and reinvest elsewhere, but will still benefit from the capital appreciation resulting from management's decision".

- You wrote: “a reasonable REP may be constant for all maturities, while reasonable EEPs may be different for different maturities”. Why is it so? I think this statement needs clarification. First, the use of “may” allows the following logical reading: “A reasonable REP may be different for different maturities, while reasonable EEPs may be constant for all maturities”. Second, REP is also based on individuals’ expectations about future returns, risks and involves individual preferences, each of which may change over time, even over short periods of time if macroeconomic conditions change. I think that the expectations and risk preferences were quite different before 2008 US economy crises and after it or in Russia between 1998 RF default and after it. As I understand the risk-averse preferences are the function of marginal utility of money unit, and if so, they should change every time the money utility (purchasing ability) moves. Then (as for maturities), since the future uncertainty and risk may be different for each of the future periods, the REPs (required risk premiums) may be reasonably different for different maturities. For example, if we take 5 year and 10 year maturities (planning horizons) and there is more uncertainty for the last half of the 10 year maturity, then the REP should be greater for the second case. However this problem is not theoretically grounded, since CAPM is a single period model.
- I just would like to know about the adequacy in using market risk premium multiplied by a beta for both the cases when the investor treat an investment (project or instrument) 1) as a means of his portfolio diversification and fulfill the assumptions of the CAPM (finds optimal proportions of the risk free asset, and longs and shorts in risky assets and the market portfolio) and 2) without care about the diversification. And what to do if one can’t know the correlation between his investment and the market return?
- I enjoyed your paper very much. It's both amusing and instructive - the best kind of research!
- A related issue, is that of the "riskless" rate ... which long bond to use, how to adjust for liquidity or the lack of an actual bond of that tenor (the 10-year seems too short, and our 30-year fell out of use), and whether there are times when we need to "normalise" the yield to get to a more sustainable "riskless" rate. I've tended to regard our long end as having enjoyed a bit of a "bubble" in pricing and look toward the futures market for an asymptote. All very non-scientific I'm afraid, but I believe in USD, 5% appears about right.
- I think it is quite important that you are trying to clarify the different meanings between the four concepts: EEP,HEP,REP,IEP.
- It is well-known the basic meaning for the equity risk premium is the excess return that an individual stock or the overall stock market provides over a risk-free rate
- Your paper is trying to compare the 4 concepts between the 100 books you read. It is quite a job. But if you can use the data to group them and recommend the good books to the students, it might be more effective.
- What is a risk premium? Is the distribution objective and stationary? Do risk premiums vary over time? Are they ever negative? Many questions here.
- Probably to improve your paper, you need only make it more hard-hitting. Raise the questions clearly and forcefully. Make a point. Perhaps that the conventional wisdom is not wisdom, but confusion. Ask why this is so.
- It is really amazing to get such EP differences among finance and valuation textbooks.
- I totally agree with you. The relevant definition of the concept regarding the 4 measures of EP often used is clearly the key point to explain such differences between authors about EP over time. Also the EP range appears very large into each proposition.
- HEP, IEP (I call this supply-side), Mehra & Prescott, etc. (I call this demand-side), and Consensus (surveys) are all ways to estimate the EEP. There is only one EEP built into market prices, but since it is unobservable it is difficult to estimate. Each of us might make a different estimate of the EEP, but EEP is a market equilibrium concept, so that there is an underlying EEP even if we have so much trouble estimating it. In other words, if we could find a risky asset (preferably the market) in which we all agree on the expections and riskiness of the CFs, the price of the asset would reveal the EEP (through the IEP method). The fact that we disagree on the CFs does not mean that there is more than one price of risk in the market. We usually assume the “law of one price”, which you (and some of the others) violate. Your violation of our basic equilibrium premises takes away any common ground in the discussion.

- In applying EEP in valuation, the discount rate (including your REP), one may have to take into account corporate and investor taxes, etc. (e.g. Miller "Debt & Taxes") into consideration, but in a perfect market for matched horizons, the EEP and the REP are the same concept.
