

THE COUNTRY RISK PREMIUM A FOREIGN AFFAIR

BY DAVID ROGERS, ANDREW WYNN AND LUN YAOGUO

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INTRODUCTION

The country risk premium (“CRP”) is an upward adjustment to the discount rate that some valuers apply when valuing businesses that operate in emerging economies and other economies perceived as less developed or stable than, for instance, the US.¹ All else being equal, applying a CRP will increase the discount rate and therefore generally reduce the assessed value of a business.

In the context of damages calculations, the application of a CRP can have a significant impact on quantum, as highlighted by recent awards.² It is also controversial: some of the justifications given for its application are disputed and many of those who nevertheless advocate an adjustment recognise that the analyses commonly used to estimate a CRP have important limitations.

Despite the debate surrounding it, the limitations of the CRP and the methods used to quantify it are sometimes overlooked in high value litigations and arbitrations.³ A consequence can be that too much weight is placed on a discounted cash flow (“DCF”) analysis that relies on a CRP in preference to other valuation analysis and evidence. In our view, it is important that judges, tribunals and the wider litigation and arbitration communities are aware of the debate surrounding the CRP so that they in turn can make informed decisions about the quantum claims they advance, or the judgments or awards they render. This article summarises some of the debate surrounding the CRP.

DCF VALUATIONS

The CRP is an adjustment to the discount rate applied within DCF calculations. To place the debate around the CRP in context, it is helpful to first consider the component parts of a DCF analysis (being the discount rate and the forecast cash flows) and what in principle they constitute:

1. An expected cash flow forecast should, in principle, be an average of the future cash flows expected under all possible scenarios, weighted by the probability of those scenarios arising. Such a forecast should reflect: (a) outcomes that are specific to the business (for example, the likely success or failure of a new product launch); and (b) outcomes that affect the wider market (for example, expected macroeconomic growth);⁴
2. When an investor makes an investment in shares, they typically provide cash or some other valuable resource in return for cash flows that are expected, but not guaranteed, to be received in the future (such as dividends). The discount rate should, in principle, be the rate of return that an investor requires to ‘compensate’ / incentivise them to invest (and thereby lose the use of) *actual current* resources in return for *potential* cash flows in the *future*. Two factors affect this rate of return: the time value of money⁵ and ‘relevant risk’.

An understanding of the concept of relevant risk is important when considering the debate around CRP and its application. In particular, it is helpful to understand what is meant by ‘risk’ and what is meant by ‘relevant’.

1. The term ‘risk’ can have different meanings in different contexts. However, in finance theory risk means the variability of returns about the expected return⁶ (the ‘central tendency’ in the distribution of possible returns). It is a statistical concept, typically expressed as the standard deviation.⁷ An implication of this definition is that risk includes variability relating to both ‘out performance’ as well as ‘under performance’ relative to the central measure. This can be contrasted with the use of risk in everyday language, which only tends to be associated with adverse outcomes.
2. Finance theory distinguishes between diversifiable risks and non-diversifiable risks, and posits that only the latter are relevant to investors’ required returns:
 - a. **Diversifiable risk** is risk that is specific to a particular investment (for instance, the success or failure of a new product launch, to use an earlier example). In principle, an investor who holds a well-diversified portfolio of investments will not be sensitive to diversifiable risk associated with a given investment. By holding a well-diversified portfolio where each asset is only a small part of their portfolio, investors benefit from the financial effects of positive and negative asset-specific events.⁸ Accordingly, a well-diversified investor should not require any return for exposure to diversifiable / specific risk.
 - b. **Non-diversifiable risk** is risk that applies (to varying degrees) to investments across a portfolio, not just the subject investment. An example of such risk might be the sensitivity to future macroeconomic growth. Finance theory posits that the return that an investor requires for a given investment depends on the impact of that investment on the sensitivity of the overall portfolio to these undiversifiable risks. In statistical terms, the required return depends on the extent to which the variability in returns of the subject investment is correlated with the variability in returns of the overall portfolio. As we shall explain later, the concept of correlation is important to the debate about the CRP. Another important concept is that of ‘beta’, a parameter within the capital asset pricing model (“CAPM”). The contribution of a given investment to the risk of a well-diversified portfolio is often calculated using the CAPM.⁹ In this model, the non-diversifiable (or market) risk of the subject investment is measured by beta: the higher the beta, the higher the rate of return that an investor will require.

In our view, when considering the application of a CRP, it is important to be mindful of how such a premium corresponds with the DCF framework. In principle, a CRP could be applied for either (or both) of the following reasons:

1. to reflect any additional returns that investors require for investing in a business operating in the relevant country, over and above the returns they require for investing in an otherwise identical business operating in the US (or some other benchmark developed economy). We refer to this as the “Additional Required Returns” justification for applying a CRP; and
2. to reflect certain potential future adverse outcomes that may not be included in the available cash flow forecast, such as the possibility of disruption if a civil war was to occur. This might, for instance, be because the forecast is prepared on a ‘business as usual’ basis (such that the adverse outcome is assumed not to materialise) or because the uncertainty regarding the likelihood and effect of the relevant outcome makes it hard to incorporate into the forecast. Such a forecast would not constitute the probability-weighted average forecast that is, in principle, required to perform a DCF analysis. Nevertheless, a valuer may choose to rely on the available forecast and increase the discount rate (by applying a CRP) in an attempt to remedy the omission of the future adverse outcome(s) from that forecast. We refer to this as the “Missing Adverse Outcomes” justification for applying a CRP.

Some commentators have also advocated a CRP on the grounds that the asset pricing model (be that the CAPM or some other model) chosen to estimate investors’ required returns is unsuited to application outside of a developed market context. This rationale concerns the efficacy of the economic model: it is distinct from the Additional Required Returns justification, which is concerned with the premise that investors require higher returns to invest in emerging markets (not how reliably those returns can be estimated). It is also distinct from the Missing Adverse Outcomes justification, which is concerned with expected outcomes rather than required returns. The issue of whether CAPM or any other asset pricing model is suitable for estimating investors’ required returns for investing in a business operating in an emerging market is outside the scope of this article.

An interesting facet of the CRP literature is that (as we show in Appendix 1) commentators who advocate a CRP can sometimes differ as to which of the above justifications necessitate a CRP. This highlights the lack of consensus about why a CRP is required, even amongst those who advocate this adjustment.

Below, we consider the Additional Required Returns and Missing Adverse Outcomes justifications in more detail.

ADDITIONAL REQUIRED RETURNS

The premise of this justification is that:

1. the returns from businesses operating in emerging economies are subject to more risk than those of businesses that operate in developed economies; and, as a consequence;
2. even after allowing for any differences in beta, investors require additional returns to invest in the former relative to the latter.

On first consideration, this rationale might sound reasonable. However, it is at odds with the conclusion from finance theory that diversified investors should not require returns for exposure to diversifiable / specific risk. Provided that an investor’s portfolio is geographically well diversified, any risk that applies to one investment because of where the underlying business operates (for instance, in a less developed economy) will not apply across all the other investments in the portfolio. Any risk that stems from where the subject investment operates is therefore a specific risk, and accordingly a well-diversified investor should not require any returns for exposure to this risk. To quote one commentator, “*country risk can and should be ignored... if all investors are globally diversified*”.¹⁰

Some analysts recognise that country risk could in principle be diversifiable, but nevertheless consider that certain characteristics of the capital markets mean that in practice investors require additional returns to invest in businesses operating in less developed markets. The most detailed exposition of this view is provided by Professor Damodaran,¹¹ who publishes a common source of CRP data. Professor Damodaran provides the following explanations for why he considers that investors require additional returns such that it is necessary to add a CRP to the discount rate:

1. the additional volatility (or risk) around the expected returns from a business operating in an emerging country are not fully mitigated through investor diversification. This is because, in Professor Damodaran’s view:
 - a. investors do not hold a globally diversified portfolio and instead exhibit ‘home bias’;¹² and
 - b. there is significant positive correlation in the returns generated by the equity markets from different countries;
2. the valuation multiples of companies listed on emerging market stock exchanges are lower than those from companies listed on developed market stock exchanges; and

3. estimates of betas for emerging market companies are too low.

We provide a detailed discussion of these points in Appendix 2. In summary, we consider that:

- 1a. it is the characteristics of the marginal investor, not the aggregate characteristics of all investors, that are relevant. It seems likely that at least some investors will be substantially globally diversified. If so, then the fact that investors in aggregate appear to exhibit (a steadily diminishing degree of) home bias may not, of itself, demonstrate that investors require additional returns for investing in foreign companies – for example, because globally diversified investors are collectively able to exploit available arbitrage opportunities and remove any home bias discount;
- 1b. the view that low correlation is required in order for diversification to eliminate country risk is disputed by many academics. In principle, there would need to be perfect correlation in order that diversification could not eliminate country risk. Even though there is evidence that the correlation between the returns generated by companies from emerging markets and those from developed markets has increased (and is elevated during episodes of market stress), those returns are not perfectly correlated;
2. the hypothesis that, all else being equal, companies from emerging markets are subject to lower valuation multiples than those from developed markets does not appear to be proven by the available data. Furthermore, even if it were then this would not of itself demonstrate that investors require additional returns because those companies are from emerging market economies. The difference could be due to other factors, such as the lower liquidity and minority shareholder protection that generally apply to companies listed on emerging economy stock markets; and
3. the hypothesis that betas for emerging market companies appear to be too low seems like a circular argument. Observing low betas does not indicate that investors require additional returns. Instead, this argument appears to assume that such additional returns are required but are not reflected in observed betas (in other words, the low observed betas indicate some sort of deficiency in the application of the CAPM to emerging market companies). However, we do not agree with the proposition that the betas of shares of developing economy companies should necessarily be higher than the betas of developed economy companies.

