



# Handelshøyskolen BI

## GRA 19703 Master Thesis

Thesis Master of Science 100% - W

### Predefinert informasjon

<b>Startdato:</b>	16-01-2022 09:00	<b>Termin:</b>	202210
<b>Sluttdato:</b>	01-07-2022 12:00	<b>Vurderingsform:</b>	Norsk 6-trinns skala (A-F)
<b>Eksamensform:</b>	T		
<b>Flowkode:</b>	202210  10936  IN00  W  T		
<b>Intern sensor:</b>	(Anonymisert)		

### Deltaker

Navn:

### Informasjon fra deltaker

Tittel \*:

Navn på veileder \*:

Inneholder besvarelsen  Nei  Kan besvarelsen  Ja  
konfidensielt offentliggjøres?:  
materiale?:

### Gruppe

Gruppenavn:   
Gruppenummer:   
Andre medlemmer i gruppen:

**Determinants and Estimation of Risk Premiums in  
Emerging Markets – Are investors compensated for  
taking additional risk?**

Master thesis

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**Hand-in date**

June 30, 2022

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**Course**

GRA1974 Master Thesis

**Study Program**

Master of Science in Finance

*This thesis is a part of the MSc programme at BI Norwegian Business School. The school takes no responsibility for the methods used, results found, or conclusions drawn.*

## **Acknowledgments**

Our sincere gratitude goes to our supervisor, Associate Professor Espen Henriksen of the Department of Finance at BI Norwegian Business School. During the whole period of writing the thesis, Professor Henriksen was exceptionally helpful in leading us in the right direction. The continued dialogue during the last semester motivated us to learn and explore new ways to approach the research question. Professor Henriksen was always available and eager to discuss interesting topics, which forced us to think differently if needed, and made the process of testing our hypothesis enjoyable.

We would also like to express our profound gratitude to our families and fellow students for providing unconditional support and encouragement throughout the whole master's degree and in the process of writing this thesis paper. This would not have been possible without them. Thank you.

## **Abstract**

This thesis addresses whether investors will be compensated for investing in emerging and frontier markets. *Return* will be defined as capital gains and dividend yields on three different indexes, while *risk* will be determined as the standard deviation of returns. In researching risk premiums and returns in these markets, the authors found numerous shortcomings in the existing literature. Academic scholars often argue that the reason is a lack of sufficient and reliable data. We hope our research could contribute to filling this gap and enlighten investors about investments in emerging and frontier markets.

The methodology is characterized as quantitative and is strengthened by existing literature. Further, we will also consider macroeconomic factors, such as inflation, political and liquidity risk, amongst others. We will use data from the MSCI indexes dating back to 2008. The data and relevant literature will be applied to answer our hypothesis: “*Investors Will be Compensated for Investing in Projects in Emerging and Frontier Markets*”

Our research concludes that investors are compensated for the risk they take when investing in either frontier or emerging markets. Accordingly, we encourage investors to seek investment opportunities in these markets, as this can provide higher returns and lead to economic prosperity in the respective markets.

**Keywords:** Risk Premiums, Emerging and Frontier Markets, Financial Decision-making

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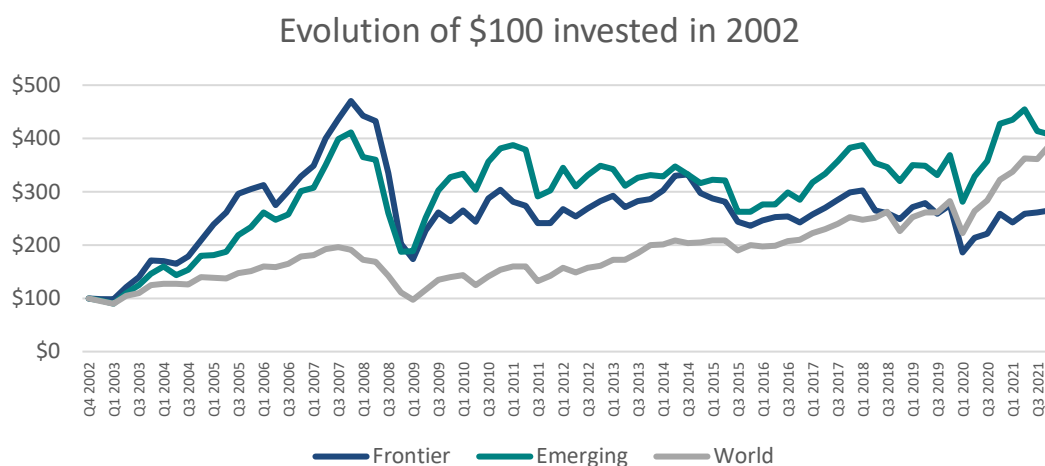
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## **1.0 Introduction and Motivation**

Investors seeking to invest in emerging markets have three key motivations: diversification, returns, and impact (Ghysels, Plazzi, and Valkanov, 2016; Goptu, 1993; Hallgrímsdóttir, 2009). This thesis will focus on diversification and returns and only briefly discuss the impact factor. The research conducted has illustrated various results in portfolio diversification in emerging markets. Some studies concluded a positive relationship between firm performance and diversification, others an inverse relationship, and some researchers also found an insignificant correlation (Purkayastha, Manolova, and Edelman, 2012). Furthermore, the World Investment Report, an annual report published by the United Nations Conference on Trade and Development, focuses on Foreign Direct Investment (FDI) and found that the inward FDI rates of return between 2010 and 2018 were, on average, 6.1% in developed economies, compared to 9.4% developing economies. While in Africa, the average rate of return was 9% (World Investment Report, 2019).

Considering these statistics, the thesis will investigate why investors are hesitant to enter developing markets and determine whether emerging and frontier markets compensate investors for taking on higher risk. The research paper will draw parallels between emerging, frontier and developed markets. For example, due to the pandemic, FDI investments fell by one-third to \$1 trillion in 2020. Developing economies were especially affected by the decrease in FDI, as greenfield projects and other infrastructure projects were put on hold or canceled, an essential part of sustainable development (World Investment Report, 2021). Considering this, amongst other important variables that will be discussed at a later stage, it is essential to figure out whether investors are being compensated for the additional risk they potentially take when investing in developing markets. The reasoning is that it has the potential to enhance risk management and provide higher returns from the perspective of western investors.

For illustrative purposes, the authors wanted to investigate how a \$100 investment would have performed over the sample period. The returns are calculated from the index prices each quarter from Q4 2002 until Q3 2021.



From the graph above, one can see that the MSCI World has performed significantly below MSCI Emerging and Frontier and did not reach a value above \$200 until Q1 2014, compared to frontier, which had doubled in value almost a decade earlier. However, one can see that both the MSCI Emerging and Frontier are significantly more volatile, especially during recessions. There was a significant drop in value during the 2008 financial crisis, Black Monday in 2011, the oil and gas crisis 2014-15, and more recently, the COVID-19 pandemic. One could argue that this is due to the two index's linkage to the global economy and their international exposure.

Furthermore, one can argue that the MSCI World seems to be less affected by the crises mentioned. The World index also seems to have a much speedier recovery from shocks, especially during the COVID-19 pandemic. An explanation for this could be government intervention; during the 2008 financial crisis, the US government injected \$700 billion into the economy under the Emergency Economic Stability Act of 2008 (Shah, 2009), and during the COVID-19 pandemic, the US Fed said it would inject \$2.3 trillion into the economy (Smialek and Eavis, 2020).

The main contribution of this thesis paper will be to enlighten investors about investment returns and risk premiums in developing markets. Public information, such as data from the stock markets in Africa, is challenging to analyze. These stock markets are quite different from those in western countries such as the US and Norway. Companies are usually undervalued (enterprise value > market capitalization) due to low trading volumes, complicated operating environments, high barriers of entry, fragile states, and other macroeconomic issues. Also,



relatively low foreign investment entails little demand for some frontier or emerging market securities.

For the thesis, the authors will continuously review several relevant pieces of literature concerning this topic. The paper presents theory (based on relevant literature) and our methodology (i.e., the strategy) related to the research question about risk premiums in developing markets. Further, the hypothesis will be presented, and data collected from the MSCI indexes (extracted from the Bloomberg terminal to ensure reliable sources) amongst other relevant data available. Further, we will present the results such as: index returns and risk, dividend yield and dividend yield estimation, profitability measures, pricing multiples, and lastly, risk premiums on dividend yields. Finally, a detailed conclusion of the results is included alongside the bibliography and appendix.

## **2.0 Literature Review and Theory**

The researchers of this paper have examined the application and value of risk premiums with the objective to find out if foreign investors are compensated for taking on potentially more risk. Accordingly, this section reviews the existing literature on the different markets and their risk characteristics, investor motivations, and widely applied investment models. Furthermore, it will describe what might be argued as a gap in the existing literature which this paper will attempt to contribute to.

### ***2.1 Emerging Markets and Investment Opportunities***

Since the early 90s, emerging markets have gained significant attention from global investment institutes, promising high yield, and diversification benefits (Barry, Peavy, and Rodriguez, 1998; Nielsen, Hannibal, and Larsen, 2018). The World Economic Outlook (2021) research reveals that 85.9 percent of the world's population comes from emerging markets and 57.5 percent of its GDP. They verify that research on risk premiums in this segment is of interest to investors. Moreover, the Swiss Re Institute projects that approximately 60 percent of global economic growth will originate from emerging markets when forecasting the next decade. Accordingly, investment funds and retail investors find these economies attractive despite numerous being characterized as highly volatile and politically unstable

(Aggarwal, Inclan, and Leal, 1999; Edwards & Susmel, 2003; Raza et al., 2016). The list of emerging markets has grown significantly over the last few decades since Antoine van Agtmael initially coined the term during the late 1980s (Van Agtmael, 2007). According to research conducted by MSCI (2021), emerging markets consist of five South American countries, thirteen countries in Europe, the Middle East, and Africa, and eight from Asia. The list is revised continuously; however, the criteria for moving between frontier, emerging, and developed is often considered vague as different research institutes apply varying methods.

## ***2.1. The Markets***

The three markets applied for this research is defined by the MSCI in the following sections. In broad terms they are divided in developed, emerging, and frontier, whereas the latter covers the least advanced economies.

### ***2.1.1 Developed Markets***

Developed markets, often referred to as “advanced economies”, are characterized by significant economic growth, good infrastructure, high standards of living and income equality, political stability, and well-functioning financial and regulatory institutions. The list of classification criteria is comprehensive; however, an observer might find it easier to use the countries classified today as developed as comparable when determining whether an emerging country could reach the next classification level.

Countries classified as developed with advanced economies include most of Western Europe, some Pacific countries such as Australia, Hong Kong, Japan, New Zealand, and Singapore, as well as the US and Canada (MSCI Index, 2022).