- Your numbers are often difficult to compare, since they are not always on the same basis. The EP can be measured as either arithmetic or geometric, but sometimes you mix them. You can easily convert one to the other even if the authors do not. Furthermore, the EP can be measured relative to short, intermediate or long term risk free rates. These are often mixed in your paper. Comparing apples to apples substantially reduces the discrepancies among authors.
- I view the IEP as just another estimation method for the EEP. HEP, IEP, consensus, etc all rely on opinions to estimate EEP. And pre-taxes, transactions costs, etc, for matching horizons, I think that REP = EEP, which are market equilibrium concepts and not subject to the optimism or pessimism of particular individuals, although again there are many estimation methods and opinions on inputs.
- I agree with you that different versions of the EP exist. I also agree that firms use different discount rates. These may be calculated from the appropriate multi-factor model such as the Fama-French 3-factor model. But your basic concern remains valid: how do we estimate the expected premia from the realized premia on the different factors?
- Your paper points to the lack of clarity that several researchers may exhibit, when they analyze the premium, without explicitely stating which one. However, I believe that this tendency has not been as prevalent since the early 2000, i.e. researchers have made clearer which premium they are talking about. In terms of style, your article reads a bit like a compendium, and probably needs more drafts to get to publishing standards.
- From an economic standpoint, I think you need to establish the primacy of the EEP, since it is what guides investors' decisions. The problem is how to measure it, and in that respect people have used (legitimately or not) the HEP, REP and IEP to do that.
- I think you need to make a better case against the representative agent/investor model or suggest alternatives. You mention the IEP vs g relationship and EEP as well. I'm not sure whether or not you are implying that the HEP is just the result of an exercise in heterogenous investment behavior. In that case, if investors expectations were not anchored on a common principle, the HEP should be somewhat erratic. However, in our paper we do confirm the direct link between HEP and macroeconomic growth and/or a single homogenous risk factor (options pricing). This means, that at the core investors expectations although they vary, must contain a consistent view of markets. In other words, investors cannot be fooled over and over again in thinking that they establish prices based on wild and disparate expectations, to see the returns of stocks and bonds revert back to a difference that is consistent with GDP growth and portfolio insurance time and time again.
- A very exhaustive survey, which is quite valuable for me.
- I think that your distinctions between historical, expected, required, etc. are very useful.
- Logically, EEP is based on expected rate of return on equity. For the same reason, REP is based on Required Rate of return On Equity (RROE). In finance, no model provides RROE at the outset. The literature uses expected rate of return on equity as a proxy for required rate of return on equity in perfect capital markets. No valuation can be done if expected rate of return on equity cannot be used as a proxy for RROE because no capitalization rate is available. In addition, there is no way to find WACC if cost of equity is not available. Thus, there is no way to minimize WACC. Logically, equity value and RROE are co-defined. It is impossible to find equity value if RROE is not available. For the same reason, there is no way to find firm value if WACC is not available. Fernandez (2004) capitalizes expected equity cash flows at either RROE or WACC. Without the capitalization rate (either RROE or WACC), there is no way to find the value of tax shields.
- I really enjoyed reading your paper. EP is a relevant issue in the calculation of WACC, and your research perspective highlighted the spread observed in the literature.
- Some of these textbook writers know what they are doing, like Ross: the most reliable of those listed here, but many do not even watch or trade markets so view them as if it was mars (not the US) markets or other ones. So you will get widely differing results
- The equity risk premium is not constant and variables like the bond-stock measure partially predict it.

- There is no unique definition of EEP. It all depends on how you model expectations. If you have a homogenous agent model, you get one EEP. If you have a different model with heterogeneous agents, you get a different EEP. The same point applies to REP and IEP. The market price depends on how you model the portfolio and how investor's expectations are formed. The only unique definition is HEP which in the literature sometimes called expost EP.
- To me there are two equity premia: (i) ex-post (historical); (ii) ex-ante (model based) which covers all other three that you mention.
- The exact concept of EP is very important to assess the EP puzzle. I think that it is important to stress the fact that a huge literature is concerned with the EP puzzle and failed to explain it. One reason could be that the concept itself is not clear yet. You should specify that your paper is meant to be descriptive.