Overall, it appears that the hypothesis that, all else being equal, investors require additional returns to invest in companies operating outside of the US or other benchmark economies is not proven by the available evidence.

MISSING ADVERSE OUTCOMES

As explained earlier in this article, a different justification for applying a CRP is to correct for Missing Adverse Outcomes from forecast cash flows. For instance, in 'The Real Cost of Capital', Ms. Spicer and Messrs Ogier & Rugman state:¹³

“By country (sovereign) risk we mean downside risks to cash flows associated with those risk factors which have potential to affect all investments in a particular country simultaneously. These include political, economic, financial and institutional risks associated with a country. ... As we saw in Chapter 1, standard financial textbooks assume that all cash flow risks, including country risk, are dealt with by adjustment to forecast cash flows, thus deriving true expected cash flows to which a CAPM-based cost of capital can be appropriately applied. In practice, it is rarely the case that cash flows are adjusted for country risk, for the simple reason that it is difficult for a manager of a particular business or investment to make an objective assessment of the probability or impact of such risks. For this reason, in the real world many practitioners adopt the pragmatic approach of adding a country risk premium (CRP) to a CAPM-based cost of capital in lieu of cash flow adjustment.”

It can be shown that, provided the appropriate adjustment is made, it is possible to calculate the 'correct' value for a business by either:¹⁴

1. correcting the available cash flow forecast to reflect any missing adverse outcomes, and then applying an (unadjusted) discount rate to that corrected forecast; or
2. adjusting the discount rate (by adding a CRP) and then applying this to the available cash flow forecast (which has not been adjusted to correct for any Missing Adverse Outcomes).

Point (2) above is the approach proposed under the Missing Adverse Outcomes justification for applying a CRP. This approach can potentially achieve the same result as the theoretically appropriate approach (point (1) above). However, this does not mean that the application of a CRP in such circumstances (that is, when the forecast is incomplete) will necessarily provide an appropriate remedy for the forecast deficiency. That will depend on the extent and scope of the adjustments required to the forecast, what particular CRP estimate is being proposed and what weight is placed on the resulting DCF analysis relative to other valuation analyses and evidence.

When the Missing Adverse Outcomes justification applies, the CRP is often used as a heuristic (that is, a conventional 'rule of thumb' adjustment).¹⁵ In our view it is important

that experts applying a CRP for this reason explain their rationale. This is helpful because otherwise the rationale for the proposed CRP may not be clear to the parties or the judge / tribunal (or, indeed, the other expert), and so there is a risk that they cannot properly consider the suitability of the proposed CRP and/or the overall weight placed on the DCF analysis.

The importance of identifying that a CRP is being applied to remedy a forecast defect is heightened by the fact that many of the common approaches used to estimate a CRP may have little, if any, relation to that deficiency - such that there is no obvious reason why a CRP estimated using these approaches would be appropriate.

To illustrate, suppose that the issue with the forecast is that it is prepared on a business as usual basis and so does not capture the risk that a government will expropriate the business without paying adequate compensation (a risk that has applied in several South American countries in recent years). Arguably the most common approach¹⁶ used to estimate a CRP is the 'sovereign yield spread',¹⁷ which was the approach applied by the Tribunal in *Saint-Gobain Performance Plastics Europe v Venezuela* (to determine a CRP of 10.26% applicable at the 10 May 2010 valuation date).¹⁸

However, the sovereign yield spread "*depends, among other factors, on the probability of sovereign default and, conditional on default, the expected recovery value of a country's sovereign bond*".¹⁹ That is, it depends on factors that are not (at least, directly) related to the likelihood and consequences of a particular company being expropriated. Consistent with that, a recent paper found that, on average, less than a third of the sovereign yield spread reflects political risk.^{18,20} Therefore, even if the portion of the spread attributable to political risks was deemed to be an appropriate guide to the value impact of the risk of expropriation, this paper implies that the use of a 'full' spread would substantially overstate the discount rate²¹ (and hence understate the assessed value of the expropriated asset).

Notwithstanding the above (and for the avoidance of doubt), we recognise that in some cases:

1. the forecasts available to the valuer may not reflect important adverse outcomes;
2. there may be uncertainty as to the appropriate adjustment required to reflect those missing outcomes;²² and

3. given these circumstances, it may be reasonable to make an adjustment to the discount rate (and indeed it may be reasonable to apply a CRP based on the sovereign yield spread).

More generally, where the expert is considering applying a CRP to address Missing Adverse Outcomes in the available forecast, they should consider the utility of DCF analysis in these circumstances – including how much weight should be afforded to this approach, compared with other valuation analyses or evidence.

In an article published in the *Journal of Applied Corporate Finance*, Messrs Keck, Levengood and Longfield cautioned about the utility of DCF analysis that incorporates a CRP:²³

"Consistent application of DCF analysis is a difficult and time-consuming process. We all take some shortcuts either to meet business deadlines or compensate for lack of information. But shortcuts involve trade-offs; and if we aren't clear about the trade-offs we are implicitly making, we may be allocating managerial time and assigning decision making weight to DCF analyses that are out of all proportion to their likely accuracy."

"Do ad-hoc adjustments based on "gut instinct" undermine the benefits of performing a DCF analysis and create inherent contradictions in the valuation process? The reliance on heuristics we observed implies that as perceived risk increases, people tend to become less consistent, less systematic, and less rigorous in the methods they use to measure and evaluate that risk: an ill-advised recipe."

Many of our respondents would no doubt protest that it is ultimately too difficult to adjust for political, sovereign, or other "diversifiable" risk in the cash flows. This may be the case. But, if so, then why isn't information a problem, why are people relatively comfortable with their methods, and why are they placing such relatively heavy reliance on DCF in the first place?"

In summary, it can be appropriate to apply a CRP to remedy Missing Adverse Outcomes in the available forecasts. However, when doing so, it is important that the expert identifies the reason for applying a CRP (e.g. potential Missing Adverse Outcomes) and provides what guidance is possible on the nature of those Missing Adverse Outcomes or other reasons for applying a CRP.

CONCLUSION

The CRP is a controversial topic, and in our experience this is not always recognised in high stakes litigations and arbitrations. A simple example of this controversy is the lack of consensus about why a CRP is required, even amongst those who advocate this adjustment.

One justification given for why a CRP is needed relates to Additional Required Returns. However, it appears that the hypothesis that, all else being equal, investors require additional returns to invest in companies operating outside of the US or other benchmark economies is not proven by the available evidence.

The alternative justification relates to Missing Adverse

Outcomes (whereby the available forecasts do not reflect all relevant future possible outcomes and so a CRP is added to the discount rate to remedy the overstatement of the forecast). When applied in such circumstances, the CRP is often calculated using approaches that are applied by convention, such as the sovereign yield spread. However, although these approaches have an appearance of analytical grounding, they are often effectively rules of thumb that may have little, if any, relation to the deficiencies that they are being used to remedy. In these circumstances, experts need to carefully consider what weight should be afforded to the DCF analysis relative to other valuation analyses and evidence.

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APPENDIX 1 – ABSENCE OF CONSENSUS AS TO WHAT THE CRP RELATES TO

As explained, an interesting facet of the CRP literature is that commentators who advocate a CRP can sometimes differ as to the reason (Additional Required Returns or Missing Adverse Outcomes) why a CRP is required. To highlight this, we contrast the views of the following commentators, who are frequently cited by practitioners:

1. Professor Damodaran, a Professor of Finance at the Stern School of Business at New York University; and
2. Professor Wessels, Dr Goedhart and Mr Koller, (together, “Wessels, Goedhart and Koller”) the authors of ‘Valuation – Measuring and Managing the Value of Companies’.

Professor Damodaran

Professor Damodaran rejects the Missing Adverse Outcomes justification:²⁴

“Proponents of this point of view argue that bringing in the likelihood of negative events (political chaos, nationalization and economic meltdowns) into the expected cash flows effectively risk adjusts the cashflows, thus eliminating the need for adjusting the discount rate. This argument is alluring but it is wrong. The expected cash flows, computed by taking into account the possibility of poor outcomes, is not risk adjusted. In fact, this is exactly how we should be calculating expected cash flows in any discounted cash flow analysis.”

Instead, Professor Damodaran subscribes to the Additional Required Returns justification:

“After you have diversified away the portion of country risk that you can, estimated a meaningful global beta and incorporated discrete risks into the expected cash flows, you will still be faced with residual country risk that has only one place to go: the equity risk premium.”

