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The effect of disaggregated country risk on the South African equity portfolio returns under changing market conditions

by

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DECLARATION

I Sandisele Jaffar, declare that:

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فَٱذْكُرُونِىٓ أَذْكُرْكُمْ وَٱشْكُرُواْ لِى وَلَا تَكْفُرُونِ ١٥٢

"So remember Me; I will remember you. And be grateful to Me and do not deny Me."

2: Al-Baqarah, Verse: 152

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ABSTRACT

Globalization has resulted in the rapid increase of international trade and international mobility of financial capital. Capital inflows into South Africa date back to the early 1990s and these inflows continue to grow. With increased investments into the country, investors can diversify some local risks. Still, they also become exposed to the different components of country risk (political, financial, and economic risk). However, depending on the investor's risk appetite, country risks may encourage or discourage foreign portfolio investments. This study examined the effects of disaggregated country risk on South African equity portfolio returns under changing market conditions.

Additionally, this study compared how South African domestic and foreign equity portfolios respond to changes in country risk components under bearish and bullish market conditions. A Markov switching approach was employed to analyse monthly data of 19 equity portfolios for the sample period spanning from January 2000 to December 2019. The results suggested that domestic and foreign portfolios spent more time in downward trends. Moreover, the effects of country risk components depend on market conditions for both domestic and foreign portfolios. In both cases, the impact of country risk components is more significant in bull than in bear market conditions. Essentially, economic and financial risk had a more substantial impact on domestic portfolios, whereas political risk was more significant on foreign portfolios. In this way, political risk cannot be diversified through investing in foreign portfolios. These findings have crucial implications as they indicate that it is vital to maintain a stable economic, financial and political environment to encourage sustainable portfolio investment.

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LIST OF ACRONYMS

AGOE- Allan Gray - Orbis Global Equity Feeder Fund

ALBI- All-Bond Indices

ALSI- JSE All-Share Index

AMH- Adaptive Market Hypothesis

ASISA- Association for Savings and Investment South Africa

BOVA-Nedgroup Investments Value Fund A

BRICS- Brazil, Russia, India, China, and South Africa

BFT- Behavioural Finance Theory

CGMG- Community Growth Fund

CNIG- Coronation Global Opportunities EQT [ZAR] Feeder A

CORA- Coronation Equity Fund A

Covid-19- Coronavirus Disease 2019

CRR- Country Risk Rating

ECO- Economic Risk

EMDB-Emerging Markets DataBase

EMH- Efficient Market Hypothesis

FDI- Foreign Direct Investment

FEQF- Foord Equity Fund

FGFA- Ninety-One Global Franchise Feeder Fund A

FIN- Financial Risk

FPI- Foreign Portfolio Investment

GDP- Gross Domestic Product

GFC- Global Financial Crisis

ICRG- International Country Risk Guide

IFC- International Finance Corporation

MSCI- Morgan Stanley Capital International

MSM- Markov Switching Model

IFS-International Financial Statistics

IMF- International Monetary Fund

IRESS- Integrated Real-time Equity System

ISGE- AF Investments Global Equity Feeder Fund A

JSE- Johannesburg Stock Exchange

LIPA- Stanlib SA Equity Fund - A

LIWA- Stanlib Equity Fund - A

MEAF- Middle Eastern and African

MHGE- Harvard House BCI Equity Fund A

MPT- Modern Portfolio Theory

MSTT- Sasfin BCI Equity Fund A

NAV- Net Asset Value

NEGF- Nedgroup Investments Growth Fund A1

NYSE- New York Stock Exchange

OCIF- Oasis Crescent International Feeder Fund

OECD- Organization for Economic and Co-operation Development

OMGA- Old Mutual Global Equity Fund A

POL- Political Risk

PRGS- Political Risk Services Group

PSGG- PSG Equity Fund A

RMBI- Momentum International Equity Feeder Fund A

SA- South Africa

SARB- South African Reserve Bank

SBAQ- Stanlib Global Equity Feeder Fund - A

SGTA- Sanlam Global Equity Fund A

CHAPTER 1: INTRODUCTION

1.1 Background

Globalization has increased the integration and interaction of people, businesses, and governments worldwide (Wright, 2018). This has resulted in the rapid increase in international trade and international mobility of financial capital (Andreev et al., 2015). With increased global capital flows, financial markets around the world proliferated, which helped investors commit to international capital investments with more reliable returns (Lane and Milesi-Ferretti, 2003; Al Samman and GabAlla, 2020). Global capital flows are divided into Foreign Direct Investments (FDIs) and Foreign Portfolio Investments (FPIs) (Makoni, 2020). Foreign Direct Investments are long-term investments involving physical capital movements such as machinery, equipment, and the buying of buildings to promote growth in the host country (Türedi, 2018). FPIs, on the other "hand", are investments involving the transfer of national capital to foreign currencies and assets outside the home country solely for capital gains (Oloko, 2018; Saymeh and Orabi, 2019).

Since the focus of FPIs is profit, they rank lower than FDIs in the international capital flows hierarchy (Opperman and Adjasi, 2017). FPIs include the buying and selling of securities such as stocks, commercial paper, and debt securities, among others, outside the domestic economy (Oloko, 2018). This study focuses on equity FPIs and South African equity portfolios. The categorisation of an equity portfolio differs among countries. According to the Association for Savings and Investment South Africa (ASISA) in SA a portfolio must encompass 80 percent of domestic equities to be identified as a South African equity portfolio. However, if a portfolio contains 80 percent of foreign equities with less than 80 percent exposure to equities in a specific area, it is recognized as a global equity portfolio (ASISA, 2018). While the focus of foreign portfolios is profit, Calvo et al. (1996) and Singhania and Saini (2018) emphasized the importance and contribution of these investments in the advancement of developing countries; including but is not limited to increased liquidity of financial markets, leading to increased employment, productivity, and economic growth (Makoni, 2020).

Portfolio flows to developing and emerging economies such as South Africa date back to the early 1990s (Oetzel et al., 2001). This means that many capital inflows occurred in SA before 1994, which was the year the nation gained independence (Giritli and Ibrahim, 2020). Between 1995 and 1999, the South African equity market experienced an influx of international portfolio investments (South African Reserve Bank, 2010). Unfortunately, this rapid growth of portfolio investments was hindered by the dot-com financial crisis in 2000. The dot-com economic

shock, also known as the tech bubble was triggered by the rapid increase of investments in technology by venture capitalists and other investors (International Monetary Fund, 2011). Fortunately, the South African stock market swiftly regained momentum shortly after the stock market price bubble bust. In this way, in the early 2000s, international investors were drawn to South Africa, which increased capital inflows into the country until a global financial shock presented itself in 2008 (Giritli and Ibrahim, 2020). According to the International Monetary Fund (IMF), the 2008 Global Financial Crisis (GFC) resulted in a decline in capital flows for all countries across the globe (IMF, 2018).

After the 2008 GFC, as early as 2009, South Africa issued more bonds and portfolio investors turned to debt investments, which accounted for 78 percent of the country's international debt obligations by 2012 (South African Reserve Bank, 2010). It is important to note that, although South Africa issued more bonds after the 2008 GFC, in 2013, foreign portfolio investments into the country amounted to 3.1 percent of Gross Domestic Product (GDP). This was greater than some of the major emerging countries in the BRICS association, including Brazil, Russia, India, China, and South Africa (Organisation for Economic Co-operation and Development, 2013). Between 2014 and 2017, there was a further increase of R408.1 billion in FPI inflows, three times higher than FDI capital inflows (OECD, 2018). However, between 2019 and 2020, these capital inflows plummeted due to the Covid-19 pandemic. Foreign capital inflows shifted from a net inflow of R153 billion in 2019 to a net inflow of R108 billion in 2020. The decrease in capital inflows into South Africa occurred because investors were uncertain about the effects of the Covid-19 pandemic on the benefits of international diversification (Grubel, 1968; DeRoon et al., 2001; Driessen and Laeven, 2007).