### ***2.1.2 Emerging Markets***

An emerging market, or economy, might possess many but not all the key characteristics of a developed. Furthermore, the classification of emerging markets is to some degree indefinite and dependent on the observer. Broadly applied criteria are income per capita, growth rates, and the overall quality of the market's financial and regulatory system. Another critical component that affects the classification is that the economy is becoming increasingly engaged with the global economic environment as it continues to grow. It is dependent on increased liquidity, both in

equity and debt markets, higher trading volumes and increased FDIs. As well as its ability to modernize its regulatory and financial organizations.

Investors who actively engage in emerging markets must be aware of their substantial risk profile. As with the frontier markets, which will be discussed in the next section, numerous markets which are classified as emerging carries risk in the form of infrastructure issues, currency fluctuations, illiquidity, and political instability. Another critical factor is that numerous regulatory institutions are not adequately strict compared to advanced economies. Directly linked with higher risk is the investor's demand for higher expected returns, which is also considered the main reason for investors from developed economies to place significant investments in emerging markets.

### ***2.1.3 Frontier Markets***

These markets are a subset of emerging markets and are often referred to as “pre-emerging markets”. The critical difference between emerging and frontier markets is that emerging economies have pushed themselves away from agricultural business and towards industrial and manufacturing activities. Unlike Least Developed Countries (LDCs), which are placed at the bottom of the scale, frontier markets are one step behind emerging markets. However, these frontier economies depend on significant and rapid economic growth to be classified as emerging. The economies not classified as emerging are often so because they are either too small, carry too much inherent risk, or are otherwise too illiquid. Despite many of these markets are highly investable, they carry substantial risks. Key risk factors to consider are inadequate regulations, insufficient financial reporting, significant currency fluctuations, and limited liquidity.

From the perspective of numerous investors, these markets are considered favorable for risk-seeking investors in terms of long-term returns since they have the potential to grow substantially over time. Since these investments often correlate poorly to investments in advanced economies, they are also considered to enhance portfolio diversification. For professional investors, it is often advised to allocate a small percentage of their total funds to frontier markets. Also, the investments are often private or direct since few frontier markets have established reliable stock markets.

## ***2.2 Investor Motivation***

Based on the studies conducted by Purkayastha, Manolova, and Edelman (2012), as mentioned in the introduction, it is argued that the research on diversification in emerging markets are scarce and more data is required to produce valuable studies. Furthermore, when analyzing the existing literature, it became evident that diversification and performance were industry dependent. Nonetheless, the results are challenging to synthesize due to too few implemented variables. Another study by Lins & Servaes (2002) showed that diversified firms were less profitable than focused firms. However, this naturally follows that the diversified investment funds took on less risk, and diversification in emerging markets fulfilled the risk-management motive in most cases. Historically, investors have attempted to seek untapped markets to achieve higher expected returns. Accordingly, research led by the United Nations Conference on Trade and Development (UNCTAD) establishes that developing countries have consistently delivered higher rates of return in the period 2010 to 2018 (World Investment Report, 2019). Furthermore, when analyzing the various emerging markets, Asia and Africa's FDIs have the highest average return rate during the same period. The higher returns are reflected by the elevated economic growth rates within these economies and future expectations (Koepke, 2019). These markets also represent a significant risk, and as this paper will examine, literature on risk premiums and valuation tools is further discussed.

Considering numerous investment institutions are motivated by impact investing, the paper shall briefly discuss it, however, it will not be a focus area of the thesis. Investing is often associated with risk versus reward, while impact investing takes the potential impact of the investment into account. Impact investing has been named many different things, such as mission-related or program-related investing. This type of investment can be made in many different sectors, such as clean energy, water system, transportation and infrastructure, affordable housing, and micro-finance, to name a few (Hebb, 2013). The term "impact investing" is relatively new and is believed to have been coined in 2007 by a group of US-based investors. However, these investments can be traced back to seventeenth-century England, when the Quakers aligned their investment and purchase decisions with their values. When UK's CDC was founded in 1948, it had a mission of "doing good, without losing money". Furthermore, impact investing tends to focus more on

venture investing, private equity, and direct lending since these types of investments have a higher likelihood of generating social impact than public equity investors (Bugg-Levine & Emerson, 2011).

### ***2.3 Risk Premiums in Emerging and Frontier Markets***

As discussed, investing in these markets could often involve taking on additional risk. From an investor's perspective, the riskier the investment - the higher the expected return should be, compared to a less risky investment. The compensation provided for taking on additional risk, referred to as *equity risk premium*, would equal the sum of the expected return minus the risk-free rate, which is often represented by high-quality government bonds with little default risk (Damodaran, 2008). The risks determining the premium in these markets are often more significant than that of advanced economies. The timeline of foreign investments in these markets illustrates that the most significant risk faced by the investors is unfavorable political and regulatory systems, which are characterized as immature and volatile (Henisz & Zelner, 2010). Besides, the investor should assess the risks of illiquidity, insider trading, currency fluctuations. Accordingly, the risk-reward framework should be cautiously evaluated when considering investing in these markets. The risks in emerging and frontier markets will be evaluated and compared to the risks in advanced economies, and the term risk premium will be the main subject of the discussions throughout this research.

#### ***2.3.1 Capital Asset Pricing Model***

The equity risk premium is a frequently used term that applies in the extensively used Capital Asset Pricing Model (CAPM), also referred to as the *single-factor model*:

$$\text{Cost of Equity} = R_f + \beta \times (\text{Market Return} - R_f)$$

Where  $R_f$  represents the risk-free rate of return given by government bonds,  $\beta$  equals the stock market's beta coefficient (the fluctuation of price relative to overall market), multiplied by the market risk premium (difference between expected market return and the risk-free rate of return). It is, however, a constant debate amongst academic scholars whether the formula is sufficient in estimating the risk

involved as it solely captures systematic risk - trends that affect the overall financial market (Marshall, 2015). In contrast, Marshall continues to define idiosyncratic risk, which captures the specific risks that might negatively impact an individual stock or a small sample of similar stocks within the same industry. However, idiosyncratic or micro economically risks are argued to be eliminated through a diversified portfolio (Goyal and Santa-Clara, 2003; Malkiel and Xu, 2002). The CAPM is a single-factor model and thus, only taking one factor into account. We also wanted to test a multi-factor model, that will be explained in the next section.

### ***2.3.2 Arbitrage Pricing Theory***

Arbitrage Pricing Theory (APT) was introduced by Stephen Ross in 1976 as an alternative to the CAPM. The APT allows for less restricted assumptions than the CAPM and can be used both as a single-factor model and multi-factor model. The model was improved by Chen, Roll and Ross in 1986 and show how a particular asset is exposed to each measure of systematic risk. In the paper, they used the following measures for systematic risk: Industrial production, expected inflation, unexpected inflation, excess returns in long-term corporate bonds over long-term government bonds and lastly, excess returns in short-term corporate bonds over short-term government bonds. In this paper, we will use the following formulas:

*Single-factor model:*

$$R_i = E(R_i) + \beta_i F + e_i$$

*Multi-factor model:*

$$R_i = E(R_i) + \beta_{i1}F_1 + \beta_{i2}F_2 + \dots + \beta_{ik}F_k + e_i$$

*Where:*

$R_i$  = Rate of return on stock  $i$

$E(R_i)$  = Expected return on stock  $i$

$\beta_{ik}$  = Sensitivity of the stock's return to a one unit change in factor  $k$

$F_k$  = Macroeconomic factor  $k$

$e_i$  = Error term

In our analysis, we will use the formulas above to estimate the expected return on the MSCI Indexes, in addition to the estimated dividend yield. The factors used in the analysis, will be Return on Equity, Debt / Equity and Dividend Yield. The results will be presented and discussed in chapter 5.

### ***2.3.3 Country Risk Premium and Industry Risk***

As different countries carry varying risks compared to the domestic, academic scholars have presented the term *country risk premium* (CRP). The CRP is a form of compensation, or additional return, required by the investing body to cope with the risk associated with a particular country (Fernandez, Aguirreamalloa, and Avendano, 2011). It is important to note that the risks considered to make up the CRP are solely the non-diversifiable type, as the investor could not justify this premium if the risk could be diversified away. Considering this, evaluating the correlation between markets is crucial to grasp whether the CRP to the investor is justified or not. Damodaran (2003) argues that, since globally diversified investors have a significant impact on equity markets and their prices, this results in a positive correlation between markets. Thus, non-diversifiable risks are present, and CRPs are in order to compensate the investor. Accordingly, Damodaran suggests three ways of calculating the CRP.

**i. Country Bond Default Spreads:**

*Evaluating the country-specific risk by comparing the yields on bonds issued by a country in one currency to a risk-free bond yield.*

**ii. Relative Equity Market Standard Deviations:**

$$Country_x = \frac{Std.Deviation_{Country\ X}}{Std.Deviation_{comparable\ market}}$$

**iii. Default Spreads and Relative Standard Deviations:**

$$CRP = Country\ Default\ Spread \times \left( \frac{\sigma_{Equity}}{\sigma_{Country\ Bond}} \right)$$

In essence, the CRP encompasses various factors, including but not limited to political instability, fluctuations in currency, economic risks (high inflation, recessionary conditions, etc.), debt burden, and default probabilities. In accordance with the CAPM model (see section 2.3.1), the CRP could be included to adjust for country risk. However, this is argued to be more advanced than simply adding the CRP as follows:

$$Re = Rf + \beta \times (Market\ Return - Rf) + CPR$$

The reason behind this is that it assumes that every single firm in the country is equally exposed to country risk. Another widely applied model assumes that a firm's exposure to the country risk is similar to the firm's exposure to other markets' risk, as a result, the following model is applied:

$$Re = Rf + \beta \times (Market\ Return - Rf + CPR)$$

Both models require caution if used, and as earlier mentioned, some finance professionals do not apply these models based on the argument that the country risk is diversifiable, and no risk premium should be charged. The CRPs play an essential role in the discussion of the research question and will be further discussed in section 4.4.

Another variable to consider while investigating is which industry the investment target operates in. Industry risk refers to the risk that companies operating in a particular industry are more affected by specific factors that might significantly affect the industry's overall performance (Carrieri, Errunza, and Sarkissian, 2004). For this research, the results are not adjusted for industry risk due to a lack of consistent and reliable methods when examining data sets of this magnitude. It is, however, worth mentioning that in the data sample extracted in this research paper (MSCI), the index covering the advanced economies has an overweight in the technological sector which has impacted the returns for the index significantly over the last two decades.