Wessels, Goedhart and Koller

In contrast, Wessels, Goedhart and Koller reject the Additional Required Returns justification but accept that Missing Adverse Outcomes may justify the application of a CRP:²⁵

“...most country risks are diversifiable from the perspective of the global investor. We therefore need no additional risk premiums in the cost of capital for the risks encountered in emerging markets when discounting expected cash flows. Of course, if you choose to discount the promised cash flow from the business-as-usual scenario only, you should add a country risk premium.”

“...On occasion, practitioners make the mistake of adding the country risk premium to the cost of capital to discount the expected value of future cash flows, rather than to the promised cash flows of a business-as-usual scenario. The resulting value is too low because this approach accounts twice for the probability of a crisis.”

APPENDIX 2 – EXPLANATIONS GIVEN FOR ADDITIONAL REQUIRED RETURNS

Introduction

In this appendix, we discuss the explanations given by Professor Damodaran for why investors require additional returns for investing in businesses operating in emerging markets such that it is necessary to add a CRP to the discount rates used to value such businesses. Those explanations are that:

1. the additional volatility (or risk) around the expected returns from a business operating in an emerging country are not fully mitigated through investor diversification. This is because, in Professor Damodaran's view:
 - a. investors do not hold a globally diversified portfolio and instead exhibit home bias; and
 - b. there is significant positive correlation in the returns generated by the equity markets from different countries;
2. after adjusting for growth, the valuation multiples of listed companies in emerging markets are lower than those from listed companies in developed markets; and
3. estimates of betas for emerging market companies are too low.

Home bias

Professor Damodaran considers that “country risk can and should be ignored... if all investors are globally diversified”.²⁶ However, he considers that this condition does not apply:²⁷

“In the risk and return models that have developed from conventional portfolio theory, and in particular, the capital asset pricing model, the only risk that is relevant for purposes of estimating a cost of equity is the market risk or risk that cannot be diversified away. ... But diversified away by whom?... For [the] purposes of analyzing country risk, we look at the marginal investor – the investor most likely to be trading on the equity. If that marginal investor is globally diversified, there is at least the potential for global diversification. If the marginal investor does not have a global portfolio, the likelihood of diversifying away country risk declines substantially. ... It is unquestionable that investors today in most markets have more opportunities to diversify globally than they did three decades ago, with international mutual funds and exchange traded funds, and that many more of them take advantage of these opportunities. It is also true still that a significant home bias exists in most investors' portfolios, with most investors over investing in their home markets.”

There is considerable evidence that investors from many countries exhibit, on average, a significant degree of home bias. The chart overleaf shows a measure of home bias²⁸ for investors from selected countries. As can be seen, whilst the extent of home bias of investors from many countries has broadly declined in recent years, it is still (in the words of Professors Cooper, Sercu and Vanpee) “*persistent and pervasive*”.²⁹

Notwithstanding the above, the evidence on home bias needs to be placed in context when considering whether it demonstrates that investors require additional returns. In particular, two points need to be borne in mind.

First, statistics on home bias (including those presented in Figure 1) are often compiled using analytical approaches that do not take account of the international diversification achieved through holding shares in a domestic listed company that does business abroad. Under such an approach, were a US investor to hold shares in Apple then this would be treated as a ‘domestic’ investment, even though Apple derives c. 60% of its net sales from outside of the US.

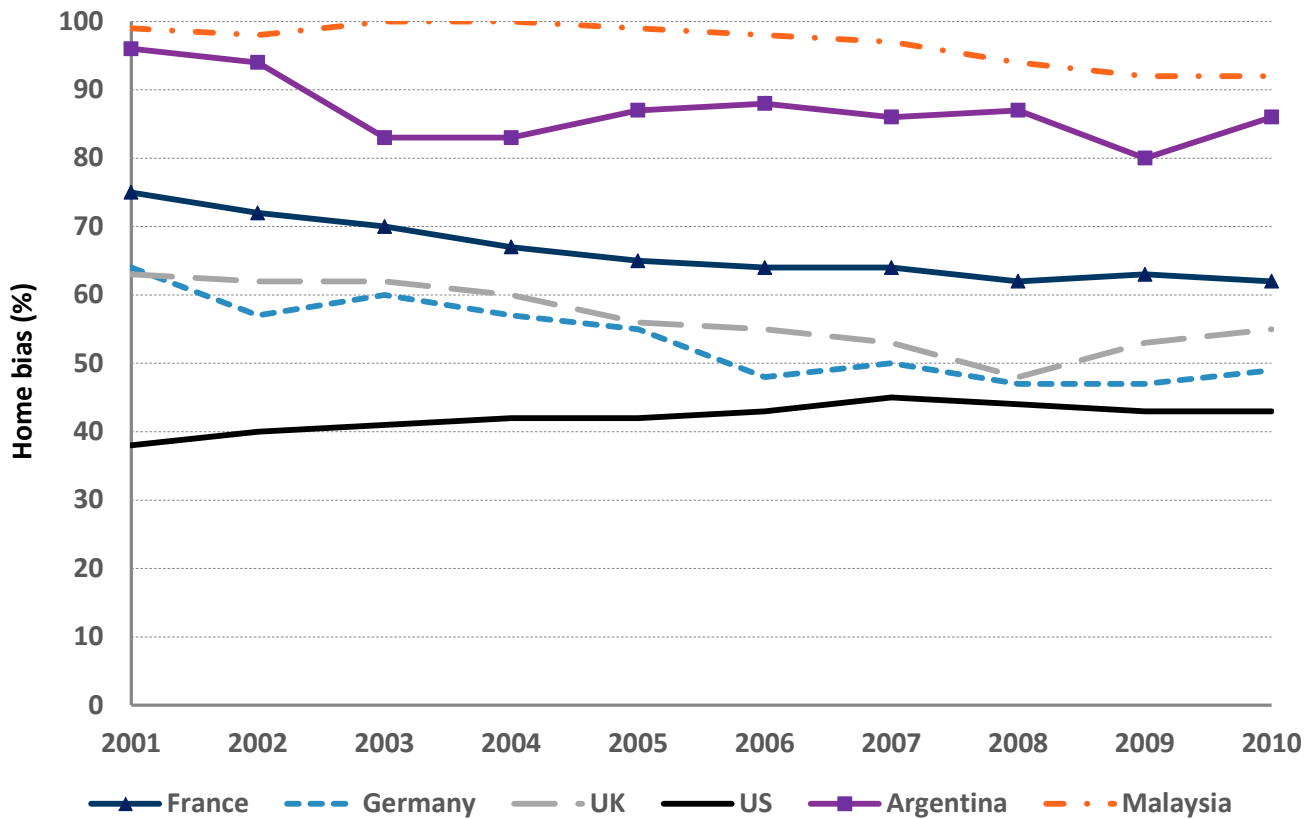
In their 2010 paper³⁰, Assistant Professor Berrill and Professor Kearney found that “*investors in each country can obtain international diversification without having to invest abroad*”. They explain:

“By investing in internationalised firms that are listed on the exchanges in their home countries, investors can ‘free ride’ some of the costs and risks associated with internationalisation at the level of the firm by reaping a portion of the benefits of international diversification directly from home-based internationalised firms. It follows that the ‘home-bias puzzle’ in international portfolio analysis is overstated.”

The second point to bear in mind is that even though evidence does show that investors in aggregate exhibit a material degree of home bias, it does not demonstrate that this is the case for the ‘marginal investor’³¹. As the earlier quote from Professor Damodaran indicates, finance theory specifies that it is the marginal investor who sets the share price. Accordingly, it is the characteristics of the marginal investor, not the aggregate characteristics of all investors, that are relevant.

The significance of this point is that even if investors in aggregate exhibit home bias, this should not depress the share price for a given company provided that there are a number of investors who are fully (or substantially) globally diversified and able to acquire those shares. In such circumstances, if the share price was depressed then the diversified investors should be motivated to acquire shares

Figure 1: Home bias of investors from selected countries



Source: 'The Equity Home Bias Puzzle: A Survey', Cooper, I., Sercu, P., and Vanpee, R., 2012.

at the prevailing price. This is because the value of the shares to a diversified investor would reflect their own level of diversification and so would not be subject to the home bias discount reflected in the prevailing share price. That is, there would be an arbitrage opportunity for the diversified investor. If there were multiple diversified investors then (absent any barriers to so doing) they should compete to acquire the shares, such that the share price is 'bid up' to remove any discount for a lack of diversification (that is, for home bias).³²

We are not aware of any studies of the extent to which marginal investors hold diversified portfolios, nor would we expect them to exist. In part, this is because the identity of the marginal investor will vary from share to share and over time, such that it is not always clear who that investor is. However, given that the general benefits of diversification are well established,³³ and that many investment advisors routinely recommend diversification by geography, it seems likely that at least some investors will be substantially globally diversified. If so then the fact that investors in aggregate appear to exhibit (a steadily diminishing degree of) home bias may not, of itself, demonstrate that investors require additional returns for investing in foreign companies – for example, because globally diversified investors are collectively able to exploit available arbitrage opportunities and remove any home bias discount.