International diversification occurs when investors seek external investment opportunities as a strategic decision to eliminate the risks in local markets (Hernandez-Perlines et al., 2020) while simultaneously capitalising on the risk/return trade-off offered by foreign markets (Bobillo et al., 2010; Al Samman and GabAlla, 2020). The idea of portfolio diversification commenced in 1952 when Harry Markowitz highlighted the Modern Portfolio Theory (MPT) (Mangram, 2013). The MPT encompasses the Portfolio Selection theory also established by Harry Markowitz. The portfolio selection theory states that if the correlation of returns between different investments is not perfect, an opportunity for diversification exists. For example, developed financial markets are incredibly advanced, integrated, and offer exceptional facilities that lure investors from various regions worldwide. However, because developed markets are more integrated than developing or emerging markets, their reaction to economic

shocks and financial is more correlated than developing and emerging markets (Demirer, 2013). Consequently, more developed countries seek investment opportunities in developing markets (Oloko, 2018). However, developing nations are notorious for high levels of country risk that international investors need to be aware of since they affect portfolio returns (Al Samman and GabAlla, 2020). Notwithstanding, some scholars, such as Hanousek and Filer (2000), Carmichael and Samson (2003), and Sensoy et al. (2016) posit there is no link between portfolio investments and country risk. On the other hand, there have been a confirmation of the effect of country risks to individual financial markets, implying that such effect may be extend to portfolio investments (Mutize and Gossel, 2019; Muzindutsi and Obalade, 2020; Nhlapho and Muzindutsi, 2020; Kunjal et al., 2022; Muzindutsi et al., 2022; Vengesai et al., 2022).

Country risk is the potential divergence of the business environment in a particular country that may negatively influence the value of assets and operating profits of entities (Wilkin, 2001; Türedi, 2018; Damodaran, 2021). Furthermore, country risk demonstrates possible diversification benefits, where developing and emerging economies have a more significant potential for global diversification due to higher risk than advanced economies. Although country risk affects international investments, Damodaran (2021) states that country risk has a more significant impact on domestic portfolios. Since country risk affects investments, investors around the globe deem it necessary to assess and know the state of a country before investing in it. The thinking behind a thorough understanding of a country's economic, financial, and political stability is to determine the risks involved in doing business or investing in such a country. For example, when looking into the Russian invasion of Ukraine that occurred on 24 February 2022, a political shock of that nature has never been sighted since World War II. The effects of the crisis have significantly impacted the political landscape in Europe (Dräger et al., 2022). Therefore, international and European investors need to look into the implications of Russia's invasion on European countries' assets before actually leaping to invest.

The demand for assessing a country's investment environment led to the formation of credit-rating agencies, such as Standard & Poor's, Fitch, and Moody's, amongst others (Almahmoud, 2014). These credit-rating agencies provide country risk ratings, and such ratings are indicators of possible future credit default. If a country has a lower rating, it possesses a greater risk of default; thus, it is charged higher interest rates when borrowing internationally due to the greater risk. On the other "hand", a higher risk rating shows that a country has a lower chance of default and is generally charged lower interest rates when borrowing internationally due to

lower risk (Mutize and Gossel, 2018). The paramount importance of credit ratings lies in their impact on interest rates when issuing debt internationally but research also shows their effects on stock market trends (Erb et al., 1995; Christopher et al., 2012; Sari et al., 2013; Nhlapho and Muzindutsi, 2020; Kunjal et al., 2022; Muzindutsi et al., 2022). Various institutions provide data on country risk. Howell (2013) and Vengesai and Muzindutsi (2019), amongst others, posit that the International Country Risk Guide (ICRG) estimates and forecasts risk better than other institutions as it provides detailed scores for various components of country risk.

The ICRG divides country risk into three components: economic, financial, and political risk (ICRG, 2017). Economic risk is assessed through the volatility of inflation, GDP per capita, the budget balance, and GDP growth, amongst others (Howell, 2013). Financial risk considers how well a country meets its international debt obligations. Financial risk is evaluated using foreign debt as a percentage of GDP, exchange rate stability, and global liquidity, amongst others (Howell, 2011). How a country responds to financial and economic risk depends on the development stage of its economy, where developing nations are affected more than developed countries and thus possess greater economic and financial risk. For example, the GFC resulted in equity markets in developed nations declining by 25-30 percent. At the same time, it caused about a 50 percent drop in numerous emerging markets. Furthermore, after the GFC, private sector investment declined in South Africa due to increased economic uncertainty (Nicolai and Vincent, 2018). Between 2017 and 2018, the rand's volatility reached 8.6 percent, and the inflation rate rose to above 6 percent, which is the upper limit target set by the South African Reserve Bank. This led to a reduction in the economic growth rate as it averaged at an awful 1 percent rate (IMF, 2018). Lockdown restrictions to curb the spread of the Covid-19 pandemic exacerbated the unfavourable economic conditions in SA, as the level of the real GDP was 3.2 percent lower in the first quarter of 2021 than in the first quarter of 2020 (SARB, 2021).

Political risk is a non-commercial risk. In South Africa, political risk has been volatile over the years. Immediately after gaining independence until 2008, the country saw steep political risk improvements, which increased investor confidence. Nonetheless, this was short-lived because of increased corruption during former President Jacob Zuma's tenure between 2009 and 2018. During this time, a wave of mass student protests over tuition costs, multiple cabinet reshuffles, and other social and economic issues occurred. This resulted in SA being downgraded to sub-investment grade, thus increasing the risk of investing in South Africa. Amid the escalation of corruption scandals and legal investigations in early 2018, former President Jacob Zuma was

forced to resign (Frisbie, 2018). President Cyril Ramaphosa took over in 2018 and is the current president of South Africa. Initially, President Ramaphosa boosted investor confidence. However, in the same year, the president cut short an international trip to address service delivery protests, xenophobic attacks, and clashes between ruling party members (Cook, 2019). Several protests have periodically occurred since. The most recent one was the riots and looting in July 2021 in two of South Africa's biggest provinces following the arrest of former President Jacob Zuma (Vhumbunu, 2021). Such political uncertainties have caused fluctuations in investment levels in SA (Nhlapho and Muzindutsi, 2020; Kunjal et al., 2022). Therefore, when political, financial, and economic factors fluctuate, they affect market conditions in financial markets.

Market conditions in financial markets can be either bullish or bearish. A bull market occurs when market prices are persistently on an upward trend, and a bear market occurs when prices decrease persistently (Chauvet and Potter, 2000). The Efficient Market Hypothesis (EMH) proposed by Fama (1965) alludes that when there is new information in the market, it spreads swiftly and is immediately reflected in asset prices (Malkiel, 2003). This is because the EMH posits that investors are rational thinkers since investors' psychological behaviour does not influence market prices. Therefore, under the EMH, it is impossible to attain higher returns than the market unless more risk is taken up by the investor (Statman, 2014). Although the EMH was initially widely accepted by academics and financial economists, the level of support declined with the emergence of behavioural finance.

Tversky and Kahneman (1974) wrote the first paper on behavioral finance, stating that investors are not always rational and do not entirely make optimal decisions. Thus, markets are not perfectly efficient as can be affected by investors' behavioural factors. Given these two schools of thought, the EMH states that markets are always perfectly efficient, and Behavioral Finance posits irrational investors create inefficient markets. Lo (2004) established a theory that reconciles the Efficient Market Hypothesis and Behavioural Finance Theory, referred to as the Adaptive Market Hypothesis (AMH), as the scholar posited that financial markets alternate between efficiency and inefficiency.

Beine et al. (2008) postulate that financial markets are innately cyclical in the sense that they match economic cycles. When the economy is experiencing increased levels of employment, productivity and GDP per capita, it spills over to financial markets and leads to a rising market, called a bull market. In the bull market, asset prices experience persistent increases, which

signal investors to posit that the market will continue rising. Conversely, if an economy is down, unemployment is increasing, company profits are declining, and workers are being retrenched, it affects financial markets negatively and leads to a downward trend called a bear market (Prechter and Parker, 2007). In the bear market, asset prices experience sustained plunging, and investors posit the prices will continue dropping, thus exacerbating the downward trend (Prechter and Parker, 2007). Lo (2004) introduced the AMH to explain the movement of market conditions from bullish/bearish to bearish/bullish market over time. The theory states that the changing dynamics in financial markets and participants alike show how efficient a market is. In this way, the AMH posits that the impact of country risk on portfolio returns should be dependent on market conditions. The AMH theory has been tested extensively in stock markets (Kim et al., 2011; Lim et al., 2013; Obalade and Muzindutsi, 2019). This study attempts to add to this body of knowledge by investigating the effects of country risk components on equity portfolio returns in time-varying conditions of the market in South Africa.