## 2.4 Dividend Estimation

For the estimation of future dividends, we will use the Constant Dividend Growth Model (CDGM), also known as the Gordon Growth Model, outlined in amongst others, Berk and DeMarzo's (2020) Corporate Finance. The return of a stock is measured by dividend yields, capital gains, and total returns, as displayed in the following formula:

$$r_E = \frac{Div_1 + P_1}{P_0} - 1 = \frac{Div_1}{P_0} + \frac{P_1 - P_0}{P_0}$$

This exercise aims to provide an estimation for future dividends of the three stock indexes and not the potential capital gains. There are various models for dividend estimation, such as predicting the dividend payout ratio, using potential future profits and previous dividend payout ratios. We found this model to be most applicable for our dataset and most applicable for indexes compared to individual stocks. The CDGM assumes an investor would buy a stock (index) and hold it and would therefore be more suitable for our analysis since indexes are financial instruments that investors usually hold for a more extended period. The CDGM assumes dividends will grow at a constant rate,  $g$ , forever. However, this requires that if the PV of the growing perpetuity is infinite, the implication is that dividends cannot grow at a higher rate than the expected return. For our analysis, we will use the following formula:

### ***Constant Dividend Growth Model:***

$$P_0 = \frac{Div_1}{r_E - g}$$

And  $r_E$  can be written as:

$$r_E = \frac{Div_1}{P_0} + g$$

Where  $\frac{Div_1}{P_0}$  is the dividend yield and  $g$  are the annual average dividend growth rate for the period 2009-2021, to extend the analysis, we will also use weighted average GDP growth rate as  $g$ . We will use this formula to predict the expected dividend yield for 2022, as presented in chapter 5.

There are, however, some limitations to the model: growth in dividends and stock price are based on forecasts, where the future cash flows and dividends of a firm are highly uncertain, and it is difficult to know which dividend growth rate to use. Further, some companies have increased the dividend payout ratio significantly, but profits are stable. However, we believe this model will be most suitable for our analysis.

### ***2.5 Potential Gaps in Existing Literature***

The literature presented in this section illustrates that developing markets are significantly important considering global economic growth and are of high interest for investment funds as well as retail investors, especially financial returns, and impact investing. Furthermore, existing research and theories also discuss analytical tools that are frequently applied to provide estimated returns and risk premiums. However, there is a significant debate around the theoretical approach to measuring these risks and how they should be converted into the expected return, compensating the investor. This holds particularly true in emerging and frontier markets due to inadequate historical data and financial information sources. In addition to fragile regulatory systems and ineffective stock markets due to low trading volumes, as mentioned earlier in this paper. To fill this gap, this research paper intends to enlighten investors about the numerous risk parameters which are present in emerging and frontier markets, emphasizing the risk-award framework to examine the critical differences between the markets.

### **3.0 Hypothesis and Methodology**

Before deciding on a particular topic for this research paper, the authors were interested in investments outside of the traditional financial market (i.e., the stock market) and in emerging markets. That being both private equity, venture capital, or other investment structures. Further, one of the authors is employed at Norfund, and we knew that we could maintain continuous dialogues with investment professionals to produce something that would benefit us in terms of research and for investors interested in entering these markets. Besides, Norfund found our research particularly interesting, as they have planned on doing a similar project at some stage. It is essential to address that the Norwegian Government owns Norfund, and thus, is not considered a private investment fund. Whereas private

funds often solely focus on profit maximization, Norfund is governed by investment criteria set by the Norwegian Government to assist in building sustainable corporations in developing countries. Otherwise stated, they focus on impact investing, defined as *investments that primarily should create tangible social impact and simultaneously create financial returns for the investing body* (Clarkin & Cangioni, 2016; Rangan, Appleby, and Moon, 2011).

Even though private funds might apply a different investment approach than Norfund, essentially meaning that their investment motivation differs in terms of profit maximization and impact, the findings of this paper should provide valuable information for both private- and non-private investment funds. Accordingly, the authors present a hypothesis that the discussion and research will revolve around:

*“Investors Will be Compensated for Investing in Projects in Emerging and Frontier Markets”*

This hypothesis will be very interesting to test as it would indicate whether investors would be compensated for taking on higher risks when investing in foreign markets and ultimately answer (at least based the data extracted) the research question for this paper. This hypothesis could potentially deliver new knowledge to investors who want to enter emerging markets. However, one should note that the cost of entry will not be considered for this thesis project. This is worth stressing since it might be a considerable cost for some investors who enter these markets. The hypothesis will be answered in chapter 6.

### ***3.1 Methodology***

The goal of the thesis paper will be to analyze the return and the risks associated with investments made by investors in emerging markets. The authors also aim to examine how various macroeconomic factors impact investments in terms of risk and return. The following sections will outline this thesis paper’s methodology, which in essence covers the overall strategy and rationale of the thesis. As mentioned, the data collection and description will not be included in the “methodology” section but instead thoroughly outlined and discussed in chapter 4.0.

### ***3.1.1 The Approach***

There are numerous ways to approach a research question. To examine and discuss the abovementioned hypothesis, a quantitative research method is applied using data from the Morgan Stanley Capital Investment (MSCI) Indexes. Three indexes will be utilized: World Index (benchmark), emerging, and frontier. However, as a means of strengthening the approach, the authors will implement qualitative research when seen fitted as this could advance the quality of discussions. Numerous academic scholars prefer the approach of mixed methods as it is argued to enhance the quality of research and understanding of the issue being examined (Clark, et al., 2008). Furthermore, Professor Damodaran at Stern School of Business, has published a vast amount on the topic, which the authors have received inspiration from.

### ***3.1.2 Economic Arguments***

- i. Diversification – offsetting downturns in one region by investing in others.
- ii. High returns – untapped markets carry high risk and higher potential returns for the foreign investor.
- iii. Financial synergies between the different markets.
- iv. Economic prosperity in emerging and developed economies, facilitating economic growth and job creation.

### ***3.1.3 Methods Applied***

- i. **Index returns and risk** – as complementary calculations to available research, the authors will provide returns for the three indexes. Furthermore, various risk parameters are examined, and results will be discussed. As an illustrative experiment, the monthly average returns were displayed to visualize the time horizon of 100USD invested from 2002 to 2021. In addition, annualized returns and standard deviation of the markets will be graphed and commented.
- ii. **Dividend yield and dividend estimation** –The authors wish to apply the constant dividend growth model for analyzing future dividend yield.

- iii. **Profitability measures:** ROA, ROE, profit, gross, and operating margin – in order to evaluate the markets and their differences, the paper shall apply various profitability measures, which will be further discussed at a later stage. Financial measures are argued to have inherent weaknesses, however, collectively, they will contribute to evaluating the larger picture and assist in discussing the initial hypothesis.
- iv. **Pricing:** Analyzing price-to-book multiples, price-earnings, and EV / EBITDA - comparing the multiples of the indexes. Again, this method of applying ratios strengthens the final argument.
- v. **Risk Premiums and Dividend Yields** - Finding risk premiums based on differences in dividend yields. The method will analyze the correlation between dividend yields and return on equity (ROE) for the indexes.
- vi. **Weighted equity risk premium (ERP)** based on Damodaran data figures. This is done to find an applicable ERP for each index. Each country's ERP is multiplied by the weight in the index, and the remaining denominated as "others" is calculated using the average of all frontier countries extracted from MSCI.

In the following sections of this chapter, the various risks of investing in emerging and frontier markets will be defined and discussed for the reader to grasp the complexity of the research question. Moreover, the authors will underline which risk factors will not be further discussed in the analysis.

### ***3.2 Risks of Investing in Emerging and Frontier Markets***

Developing countries are dependent on FDI to develop and grow; however, FDI does not come "freely". Many investors are hesitant to enter volatile markets, and in this section, we will present the various risks associated with investing in emerging and frontier markets. We will first outline the determinants of risk and discuss some key risks associated with investing in these markets. This section will give investors an overview of some of the risks one should consider when entering volatile and developing economies.

The “Ease of Doing Business” is a report published by the World Bank annually. The report includes benchmarks of the easiest and most challenging countries to conduct business. In “*Doing Business*”, the following are measured: 1) Opening a business, 2) getting a location, 3) Accessing finance, 4) Dealing with day-to-day operations, and 5) Operating in a secure business environment (World Bank, 2020). All are important factors when starting and running a business in a new market. Comparing the list of 190 countries in the report and the two countries with the highest weight, we find the following ranking and score:

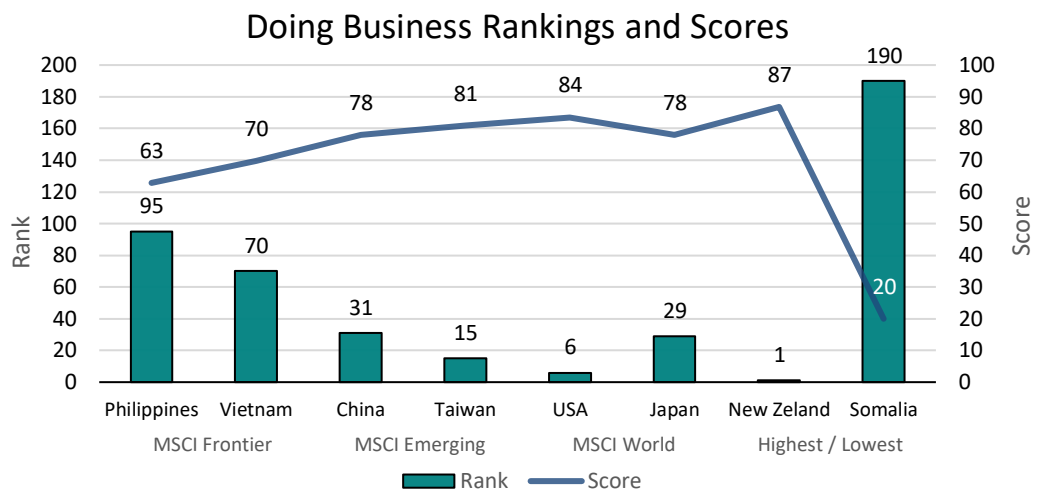


Figure 1: Where lowest ranking and highest score is preferable

This graph shows that the MSCI Frontier index has the lowest ranking and highest score, significantly below the MSCI World and Emerging. Indicating that these countries are difficult to operate in and pose a significantly higher risk for potential investors.