- The four concepts in the introduction: I think that it would be more interesting to give the difference in the measures of these concepts. For example, HEP is measured with the arithmetic or geometric average while EEP is measured with expectations or probabilities? However, since it is hard to draw these expectations, many papers use HEP to measure EEP. The definition of the IEP is not clear.
- When you report the difference between values you should specify the period of estimation. I expect that the measures should be higher when they include more periods of recession. Economic events (for example the low level of interest rates in 2003) should also have an impact on these measures. I simulate 64 annual returns and find almost the same mean using arith and geo formula.
- Further the problems extend to the evaluation of betas. We may also discern historic betas and expected betas.
- Indeed, the ineffable character of the equity premium join with its central role in capm/apt based finance, has always been a puzzle for me. As a statistician, the only thing I could say is that, at least on the basis of historical data, the variance of returns is so big that, in order to have an estimate with enough precision for purported applications we should use such a long stretch of data to make the constancy over time of the EP a strong act of faith. This is obviously not new.
- Your paper is interesting and also funny and I suggest it as a reading to my students in statistics for finance.
- This is a very useful paper for both teaching and research.
- Perhaps there is a couple of points I could make 1. The equity premium puzzle has been mostly built through papers, not books. So you should a. devote a few lines reviewing the theory and b. explain why the textbooks' view matters. One could say that textbooks matter (more than papers) because a. they shape the minds and reasoning of young economists b. because they are most influential among corporate practitioners (they may read Brealy and Myers, but not QJE...) 2. You should say why the equity premium question matters (e.g. fund management).
- What you find is a perfect illustration of what I teach my students all the time, namely that "the only thing we know for sure in finance is that our best estimate of the future is wrong." Your findings add to my statement the following wisdom: "there is no consensus best estimate."
- Your paper suggests that our field is like philosophy or theology, in that the difficulty in specifying what is the equity premium, like specifying in a particular case what is beautiful or what is true or what it is ethical, emphasizes the importance of the concept.
- The academic community has a wide view of this estimate for equity premium; I would also suggest that the finance community also shares this lack of precision. I would love to see a similar set of survey results for the Wall Street equity community!
- I try to convey to the students the vast difference of opinion on the topic, vs. any one number or range of numbers. Especially in an undergraduate class, I find that students want certainty, when in fact, there are quite a number of opinions and as you point out, interpretations. I think it is more important for students to understand the concept and the lack of agreement (and precision!) - so as they enter the finance community they can understand how and why their colleagues may have differing opinions.
- The theoretical "M" is not directly observable, so people use proxies. To make matters worse, the historical Beta is not the correct Beta for optimal investment decisions. One should use the expected future Beta, which is not published anywhere.

- A note of caution about the Bodie-Merton equation. The risk premium on the "market" portfolio implied here is based on a portfolio of all risky investible assets (stocks, bonds, real estate, etc) in proportion to their existing market weights. This is not the same as the risk premium you mention in your paper, which refers to large-cap US equities only.
- Despite years and years of research, we still do not really know what the "correct" equity premium should be. I agree that most textbooks do not do a good job of distinguishing between REP, HEP, EEP, and IEP. Many intermediate books would be well advised to more accurately define these four concepts and provide examples of possible estimation methods for computing EEP, REP and IEP.
- I´m quite interested in the equity premium. I am convinced that it is non-stationary and changes.
- The equity premium became one of the most important valuation tools through the advent of the CAPM. I am rather critical of the CAPM as I don't think that it is useful for valuing companies. Return expectations for individual companies (stock, debt, or the enterprise as a whole) can be determined directly through a numerical search from cash-flow forecasts if, for instance, the current stock price is known. So there is no need for using the equity premium for valuing publicly listed companies.
- You make the point that each investor has a different. This is clearly true, just as people have different reservation prices for any product. It is also true that different people may make different cash flow forecasts for a given stock/portfolio and have different required equity premium, so it is hard to fix one dimension alone. But this may be making the problem too complicated.
- You correctly point out that the REP and the EEP will be different for different agents.
- My main critique. In your analysis, it seems to me that the concept of equilibrium is notably missing. The fact that expectations and required equity premia are heterogeneous, is of course important for theoreticians who want to model explicitly how equilibrium comes about. Then issues of aggregation bite, as you properly point out on page 10 and in footnote 11.