1.2 Problem Statement

South Africa attracts a significant amount of capital inflows because of sophisticated and advanced financial markets such as the Johannesburg Stock Exchange (JSE). Capital inflows are highly related to enhanced investor confidence and promising economic growth prospects (Ng'ambi, 2015). Moreover, foreign portfolio investments into emerging economies such as South Africa have been identified to increase liquidity in financial markets, supplement domestic investment and introduce new and advanced technologies, which results in higher productivity, employment, and economic growth (Makoni, 2020). However, South Africa has several long-standing political and economic uncertainties arising from instability in the political and economic environment (Buwembo, 2020). An unstable economy increases the risk of investing in South African markets and may affect foreign portfolio investments. For risk-averse investors, these risks can result in the deterioration of foreign investment levels. At the same time, they can also attract risk-tolerant investors who may take advantage of high risks to earn high returns.

Consequently, the effect of the increasing South African economic, financial and political risks on portfolio investment has to be established, primarily because the link between country risk and individual financial markets has been estibalished (Mutize and Gossel, 2018; Mutize and Gossel, 2019; Mutize and Nkhalamba, 2020; Nhlapho and Muzindutsi 2020; Muzindutsi and Obalade, 2020). However, the established relationships may not apply to portfolio investments

that hedge against some country risks. Hence, the need for further studies focusing on investment portfolios.

Existing studies that link country risk with portfolio investments such as Cosset and Suret (1995), Busse and Hefeker (2005), Driessen and Laeven (2007), and Singhania and Saini (2018) focused on the effects of aggregated country risks on portfolio investments without isolating the impact of each component of country risk. Furthermore, previous literature did not account for changing conditions of the markets. Given that global equity markets are more closely correlated in bear markets than bull markets, investors are likely to obtain less global diversification benefits in up markets (Campbell, 2002). Thus, accounting for changing market conditions is essential when evaluating the effect of country risk on international investments. Additionally, existing studies did not compare domestic and international investment equity portfolios to determine whether some components of country risk can be eliminated through international diversification. Therefore, the effect of disaggregated country risks on equity portfolio returns under changing market conditions is still subject to debate and requires further investigation, especially in the South African context, due to increased economic, financial, and political risk fluctuations.

1.3 Research Objectives

The study aims to test the effects of disaggregated country risk on South African equity portfolio returns under changing market conditions by:

- Comparing the level of bull and bear market conditions in South African and Global equity portfolios.
- Comparing how South African and Global equity portfolios respond to changes in economic, financial, and political components of country risks in a bullish market; and,
- Comparing how South African and Global equity portfolio returns respond to changes in economic, financial, and political components of country risks in a bearish market.

1.4 Research Questions

To achieve the set objectives, this study intends to answer the following research questions:

- How long do South African (domestic) and Global (foreign) equity portfolios stay in bull or bear market conditions?
- How are South African and Global equity portfolio returns affected by economic, financial, and political risk in a bullish market?

- How are South African and Global equity portfolio returns affected by economic, financial, and political risk in a bearish market?

1.5 Significance of Study

While country risk affects international and domestic investments, Damodaran (2021) shows that the impact is more significant on domestic portfolios. Consequently, global diversification can be used to eliminate domestic risk. Several studies focused on the diversification benefits associated with investing internationally Grubel (1968), Cosset and Suret (1995), Bekaert and Urias (1996), DeRoon et al. (2001), Driessen and Laeven (2007), Sensoy et al. (2016) Al Samman and GabAlla (2020), and Sgamini and Muzindutsi (2020) but these studies do not account for the effects of country risk on portfolio investments. Additionally, these studies produced conflicting evidence on the impact of country risk on foreign investments.

There is a plethora of literature documents on the link between asset returns and country risk (Christopher et al., 2012; Sari et al., 2013; Nasr et al., 2018; Nhlapho and Muzindutsi, 2020). However, these studies focused on individual financial markets instead of investment portfolios and did not account for changing market conditions. Therefore, this study is unique because it accounts for disaggregated country risk on investment portfolio returns and compares the effects of each country's risk component on domestically diversified and internationally diversified portfolios. Furthermore, the study adds a new facet to the body of literature in South Africa since previous studies have not investigated the relationship between economic, political, and financial components of country risk and investment portfolio returns in the South African context. Ultimately, the study assists global and local investors, portfolio managers, scholars, and policymakers in analysing and predicting the effects of country risk on investment portfolios. Consequently, minimizing any substantial negative impact on the South African economy that may be caused by country risk.

1.6 Methodological Scope of the Study

To address the second and third objectives of this study, a Markov switching quantitative approach was employed to analyse monthly data of nineteen equity portfolios for the sample period spanning from January 2000 to December 2019. The model clearly illustrated the disaggregated economic, financial, and political risk impact on the sampled portfolios under changing market conditions. According to Cifter (2017) Markov-Switching Models are highly prevalent with regard to evaluating bull and bear market conditions. Furthermore, the model possesses constant probability and expected duration properties, these properties aided in

addressing the first objective of this study. Specifically, the probability of each portfolio staying in a bull or bear market was determined, and the number of months the portfolio spent on that market condition was revealed. It is important to note that, preliminary tests were conducted to ensure that the Markov-Switching Model of Conditional Mean estimated reliable and accurate results (Aikaterini, 2016).

1.7 Delimitation of the Study

The study focused on general equity portfolios. A significant drawback with focusing this study on general equity portfolios is that the rest of the equity portfolio industry is not represented. Thus, the study cannot be used to infer the effects of country risk on other types of equity portfolios. Moreover, a vast majority of South African and global general equity portfolios had missing return data, which reduced the number of portfolios that could be examined in this study. Despite the limitations the aim of the study was fulfilled.

1.8 Thesis Structure

This study comprises five chapters. Chapter 1 provided the background of South Africa's position in terms of country risk and how it has affected domestic and international investments. The problem statement delivered the motivation of the study. Chapter 1 also highlighted the gap in the extant literature, provided the study's aim and research questions, and briefly discussed how the study's objectives were empirically addressed. Chapter 2 discusses traditional finance theories (Efficient Market Hypothesis, Modern Portfolio Theory, Behavioral Finance Theory, and the Adaptive Market Hypothesis) and key concepts (international diversification, country risk components, and Credit Rating Agencies) associated with the interaction of country risk and equity markets. Further, an empirical literature review is presented from a local and international perspective. Chapter 3 presents the methodology focusing on the nature of data used for this study and outlines the Markov-Switching Model of Conditional Mean. Chapter 4 brings to light the empirical results together with the findings and analysis. Finally, Chapter 5 provides the summary, implications of findings and conclude the study. Thereafter, Chapter 5 highlights the limitations of this study and offer recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The foreign debt crisis experienced by developing and emerging economies over the last few decades raised concerns to investors regarding investments in these economies (Gür, 2001). These concerns increased the demand for country risk ratings (Iranzo, 2008). Country risk ratings aim to help investors commit to better investment decisions, as they eliminate information asymmetry between asset prices and investors (Chen et al., 2004). If done accurately and in advance, country risk analysis is beneficial to local and international investors (Iranzo, 2008). Thus, it is imperative for market participants, investors, portfolio managers, the government, and other stakeholders, amongst others, to probe how political, economic, and financial risk affect investments. This study's literature review focuses on studies of country risk's impact on equity markets since literature examining the effects of country risk on equity portfolios is scant. First, this chapter conceptualizes the study's terms and provides a detailed discussion of the underpinning financial theories. Second, an empirical literature review is presented locally and internationally. Additionally, a gap in the existing literature is identified.

2.2 Conceptualisation of the Study's Terms

Financial consultants are known for the infamous saying, "don't put all your eggs in one basket" (Oudat et al., 2020). In simple terms, investors should protect investments from uncertainty by diversifying investments with different securities instead of relying on one type of security (Oudat et al., 2020). Initially, investors practiced diversification to reduce risk while maximizing returns in local markets, but with the proliferation of global financial markets, investors began to diversify their portfolios internationally, which resulted to risk exposure in other countries (Demodaran, 2021). Against this backdrop, this section aims to untangle the concept of investment portfolios and the types of risk that both domestic and international investors are exposed to. Furthermore, as the demand for global investment increases, so does the need for assessing a country's investment environment (Almahmoud, 2014). For this reason, this section addresses the concept of credit rating agencies.