### 3.2.1 Determinants of Risk

The definition of risk has been under discussion for a long time. Frank Knight (1921) and the Knightian Uncertainty wrote about the foundations of probability and the differences between economic risk and uncertainty. Exposure and uncertainty are also a common denominator when discussing the definition of risk, "Not to put all of your eggs in the same basket", could be argued to be a well-formulated statement of how exposure and risk are highly correlated. Holton (2019) presents six situations involving risk: Trading natural gas, launching a new business, military adventures, asking for a pay raise, sky diving, and romance. Holton continues to argue that any general definition of risk must encompass one

or more of these situations. Accordingly, monitoring a risk figure on a Bloomberg screen or applying formulas to a data set is an operational perspective on risk. Uncertainty could not be defined operationally, but that operational risk is *our* perception of uncertainty. In the dataset, we have had an operational perspective on risk, what is the volatility of the MSCI World Index, against the MSCI Emerging and Frontier. In real terms, the risk is about how much one can potentially lose or be willing to lose for  $x$  returns. Furthermore, what factors play a part in an investor either losing their entire investment or accumulating gains.

In addition, we also wanted to discuss the other risks that are not that easily quantifiable (i.e., not volatility/risk calculated from a data set), such as political instability, inflation, currency rates, and illiquid markets. When entering new markets, many factors can affect the returns.

### ***3.2.2 Political Risk***

When investing in emerging and frontier markets, the political risk in the country will always be crucial. Due diligence on a target firm in a country with political instabilities will be essential in terms of the overall analysis of the financials and forecasted returns. Although a company is performing well, there will always be the probability that something will occur within the political space. For example, credit ratings: there are many solid companies in these markets, but they will never receive AAA ratings since they are in markets considered to be risky. This is somewhat paradoxical, considering the financial crisis of 2008 when numerous companies in the US received AAA ratings shortly before the crisis, but went bankrupt or were dependent on support from the government to stay afloat.

Busse and Hefeker (2007) found that government stability, internal and external conflict, corruption and ethnic tension, law and order, democratic accountability of government, and quality of bureaucracy are highly significant determinants of foreign investment inflows. More specific political risk factors include terrorism, riots, coups, civil wars, international wars, and elections. We saw an example of a coup in the 2021 Myanmar coup d'état when the country's army seized power (Rocha et., al, 2021). More recently, the Russian invasion of Ukraine in 2022 has sent shockwaves through the world economy due to rising oil and wheat prices, to name a few. Jun and Singh (1996) found that countries with higher political risk

attract less foreign direct investment. They indicated that countries with high political risk could have a considerable challenge in facilitating economic growth, job creation, and fighting poverty.

### ***3.2.3 Inflation and Currencies***

Inflation risk is concerned with the value of the investment or income stream after adjusting for inflation. This is often referred to as the *real value* or *real returns* (Evans, 1998). With increasing inflation rates, the investor's purchasing power would decline and thus, undermine the return on the investment. From the investor's perspective, the risk is that of being unable to anticipate a change in inflation which would lower realized return compared to the expected return. The inflationary risk is especially evident for bond investors. If an investor is not able to keep the fixed interest on the bond above the inflation rate, he or she would effectively lose money during this period. As a hedge against inflation, many investors construct and insert an inflation premium into their required return rate based on future inflation rate estimations. However, this method is not able to eliminate unanticipated inflation changes, which ultimately makes it critical to examine inflation rates. These unpredictable movements in inflation rates have historically been associated with fluctuations or shocks in the economy or rapid movements in oil prices. In terms of the various markets this paper studies, there would be some inflation deviations. Both emerging and frontier markets have experienced more significant fluctuations in inflation as their economies are considered less stable and, in many cases, lack inflation-targeting regimes. On the other hand, the inflation rates in advanced economies have, in some cases, been more extreme, whereas scholars believe this is because they have a stronger financial linkage and trade on a global basis. As of today, with rapid increases in global inflation rates, investors must implement inflation premiums to adjust their expected return estimates. Otherwise, the investors might find their actual returns significantly low compared to the expected ones.

Following inflationary risk, an investor needs to grasp the concept of currency risk, and in many cases, this could be a critical factor while investing in emerging and frontier markets. The risk occurs from the change in the price of one currency to another while investing or doing business abroad. Thus, a western investor that invests in an Indian company, for example, is exposed to the risk of a depreciation



of the Indian rupee. The risk, however, is highly determined by the amount of exposure to this particular investment. For an investor to efficiently hedge away currency risk, he or she is advised to diversify the investments across sectors and currencies. Other hedges, which hedge funds and institutional investors typically perform, are actively trading derivatives such as futures and options. In this way, they can limit the downside in case of significant currency depreciation.

For this study, both inflation and currency risks are highlighted but only discussed briefly as it is not the focus area of this paper. Applying the extracted data in this study, using only US dollars, and not adjusting for inflation, these risks are not further evaluated or discussed in the research. However, in the overall investment spectrum, these are considered important parameters.

### ***3.2.4 Liquidity Risk***

Liquidity is the ability to convert assets or securities to ready cash. The term market liquidity refers to the specific market's ability to let assets, such as real estate and the stock market, be bought and sold at transparent prices (Nikolaou, 2009). In terms of the markets under investigation, it is evident that the frontier markets are the least liquid of the three. This liquidity issue limits foreign investors' ability and motivation to access these types of markets, and as a consequence, the lack of investment staggers economic growth and increases the risk of illiquidity from the investor's perspective. For the frontier markets, one might observe a significant bid-ask spread and that stocks frequently hit lower value without other indicators implying that they should do that. In advanced economies, the liquidity is better and is often reflected in four variables; significant trade volumes, narrow bid-ask spreads, strong market resilience (often measured in the time it takes to reach equilibrium after economic shocks), as well as a high speed of trades (IOSCO Emerging Markets Committee, 2007).

## **4.0 Data and Preliminary Analysis**

This chapter will provide a complete overview of the data used for this paper. It is separated into four sections, covering the following topics: 1) Data Description, 2) MSCI Indexes, 3) Strengths and Weaknesses of the data, and 4) Supporting data from Damodaran. These sections will provide a clear and thorough description of

the data used for the analyses in this paper and how this data will assist the authors in drawing a conclusion on the topic of risk premiums in developing and emerging markets.

#### **4.1 Data Description**

For this paper, we have assembled a large dataset from the Morgan Stanley Capital Investment (MSCI) Indexes extracted from the Bloomberg Terminal at BI. We have collected historical market data for three indexes, covering the subjects of return, risk, profitability, dividend yield, and various financial ratios that will be discussed later in this chapter. With the data collected, we have been able to calculate the standard deviation (i.e., risk) of the various indexes, in addition to returns between the period 2002 and 2021. We believe this time horizon will be sufficient for our analysis, as this period covers many essential events in the world economy over the last two decades. Including the aftermath of the dot-com bubble, the global financial crisis in 2008, the oil glut (2014-2015), and the global COVID-19 pandemic 2020-2021.

#### **4.2 MSCI**

MSCI provides multiple indexes, including the MSCI World Index, MSCI Emerging Index, and MSCI Frontier Index. We have conducted analyses of the three indexes for our thesis.

We have selected these three indexes to see how the emerging and frontier markets have performed compared to the world in terms of returns, risk, and profitability. Initially, we intended to use indexes covering more specific markets; however, the data did not meet our expectations regarding the time horizon and quality. In addition, the MSCI indexes are denominated in US Dollars and thus would not need to take inflation into account. When collecting the MSCI data, we decided to keep all prices in USD to avoid the issue of inflation. One can see from the country weightings in the next section that approximately 45% are stocks located in the Philippines and Vietnam with both currencies, the Philippine Peso (PHP) and the Vietnamese Dong (VND) have been reasonably stable against the US Dollar over the sampling period, with a minimum exchange rate of 40,3 and maximum 56,2 for PHP and with minimum 15,002 and maximum 23,631 for VND.

#### 4.2.1 MSCI - Emerging, Frontier and World Index

As mentioned in the sector above, we have selected three different indexes for our thesis paper. The indexes have the following characteristics:

frontier markets have similar characteristics as emerging markets, however, are under early stages of macroeconomic and capital market development (Senay, 2017). The frontier index includes large and mid-cap companies across 32 countries and 120 companies and covers about 85% of each country's free float-adjusted market capitalization. The total index market cap is USD 95,469 million, with an average market cap of USD 1,049 million. The Philippines constitutes approximately 30% of the index, and the most important sector within the index is the financial sector, covering 36%.

MSCI Frontier Markets Index at 31.01.2022			
Sector	Weight	Country	Weight
Financials	36,3%	Philippines	29,8%
Industrials	14,8%	Vietnam	15,4%
Real Estate	13,2%	Peru	8,7%
Materials	8,3%	Colombia	7,1%
Communication Services	8,0%	Morocco	5,5%
Consumer Staples	7,0%	Others*	33,5%
Energy	4,4%		
Utilities	3,6%		
Health Care	3,2%		
Consumer Discretionary	1,2%		
Information Technology	0,2%		
		Other Information	
		Companies in index	120
		Number of countries	32

*\*Others Include: Bahrain, Bangladesh, Burkina Faso, Benin, Croatia, Estonia, Guinea-Bissau, Iceland, Ivory Coast, Jordan, Kenya, Lithuania, Kazakhstan, Mauritius, Mali, Niger, Nigeria, Oman, Pakistan, Romania, Serbia, Senegal, Slovenia, Sri Lanka, Togo and Tunisia.*

As of 31.01.2022, the MSCI Emerging index covers 25 emerging economies consisting of 1,422 companies, with most companies located in China and Taiwan with weights of 32% and 16%, respectively, while the two most significant sector weights being information technology and financials with 22% and 21%, respectively. Emerging markets can be defined as “*developing prosperous countries in which investment is expected to result in higher income despite high risks*” (Tannoury & Attieh, 2017). The index was launched in 1988 and covers

approximately 85% of each country's free float-adjusted market cap. The index's total market cap was USD 7,315,437 million, and an average company market cap of USD 5,229 million.

MSCI Emerging Markets Index at 31.01.2022			
Sector	Weight	Country	Weight
Information Technology	21,8%	China	32,1%
Financials	20,8%	Taiwan	16,1%
Consumer Discretionary	13,1%	India	12,5%
Communication Services	10,9%	South Korea	11,7%
Materials	8,7%	Brazil	4,6%
Energy	5,8%	Others*	23,0%
Consumer Staples	5,7%		
Industrials	4,9%		
Health Care	3,8%		
Utilities	2,4%		
Real Estate	2,1%		
		Other Information	
		Companies in index	1 422
		Number of countries	25

*\*Others Include: Chile, Colombia, Czech Republic, Egypt, Greece, Hungary, Indonesia, Kuwait, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey, and the United Arab Emirates*

The final index we have analyzed for our thesis, is the MSCI World index. The index is a weighted stock market index covering 1,546 companies across 23 developed markets. 68% of the index constitutes US-based companies, while the most prominent sectors are information technology and financials, with respective weights of 23% and 14%. As with the emerging index, the world covers approximately 85% of the free float-adjusted market capitalization in each of the 23 countries (MSCI, 2021). The total market cap as of 31.03.2022 was USD 58,880,911 million, with an average size of USD 38,234 million.