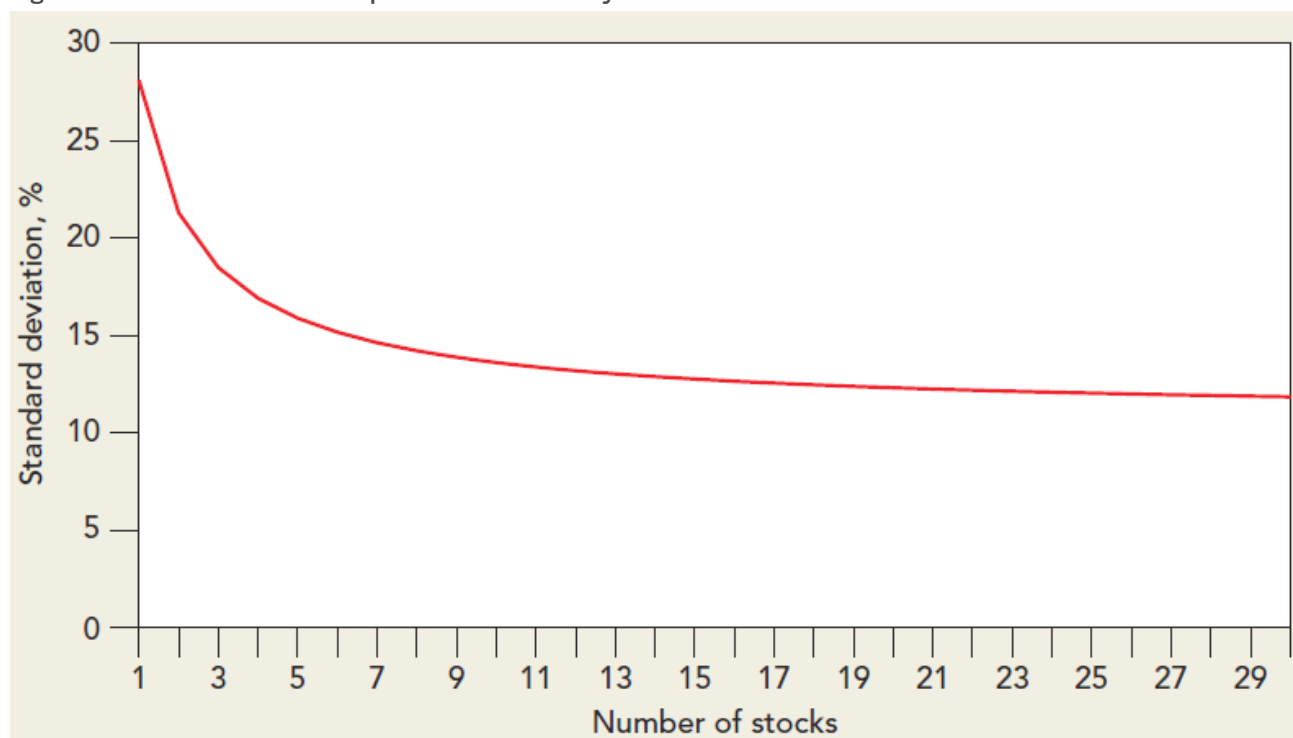
Correlation in returns

In a recent paper, Professor Damodaran stated:³⁴

“Even if the marginal investor is globally diversified, there is a second test that has to be met for country risk to be diversifiable. All or much of country risk should be country specific. In other words, there should be low correlation across markets. Only then will the risk be diversifiable in a globally diversified portfolio. If, on the other hand, the returns across countries have significant positive correlation, country risk has a market risk component, is not diversifiable and can command a premium.”

Before commenting on the above, it is worth briefly outlining the concept of the correlation between the returns of different investments and its relevance. Correlation is a measure of the extent to which two variables (in this case, the returns from the subject company and the returns from the investor's wider portfolio of investments) vary in parallel. The importance of correlation is established in modern portfolio theory (MPT), which is the basis for much of current valuation theory and practice. MPT establishes that provided the returns from different investments are not perfectly positively correlated, the variance in the returns from a combination (or portfolio) of those

Figure 2: Standard deviation of portfolio as randomly selected shares are added



Source: Figure 7.9 of 'Principles of Corporate Finance' by Professors Brealey, Myers and Allen.

investments will be less than the average of the variance of the individual investments.³⁵ In other words, MPT shows that provided share prices do not move exactly together, diversification reduces the variability (or risk) of the overall portfolio. Figure 2 above highlights how the variability of a portfolio of randomly selected shares declines as further shares are added to the portfolio.

A critical (and well-established) conclusion from MPT is that diversification reduces portfolio risk provided that the returns from the different shares in the portfolio are not perfectly positively correlated. This finding can be contrasted with Professor Damodaran's view on country risk, which (per the prior quote) appears to be that diversification will only eliminate country risk if the correlation in returns is not 'significantly positive'³⁶. It is not clear what Professor Damodaran considers distinguishes: (a) diversification by geography from diversification by any other means; and/or (b) 'country risk' from 'risk' more generally; such that: (c) country risk is only eliminated by geographic diversification in the absence of *significant* positive correlation, whereas other sources of risk can otherwise be eliminated by diversification in the absence of *perfect* positive correlation.

As noted, Professor Damodaran considers that if "*the returns across countries have significant positive correlation, country risk has a market risk component, is not diversifiable and can command a premium*". It is not clear what he means when he says that, in such circumstances, country risk would have a 'market risk component'. Furthermore,

if country risk can be equated with market risk, it is not clear why asset pricing models that incorporate market risk (such as the CAPM) would need to include a further premium for country risk.

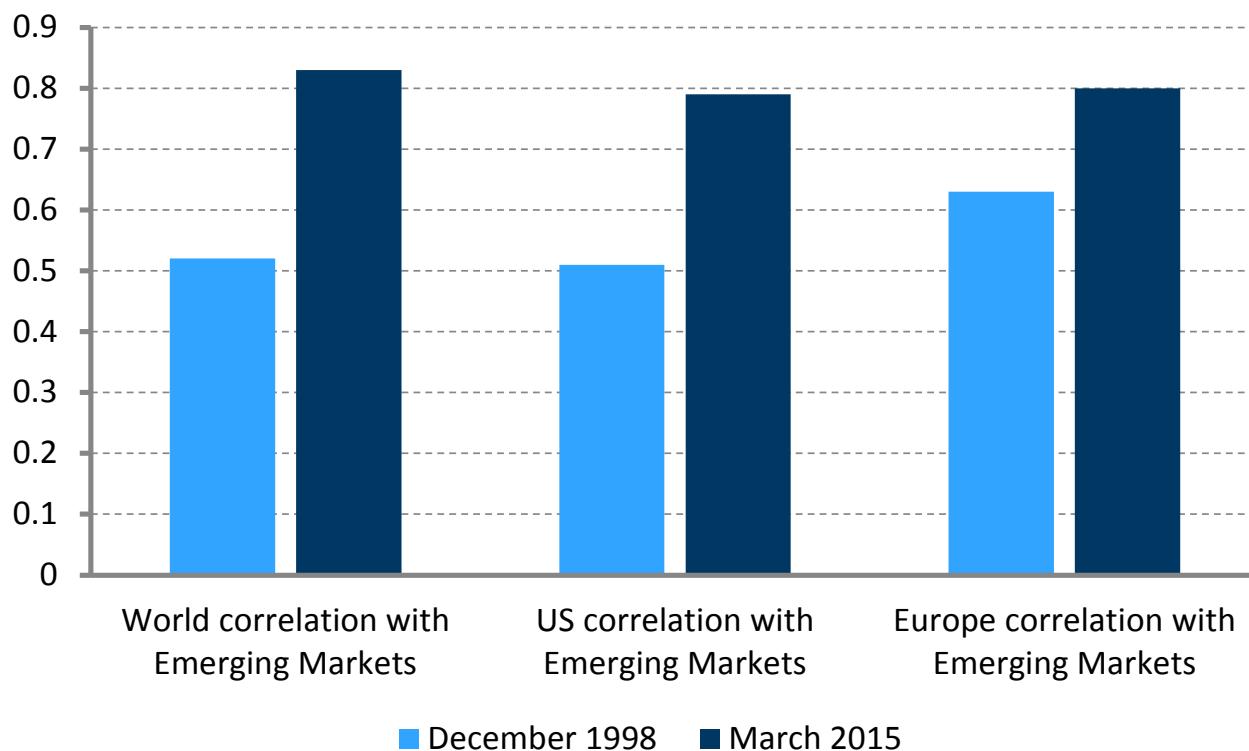
It is fair to say that Professor Damodaran's opinion that low correlation is required in order for diversification to eliminate country risk is disputed by other academics. For instance, in their paper addressing Professor Damodaran's position, Professors Kruschwitz, Löffler and Mandl stated:³⁷

"This is a very odd view of things. It is at least possible to show that even a positive correlation allows for the set-up of portfolios that are less risky than if one were to invest solely in the lowest-risk asset. The only precondition would be that $\rho_{A,B} < 1$, so only a perfect positive correlation is to be avoided."