2.2.1 Investment Portfolios

Before the introduction of the Modern Portfolio Theory (to be discussed in more detail later in this chapter), securities such as equities, bonds, commodities, and real estate, amongst others, were considered to be mutually exclusive as investors were not aware of the concept of

portfolio formation (Ejaz et al., 2020). The MPT presented the idea of the correlation of returns between different assets (Markowitz, 1952). If investors have a portfolio with uncorrelated assets, an opportunity for diversification exists (Markowitz, 1968). Diversification was initially only at a domestic level and was later practiced globally. Global diversification enabled potential investors to look at systematic risk as the only priced risk in the context of the highly diversified portfolio while diversifying away standalone risks of other securities by including uncorrelated securities (Oudat et al., 2020). Domestically and globally diversified equity portfolios have different characteristics and are exposed to different risks (Demodaran, 2021). The following section describes domestic and foreign portfolios.

2.2.1.1 Domestic Portfolios

The categorisation of an equity portfolio differs among countries. According to the Association for Savings and Investment South Africa (ASISA) in SA, a portfolio must encompass 80 percent of domestic equities to be identified as a South African equity portfolio (ASISA, 2018). Abid et al. (2014) posit that investors still prefer to have the bulk of their investment dominated in domestic assets, despite the global economy becoming increasingly integrated. This is known as the home bias (French and Poterbra, 1991). According to Lewis (1999) and Baik et al. (2010), domestic equities provide a better hedge against local risk than foreign equities. Moreover, investors hold most of their assets domestically because they are sensitive to distance Bad and Walter (2021); this is because information asymmetry increases as distance increases (Guenther et al., 2018). Foreign investors face increased information asymmetry due to cultural differences and higher transaction costs, among others (Grinblatt and Keloharju, 2001). Domestic investors, on the other "hand" can resort to different avenues to acquire information, for example, directly contacting a company. As a result, local analysts can provide more accurate predictions, leading to better performance when compared to international analysts (Malloy, 2005). However, a significant flaw of a domestically diversified portfolio is that all the assets in the portfolio will be adversely affected if a country goes through a recession as the assets are exposed to similar risks (Balarezo, 2010; Oudat, 2020).

2.2.1.2 Foreign Portfolios

Like domestic portfolios, the categorisation of a foreign portfolio differs among countries. In South Africa, if a portfolio contains 80 percent of foreign equities with less than 80 percent exposure to equities in a specific area, it is recognized as a global equity portfolio (ASISA, 2018). Investors seek investment opportunities in different countries to gain more returns and

diversify local risk (Bobillo et al., 2010; Al Samman and GabAlla, 2020; Hernandez-Perlines et al., 2020). Foreign portfolio investors usually capitalize on short-term investments to earn increased returns because of economic booms; however, foreign investors quickly pull out their investments during economic bursts (Aizenman and Pasricha, 2013). Accordingly, foreign portfolio investors can control their portfolios by withdrawing investments rapidly if they need access to their savings, resulting in liquid financial markets. While the focus of foreign portfolios is profit, Calvo et al. (1996) and Singhania and Saini (2018) emphasized the importance and contribution of these investments in the advancement of developing countries. These include but are not limited to increased liquidity of financial markets, leading to increased employment, productivity, and economic growth (Makoni, 2020). Thus, foreign portfolio investments play a vital role in reviving depressed investments (Tabak, 2003; Reis et al., 2010; Sanvicente, 2014; Loncan and Caldeira, 2015). However, the main disadvantage of foreign portfolio investments is that investors are exposed to higher country risk levels, depending on the number of countries a portfolio has assets in (Al Samman and GabAlla, 2020).

2.2.2 Country Risk

Practitioners, academics, scholars, and governments continuously debate the definition and the difference between country risk and political risk (Dougherty and Specter, 1982). Frei and Ruloff (1988) define country risk as the risk of debt or loans where domestic and international agents are involved. Coplin and O'Leary (1994), Wilkin (2001), Türedi (2018), and Damodaran (2021) describe country risk as the potential divergence of the business environment in a particular country that may negatively influence the value of assets and operating profits of entities. Country risk is a broad term that encompasses macro-economic factors such as economic risk, financial risk and political risk associated with a particular country (Howell, 1998; Jakobsen, 2012). The rest of this section unpacks country risk components, including economic, financial, and political risk.

2.2.2.1 Economic Risk

Sissani (2014) describes economic risk as the possibility that macroeconomic factors such as inflation, exchange rates, taxes, government regulations, among others, may negatively impact investments. Oetzel (2001) states that economic risk relates to a country's macro-economic policies. If a country has flawed policies, high inflation, and high unemployment, this contributes to increased economic instability and leads to higher country risk. To ensure that

they are protected from unstable economic conditions, investors should analyse the economy they are investing in to ensure that losses are minimised. Economic risk analysis includes evaluating the country's present and potential situation, including the stability of the country's currency, inflation, and exchange rate. Like political risk, the ICRG provides an index for economic risk. The total economic risk index has seven components that form part of it. Individually these components are rated and ranked by importance and then added with the rest of the components to give a total of 100 percent, which is the total economic risk assessment. These components include Current Account as a Percentage of GDP, Real GDP Growth, Annual Inflation Rate, Budget Balance as a Percentage of GDP, Real GDP Growth, current account as a percentage of GDP and GDP per head (Howell, 2011).

2.2.2.2 Financial Risk

Financial risk is the possibility that a country may default on repaying foreign debt (Oetzel, 2001). Financial risk is an indicator of the country's domestic economy to generate enough foreign exchange to cover payments from interest and the principal of the external debt. To ensure that they are protected from unstable financial conditions, investors analyse the external debt obligations of a country and compare them to the present and future economic situation (Causevic, 2003). Ratios that link macroeconomic variables, the balance of payment variables and the foreign debt obligations of a country are the commonly used tools for financial risk assessment (Al Sammanand and GabAlla, 2020). The international country risk guide (ICRG) provides an index for financial risk. The total financial risk index has five components. Individually these components are rated and ranked by importance and then added with the rest of the components to give a total of 100 percent, which is the total financial risk assessment. These include the Current Account as a Percentage of Exports of Goods and Services, Foreign Debt as a Percentage of GDP, Foreign Debt Service as a Percentage of Exports of Goods and Services, Exchange Rate Stability and Net International Liquidity as Months of Import Cover (Howell, 2011). From the preceding discussion, it is evident that the components of country risk affect investments. Thus, investors around the globe deem it necessary to assess and know the riskiness of a country before investing. The thinking behind a thorough understanding of a country's economic, financial, and political stability is to determine the risks involved in doing business or investing in such a country. The demand for assessing a country's riskiness led to the formation of credit rating agencies.

2.2.2.3 Political Risk

Political risk is the possibility that unexpected political events in a foreign country may adversely affect the value of investments (Suleman and Daglish, 2015). These risks can be expressed in possible exchange controls, asset expropriation, or a taxing policy change (Bartram and Dufey, 2001). There are a lot of political risk indicators, and they are all calculated differently. For example, since political risk is a qualitative non-commercial measure, the ICRG quantifies it to assess its contribution to financial data (Suleman et al., 2017). The International Country Risk Guide uses the political risk index to proxy political risk. The total political risk index has 12 components that form part of it. Individually these components are rated and ranked by importance and then added with the rest of the components to give a total of 100 percent, which is the total risk assessment. These components include socio-economic conditions, government stability, eternal conflict, investment profile, democratic accountability, internal conflict, external conflict, military politics, ethnic tension, corruption, law & order, and bureaucracy quality (Howell, 2013).

Ab initio, political risk was confused with country risk, but increased political occasions, which came with political uncertainty, made practitioners, academics, and governments pay attention to political risk. According to Garcia (2014), political and economic factors are connected but not interdependent. A country may be experiencing significant political uncertainties but have no country risk, and the reverse is true. It is essential, however, for both foreign and local investors to perform a risk assessment on both Chen et al. (2004), as the political risk prevailing in a particular country may be lengthy as a result of high levels of country risk, and the reverse is true (Garcia, 2014).