MSCI World Index at 31.01.2022			
Sector	Weight	Country	Weight
Information Technology	22,9%	United States	68,8%
Financials	14,0%	Japan	6,3%
Health Care	12,3%	United Kingdom	4,2%
Consumer Discretionary	11,9%	France	3,4%
Industrials	10,1%	Canada	3,3%
Communication Services	8,2%	Others*	14,1%

Consumer Staples	7,1%		
Materials	4,2%		
Energy	3,8%		
Utilities	2,8%		
Real Estate	2,7%		
		<b>Other Information</b>	
		Companies in index	1 542
		Number of countries	23

*\*Others Include: Australia, Austria, Belgium, Denmark, Finland, Germany, Hong Kong, Ireland, Israel, Italy, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, and Switzerland*

### **4.3 Strengths and Weaknesses**

We have collected a comprehensive data set, including index returns and volatility, profitability and pricing ratios, dividend yields, and debt/equity ratios. This data will sufficiently answer our hypothesis about whether investors are compensated for investing in emerging markets. As mentioned earlier in this section, the time horizon covers many important events over the last two decades, enabling us to view how the three indexes cope with these events both generally and in comparison to each other. The data set is collected from trustworthy sources; both MSCI and Bloomberg are renowned for being respectable sources providing reliable data. With the data collected, we have conducted many different analyses and referred to various existing literature that will support the methods. The variables in our dataset have the same timeline across indexes, however, some variables are shorter than others. The dataset is also free from bias, and all indexes are analyzed using the same methods.

We would have preferred a longer time horizon, ideally 30-40 years. However, this would not have been possible when using the MSCI indexes. Furthermore, finding other indexes matching our criteria in terms of reliability and quality would have been challenging. We decided to use quarterly returns rather than daily, and thus, might not show the daily or monthly volatility or returns. The data explains little of the real economy of each country as the indexes are weighted across many different countries, with a large majority in the US, China, and the Philippines, but more on the general return and volatility in different markets.

Further, the IT and finance sectors are strongly weighted across the indexes since the early 2000s and might distort the returns. The index prices are denominated in US Dollars, making the indexes more comparable but not considering the issues of currency risk and inflation (as discussed in section 3.2.3). Lastly, the index returns

do not consider fees (i.e., inherent costs of investing). From a western investor's point of view, investing in developing and emerging markets is likely to be more expensive as due diligence costs and other related investment fees are considerably higher.

#### 4.4 Supporting Data from Damodaran

Aswath Damodaran frequently updates country default spreads and risk premiums to investigate whether the returns we found in our dataset could be comparable to the dataset published by Professor Damodaran. Damodaran's dataset contains Country Risk Premiums (CRP) and Equity Risk Premiums (ERP) for a significant number of countries. We aim to find ERPs and CRPs for each index. Each CRP and ERP has been weighted against the respective weight in the Indexes. Accordingly, the following results are presented:

	Country	Weight	CRP	Weighted	ERP	Weighted
Frontier	Philippines	29,8%	1,9%	0,6%	6,1%	1,8%
	Vietnam	15,4%	3,6%	0,5%	7,8%	1,2%
	Peru	8,7%	1,6%	0,1%	5,8%	0,5%
	Colombia	7,1%	1,9%	0,1%	6,1%	0,4%
	Morocco	5,5%	2,5%	0,1%	6,7%	0,4%
	Others*	33,5%	4,1%	1,4%	8,3%	2,8%
<b>Total</b>				<b>2,9%</b>		<b>7,1%</b>

	Country	Weight	CRP	Weighted	ERP	Weighted
Emerging	China	32,1%	0,7%	0,2%	4,9%	1,6%
	Taiwan	16,1%	0,6%	0,1%	4,8%	0,8%
	India	12,5%	2,2%	0,3%	6,4%	0,8%
	South Korea	11,7%	0,5%	0,1%	4,7%	0,6%
	Brazil	4,6%	3,0%	0,1%	7,2%	0,3%
	Others*	23,0%	1,8%	0,4%	6,0%	1,4%
<b>Total</b>				<b>1,2%</b>		<b>5,4%</b>

	Country	Weight	CRP	Weighted	ERP	Weighted
World	United States	68,8%	0,0%	0,0%	4,2%	2,9%
	Japan	6,3%	0,7%	0,0%	4,9%	0,3%
	United Kingdom	4,2%	0,6%	0,0%	4,8%	0,2%
	France	3,4%	0,5%	0,0%	4,7%	0,2%
	Canada	3,3%	0,0%	0,0%	4,2%	0,1%
	Others*	14,1%	0,5%	0,1%	4,7%	0,7%
<b>Total</b>				<b>0,2%</b>		<b>4,4%</b>

Table 1: \*Others is found using the average of all CRPs and ERPs in the dataset for the respective index

The weighted equity risk premium for MSCI World is 4.4%, MSCI Emerging at 5.4%, and Frontier at 7.1%. At the same time, the country risk premium (Index Risk Premium) was 0.2% for the world index, 1.2% for the emerging index, and 2.9% for the frontier index.

## **5.0 Empirical Results and Discussion**

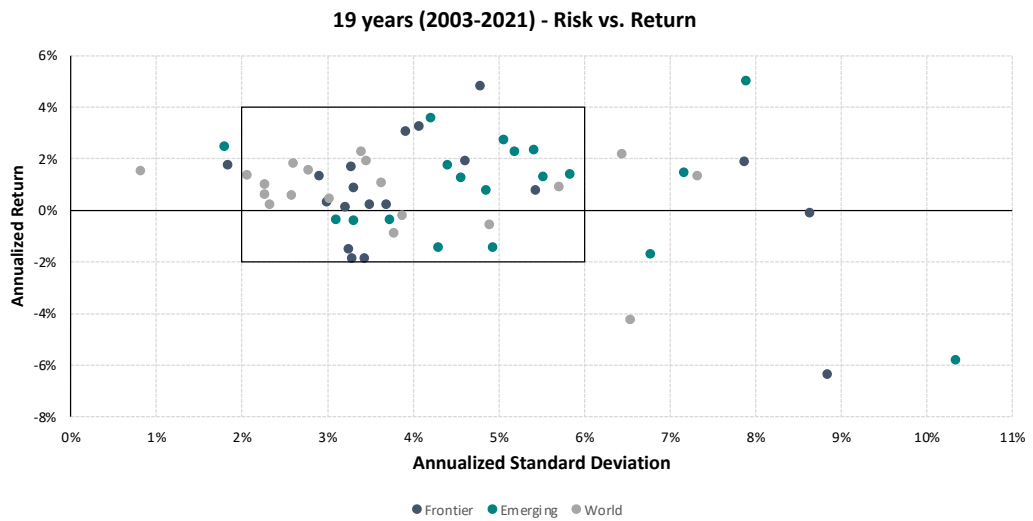
To answer the research question, the authors have done extensive analysis covering the following topics: 1) Index returns and risk, 2) Dividend yield and estimation, 3) Profitability measures, 4) Pricing multiples, and 5) Risk premiums on dividend yields. Finally, sections covering the results, key findings, limitations, and future research ideas is presented. This chapter will go in-depth on the abovementioned points and try to explain the results with relevant literature and visualize these results in appropriate tables and graphs.

### ***5.1 Index Returns and Risk***

The basis for our analysis is comparing the different indexes mentioned in chapter 4. We wanted to investigate whether the MSCI Frontier and MSCI Emerging index has outperformed MSCI World over the same period. The data is based on monthly returns from December 2002 until December 2021. We found that the MSCI Emerging index had the highest average monthly return of **0.78%**, compared to the MSCI World with **0.66%** and MSCI Frontier with **0.57%**. For the hypothesis, we wished to study whether the risk premiums in the MSCI Frontier and Emerging index would be higher than in MSCI World. From the results presented above, one can see that MSCI Emerging has outperformed MSCI World, but not MSCI Frontier. However, after further investigations into these results, we found some very interesting points, both in terms of risk and return, that might explain why the index, on average, has a lower rate of return.

When plotting the annualized risk and return for the 19 previous years, one can see some variations in the data. 75% of the observations are concentrated around the 2% to 6% standard deviation and -2% to 4% return. The data includes some outliers from 2008, as shown in the bottom right part of the scatter plot, with high standard deviation and negative returns. Although the MSCI World index had negative returns and a high standard deviation in 2008 (**-4.2%** and **6.5%**, respectively), the

index performed much better in 2008 compared to MSCI Emerging and Frontier, suggesting that the stocks in the developed world, are much less volatile during crises.



On average, the MSCI Emerging index has had the highest return of **0.8%** while also having the highest standard deviation of **5.2%**. The MSCI Frontier index has had the lowest average annual returns of **0.6%** and a standard deviation of **4.4%**. Lastly, MSCI World has had average returns of **0.7%** and a standard deviation of **3.7%**. As mentioned above, there are some outliers in the dataset from 2008, which might skew the averages, and we received the following results when taking the median, minimum, and maximum of the standard deviation and returns:

	Std Frontier	Returns Frontier	Std Emerging	Returns Emerging	Std World	Returns World
<b>Median</b>	<b>3,5%</b>	<b>0,8%</b>	<b>4,9%</b>	<b>1,3%</b>	<b>3,4%</b>	<b>1,0%</b>
<b>Min</b>	1,8%	-6,3%	1,8%	-5,8%	0,8%	-4,2%
<b>Max</b>	8,8%	4,8%	10,3%	5,0%	7,3%	2,3%

For median, we can see that this exercise changes the figures slightly, however, it still provides a similar result. Furthermore, from the max/min analysis, we found that MSCI Emerging, and Frontier had the highest standard deviation of **10.3%** and **8.8%**, respectively, in 2008, while MSCI World had the highest standard deviation of **7.3%** in 2020. It should be worth noting that MSCI Frontier had a higher standard deviation in 2020 (**8.6%**), and MSCI Emerging had a similar result of **7.2%**; however, still lower than **8.8%** or **10.3%**, as mentioned above. In terms of maximum returns, MSCI Emerging had the highest annual returns of **5.0%** in 2009, MSCI Frontier at **4.8%** in 2003, and MSCI World only had a



maximum annual return of **2.3%** in 2003, significantly lower than the other indexes.

### 5.2 Dividend Yield and Dividend Estimation

In this section, we analyzed the different indexes' dividend yields. The analysis is based on the Constant Dividend Growth Model (CDGM), outlined in Berk and DeMarzo's (2020) Corporate Finance (as mentioned in chapter 2). We have used the following formula to predict the future dividend yield for 2022:

$$r_E = \frac{Div_1}{P_0} + g$$

$\frac{Div_1}{P_0}$ , is the latest dividend yield (i.e., the average annual yield for 2021), while “g” is the average annual dividend growth, during the period 2009-2021.