The figure overleaf reproduces evidence on the degree of correlation in the returns generated between emerging economy stock market indices and those of the world, the US and Europe. This shows that although the degree of correlation has increased in recent decades, it is still significantly less than 1 (that is, less than perfect positive correlation).

To support their view that a premium is necessary, proponents of the CRP often cite analysis (such as that in Figure 3 overleaf) that shows an increase in the correlation between the returns of companies: (a) from a set of emerging market countries; and (b) from across the world

Figure 3: Correlation in returns



Source: Exhibit 1.1 of '2015 International Valuation Handbook' by Duff & Phelps
Note: The figure charts the 120-month correlation in the total returns from the different markets

or from a set of developed market countries. As explained, this analysis does not establish that these returns are now perfectly correlated, such that diversification cannot eliminate country risk. Nevertheless, even if this point about perfect correlation is set aside, it is not clear why it is relevant to analyse the correlation between the returns of a benchmark index and companies from a set of emerging market countries. Often a CRP is applied to a company operating in a single emerging market country. In such circumstances, it is unclear why correlation analysis is not considered at a more granular level, such as between the benchmark index and companies from the relevant emerging market country. Studies suggest that the correlations observed at a more granular level (i.e. with respect to the returns of individual emerging market economies) are lower than the correlation observed from a set of emerging market economies.³⁸

Some proponents of the CRP appear to focus on the degree of correlation between markets in periods of so-called financial or market stress.³⁹ Indeed, Professor Damodaran has stated that "the contagion effect, where troubles in one market spread into others is one reason to be skeptical with arguments that companies that are in multiple emerging markets are protected because of their diversification benefits."⁴⁰

While there is evidence that the degree of correlation can increase in periods of financial stress, this too needs to be placed in context.

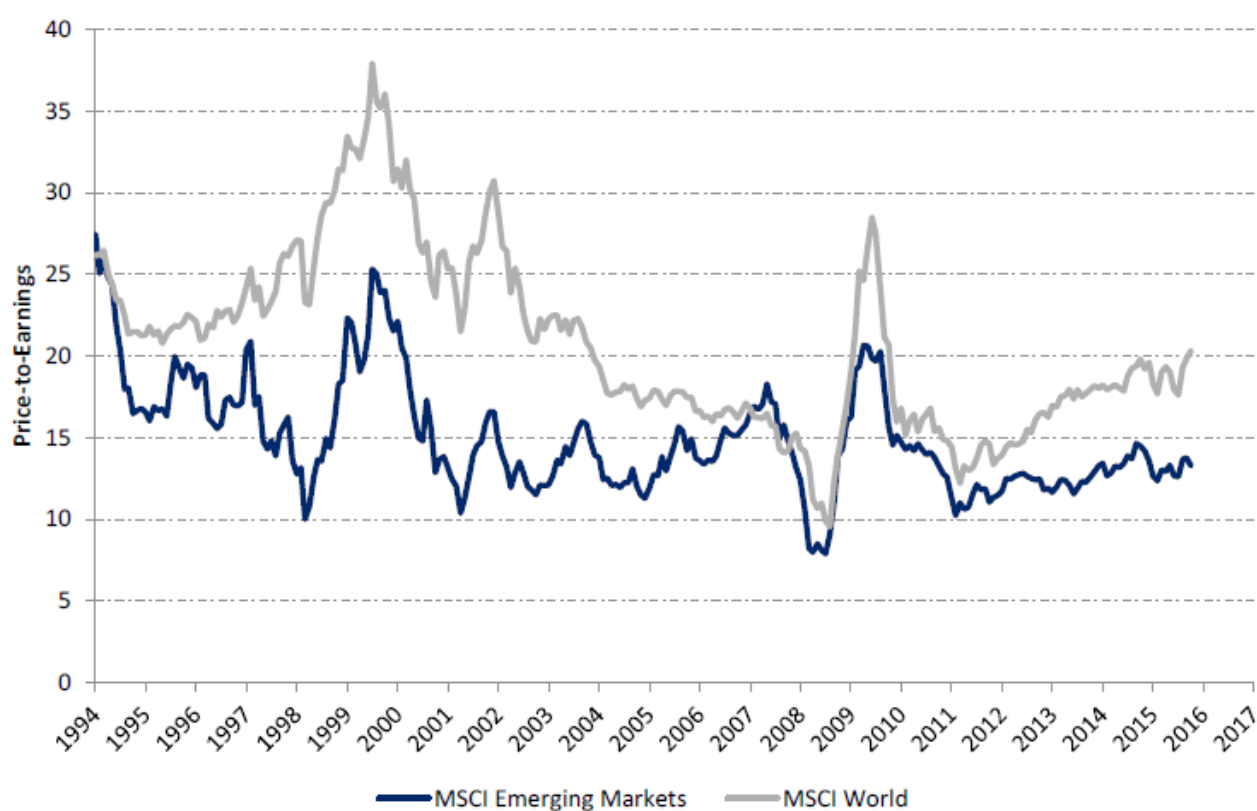
First, it is not clear why it is relevant to focus on periods of financial stress, when such episodes are not commonplace. For instance, an article published in the Financial Times in 2015 noted that "[t]he financial historian Charles Kindleberger, having studied four centuries of banking events, concluded that financial crises occur on average about every 10 years."⁴¹ Furthermore, academics have observed that measuring correlation in periods of high volatility results in a "biased sampling estimate of the true correlation"⁴² and therefore, focusing on periods of financial stress would overstate the true 'long-term' correlation.

Second, during these periods of financial stress, although the degree of correlation increases, it still does not constitute perfect positive correlation.

Valuation multiples

A further reason that Professor Damodaran provides for his view that investors require additional returns for investing in emerging economy businesses is that the observed multiples for such businesses are lower than those for developed economy businesses.⁴³

Figure 4: PE ratios



Source: Exhibit 17 of the April 2017 version of 'Emerging Equity Markets in a Globalizing World' by Professors Bekaert and Harvey.

"perhaps markets don't care about country risk and that it is not priced in. That too is an empirical question, and the evidence (though still in its early phase) indicates that pricing multiples (PE, Price to Book, enterprise value [EV]/earnings before interest expense, income taxes, depreciation, and amortization expenses [EBITDA]) are lower in emerging markets, after controlling for growth, which is consistent with the argument that country risk does matter."

In the light of the above quote, two questions arise:

1. is there evidence that, after controlling for growth, valuation multiples are lower for companies in emerging markets than for companies from developed markets, as Professor Damodaran contends; and
2. if yes, to what extent is any such difference in valuation multiples caused by 'country risk' as opposed to other factors that are not directly related to the status of the host countries (that is, whether they are developed or emerging market countries).

Evidence on valuation multiples

In the prior quote from his 2012 article, Professor Damodaran refers to 'early phase' evidence that he considers shows that, after controlling for growth, the

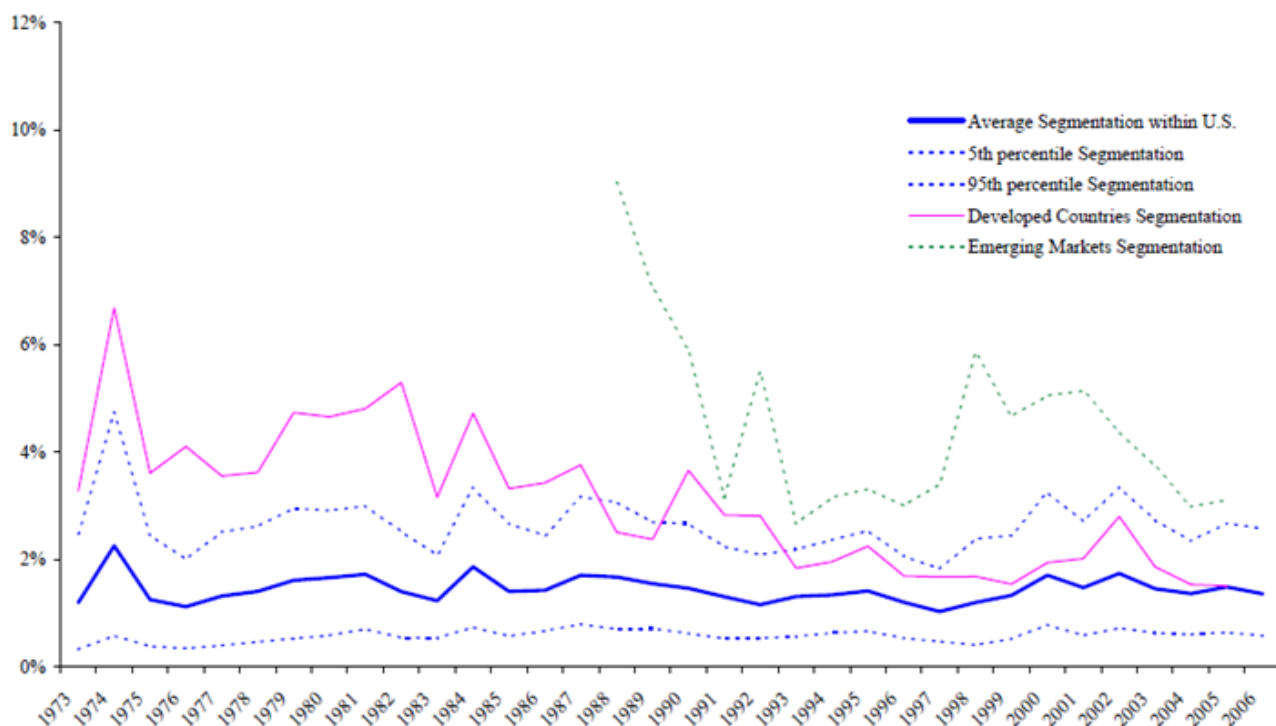
valuation multiples are lower for companies in emerging markets than for companies from developed markets. However, Professor Damodaran does not identify what evidence he is referring to, and we are not aware of such evidence (that existed at the time or that has been subsequently published).