2.2.2.4 Credit Rating Agencies

Globalisation has enhanced efficiency in global financial markets (Enowbi et al., 2017). However, these improvements came with intricate financial products that call for rigorous risk evaluation processes by credit rating informational institutions (Causevic, 2003). Credit rating agencies (CRAs), including Fitch, Moody's, Standard & Poor's, Economist Intelligence, International banks, Control Risks Information Services and other institutions such as the International Country Risk Guide (ICRG) provide information and analysis of countries, companies and operations; and economic sectors and assign rankings according to the level of risk associated with them. Credit rating agencies calculate a country's risk by estimating and ranking issues of that country according to the probability of default (Mutize and Gossel, 2018).

CRAs provide local and international investors with research-based advice and recommendations when making decisions. The average investor uses these institutions' information as a yardstick to estimate bong yields and required rates of return, essentially, CRAs are considered a source of prevalent information regarding the conditions of a country (Creighton et al., 2007). Accordingly, when a nation's creditworthiness appreciates, the possibility of it defaulting on sovereign debt declines; therefore, credit rating agencies update the country's profile by increasing its credit rating profile. Due to the increased credit profile the risk of investing in that particular country decreases; investors will respond by decreasing their required rates of return for bond yields and equity investments.

Further to this, because emerging markets are considered to have high levels of uncertainty, this has increased the relevance of CRAs in international markets as they are needed for well-informed trading in the international market Makina (2005) and consequently contribute to information symmetry between investors and markets in the international economy (Elkhoury, 2009). However, Elkhoury (2009), Morseth and Norgaard (2011), and Amstad and Packer (2015) present a downside to CRAs by pointing out the fact that these institutions failed to forecast financial crises such as the 2008/2009 Global Financial Crisis. This has created doubt about their accountability, processes and ability to predict and respond to financial crises. More to this is that CRAs at times spark market frenzies when they alter their sovereign credit ratings Li and Kesayan (2004) and provide new information to financial markets (Jorion and Zhang, 2010).

2.3 Underpinning Theories

Two opposite theories exist in finance: the Efficient Market Hypothesis (EMH), which states that markets are always perfectly efficient since investors are rational Fama (1965); and the Behavioural Finance Theory (BFT) posits that investors are irrational and that their sub-optimal behaviour creates inefficient markets (Tversky and Kahneman, 1974). However, Lo (2004) found that financial markets alternate between efficiency and inefficiency, leading to a theory that reconciles the Efficient Market Hypothesis and the Behavioural Finance Theory, referred to as the Adaptive Market Hypothesis (AMH). The AMH states that the changing dynamics in financial markets and participants alike show how efficient a market is. In this way, the AMH posits that the impact of country risk on portfolio returns should depend on market conditions. Therefore, the following section discusses the Efficient Market Hypothesis, Modern Portfolio

Theory (which is based on the EMH and speaks to portfolio formation), the Behavioural Finance Theory, and the Adaptive Market Hypothesis.

2.3.1 Efficient Market Hypothesis

Foreign investors play a vital role in transferring international information into equity markets in emerging and developing countries, which leads to more significant market and informational efficiency (Bae et al., 2012). Investors identify mispriced equities, and their subsequent trading creates market efficiency and causes stock prices to reflect fair values (Jones and Netter, 2008). Informational efficiency matters since investors are interested in various trading strategies to obtain excess returns. Secondly, if there is informational efficiency, investment capital is allocated to its maximum-valued use (Jones and Netter, 2008). The concept of information or market efficiency was proposed by Fama (1965) through the Efficient Market Hypothesis (EMH). The Efficient Market Hypothesis states that markets reflect all available information in equity markets, and thus markets are deemed efficient. A vital concept linked to the EMH is the "random walk." The random walk claims that if information flow is uninterrupted and instantaneously reflected in the stock price, the current price will only reflect today's news and will not be related to yesterday's price change. The theory alludes that new information spreads rapidly and is immediately reflected in stock prices (Fama, 1965; Jones and Netter, 2008). Therefore, according to the EMH, country risk components would not impact portfolio returns since they would be included in the stock prices. Moreover, the EMH posits that investors are rational thinkers, meaning that investors' psychological behaviour will not influence stock prices (Statman, 2014). Hence, according to the EMH, investors always make rational decisions, also referred to as optimal decisions.

The EMH encompasses three distinct forms of efficiency (Titan, 2015). A weak-form efficient market, where the current stock market price incorporates all previous market data, implying that technical analysis cannot be used to earn high returns (Kumar et al., 2020). Therefore, in weak-form efficiency fundamental factors, such as country risk components would significantly affect equity portfolio returns as they can be used to predict market movements (Yang et al., 2019). Secondly, there is a semi-strong form efficient market, where the current stock market price incorporates all previous market information; thus, technical and fundamental analysis cannot be used to beat the market (Kumar et al., 2020). In a semi-strong form efficient market fundamentals factors such as country risk components would not

significantly affect equity portfolio returns as they cannot be used to predict market movements (Nan and Kaizoii, 2019). The final form of efficiency is a strong form efficient market that reflects all available information, including insider information (Malkiel, 2003; Kumar et al., 2020). In a strong-form efficient market, country risk components do not affect equity portfolio returns as stock prices reflect past, fundamental, and inside information (Nan and Kaizoii, 2019).

A significant advantage of the Efficient Market Hypothesis is that it saves investors time. When markets are efficient, and investors are rational, there is no need to analyse the technical charts, profit and loss accounts, and stock balance sheet since it is already accounted for on the price (Jone and Netter, 2008). This means that investors can select stocks based on gut feelings without spending time on research and analysis. The EMH also has limitations; Ball (2001) noted empirical anomalies from the theory in that it fails to explain data that have seasonal patterns. For example, inconsistencies emerged in the late 1970s. These include, among others, anomalies such as the "January effect" and the "small-firm effect", which is the tendency of small-capitalization stocks to beat the market, especially in January (Jones and Netter, 2008). Despite the Efficient Market Hypothesis having drawbacks, a lot of traditional finance theories set it as a foundation, including the Capital Asset Pricing Model developed by Sharpe (1964) and Lintner (1965), and the Arbitrage Pricing Theory established by Ross (1976a,1976b) and many more. This study focused on the well-renowned Modern Portfolio Theory (MPT) since it is directly related to investment portfolios. One of the objectives of this study is to understand the behavior of equity investment portfolios, not only locally but also on an international level; consequently, the concept of international diversification is addressed.

2.3.2 Modern Portfolio Theory

The most crucial goal for portfolio investment is to reduce risk while maximizing returns (Oudat et al., 2020). In his Modern Portfolio Theory, Professor Harry Markowitz demonstrated a trade-off between the variance or standard deviation and the mean of a portfolio. The variance is the risk, and the mean is the portfolio's return. The MPT is based on the efficient market hypothesis as it states that due to the risk-return trade-off, rational investors will obtain high returns with increased risk (Markowitz, 1952). However, in his portfolio selection article Markowitz (1968) noted that if investors choose stocks that are not perfectly correlated to include in their portfolio, they can reduce risk and maximize returns from a domestic point of

view. Grubel (1968), Levy and Sarnat (1970), Lessard (1973), Solnik (1974), Jorion (1985), Ziobrowski and Ziobrowski (1995), and Zonouzi et al. (2014) expanded on this theory, highlighting the benefits of diversification from a global perspective. These scholars confirm that portfolio diversification is beneficial with less correlated domestic stocks; however, it has more value with a mix of less correlated foreign stocks. This is because international investing leads to increased diversification benefits since stocks from the same country are usually positively correlated as they would be affected by similar local conditions; such as but not limited to the political landscape of a country, inflation, GDP, and domestic interest rates, among others (Balarezo, 2010).