Analyzing the dividend yield during this time, we found that the dividend yield for the different indexes is correlated. Our analysis sees negative growth after the financial crisis, however, growth peaks in 2011 and 2018 for all three indexes, while in 2021, the MSCI Emerging index had quite significant growth, with a **0.2%** increase in 2021, compared to **-0.2%** in 2020. The graph below displays the historical annual dividend growth rates:

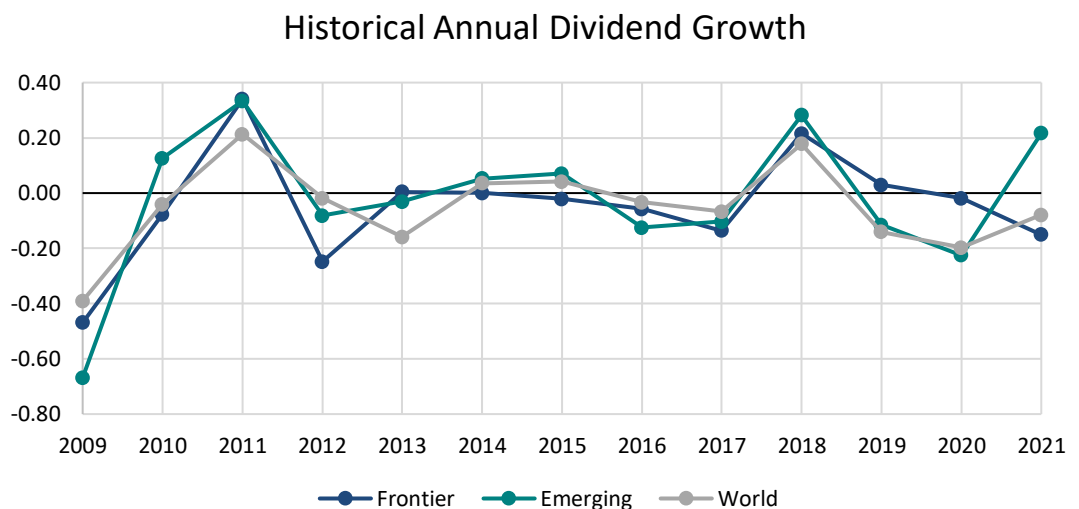


Figure 2: The figures are shown as percentage (i.e., 0.40%)

Taking the average across the period, we found that all indexes have negative growth rates, which would imply that there could be a reduction in the dividend yield for all indexes. We found the following averages (g):

- MSCI Frontier: ↓ 4 basis points
- MSCI Emerging: ↓ 2 basis points
- MSCI World: ↓ 5 basis points

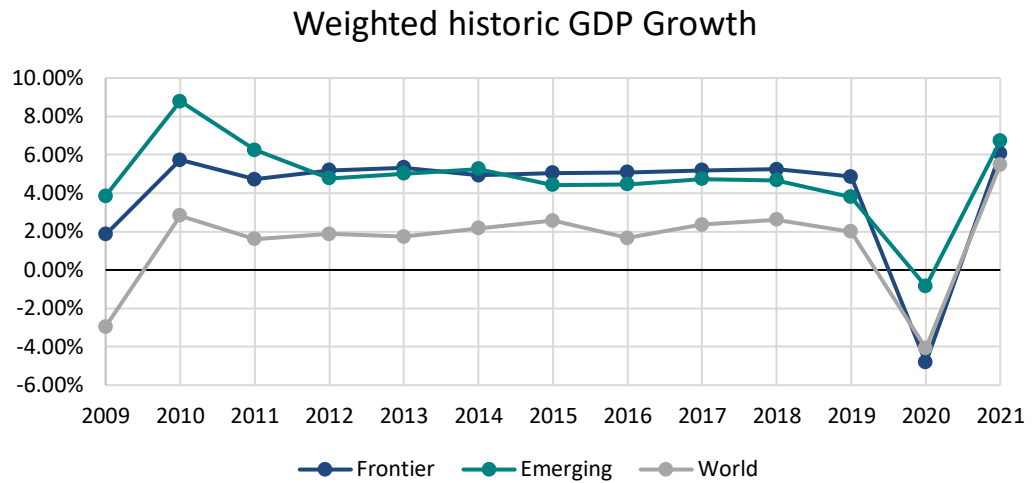
We can see from the averages that the most significant decrease can be found in the MSCI World index; a reasonable explanation for this is that that the index has a majority weight of tech companies and would instead use excess cash to finance growth opportunities than paying out dividends.

In our analysis, we found that the MSCI Frontier index has, on average, the highest dividend yields annually, with a dividend yield of **9.1%**, compared to MSCI Emerging with **8.6%** and MSCI World with **6.8%**. This is very interesting, as the frontier index has had the lowest returns, as explained in section 5.1 in this chapter, while still having the highest dividend yields. This might indicate that the frontier index has performed below par, at least from a dividend yield perspective. Based on Gordon Growth Model, we have estimated the following Dividend Yield (*DY*) for the year 2022:

$$\begin{aligned}
 E(DY)_{2022} &= DY_{2021} + g \\
 &= \\
 E(DY)_{Frontier} &= 9.05\% + (-0.045\%) = \mathbf{9.01\%} \\
 E(DY)_{Emerging} &= 8.65\% + (-0.021\%) = \mathbf{8.63\%} \\
 E(DY)_{World} &= 6.81\% + (-0.051\%) = \mathbf{6.76\%}
 \end{aligned}$$

As an extension to the analysis above, the authors wished to calculate the expected dividend yield for 2022, using Gross Domestic Product (GDP) growth and the historical average growth rates of dividend yields. GDP provides good insight into the economic growth of a country with regard to the prices of goods and services. The data for GDP from the International Monetary Fund (2022) was collected, which publishes GDP growth rates each year. A similar methodology when finding the weighted country and equity risk premiums in chapter 4 was applied. This methodology will enable us to calculate the weighted GDP growth for each index over the period 2009-2021. With this, one could calculate average GDP growth, which could be used as *g* in the constant dividend growth model (please see

appendix 8.3 for calculations). GDP data can be presented as constant or current prices. Furthermore, constant prices were selected, as this metric will adjust for inflation in each country. The latest available country weights for each year is applied, providing the following result:



From the graph above, one can see the recovery after the 2008-2009 financial crises, where MSCI Emerging had an average GDP growth of **8%**. While one could also see the significant impact of the COVID-19 pandemic, seeing a significant decline in GDP of **4-5%** for MSCI Frontier and World. However, the recovery in 2021 was **5-6%** for all the indexes. Over the period, the average GDP growth for MSCI Frontier was **4.19%**, while MSCI Frontier had a growth of **4.76%** and MSCI World **1.53%**. Since we are estimating dividend yield for one year only, we assume that these growth rates are a reasonable estimate on the dividend yield. The reason is that an increase in dividends is often correlated with economic growth; thus, these two factors are closely related. Using these metrics, we have calculated the following estimated dividend yields for 2022:

$$\begin{aligned}
 E(DY)_{2022} &= DY_{2021} + g_{GDP} \\
 &= \\
 E(DY)_{Frontier} &= 9.05\% + 4.19\% = \mathbf{13.24\%} \\
 E(DY)_{Emerging} &= 8.65\% + 4.76\% = \mathbf{13.41\%} \\
 E(DY)_{World} &= 6.81\% + 1.53\% = \mathbf{8.34\%}
 \end{aligned}$$

From these results, one can see that MSCI Emerging is expected to have a higher dividend yield compared to MSCI Frontier, as we found in the previous estimation,

using historical dividend yields. Although the previously mentioned have a similar estimate, MSCI World is expected to have a significantly lower dividend yield in 2022. Lastly, by comparing the two estimates, MSCI Frontier had the highest expected dividend yield when using historical dividend yield growth, while MSCI Emerging had the highest estimated dividend yield, using GDP growth rates.

Using the historic annual dividend growth and estimated DY for 2022, we can compare the set with the calculated country risk premiums based on data from Damodaran. For Frontier, we found a risk premium of 2.25% for MSCI Frontier and 1.87% for MSCI Frontier. However, when using GDP growth rates, we found the risk premium for MSCI Frontier to be 4.9%, while MSCI Emerging was 5.07%. These results are much closer to the estimated equity risk premiums of 7.1% for MSCI Frontier an 5.4% for MSCI Emerging.

### ***5.3 Profitability Measures***

For the profitability measures, we selected five measures to analyze the profitability of the indexes. These measures include Return on Assets (ROA), Return on Equity (ROE), Profit Margin (PM), Gross Margin (GM), and Operating Margin (OM). The measures have the following formulas and are quarterly:

$$ROA = \frac{Net\ income}{Average\ total\ assets}$$

$$ROE = \frac{Net\ income}{Average\ shareholder's\ equity}$$

$$GM = \frac{Gross\ profit}{Revenue}$$

$$OM = \frac{Operting\ income}{Revenue}$$

$$PM = \frac{Net\ income}{Revenue}$$

It is argued that profitable firms provide higher returns and are better positioned to pay dividends. However, one should mention that out of the 449 firms listed on the

S&P500 index from 2003 through 2012, they used 54% of earnings to buy back their stocks rather than paying dividends (37% of earnings) or investing in growth opportunities (Lazonick, 2014). The paper by Lazonick, 2014 cites Laurence Flink, the CEO of Blackrock, that “*even shareholders that ultimately benefits from the buybacks, are worried that the firms does not invest in future growth and rather use buybacks to reward shareholders*”.

In our analysis, we found that the companies in the frontier index have had higher profitability over the sample period, specifically for the profit margin at an average of 15.2%, significantly higher than MSCI World (7.2%) and Emerging (9.0%), as shown in the table below. Further, one can see that the frontier index has higher profitability across all measures, except for ROA, where the emerging index is slightly higher. From a profitability perspective and our assumption that profitable firms provide higher returns is quite contradictory compared to what we saw in section 5.1, where the frontier index had significantly lower returns compared to MSCI World, although returns are significantly higher.