In a recent paper, Professors Bekaert and Harvey found that *"through the mid-90s, emerging markets traded at much lower multiples than developed markets, but since then there has been some convergence of price multiples. In the last five years, the gap was widened again."*⁴⁴ This is highlighted by their comparison of price-to-earnings (or 'PE') ratios for emerging market companies with the companies from across the world, as reproduced above.

Notwithstanding the divergence in PE ratios since 2008, various academics consider that there has been a broad trend of convergence in the valuation multiples of developed and emerging economy stock markets. For instance, Professors Bekaert and Harvey (the authors of the analysis in Figure 4) stated:⁴⁵

"The globalisation process has led to valuation convergence, but the process has not been smooth. For example, in the recent financial crisis, valuation ratios diverged again".

Figure 5: Earnings yields differentials



Source: Figure 1 of 'What segments equity markets' by Bekaert, Harvey, Lundblad and Siegel.

Note: the blue lines in Figure 5 relates to the intra-US differential. The bolder solid blue line is the average differential, whereas the fainter dashed lines above and below it are respectively the 95th (i.e., high end) and 5th (i.e., low end) percentiles within the population of intra-US differentials.

Academics have attributed the convergence in valuation multiples to the removal of restrictions on and barriers to investing in (and trading with) emerging economies⁴⁶ that "took place at the end of the 80s and throughout the 90s".⁴⁷ Professors Eiteman, Stonehill and Moffett provide the following synopsis of this process of liberalisation:⁴⁸

"During the 1990s, national restrictions on cross-border portfolio investment were gradually eased under pressure from the Organization for Economic Cooperation and Development (OECD), a consortium of most of the world's most industrialized countries. Liberalization of European securities markets was accelerated because of the European Union's efforts to develop a single European market without barriers. Emerging nation markets followed suit, as did former Eastern Bloc Countries after the breakup of the Soviet Union. Emerging national markets have often been motivated by the need to source foreign capital to finance large-scale privatisation.

Now, market segmentation has been significantly reduced, although the liquidity of individual national markets remains limited. Most observers believe that for better or for worse, we have achieved a global market for securities."

Notwithstanding the above, one must be cautious about drawing inferences from comparisons (such as that in Figure 4) of the aggregate valuation multiples implied by stock markets from emerging and developed economies. The industry composition of those stock markets (like the industry composition of the host economies themselves) are subject to significant cross-country variation. These differences could have a bearing on the valuation multiples observed for emerging and developed markets.

If, for instance, it was the case that emerging market economies were more heavily weighted towards high growth industries than developed market economies then this would act to increase the valuation multiples of the former relative to the latter. Accordingly, observing that developed and emerging market multiples are equal would not of itself establish that investors price investments in these regions on the same basis (that is, with no CRP). That is, it could be that any equivalence observed reflects a netting off of: (a) a greater weighting to high growth industries in emerging markets (which would tend to increase their valuation multiples relative to those from developed markets); and (b) a CRP required by investors to invest in emerging markets (which would tend to decrease the relative valuation multiple).

In a recent paper, Professors Bekaert, Harvey, Lundblad and Siegel⁴⁹ examined how the earnings yields of developed

and emerging markets have changed over time. To control for cross-country differences in industry composition, the authors calculated 'earnings yield differentials' for these markets.⁵⁰ The earnings yield is the inverse of a PE ratio and so this analysis speaks to how valuation multiples of emerging markets have changed relative to those for developed markets, after controlling for industry differentials. The authors compared the earnings yield differentials for developed and emerging markets with the earnings yield differential *within* the US, whereby the intra-US differential is used as benchmark for the differential that can persist even within "a non-segmented equity market".⁵¹ The extent to which the earnings yield differentials for developed and emerging markets exceed the intra-US differential provides a guide to the extent of convergence in earnings yields (and, by implication, valuation multiples). Figure 5 summarises the results.

Professors Bekaert, Harvey, Lundblad and Siegel drew the following conclusions from their analysis:⁵²

1. "the group of developed countries has been effectively integrated [in the global financial market] since 1993"; and
2. whilst "emerging markets continue to display levels of segmentation above our benchmark", there has nevertheless been a "strong downward trend" in the earnings yield differential.⁵³ By 2005, the emerging markets earnings yield differential was broadly consistent with the highest levels of differentials observed within the US (a benchmark integrated market).

Cause of any difference in valuation multiples

Even if it were established that, after controlling for growth, valuation multiples are lower for companies in emerging markets than for companies from developed markets, one would need to consider whether this divergence was caused by country risk or other factors that are not directly related to the status of the host country (that is, whether they are developed or emerging market countries). Such other factors include differences between emerging and developed markets in respect of:

1. the liquidity of share trading. There is considerable evidence that the trading in shares of companies listed on emerging economy stock markets is generally less liquid than the trading in share of companies listed on developed economy stock markets;⁵⁴ and
2. the level of legal protection afforded to minority shareholders. There is also considerable evidence that minority shareholders of companies listed on emerging economy stock markets are generally afforded fewer, or less effective, shareholder rights than minority shareholders of companies listed on developed economy stock markets.⁵⁵

All else being equal, the price of shares (and the valuation multiples implied therefrom) will be lower when share trading is less liquid and/or minority shareholders enjoy lesser protection / rights. Accordingly, the lower liquidity and minority shareholder protection that generally applies to companies listed on emerging economy stock markets could contribute to such companies achieving lower valuation multiples than companies listed on developed economy stock markets. This in turn means that even if valuation multiples are lower in emerging markets, this does not of itself demonstrate that it is the emerging market status of the host economy that accounts for this difference. The difference in the multiples may be due to differences in liquidity and shareholder rights – and, if so, then there may be better ways to account for such issues in the valuation than through the application of a CRP (such as through the application of illiquidity or minority interest discounts).

Summary

To recap:

1. there appears to a consensus amongst academics that since the 1990s there has been a broad and strong trend towards a convergence in the valuation multiples of emerging and developed market companies. This trend has been attributed to globalisation, which includes, amongst other things, the removal of barriers to investing abroad;
2. the earnings yield differentials for developed markets are consistent with benchmarks from a fully integrated economy. This suggests that foreign investors do not require a premium for investing in companies operating in such regions. This can be contrasted with the approach of some experts / valuation practitioners of applying CRPs when valuing such companies;
3. it is not clear what evidence Professor Damodaran was citing in 2012 when he stated that, after controlling for growth, the valuation multiples observed for emerging market companies were lower than those of developed market companies. Per Figure 4, at this time, the unadjusted PE ratios (that is, before controlling for growth) for emerging and developed markets were broadly similar. Furthermore, after controlling for cross-country differences in industry composition (which might result in differences in growth), Professors Bekaert, Harvey, Lundblad and Siegel found evidence of a strong downward trend in the earnings yield differential for emerging markets. The downward trend is consistent with the trend towards a convergence in developed and emerging market multiples noted at point 1 above; and
4. even if (contrary to the above) it were established that valuation multiples are lower in emerging markets, this does not of itself demonstrate that it is the emerging

market status of the host economy (rather than some other factor) that accounts for this difference. The difference in the multiples may be due to other factors, such as the lower liquidity and minority shareholder protection that generally applies to companies listed on emerging economy stock markets.

In summary, the hypothesis that, all else being equal, companies from emerging markets are subject to lower valuation multiples than those from developed markets does not appear to be proven by the available data. Even if it were, this does not of itself demonstrate that investors require additional returns to invest in companies operating in emerging market economies.

Betas

In a recent paper, Professor Damodaran stated:⁵⁶

“The other argument against adjusting for country risk comes from theorists and practitioners who believe that the traditional capital asset pricing model can be adapted fairly easily to a global market. In their view, all assets, no matter where they are traded, should face the same global equity risk premium, with differences in risk captured by differences in betas. In effect, they are arguing that if Malaysian stocks are riskier than US stocks, they should have higher betas and expected returns. While the argument is reasonable, it flounders in practice, partly because betas do not seem capable of carrying the weight of measuring country risk. ... If betas are estimated against a global equity index, such as the Morgan Stanley Capital Index (MSCI), there is a possibility that betas could capture country risk but there is little evidence that they do in practice. Since the global equity indices are market weighted, it is the companies that are in developed markets that have higher betas, whereas the companies in small, very risky emerging markets report low betas.”