The Modern Portfolio Theory (MPT) examines the correlation of a group of assets to construct the most efficient frontier using the most optimal weightings between assets (Markowitz, 1952). Markowitz describes the efficient frontier as the most optimal portfolio. The portfolio leads to the maximum expected returns for a specific level of risk or exhibits the lowest risk for a given level of expected return; thus, it is the most mean-variance efficient portfolio. Furthermore, Professor Harry Markowitz states that a portfolio is diversified to the maximum if it includes stocks with the slightest variance against the highest expected return. However, diversification is beneficial if the stocks are not perfectly correlated (Markowitz, 1952). Correlation shows the strength and direction of a relationship between two variables. If the correlation is greater than 0, there is a positive relationship. If it is less than 0, there is a negative relationship. However, when the correlation is 1, the variables are perfectly correlated (Sikhosana and Aye, 2018). Thus, adding more assets to the portfolio will only be helpful if the correlation is lower than 1 (Goslings and Petri, 1991). For example, a portfolio that only contains railway stocks would be more diversified if it included assets from various industries since they would have a correlation of less than 1 with stocks from the railway industry (Markowitz, 1952).

Furthermore, from a domestic point of view, according to the mean-variance rule, the only way to obtain higher returns from a well-diversified efficient portfolio is to add more risk into the portfolio (Markowitz, 1952). What is more is that, although investors can create mean-variance portfolios from a domestic perspective, Balarezo (2010) states that international portfolios are more mean-variance efficient than local portfolios due to less correlation. It is essential to note that correlation can change over time, meaning that stocks that previously had a low level of correlation can become highly correlated and begin to move in tandem (Andersson et al., 2008). Over and above the fact that international portfolios are more mean-variance efficient than

local portfolios due to the low correlation of markets, it is posited that a significant factor that determines the risk-return trade-off from international diversification is country-risk (Gupta and Lin, 2013).

Findlay et al. (1979) state that one of the significant advantages of the modern portfolio theory is that it emphasizes the whole market and the entire economy. It improves the older way of evaluating investment opportunities, as the merits of investment were previously analysed individually without considering the performance of other assets associated with it. However, Brown (1991) states that even though diversification is beneficial and encouraged, access to different markets locally and globally is limited. Due to liquidity problems, it is not easy to actively manage a portfolio through efficient asset allocations. Information and research are expensive, making it difficult to find good-quality investment opportunities (Lee et al., 2021). Furthermore, since the MPT is based on investors being rational and markets being efficient, like the EMH the theory was initially widely accepted by academics and financial economists. However, the level of support has declined drastically. This is due to evidence against perfect market efficiency (Khunintia et al., 2018). For example, during periods of financial uncertainty, investors generally sell their assets to minimize losses in a declining market and purchase more investments in the bull market to capitalize on higher returns. This irrational behaviour of investors is known as "herd" behavior and results in a steady decline or increase in stock prices (Giot, 2005). Evidently, investors are not rational, and markets are not efficient (Philip, 2019). The following section thus, tackles the impact of irrational investor behavior on financial markets.

2.3.3 Behavioural Finance Theory

The main issue with the traditional finance theories discussed above is that they operate in euphoria, where investors can mathematically work out how to earn abnormal returns. However, when investors put these theories into practice, they sometimes incur losses. This is because financial markets are governed more by emotions than by rationality. Tversky and Kahneman (1974) wrote the first paper on Behavioural Finance Theory (BFT) and it is considered one of the most prominent critics of the Efficient Market Hypothesis (EMH). Behavioural Finance Theory shows that investors are irrational since they are influenced by psychology, and consequently, investors do not make entirely optimal decisions. Moreover,

the psychology of an individual is linked to behavioral biases that lead to sub-optimal or irrational choices (Barberis and Thaler, 2003).

The Behavioural Portfolio Theory (BPT) posits that investors separate their portfolios into different piles. Each of these piles is associated with a specific strategy or aspirations. The correlation of the assets within the portfolio is disregarded (Shefrin and Statman, 2000). This is the complete opposite of the Modern Portfolio Theory (1952), as it emphasises how diversification is beneficial if the stocks are not perfectly correlated. Nofsinger (2017) simplifies the two theories by stating that the MPT theoretically shows how investors should behave; the BPT, on the other "hand", proves how they actually behave. The BPT also states that an individual can be both a risk-averse investor and a risk-taker depending on the market conditions, which is not consistent with the MPT as it says that investors are entirely risk-averse (Pfiffelmann et al., 2016). Furthermore, behavioural finance theory suggests that political uncertainty can shake local stock markets and negatively affect market prices as it spills over to financial and economic variables (Pastor and Veronesi, 2013). When stocks are adversely affected, risk-averse investors gravitate towards the loss-aversion bias and sell off their stock portfolios. Conversely, risk-seeking investors drift towards the self-control bias and place more stocks in their portfolios to realise abnormal returns. These psychological biases merely show how irrational investors are, resulting in inefficient financial markets.

A significant drawback of the behavioural finance theory is that it does a great job critiquing traditional finance theories, but it does not provide better alternatives. However, Lo (2004) provided an adaptive financial theory that explains markets and individuals' behaviour. Lo (2004) posits that markets are neither entirely inefficient nor efficient. This led to a view reconciling the Efficient Market Hypothesis and Behavioural Finance Theory, referred to as the Adaptive Market Hypothesis (AMH). Lo (2004) offers the Adaptive Market Hypothesis (AMH) as an alternative market theory to EMH from a behavioural perspective. According to the AMH, markets are adaptable and switch between efficiency and inefficiency.

2.3.4 Adaptive Market Hypothesis

Changing dynamics in financial markets and participants alike show how efficient a market is. Lo (2004) states that, the way in which market participants adapt to the market environment, the size of profit opportunities available and the number of competitors are some environmental variables that determine the degree of market efficiency. Contrary to rational investors in an

efficient market, investors in an adaptive market commonly make mistakes. However, they learn from them and adjust their behaviour accordingly. The Adaptive Market Hypothesis has four main implications. 1) Due to the preferences of investors in the market, the risk-reward relationship fluctuates over time (Lo, 2004). 2) The weak form efficiency from the EMH is useless since the changes in past prices affect the prevailing preferences (Lo, 2004; Kumar,2018). 3) Every now and again, arbitrage opportunities present themselves; which means that an adaptive market is evolutionary, in those profits opportunities that market participants constantly create disappear (Lo, 2004; Numapau Gyamfi, 2018). This requires investment strategies that match the conditions of the market. The AMH suggests that a complex market environment calls for active portfolio management. Innovativeness is another implication that facilitates survival and stable expected returns (Lo, 2004). It is also important to note that under the AMH, market efficiency is not an all or none condition but a characteristic that varies continuously over time and across markets (Lo, 2004). Hence, a financial market may witness periods of efficiency and inefficiency (Khuntia and Pattanayak, 2018).

Since efficiency changes over time Seetharam (2016), for example, when market prices plummet in a bearish environment, most assets traded in that market will follow the same direction and vice versa for a market experiencing an increase in prices. Thus, an equity investor foreseeing growth in a stock market will try to minimise the forecasted losses. However, the correlation between equity securities within a single market suggests that all stocks are expected to decline; international investing becomes more beneficial due to low correlation. This means that, during a market crisis, when prices drop, investors may capitalise on the low correlations from international markets for diversification and the stability of returns. Whereas, when market prices go up during a boom, investors need not diversify as positively correlated markets should provide similar returns with similar risk. However, international market correlations are not constant as they change over time by adapting to the current market condition, which indicates that international diversification opportunities change (Abid et al., 2014).

This section provided a thorough discussion of finance theories (Efficient Market Hypothesis, Modern Portfolio Theory, Behavioral Finance Theory, and the Adaptive Market Hypothesis) and key concepts (international diversification, country risk components, and credit rating agencies) associated with the interaction of country risk and equity markets. The following

section provides empirical evidence of the relationship between equity markets and country risk.

2.4 Empirical Evidence

This section unpacks international and South African empirical literature on the effects of country risk components on stock markets. The reason for reviewing the literature on equity markets instead of domestic and international equity portfolios is that empirical evidence on the latter is scant, and reviewing stock markets can bolster this limitation. The section is three-fold, empirical evidence on international diversification is discussed, then the effects of country risk on global stock markets and South African stock markets are addressed. It is important to note that there is some evidence of South Africa in the section focusing on international literature due to insufficient country-by-country analysis on this topic. Finally, the empirical review aims to ascertain the difference in behavior between emerging and developed countries where applicable.