Profitability Ratios for the period 2008 - 2021			
Average	Frontier	Emerging	World
<b>ROA</b>	2,5%	2,6%	1,6%
<b>ROE</b>	12,4%	12,2%	10,9%
<b>GM</b>	38,1%*	23,6%	30,9%
<b>OM</b>	21,5%	12,4%	10,9%
<b>PM</b>	15,2%	9,0%	7,2%

*Some figures missing\**

#### **5.4 Regression analysis**

For the regression analysis in this paper, the authors wanted to use both the single-factor and multi-factor Arbitrage Pricing Theory (outlined in chapter 2) to run regressions to predict returns and dividend yields. Firstly, we ran the following regression, with returns as a dependent variable and dividend yield as an independent variable, to investigate whether dividend yield can be used to estimate returns. For our regression, we would have the following formula with the assumption that the error term is equal to zero:

$$Index\ returns = \beta_1 + \beta_2 DY + e_i$$

We ran a regression for all three indexes to examine the effect of dividend yield on quarterly returns. We found the R Square to be **0.24** for MSCI Frontier, **0.27** for MSCI Emerging, and **0.23** for MSCI World, suggesting a low correlation between the dividend yields of the indexes and returns. Further, we found the dividend yield coefficient to be negative for all regressions, indicating that a higher dividend yield would lower index returns. For MSCI Frontier, we found the coefficient to be **-7.8** and **-13.9** for MSCI Emerging, while MSCI World had a coefficient of **-9.6**, giving us the following:

$$Returns_{Frontier} = 0.2585 + (-7.7796) * DY$$

$$Returns_{Emerging} = 0.3831 + (-13.9635) * DY$$

$$Returns_{World} = 0.2660 + (-9.6130) * DY$$

These results suggest that a higher dividend yield would reduce returns and thus indicating a negative correlation between the two variables. We found that all regressions were significant with a p-value below 0.05, suggesting that dividend yield influences return. However, we find it questionable that higher dividend yields would have a negative impact on returns in addition to low R square values. Lastly, it is worth mentioning that there are many irregularities in the data set we used, meaning that there were many negative data points in the y-variable used (i.e., negative quarterly returns). In contrast, all data used in the x-axis (DY) was positive. This might be an explanation for the inconsistent results. Please refer to appendix 8.1 for regression tables.

For our regression analysis, we also ran a regression on dividend yields to investigate how return on equity (i.e., profitability) and debt levels (D/E ratio) effects dividend yields. With the assumption that companies with higher profits pay higher dividends and companies with less debt pay higher dividends, as less cash is paid to debtholders. For this regression, we have the following formula:

$$DY = \beta_1 + \beta_2 ROE + \beta_3 D/E + e_i$$

We found the R squared of MSCI Frontier to be **0.34**, for MSCI Emerging: **0.29**, and for MSCI World: **0.65**. Suggesting that ROE and D/E have a significantly higher correlation with dividend yields in MSCI World, compared to frontier and emerging. Further, we also found that the intercept of MSCI Frontier and Emerging was negative, while the intercept for MSCI World was positive. Our analysis provided us with the following results:

$$DY_{Frontier} = -0.0137 + 0.1218 * ROE + 0.0778 * D/E$$

$$DY_{Emerging} = -0.0071 + 0.1052 * ROE + 0.0434 * D/E$$

$$DY_{World} = 0.0149 + (-0.0186) * ROE + 0.0201 * D/E$$

In the regression analysis for both MSCI Frontier and Emerging, we found the p-value of the intercept to be above 0.05, suggesting that the intercept is not significant. However, for MSCI World we found the intercept p-value to be below 0.05, but the p-value for ROE is not. Further, as shown in the coefficients above, the coefficient for MSCI Frontier and Emerging is negative, and we find this somewhat implausible, as dividend yields cannot be negative. It is either zero or above zero. Please see appendix 8.2 for the regression results.

These regression analyses aimed to investigate what factors could potentially impact index returns and dividend yields. However, the regression results did not provide any specific contribution to answering our hypothesis. The results found in this section are too inconsistent to answer our hypothesis and enlighten investors about potential returns. As a result, we would instead investigate and apply other measures, such as dividend estimation, to predict potential future returns, enlightening investors, and ultimately answering our hypothesis.

### **5.5 Pricing**

The **Price to Book Value (PBV)** explains how much the public appreciates a company's book value. A higher PBV ratio indicates that the market is more confident in the company's future. When a company is doing well, the PBV will be higher than one, and the market value (market cap) exceeds the firm's book value. (Nurwulandari, 2021). The PBV has the following formula:

$$PBV = \frac{\text{Price per Share}}{\text{Book Value per Share}}$$

From our analysis, we found the average PBV to be **2.1** for the companies in the MSCI World Index, **1.8** for Frontier, and **1.6** for the MSCI Emerging Index. Since the world index have a market cap valued at more than double the book value, somewhat higher than the two others, it can be argued that the market will be more confident in the companies listed in the MSCI World index and least confident in the MSCI Emerging index. Generally, it is difficult to estimate what a good PBV is, as this can be very individual from one company to another and across sectors. Also, a high PBV can also indicate that a company is overvalued.

**Price-Earnings Multiple (P/E)** is a valuable financial indicator for stock valuation. The P/E multiple provides investors an indication of the value per unit of a firm's earnings. The multiple shows how much an investor is willing to pay per dollar of earnings. This valuation multiple indicates whether a stock is cheap or expensive and whether a firm with a high P/E is likely to grow or that the firm could be overvalued (Dayag & Trinidad, 2019). The valuation metric is often used to determine whether a firm is traded at a higher or lower P/E compared to similar firms. A downside with the P/E multiple is that it cannot be used for firms operating at a loss, as one would have negative Earning Per Share (EPS). The P/E multiple has the following formula:

$$P/E = \frac{\text{Stock Price}_{t=0}}{EPS}$$

None of the indexes in the data set had negative P/E and thus, it could be a reasonable estimate for the pricing of the indexes. As with the PBV, the MSCI World index had the highest P/E multiple of **19.3**, MSCI Frontier had **15.1**, and the MSCI Emerging index had **14.1**. The analysis shows that investors are willing to pay a higher price for the stocks' earnings within the MSCI World index and might have better growth perspectives. The result also indicates that the emerging index is the cheapest, relatively speaking, of the three.

The **EV / EBITDA** multiple is a valuation method and is, together with the P/E multiple, the two most popular valuation methods. The valuation method is often used within the entertainment, healthcare, telecommunications, and publishing



industries. This measure is valuable for investors in terms of viewing whether a prospect can invest in future projects and service debt, and thus, the EV/EBITDA multiple was popular amongst investors during the *Leveraged Buyouts* period in the 1980s. A high EV/EBITDA multiple might indicate that the company is overvalued and vice versa. As a result, firms with a lower multiple might be more attractive to investors. A caveat of this measure is that if the company is operating at a loss, it is not recorded in the EV/EBITDA multiple. Further, EBITDA does not consider depreciation, which could be a significant expense for companies (Mauboussin, 2018). The multiple has the following formula:

$$EV/EBITDA = \frac{\text{Enterprise Value}}{EBITDA}$$

Where;

*Enterprise Value*

$$= (\text{Market Cap} + \text{Value of debt} + \text{minority interest} + \text{preferred shares}) - \text{Cash and cash equivalents}$$

And;

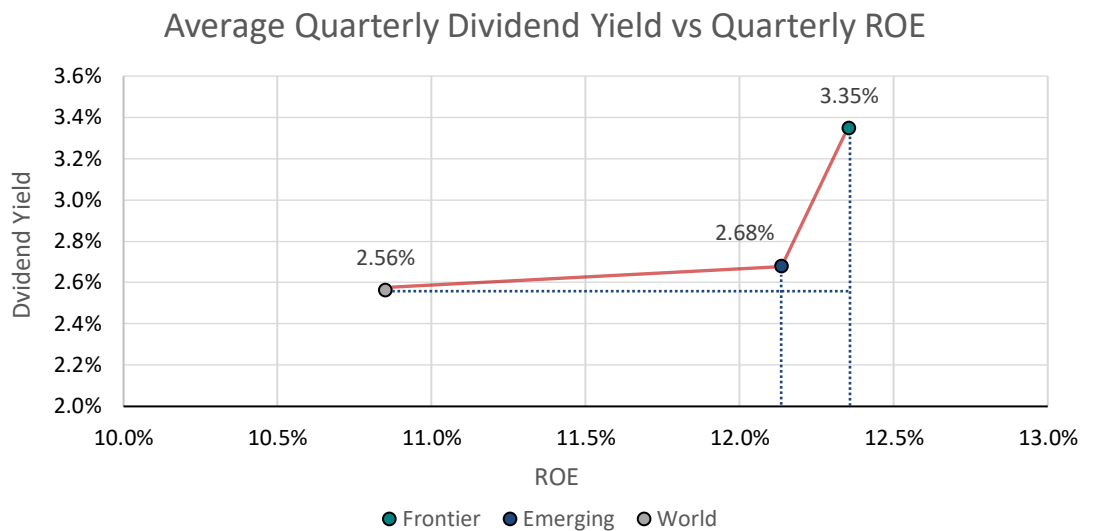
*EBITDA = Earnings before Interest, Tax, Depreciation and Amortization*

From our analysis, we found the average EV/EBITDA value for the MSCI World at **8.5**, MSCI Frontier at **6.7**, and MSCI Emerging at **6.4**. The analysis shows that the MSCI World is **26%** higher than MSCI Frontier and **34%** higher than MSCI Emerging. The results would indicate that the MSCI World might be overvalued and less attractive to investors compared to the two other indexes.

### **5.6 Risk Premiums on Dividend Yields**

In addition to estimating future annual dividend yields, as shown in section 5.2, we have analyzed how the average quarterly dividend yields and return on equity (ROE) have performed over the sampling period. This exercise will provide an estimate of the risk premiums in terms of dividend yields. As shown in Section 5.1, MSCI Frontier has provided lower returns than MSCI Emerging and World. Thus, we wanted to investigate whether investors have been compensated for taking on additional risk through dividends rather than capital gains. In the following section,

we have analyzed the correlation between dividend yield and ROE to view how firms potentially allocate excess cash. From our analysis in Section 5.3, we found that MSCI Frontier had higher profit margins. Furthermore, MSCI Frontier also had higher ROE compared to the other indexes, as shown in the graph below:



From the analysis, we found that the average quarterly dividend yield for MSCI World to be **2.56%** and **2.68%** for MSCI Emerging. Lastly, MSCI Frontier had the highest dividend yield of **3.35%**. Viewing the risk premiums for these dividend yields, given that the assumption that MSCI World is the least risky investment holds, one can see that MSCI Emerging had a risk premium of **0.12%**, While MSCI Frontier had a risk premium of **0.79%**. This might not be a significant difference initially. However, as these figures are quarterly, over an extended period, the MSCI Frontier would likely provide significantly higher dividend yields. From the dividend yield estimation in section 5.2, we found similar results: MSCI Frontier had the highest estimated annual dividend yield of **9.01%**, while MSCI World had the lowest estimated dividend yield of **6.76%**.