It appears from the above quote that Professor Damodaran’s view is as follows:

1. country risk should imply that the shares of companies from emerging economies (such as Malaysia) are generally subject to greater relevant risk than those from a developed economy (such as the US);
2. given (1), the beta of shares of emerging economy companies should be *higher* than the beta of developed economy companies;

3. however, contrary to 2, it is often the case that the betas of emerging economy companies are *lower*; and
4. to reconcile the above, it must be the case that investors require additional returns (over and above those implied by CAPM and beta) for investing in companies from emerging economies. That is, investors must require a CRP.

This argument is not about whether investors require additional returns when investing in emerging market companies. It *assumes* that investors require additional returns and is concerned with whether such additional returns are reflected in observed betas. In any event, we disagree with the premise that the beta of shares of emerging economy companies should necessarily be higher than the beta of shares of developed economy companies (point 2).

It may well be the case that the returns from shares of companies from emerging economies are more volatile (and hence subject to more risk) than those of companies from developed economies. However, it does not follow from this that they are subject to more *relevant* risk, as measured by beta. On the contrary, it is well established in finance theory that a company whose equity returns are subject to high volatility can still have a low beta provided that the volatility in those returns has a low correlation with the volatility of returns in shares of other companies (for example, that make up the remainder of the investor’s portfolio).

This point can be illustrated by reference to information published on Professor Damodaran’s website on US companies – specifically, information regarding the standard deviation of returns (a measure of *risk*) and beta (a measure of *relevant risk*).⁵⁷ Professor Damodaran calculates that the average standard deviation in returns and beta of: (a) all US companies is 54% and 1.00, respectively; and (b) firms in the “Environmental & Waste Services” sector is 66% and 0.88, respectively. That is, the returns from shares in firms in the environmental and waste services sector are on average subject to more total risk than US firms in aggregate but nevertheless they tend to have to a lower beta.

In summary, as Professors Bekaert, Harvey, Lundblad and Siegel note: “it is important to realize that if the beta of a project’s return with respect to the world market is low, and the shareholders of the company are globally diversified, the cost of capital should be low”.⁵⁸

NOTES

- 1 Some valuers apply a CRP for businesses operating in developed economies in Europe, such as Italy.
- 2 For instance, in *Gold Reserve Inc. v. Bolivarian Republic of Venezuela*, the Tribunal determined a CRP of 4.0%, which was higher than the CRP of 1.5% proposed by the Claimant's expert (and lower than the CRP of 6.7% - 16.4% proposed by the Defendant's expert). The use of a CRP of 4.0% instead of 1.5% reduced the assessed damages amount (before interest) by USD 130.0m or 15.4% (=USD 130.0m / (USD 713.0m + USD 130.0m)) ('*Gold Reserve Inc. v Bolivarian Republic of Venezuela*' Award, 2014, paragraphs 842, 840 and 848).
- 3 For instance, in the Award for *Tidewater v. Bolivarian Republic of Venezuela*, the Tribunal stated that: "*the inclusion of a country risk is a very common feature of tribunals' calculations of compensation, since, as one tribunal observed 'the fundamental issue of country risk [is] obvious to the least sophisticated businessman'*" ('*Tidewater Investment SRL and Tidewater Caribe, C.A. v The Bolivarian Republic of Venezuela*', 2015, paragraph 187).
- 4 "*Project cash flows are supposed to be unbiased forecasts that give due weight to all possible outcomes, favorable and unfavorable. ... Managers often work out a range of possible outcomes for major projects, sometimes with explicit probabilities attached.... But even when outcomes and probabilities are not explicitly written down, the manager can still consider the good and bad outcomes as well as the most-likely one. When the bad outcomes outweigh the good, the cash-flow forecast should be reduced until balance is regained. Step 1, then, is to do your best to make unbiased forecasts of a project's cash flows. Unbiased forecasts incorporate all risks, including diversifiable risks as well as market risks. Step 2 is to consider whether diversified investors would regard the project as more or less risky than the average project. In this step only market risks are relevant*" ('*Principles of Corporate Finance*' (Tenth Edition), Brealey, R.A., Myers, S.C., Allen, F., pages 224 to 225).
- 5 The time value of money is the concept that a dollar today is worth more than a dollar in, say, a year's time, because the dollar today can (for instance) be invested to earn interest in the interim.
- 6 Expected returns are defined as the "*average of possible returns weighted by their probabilities*" ('*Principles of Corporate Finance*' (Tenth Edition), Brealey, R.A., Myers, S.C., Allen, F., page G-6).
- 7 The standard deviation is a measure of the variation of observations around the mean (average).
- 8 "*There are two reasons why diversification reduces or, at the limit, eliminates firm-specific risk. The first is that each investment in a diversified portfolio is a much smaller percentage of that portfolio than would be the case if you were not diversified. Thus, any action that increases or decreases the value of only that investment or small group of investments will have only a small impact on your overall portfolio, whereas undiversified investors are much more exposed to changes in the values of the investments in their portfolios. The second and stronger reason is that the effects of firm-specific actions on the prices of individual assets in a portfolio can be either positive or negative for each asset in any period. Thus, in very large portfolios, this risk will average out to zero and will not affect the overall value of the portfolio.*" ('*Investment philosophies*' (Second Edition), Damodaran, A).
- 9 Based on their survey of chief financial officers of US companies, Professors Graham and Harvey found that approximately 75% of respondents used the CAPM ('*The theory and practice of corporate finance: evidence from the field*', *Graham, J.R., Harvey, C.R.*, 2001). Although widely used, the CAPM is still subject to considerable debate.
- 10 'Response to "Damodaran's Country Risk Premium: A Serious Critique"', Damodaran, A., 2012.
- 11 Professor Damodaran's views on country risk are frequently cited in litigations or arbitrations where a CRP is proposed. For example, in the section of the award for *Saint-Gobain Plastics vs Venezuela* that discusses the CRP, the Tribunal stated that Professor Damodaran "*appears to be recognized as a leading authority by both Parties' experts... [and] the Tribunal will therefore focus on the methods that he recommends*". ('*Saint-Gobain Performance Plastics Europe v Bolivarian Republic of Venezuela*', Decision on Liability and the Principles of Quantum, 2016)
- 12 Home bias is "*the empirical phenomenon that investors' portfolios are concentrated in domestic equities to a much greater degree than justified by portfolio theory*" ('*The Equity Home Bias Puzzle: A Survey*', Cooper, I., Sercu, P., and Vanpee, R., 2012.).
- 13 We note that the authors nevertheless appear to reject this rationale for applying a CRP, as they state that: "*of course, purists would quite rightly assert that there is no sound basis for adjusting discount rates upwards to compensate for overly ambitious cash flow projections, and that cash flows should instead be reduced.*" (emphasis added)
- 14 See, for instance, the example provided in the chapter on Country Risk in the second edition of the *Global Arbitration Review's 'Guide to Damages in International Arbitration'* (at page 251).
- 15 Some commentators have, however, expressed concerns about this practice. In their study of how Chicago Business School graduates estimate the cost of capital for international valuations, Messrs Keck, Levengood and Longfield state: "*the reliance on heuristics we observed implied that as perceived risk increases, people tend to become less consistent, less systematic, and less rigorous in the methods they use to measure and evaluate that risk: an ill-advised recipe... Heuristics are most useful as time-saving devices. Consequently, they are best employed in familiar, repetitive processes, and always with an eye toward the inherent time/accuracy trade-off. Applying a rule of thumb to a new, unfamiliar, or rapidly changing environment greatly increases the risk of application errors. Just as a pilot flying through the Andes Mountains would chart his course with greater precision, we would expect an investor in the relatively rugged terrain of international investing to increase the time and rigor applied to the valuation process.*" ('*Using Discounted Cash Flow in an International Setting: A Survey of Issues in Modelling the Cost of Capital*', Keck, T., Levengood, E., Longfield, A., 1998).
- 16 "*There are different approaches to estimating the CRP (Damodaran, 2013). The most widely applied method (García-Sánchez, Preve and Sarria-Allende, 2010) is to define the CRP as the country's default spread. The main intuition behind applying the default spread comes from assuming that a company's country risk is driven by many of the same factors as government default risk, such as political instability.*" ('*Country Risk – Cost of Equity Measurement: Methodologies and Implications*', Horn, Hoang, Gatzert, Lahmann and Schmidt, 2017).