2.4.1 Empirical Evidence on International Diversification

International diversification occurs when investors seek external investment opportunities as a strategic decision to eliminate the risks in local markets (Hernandez-Perlines et al., 2020) while simultaneously capitalizing on the risk/return trade-off offered by foreign markets (Bobillo et al., 2010; Al Samman and GabAlla, 2020). The first article on international portfolio diversification was written by Grubel (1968). The article investigated the stock returns of 11 prominent equity markets worldwide, including the United States, France, United Kingdom, Canada, West Germany, Australia, Belgium, Japan, Netherlands, Italy, and South Africa. The study used monthly frequency data spanning from January 1959 to December 1966. Based on the share price index for each country, a geometric mean of the monthly returns in the sample period was used to estimate a monthly average return. Furthermore, a quadratic programming method was used for the portfolio selection process. The methodology went as follows; An investor invested an amount of $100 for 84 months, that is, January 1959 to December 1966. The investment returns were then adjusted for exchange rates and dividend payments. Grubel (1968) discovered that a portfolio with stocks in all 11 countries produced returns of 9 percent with a standard deviation of only 22 percent. In contrast, a portfolio with stocks in 8 countries generated the exact returns of 9 percent and had a standard deviation as significant as 60 percent. The results suggest that if a portfolio contains more countries, the risk of that portfolio

is reduced while the returns do not change. Overall, the author found that international diversification brings about novel and lucrative investment opportunities. The findings are consistent with Eun and Resnick (1994), Li et al. (2003), and Bhutto et al. (2020) as they found that a portfolio can generate gains as a result of being internationally diversified.

Levy and Sarnat (1970) also examined the potential gains of international diversification in 28 different countries between 1951 to 1967. From a US investor's perspective, six portfolios were constructed; United States (1), high-income countries (16), western European countries (11), common markets (5), low-income countries (9), and a portfolio that contained all 28 countries. Firstly, unlike Grubel (1968), the study did not account for dividend payments; however, the study used the Capital Asset Pricing Model (CAPM) to create an optimal portfolio for six portfolios. The portfolio was created using arithmetic averages to estimate the share index of the common stocks. Results were in line with Grubel (1968); and found that a portfolio with all 28 countries had the lowest risk given the same rate of return. Another significant finding of the study is a high correlation between the US and the common markets portfolio, including five countries, namely Belgium, France, Germany, Italy, and the Netherlands. Whereas the US has a low correlation with low-income countries, and by including these developing countries in the portfolio, the efficient set moved up even though these countries showed the weakest returns. These findings are consistent with Christoffersen et al. (2012); the scholars found that correlations between emerging and developed markets have increased over time, but the correlations are much higher in developed markets than in emerging markets. Further, even though the inclusion of low-income countries provides the most significant diversification benefits due to less correlation, the inclusion of countries from regional areas such as Asia and South America and countries like Japan improves portfolio performance. Another interesting finding by Meyer and Rose (2004) is that if developed countries include developing or emerging markets in their portfolios, developed countries can control for economic crises.

Another early study on international diversification used weekly price movement on 300 European stocks and the New York Stock Exchange (NYSE) between 1966 to 1971. Solnik (1974) investigated how diversification can reduce the risk of a portfolio and how many stocks will lead to good diversification benefits. The European equities were represented by the Netherlands, Belgium, United Kingdom, France, Germany, Italy, and Switzerland. The study was based on two perspectives; a global point of view (European investors) and a local point of view (USA investors). The methodology was used as follows; random portfolios were

constructed for each equity market, and the number of stocks in a portfolio ranged from 1 to 65. After that, Solnik (1974) estimated the variance from the randomly constructed portfolios, and these variances were then averaged for each size group. The empirical findings showed that from both the domestic and international point of view, as the number of stocks increases in a portfolio, the variance (risk) of the portfolio decreases. However, when the first 1-10 stocks are added to the portfolio, the risk decreases sharply and drops more gently as more stocks are included. Ultimately, Solnik (1974) discovered that international diversification was more attractive than domestic diversification. Solnik (1974) also found that although the impact of exchange rate risk is minute on global portfolios, a portfolio hedged against exchange rate fluctuations has less risk than an unhedged portfolio against exchange rate fluctuations. From the initial studies of international diversification, benefits can always be detected; however, Shawky et al. (1997) found it easy to determine the diversification when using ex-post data. However, it is not easy to detect international portfolio diversification benefits when ex-ante data is examined, especially when market correlations are volatile over time.

In the early 2000s, DeRoon et al. (2001) followed a study by DeSantis (1993) and Harvey (1995) to find the effects of diversification benefits in emerging markets. The study differed from the earlier studies discussed above in that DeRoon et al. (2001) accounted for short-selling constraints and transaction costs. Data for two African countries, one European country, one Middle Eastern country, and six Latin American countries were retrieved from global indices. The sample period spanned from January 1985 to June 1996. Moreover, 17 indices were retrieved from the Emerging Market Database of the International Finance Corporation (IFC). The benchmark assets were the Morgan Stanley Capital International (MSCI) Indices for Europe and the United States. Unhedged monthly holding returns in US dollars were used for all the indices mentioned above. Furthermore, the index for high-income countries and emerging markets are estimated with reinvested dividends. All data was obtained from Data-stream. The results revealed that, by adding more stocks from emerging markets to an investor's multinational equity portfolio that invests in Japan, Europe, and the United States, there are significant diversification benefits when short-selling constraints and transaction costs are not adjusted for. However, these diversification benefits disappear when these market frictions are considered. The main reason for this is that the USA, Japan, and Europe do not have short-sales constraints on their assets, whereas emerging markets have short-sales restrictions. In contrast, Li et al. (2003) show that the benefits of international diversification are higher for US equity investors even when short selling is prohibited.

Driessen and Laeven (2007) also conducted a study showing the implications of short-selling stocks on the benefits of international diversification; however, the study included more elements, such as country risk. Firstly, the authors had an objective of probing the existence of significant global and regional diversification opportunities from developing and developed countries' points of view. Secondly, the international diversification benefits were investigated when investors invest in equity indices for the US, the Far East, and Europe. Finally, fluctuations of global diversification benefits from each country were measured using country risk ratings published by the International Country Risk Guide (ICRG). The sample period spanned from 1985 to 2002 and included 23 developed countries and 29 developing nations; moreover, the study was conducted from a perspective of a local investor. The results showed significant global and regional diversification opportunities from a developing and developed country's point of view; even when investors are restricted from short-selling stocks, this is consistent with Li et al. (2003). However, the findings are not consistent with De Roon et al. (2001), as the scholar found that diversification benefits disappear when market frictions are considered. Next, Driessen and Laeven (2007) found that developing countries experience more global diversification benefits than developed countries because developing countries have a higher level of country risk, and country risks appear to be a reliable determinant of the benefits of international diversification. The study also found that global diversification benefits diminished between 1985 and 2002 due to the upgrades in country risk over time.

In a more recent study, using the stochastic dominance (SD) test, Abid et al. (2014) investigated the preference between domestic or international portfolios for 20 global market indices and 30 US stocks with the highest capitalization. The study used daily returns of closing prices and spanned between January 1993 to December 2012. The 30 USA stocks were used to form the domestically diversified portfolio, including companies like Apple, JPMorgan Chase, and Proctor & Gamble, among others. The internationally diversified portfolio included Asian and Latin American financial markets comprising Thailand, Canada, Taiwan, France, Sri Lanka, Germany, the Philippines, Italy, Pakistan, Japan, the United Kingdom, South Korea, Argentina, Indonesia, Brazil, India, Mexico, Hong Kong, and China. The study showed that no arbitrage opportunities exist between domestic and international stock markets; that is, domestically diversified portfolios with less risk perform better than internationally diversified with more risk; and internationally diversified portfolios with less risk perform better than domestically diversified portfolios with more risk. However, if the level of risk is the same, there is no

difference in performance between internationally diversified portfolios and domestically diversified portfolios.

Abid et al. (2014) also found that no domestically diversified portfolios stochastically dominate all international portfolios, but several global portfolios with insignificant risk perform better than all domestic portfolios. Ultimately, if investors are willing to incur a higher level of risk, they should opt for domestic diversification. Conversely, if investors prefer lower risk, they should opt for international diversification. Sgammini and Muzindutsi (2020) compared domestic and foreign investment from a South African perspective. The study aimed to find the impact of exchange rate movements on domestic and foreign portfolios using the autoregressive distributed lag model (ARDL). The sample included 24 South African investment portfolios, consisting of 12 locally diversified investment portfolios and 12 investment portfolios that were predominantly diversified globally. The study employed monthly frequency data ranging between 2006 and 2009. The authors examined how the exchange rate affects domestic-based and internationally diversified investment portfolios. The empirical findings demonstrated that the appreciation of the foreign exchange rate reduces the returns of internationally diversified portfolios; the finding is not consistent with Solnik (1974), who found that the impact of exchange rate risk is minor on global portfolios. In contrast, currency appreciation increases the returns on domestically diversified portfolios in the short run.