- I think that our financial crisis has a message that should be taken very seriously. This message seems to be that our financial system may be very elaborate but it does not work and should be sent back to the drawing board. The history of our economy is made of a roller coaster of enthusiasm and despair. It is the history of bubbles growing until they burst. This is unacceptable.
- There is something fundamentally wrong in the system. In my opinion it is the fact that our economy is based of a currency that is immortal. If the average life expectancy of the goods and services created by our economy is 20 years, our money supply should be completely renewed every 20 years. (Germany was rebuilt in 20 years). Everything in nature grows and dies. It is not reasonable in this environment to use paper money that never dies.
- I have often wondered why a critical input in most valuations is only given a paragraph or two in most texts without a "reasonable discussion." The situation appears more frightening than that: not only is space not given to the topic but it also appears that the information conveyed is "all over the map."
- Equity premium should be the excess expected return over risk free rate that symbolises the higher return attributed to the higher risk involved in equity investment. You can always measure the expost excess return.
- It's good to have someone holding the mirror up to some of our sloppy practices!
- The Dow Jones in Sep 14, 2009 is almost at the same level as it was in Sep 10, 2001. It means that the average return on the market for this time period is zero percent per year. Therefore, where is the equity risk premium? I don't see any, actually it is negative.
- The research termed "Required Yield Theory" shows that there is essentially no equity premium - and indeed, cannot be - for stock returns cannot outpace GDP growth - which is the same as interest reinvested return from long term Treasuries. The observed equity return premium e.g. Ibbotson, Siegel, etc. is due to one-time factors and the presence of Gibson's Paradox as impacting bond yields under a gold standard.

- You are right. In general - when we teach finance - we just pick ONE text book and do not discuss how other text books discuss this topic; Second - we make up our own notes for discussion and what we say is what students are expected to know even if it disagrees with the book chosen for the class; We tell them -"we are right and the book is wrong." Our students only want to know what is relevant for the test - and that is it.
- In page 83 of the book *Accounting and Business Valuation Methods* (Elsevier 2008) the estimate of the equity risk premium is 9.3% (close to your 8.4%), but net of risk (losses due to poor investments) the actual return is likely to fall to 4.7% above base. Consequently, with base rates at 0.5%, a net return on equities of just over 5% could be anticipated.
- Finance is a sloppy profession. I remember a famous professor who taught empirical equity pricing when i was a student (sorry cannot mention name) could not even distinguish market model from the CAPM. I am absolutely with you on the issue but no clue how to fix the problem.
- It is interesting to note that the moving average has declined whereas it should have gone up given the increasing volatility and the complexity of the financial environment. It seems that this mispricing of risk has led to the financial crisis around the globe, especially in the U.S.
- I fully agree upon the need for clarification. On top of this confusion we have the notion of a conditional expected risk premium which might be temporarily low, say 2%, for the next few years (say in a cyclical upturn when valuations are very high) even though the unconditional expected risk premium is still 5.7%. That is, in a world with time-varying risk premia things get even more confusing. Of course business applications of time-varying risk premia are still very rare and we keep applying constant discount rates in multi-period valuation problems, for example.
- I would have NEVER guessed that opinions differed so widely on the size of the equity premium or that we as a faculty were so sloppy in terms of not properly distinguishing between the different types of equity premia.
- I agree wholeheartedly with your final statement. Many students struggle with the concept. I believe clarity is king in both the teaching and practice of finance, and that the four definitions should be standardized in the literature.
- I have seen plenty of 'sloppy' and uninformed work presented by well meaning and smart people over the years. Actually you have stumbled on to 2 problems: [1] what is the market portfolio, and [2] how do we measure its expected return? My suggestion would be to understand the issues at hand with picking a number (you do) and be conservative. Best case scenario analysis is best left to government who can afford to print money when they make a mistake -we can not.
- The Ibbotson-like heavy emphasis on equity premiums by using the average US amounts since 1927 is not right.