Lastly, we ran a correlation analysis of the dividend yield and return on equity. This might indicate whether profitable firms pay dividends or not. In the analysis, we found that the ROE and DY for the MSCI world had a correlation of **-0.46**. Indicating a negative relationship between profitability and DY. For MSCI Emerging, we found a positive correlation of **0.11**, and for MSCI Frontier, **0.22**, indicating a positive relationship. The results for MSCI World can be supported by literature cited in section 5.3. Most S&P500 firms used earnings to buy back shares

(54%) rather than paying dividends, about 37% of earnings (Lazonick, 2014). This can also be an explanation as to why the MSCI World index, on average, performs better in terms of returns compared to the MSCI Frontier – when firms buy back shares from the open market, the supply of shares is lower, and thus, the share price increases and gives investors higher returns.

### ***5.7 Results and Key Findings***

Our research found that, on average, the MSCI Emerging index had the highest annual returns of **0.8%**, compared to MSCI Frontier, which had the lowest returns of **0.6%**, and the MSCI World **0.7%**. Regarding risk and standard deviations, we found similar results, with emerging having the highest risk, frontier second, and MSCI World having the lowest quantifiable risk. This would align with the theory, that the riskier the investments, the higher returns. However, based on the research and more specifically, if an investor invested \$100 in 2002, their investment would have been worth more during the entire period until the Covid-19 Pandemic.

Furthermore, our research found that MSCI Frontier has had the highest annual dividend yield at approximately 9% on average, significantly higher than MSCI World at 6.8%. We also estimated the MSCI Frontier to have the highest dividend yields in 2022, although there will be a decline from 2021, which applies to all indexes. In terms of profitability and pricing, MSCI Frontier had much higher profitability ratios than the other indexes. We found, however, in the pricing section, that investors seem to be more confident in the MSCI World index, with the highest price-book-value and highest price/earnings ratios, which would suggest that investors would be willing to pay a higher price for shares in the MSCI World index, compared to the other two. The final pricing multiple we analyzed was the equity value / EBITDA. The MSCI Emerging had the lowest ratio, suggesting that the index is undervalued.

Lastly, the research suggests a negative correlation between dividend yield and ROE (-0.46) for MSCI World; however, we see a positive correlation of 0.22 and 0.11 for MSCI Frontier and Emerging, respectively. This suggest that companies in the world index would instead buy back shares or invest for future growth, as shown in the paper by Lazonick (2014).

### ***5.8 Limitations and Ideas for Future Research***

First and foremost, the research is based on three stock indexes, covering a broad spectrum of developed, emerging, and undeveloped markets and various sectors. Some limitations of this data are that the indexes all have a significant weight in one or more specific countries, such as the United States (2/3), China (1/3), and the Philippines (1/3). The analysis presented heavily depends on how these economies have performed over the last 20 years. Other large economies, such as Japan, the United Kingdom, India, South Korea, and Vietnam, with significantly smaller weights, have little effect on the overall performance of the indexes.

Furthermore, we have not analyzed the performance of different sectors, as the Bloomberg license did not cover industry performance, just the overall performance of the indexes. In addition, the above research does not consider the inflation and currency devaluation an investor might experience when investing in emerging or frontier markets. We have not considered the cost of entry and cost of doing business either. In one of these markets, a firm that wishes to put down roots is likely to pay high fees in doing so. In line with the “Ease of Doing Business”, countries in the MSCI Frontier Index, such as the Philippines and Vietnam, score quite high on the rankings and low on the score, suggesting that access to finance is difficult. Lastly, in addition to the research on the stock indexes, the authors wished to run multiple regression analysis on the returns of the indexes, where one would see how different independent variables, such as dividend yield, return on equity, and D/E ratio, would affect the returns of the indexes. However, the results were neither consistent nor significant; this is in line with academic scholars’ findings when examining the Arbitrage Pricing Theory (see section 2.3.2).

For future research, the authors of this paper suggest analyzing specific sectors in different countries and comparing them. This would allow investors to see how, for example, energy projects in a developed market, such as the United States or Norway, can be compared with a similar project in another developing country, such as South Africa or Kenya. This would provide valuable insight to investors on the risks and potential returns of investing in developing markets and whether investors are hesitant to enter these markets due to weak projects or weak economies.

## 6.0 Summary and Conclusion

This thesis paper has researched the investment returns and risk premiums in emerging and frontier markets and whether investors will be compensated for taking on additional risk in these markets. With answering our hypothesis, whether “*Investors will be Compensated for Investing in Emerging and Frontier Markets*”, the paper aims to enlighten investors about the investment opportunities and potential risks in emerging and frontier markets and further promote these investments if seen beneficial.

We found that the MSCI Emerging index provides the highest average annual returns over the sampling period and the highest average standard deviation, which would support the argument that more risk potentially provides higher returns. Furthermore, the MSCI Frontier index has the highest estimated dividend yield for 2022 when using DY growth rates as  $g$ . However, when using GDP growth rates as  $g$ , we found the MSCI Emerging having the highest estimated dividend yields and risk premiums close to the equity risk premiums provided by Damodaran, where we found a weighted ERP of 7.1% for Frontier and 5.4% for Emerging. For the average dividend yield across the time period, we found a risk premium of 0.79% for MSCI Frontier and 0.12% for MSCI Emerging (quarterly). These figures are significantly below the estimated equity risk premiums from Damodaran’s overview.

When analyzing the pricing multiples of the different indexes, we found that investors seem more confident in MSCI World, with the highest PBV and P/E ratios. This might suggest low investor confidence in MSCI Emerging and Frontier, although these indexes are significantly more profitable and have a higher dividend yield. We see that government intervention is likely a significant contributor during and after recessions, as we saw after the 2008 financial crisis and COVID-19 Pandemic, especially with the MSCI World index, which had a significantly fast recovery compared to the two other indexes.

Based on the research, we conclude that investors are compensated for the risk they take when investing in either the MSCI Frontier or MSCI Emerging index. Although the risk is higher and capital gains are low, investors are still compensated

through dividends. There are also numerous indications that these indexes are undervalued, and thus, might present a good investment opportunity for foreign investors.

On a final note, the authors would like to take the opportunity to advise investors to continue to seek out investment opportunities in emerging and frontier markets as this will potentially improve these countries' economies. One could argue that this would lead to prosperity in otherwise less fortunate countries. The synergies created between developed and less developed economies that will stem from increasing the investment volume would work as a catalysator to improve the global economy and decrease inequality.

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## 8.0 Appendix

### 8.1 Regression output Returns

#### Regression analysis of Returns: MSCI Frontier

Dependent Variable: Index Returns

Number of observations: 54

Variable	Coefficient	Std. Error	t-Statistic	P-value
Intercept	0,25849	0,06600	3,91678	0,00026
Dividend Yield	- 7,77965	1,92872	- 4,03358	0,00018
R-squared	0,23832			
Adjusted R-squared	0,22367			
S.E. of regression	0,10169			
F-statistic	0,00018			

Figure 3: MSCI Frontier

#### Regression analysis of Returns: MSCI Emerging

Dependent Variable: Index Returns

Number of observations: 54

Variable	Coefficient	Std. Error	t-Statistic	P-value
Intercept	0,38311	0,08705	4,40090	0,00005
Dividend Yield	- 13,96250	3,21050	- 4,34901	0,00006
R-squared	0,26672			
Adjusted R-squared	0,25261			
S.E. of regression	0,10056			
F-statistic	0,00006			

Figure 4: MSCI Emerging

#### Regression analysis of Returns: MSCI World

Dependent Variable: Index Returns

Number of observations: 54

Variable	Coefficient	Std. Error	t-Statistic	P-value
Intercept	0,26602	0,06318	4,21061	0,00010
Dividend Yield	- 9,61303	2,42937	- 3,95701	0,00023
R-squared	0,23143			
Adjusted R-squared	0,21665			
S.E. of regression	0,08057			
F-statistic	0,00023			

Figure 5: MSCI World

## 8.2 Regression output Dividend Yields

### Regression analysis of Dividend Yield (DY): MSCI Frontier

Dependent Variable: Dividend Yield

Number of observations: 54

Variable	Coefficient	Std. Error	t-Statistic	P-value
Intercept	- 0,01370	0,00924	- 1,48289	0,14426
ROE	0,12179	0,03876	3,14241	0,00279
D/E	0,07781	0,01616	4,81634	0,00001
R-squared	0,34469			
Adjusted R-squared	0,31900			
S.E. of regression	0,00598			
F-statistic	0,00002			

Figure 6: MSCI Frontier

### Regression analysis of Dividend Yield (DY): MSCI Emerging

Dependent Variable: DY

Number of observations: 54

Variable	Coefficient	Std. Error	t-Statistic	P-value
Intercept	- 0,00711	0,00754	- 0,94301	0,35012
ROE	0,10524	0,03160	3,32993	0,00162
D/E	0,04342	0,00961	4,51764	0,00004
R-squared	0,29499			
Adjusted R-squared	0,26734			
S.E. of regression	0,00368			
F-statistic	0,00013			

Figure 7: MSCI Emerging

### Regression analysis of Dividend Yield (DY): MSCI World

Dependent Variable: DY

Number of observations: 54

Variable	Coefficient	Std. Error	t-Statistic	P-value
Intercept	0,01489	0,00313	4,75657	0,00002
ROE	- 0,01857	0,01829	- 1,01546	0,31468
D/E	0,02013	0,00255	7,88975	0,00000
R-squared	0,64584			
Adjusted R-squared	0,63196			
S.E. of regression	0,00276			
F-statistic	0,00000			

Figure 8: MSCI World

### 8.3 Weighted GDP growth

	Country	Weight	GDP	Weighted
Frontier	Philippines	29,8%	4,73%	1,4%
	Vietnam	15,4%	5,86%	0,9%
	Peru	8,7%	3,71%	0,3%
	Colombia	7,1%	3,22%	0,2%
	Morocco	5,5%	3,08%	0,2%
	Others	33,5%	3,5%	1,2%
<b>Total</b>				<b>4,2%</b>

	Country	Weight	GDP	Weighted
Emerging	China	32,1%	7,42%	2,4%
	Taiwan	16,1%	3,40%	0,5%
	India	12,5%	6,17%	0,8%
	South Korea	11,7%	2,87%	0,3%
	Brazil	4,6%	1,16%	0,1%
	Others	23,0%	2,9%	0,7%
<b>Total</b>				<b>4,8%</b>

	Country	Weight	GDP	Weighted
World	United States	68,8%	1,71%	1,2%
	Japan	6,3%	0,27%	0,0%
	United Kingdom	4,2%	1,09%	0,0%
	France	3,4%	0,80%	0,0%
	Canada	3,3%	1,46%	0,0%
	Others	14,1%	1,55%	0,2%
<b>Total</b>				<b>1,5%</b>