- 17 This is the difference between the yield on a US dollar-denominated bond issued by the government of the relevant country and the yield on (for instance) a US Treasury bond of a similar maturity.
- 18 'Saint-Gobain Performance Plastics Europe v Bolivarian Republic of Venezuela', Decision on Liability and the Principles of Quantum, paragraphs 753, 700 and 654.
- 19 'Political Risk and International Valuation', Bekaert, G. Harvey, C. R., Lundblad, C. T. and Siegel, S., 2015.
- 20 The authors of this study stated: "*Measuring the impact of political risk on investment projects is one of the most vexing issues in international business. One popular approach is to assume that the sovereign yield spread captures political risk and to augment the project discount rate by this spread. We show that this approach is flawed. ... A cost of capital adjustment that simply 'adds' the entire spread therefore double counts global systematic risk exposures such as economic and financial conditions that should already be reflected in the discount rate. A full spread adjustment further reduces the value of the project by including local macroeconomic conditions that should be reflected in the expected cash flows as well as bond market liquidity that is likely irrelevant to the value of the project.*"
- 21 In another paper, the same authors calculate that: (a) Venezuela's sovereign spread at December 2009 was 9.9%; and (b) 2.87% of that 9.9% (that is, less than a third) can be attributed to political risk ('Political Risk Spreads', Bekaert, G., Harvey, C.R., Lundblad C.T., Siegel, S., 2014: Table 7).
- 22 A discussion of the different options that may be available is outside of the scope of this article.
- 23 'Using Discounted Cash Flow in an International Setting: A Survey of Issues in Modelling the Cost of Capital', Keck, T., Levegood, E., Longfield, A., 1998.
- 24 'Equity Risk Premium (ERP): Determinants, Estimation and Implications – The 2016 Edition', Damodaran, A., 2016.
- 25 'Valuation – Measuring and Managing the Value of Companies' (fifth edition), Koller, T., Goedhart, M., Wessels, D., page 728 and 723.
- 26 'Response to "Damodaran's Country Risk Premium: A Serious Critique"', Damodaran, A., 2012.
- 27 'Country Risk: Determinants, Measures and Implications – The 2017 Edition', Damodaran, A., 2017.
- 28 For each country, this is calculated as the difference between: (i) the percentage of the equity portfolio of investors from the subject country that is invested in shares of companies from that country; and (ii) the percentage of the global equity market that relates to shares in companies from that country.
- 29 'The Equity Home Bias Puzzle: A Survey', Cooper, I., Sercu, P., and Vanpee, R., 2012.
- 30 'Firm-level internationalisation and the home bias puzzle', Berrill, J., Kearney, C., 2010.
- 31 Professors Brigham and Houston define the marginal investor as "*the investor (or group of investors with similar views) who is at the margin and would be willing to purchase the stock if the stock price was slightly lower or to sell it if the price was slightly higher. It is this investor's expectations about dividends, growth, and risk that are key in the valuation process*" ('Fundamentals of Financial Management (13th Edition)', Brigham, E.F., Houston, J.F., 2013, page 304).
- 32 This rationale is analogous to the justification which some valuers provide when they use the CAPM to value a small owner-managed business. The CAPM assumes that investors are fully diversified, but the owner manager may not be fully diversified (because much of their wealth is invested in their business). However, even if the owner is not fully diversified, provided that there are multiple potential acquirers for their business who are diversified and able to bid up the price, the owner is in principle able to achieve a return commensurate with being fully diversified. This is because the owner can sell their business to a potential buyer who is diversified and can pay a price that reflects this.
- 33 Diversification is often described as 'the only free lunch in finance'. This phrase is widely attributed to Professor Harry Markowitz, who won a Nobel prize for his work on portfolio theory and diversification.
- 34 'Country Risk: Determinants, Measures and Implications – The 2017 Edition', Damodaran, A., 2017.
- 35 It is important to note that the impact of diversification on risk and returns is different: whilst the volatility (or risk) of a portfolio is less than the average volatility of its components, the return of the portfolio is exactly equal to the average of its components. In simple terms, diversification reduces risk but maintains returns (see 'International Investments', Fifth edition, by Professors Solnik and McLeavey, Chapter 9).
- 36 As far as we are aware, Professor Damodaran has not specified the threshold above which the level of positive correlation is significant.
- 37 'Damodaran's Country Risk Premium: A Serious Critique', Kruschwitz, L., L ffler, A., Mandl, G., 2010.
- 38 A study conducted by the MSCI using data in the 60 months prior to 2007 shows that the correlation between the returns of the MSCI Emerging Market Index and those of the MSCI World Index was higher than the correlations observed between the returns of the individual market indices of each emerging economy and the MSCI World Index. ('Emerging Markets: A 20-year Perspective', MSCI Barra, 2008.)
- 39 "*An episode of financial stress is defined as a period when the financial system is under strain and its ability to intermediate is impaired. Financial stress tends to be associated with at least four fundamental characteristics: large shifts in asset prices, an abrupt increase in risk and/or uncertainty, liquidity droughts, and concerns about the health of the banking system. The events affecting financial market conditions can be varied and have external or domestic origins, such as risk-reassessments of investors, changes in preferences, unexpected financial or corporate losses, or certain policies. In general, such events shape the supply or demand of funds in financial markets—and therefore asset prices—and may thereby afflict multiple segments of the financial system.*" ('The transmission of financial stress from advanced to emerging economies', IMF working paper, 2009).
- 40 'Country Risk: Determinants, Measures and Implications – The 2017 Edition', Damodaran, A., 2017.
- 41 'Financial crisis occur about once every decade', Financial Times, 23 March 2015. Another article by the Financial Times stated: "*The good news is that global recessions are very rare. On the IMF's preferred definition (ie negative growth in global GDP per capita – the blue line in the graph), there have only been four such events in the entire post war period, in 1975, 1982, 1991 and 2009.*" ('When is a global recession not a recession', Financial Times, 11 October 2015).

- 42 Chapter 9 of 'International Investments' (fifth edition) by Professors Solnik and McLeavey. The authors show that the correlation of equity returns is positively related to their volatility. This is proven mathematically by Boyer, Gibson and Loretan (1999) ('Pitfalls in tests for changes in correlations', Boyer, B. H., Gibson, M. S., Loretan, M., 1999). Therefore, calculating the correlation of equity returns based only on selected periods during which equity returns are more volatile will tend to overstate the correlation of these returns in comparison with the 'average' correlation.
- 43 'Response to "Damodaran's Country Risk Premium: A Serious Critique"', Damodaran, A., 2012.
- 44 'Emerging equity markets in a globalising world', Bekaert, G., Harvey, C. R., 2017.
- 45 'Emerging equity markets in a globalising world', Bekaert, G., Harvey, C. R., 2017.
- 46 This process of liberalisation is sometimes referred to as globalisation in the literature.
- 47 'Emerging equity markets in a globalising world', Bekaert, G., Harvey, C. R., 2017. On his website, Professor Harvey provides a chronology of important events (including those related to the liberalisation of financial markets) in each emerging market country. See http://people.duke.edu/~charvey/Country_risk/couindex.htm
- 48 'Multinational business finance' (fourteenth edition), Eiteman, D.K., Stonehill, A. I., Moffett, M. H., 2015, Chapter 13.
- 49 'What segments equity markets?', Bekaert, G., Harvey, C. R., Lundblad, C., Siegel, S., 2009.
- 50 The authors treat each country as a portfolio of industries and calculate the earnings yield differential for a country as the weighted average of these differentials across each of its industries. For a given industry in a country, the earnings yield differential is calculated as the difference between the earnings yield: (a) for companies in that industry from that country; and (b) for companies in that industry from across the world.
- 51 The authors explain that some differential can persist "*given differences in leverage, earnings volatility across countries, imperfect homogeneity within industry classes, and/or just plain measurement error*".
- 52 'What segments equity markets?', Bekaert, G., Harvey, C. R., Lundblad, C., Siegel, S., 2009.
- 53 Notwithstanding this, the authors note in the same paper that emerging market "*valuation convergence was notably interrupted following the 1997 South-East Asian crisis and the market turbulence in 1998 (the Russian debt crisis and LTCM)*". There may be parallels between the 'interruptions' caused by these market shocks and the divergence in the emerging and developed market PE ratios since global financial crisis in 2008 (as apparent from Figure 5).
- 54 For example, a study by PricewaterhouseCoopers shows that "*the overall level of liquidity [in emerging markets] is much lower relative to more developed markets.*" ('Global financial markets liquidity study', PricewaterhouseCoopers, August 2015).
- 55 For example, Associate Professor Zhao characterises "*weak laws and inefficient law enforcement*" and the failure to offer "*adequate protection to minority shareholders and stakeholders such as creditors*" as a deficiency in corporate governance in emerging markets. ('Promoting a more efficient corporate governance model in emerging markets through corporate law', Zhao, J., 2016).
- 56 'Country Risk: Determinants, Measures and Implications – The 2017 Edition', Damodaran, A., 2017.
- 57 http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html
- 58 'Political Risk and International Valuation', Bekaert, G., Harvey, C. R., Lundblad, C. T., Siegel, S., 2015.

David Rogers
Managing Director
+44 (0)20 3727 1445
david.rogers@fticonsulting.com

Andrew Wynn
Senior Managing Director
+44 (0)20 3727 1540
andrew.wynn@fticonsulting.com

Lun Yaoguo
Director
+44 (0)20 3727 1541
lun.yaoguo@fticonsulting.com



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