- I entirely agree with your conclusion regarding the confusion from not explicitely distinguishing among the four concepts of equity premium. We need to take care about that to implement a valuable and relevant comparison about equity premium over different periods of time.
- It is indeed more practical than any journal. Our valuation models miss a simple variable which I call 'H' for a combined 'horizon or human' factor (that affects the premium). You hit this on the head when you identify the historical versus expected. I don't know if can be tested, but my theory is that H is our time horizon for investments and our 'human nature' view of risk. Investment reality is that the longer a bull market continues, investors' appetite for risk grows and hence 'H' declines (think of H falling below 1 and the premium is reduced). One might argue that as more funds are invested in large quasi- indexed based investments H also declines (funds may be described as long term but by managing to quarterly benchmarks they also have short horizons). In my theory, the premium is unlikely to be moving as much as you describe but H is the volatile factor. One might say that the equity rally of 2009 was caused by a massive increase in H as panic struck in 2007-2008 (values dropped) and horizons became very short and now in 2009 H is decreasing as investors flee 0% savings and increase their horizons and risk appetites. Behavioural finance perhaps, but corporate finance without a doubt.
- A criterion of science is precise measurement. I appreciate your efforts along with those of Ivo to make our teaching become scientific.

- I believe you are not addressing some basic statistical issues, which make your surveys almost impossible to interpret. And it not related to your 4 concepts of ERP (and I think your required is really no different from expected under many conditions). In general, your survey does not clarify whether you are referring to geometric means or arithmetic means, which differ by about 2%. Your surveys also do not clarify whether we should compare equities to short horizon or long horizon bonds, which also differ by about 2%. All combinations are potentially correct, but historical numbers give a range of ERP of about 4% , or ERPs in the range of 4% to 8%. Smart historians using the same data set could differ by 4%, so it is no wonder your survey respondents give such differing answers to unclear questions.
- More generally also, I find that many published materials fail to distinguish clearly between expected return to an investment and, from the perspective of a given individual investor, the equilibrium expected return (i.e., required return) to that investment. For example, in an attempt to identify equity securities that he believes to be currently mispriced, an investor may use an asset pricing model, like the CAPM relationship, to derive an estimate of required return (for a given asset over the coming period) that he can compare to the return he expects (based on the probability distribution of returns to the asset for the coming period).
- I'm not surprised that different authors use different terms in describing the equity risk premium. I agree with your conclusion that finance book should provide greater clarity in discussion what the mean by the equity risk premium.
- This is an important work on an important topic. Please continue sharing your findings with the profession
- I am not sure if 150 books are enough for any reasonable analysis. Maybe you should send the email around again once you have analyzed at least 200 of them.
- We misguide students when we try to either present or pretend that ERP can be measured with great precision. Most books ignore reconciliation between idea of ERP (which is very critical in decision making) and estimation of ERP (which can only be approximated always with imprecision based on assumption.
- I agree with your conclusion that textbook authors and journal authors should clearly define what they mean the "equity premium," but as you have probably already realized the correct meaning is usually apparent from the context in which it is being used.
- The problem of equity premium has always bothered me. Having worked in the Indian financial industry, I have found that theory is seldom practiced there. More so when the theory does not give clear direction as is the case with equity premium. I heartily complement you for your tedious endeavor which goes a long way in finding solutions for many of the puzzles in Finance.
- There is a need to distinguish between the four different measures of the equity premium as they have differing implications and applications. In more recent times the numerical differences can be quite large, furthermore.
- While teaching the investments and finance courses, or doing research, I have had similar problems of ambiguous definition of the equity risk premium. Your article, in this respect, will greatly help the book authors make much clear in their definition and measurement of the equity risk premium.
- In my text, I don't actually make a big thing about the difference between the four equity premium terms you mention, although the concepts are there.
- I think distinguishing those four forms of the equity premium (as of risk, for that matter) is very illuminating.
- I found very useful the explicit comparison of these 4 concepts, which are very often treated in an oversimplistic, and, as a consequence, often inrealistic manner (e.g. required versus expected). I also found particularly helpful the analysis on the historical evolution of the risk premium, and any differences/inconsistencies in the way this issue has been approached by academics. This latter matter has given rise to a fair number of justified student questions.