Sgammini and Muzindutsi (2020) established that domestically and internationally diversified portfolios behave differently to fundamental factors such as exchange rates. In other words, in some instances, a domestically diversified portfolio should hedge the risk that a foreign portfolio need not hedge, and vice versa. For this reason, the current study examines the effects of economic, financial, and political risk on both domestic and foreign portfolios. Furthermore, the empirical evidence of international diversification discussed above shows that the benefits of international diversification differ between developed and emerging/developing markets. The following section builds on this by examining the effects of country risk on international equity returns, including developed, emerging, and developing countries. Additionally, the impact of country risk on equity returns in South Africa is presented.

This section has shown that domestically and globally diversified equity portfolios have different characteristics and are exposed to different risks. Domestically diversified portfolios

are flawed in all the assets will be adversely affected if a country goes through a recession as the assets are exposed to similar risks. International diversification then allows investors to reduce the systematic risk from a single market. However, they become exposed to higher country risk levels, depending on the number of countries a portfolio has assets in. The next section provides empirical evidence on the relationship between equity returns and country risk.

2.4.2 Effects of Country Risk on Equity Returns Internationally

A lot of literature examining the impact of country risk on equity markets is consistent with financial theory; that is, equity returns are directly affected by country risk fluctuations (Hassan et al., 2003; Mateus, 2004; Nhlapho and Muzndutsi, 2020; Vengesai et al., 2022). Erb et al. (1995) released the first article examining the relationship between equity markets and country risk; the study included 117 developed and emerging countries. The study focused on the effects of country risk on stock returns and using credit ratings from the semi-annual survey of bankers. The results demonstrated that countries with higher credit risk were associated with higher investment returns. The study also showed that a country's credit rating could estimate a mean to rank economies based on high or low expected returns of these countries.

In 1996 Erb, Harvey and Viskanat conducted another study exploring the relationship between country risk components and future equity returns between July 1984 to June 1995. The sample included 443 emerging equity markets and 441 developed equity markets, amounting to 884 observations. Using four measures of country risk from the International Country Risk Guide (economic risk, financial risk, political risk and the composite risk index) and one estimate from the Institutional Investors' (II) country credit rating. Erb et al. (1996) constructed two distinct portfolios, one with upgrades and another with downgrades based on the ICRG. For accuracy purposes, portfolios were rebalanced half-yearly. If country risk ratings remained constant, the country remained in its respective portfolio. The results revealed that the composite risk index had the greatest influence in determining poor performing and high return portfolios. Moreover, when country risk components are examined individually, the higher the country risk components in a specific country, higher expected returns are associated with that country. Overall, the study found that economic and financial risk significantly affect equity returns in developed markets. However, equity returns in emerging markets are significantly affected by political risk (Erb et al., 1996). The results are contrary to studies by Hanousek and

Filer (2000) and Carmichael and Samson (2003) both these studies found that no relationship exists between macroeconomic variables and stock returns. However, the findings are consistent with Bilson et al. (2002) and Giraard and Omaran (2007). The authors also found that political risk has a more significant impact on stock prices than financial and economic risk.

Kaminsky and Schukler (2002) examined the relationship between country risk and equity returns from a different angle; the study focused on credit rating announcements and equity returns. The event study included Venezuela, Thailand, the Russian Federation, Malaysia, Colombia, Argentina, Chile, Mexico, Brazil, Indonesia, the Republic of Korea, Poland, Turkey, China, Philippines and Peru. The sample period spanned between 1990 and 2000. The sample period was characterised by the following. Firstly, the sampled countries experienced multiple crises and contagions in the 1990s. Secondly, 244 outlooks and ratings were conducted by credit rating agencies, 145 downgrades and 99 upgrades. Most of these changes were changes in ratings rather than changes in outlooks. Results showed that credit ratings usually upgrade countries during markets rallies, and economies experience a lot of downgrades during bear conditions. The study also presented evidence of spillover effects from one country to another, which are strongest at the regional level. The findings are consistent with Ferreira and Gama (2007), who found that credit rating changes in one country have an asymmetric and significant effect on the stock market returns of other countries.

Given that political risk plays a significant role in a country's credit rating, Bilson et al. (2002) studied 18 developed markets and 17 emerging markets, including two African markets (Zimbabwe and Nigeria). The study was based on a monthly frequency between January 1984 to December 2007. The research aimed to assess if political risk is influential in emerging and developed markets. Return data for developed markets was retrieved from Morgan Stanley Capital International (MSCI), and return data for emerging markets was retrieved from the International Finance Corporation (IFC). The results were consistent with Cosset and Suret (1995), Erb et al. (1996), and Diamonte et al. (1996) in that political risk has more influence on the volatility of emerging stock markets on an aggregate basis. Moreover, the study found that the impact of political risk was more significant in the Pacific basin. Finally, the relationship between emerging stock markets with political risk was more prevalent in the early 1990s. In contrast, political risk has no impact on stock markets on an aggregate basis for developed markets. The authors found that the results raised three distinct issues. Firstly, the

difference in political risk exposure between developed markets and emerging markets results in different portfolio decisions and asset pricing in both these markets. Secondly, because higher risk entails higher returns, many investors use specialist funds to access emerging markets instead of foreign direct investments. Lastly, international investors become more vulnerable to the emerging markets portfolios than developed markets due to the risk/ return trade-off.

Unlike the studies above, which studied both developed markets and emerging or developing countries, Hassan et al. (2003) focused solely on emerging markets. The study used a GARCH-M model on ten emerging markets from Africa and the Middle East to explore the impact of country risk components on the predictability and volatility of stock returns. The sampled countries comprised South Africa, Zimbabwe, Kenya, Nigeria, Cote d'Ivoire, Tunisia, Morocco, Jordan, Egypt, and Turkey, and the study period was from 1984 to 1999. Various institutions were used to collect data, and the International Country Risk Guide (ICRG) was the source for country risk ratings. Risk-free rates were collected from International Financial Statistics (IFS), the Emerging Markets Data Base (EMDB) was used to retrieve monthly dollar returns, and the world returns were taken from Morgan Stanley Capital International (MSCI). Out of the ten countries, only political risk was able to determine stock market volatility for three countries. However, the results were interpreted cautiously as five out of 10 countries had data of only three years. The second stage of their study aimed to investigate the diversification benefits of Middle Eastern and African MEAF markets to an internationally diversified portfolio. Hassan et al. (2003) found that the portfolio's risk is reduced by adding Middle Eastern and African markets to the Morgan Stanley Capital International (MSCI) index. However, there is no increase in the expected returns of the global portfolio.

Another study on emerging markets examined the relationship between country risk components and stock market movements in BRICS countries, Brazil, Russia, India, China, and South Africa, and their interaction with international stock markets as represented by the S&P 500 index; the study was conducted by (Hammoudeh et al., 2013). The five BRICS countries are said to be the fastest-growing emerging economies. After the Global Financial Crisis, the BRICS countries were able to spur global growth by up to 45 percent. The authors employed the autoregressive distributed lag (ARDL) between January 1992 to April 2011. Contrary to Erb et al. (1996), Bilson et al. (2002), and Giraard and Omaran (2007) who found that political risk is more significant. However, similar to Clark and Kassimatis (2004)

Hammoudeh et al. (2013) found that financial risk proved to be the most sensitive country risk component. Moreover, South Africa was sensitive to all the variables of the financial risk index, including Current Account as a Percentage of Exports of Goods and Services, Foreign Debt as a Percentage of GDP, Foreign Debt Service as a Percentage of Exports of Goods and Services, Exchange Rate Stability and Net International Liquidity as Months of Import Cover. This means that the implications for international organisations, international investors, governments, and rating agencies are to rigorously assess financial risk when investing in all of the BRICS countries, especially in South Africa.

Moreover, financial risk is affected by changes in political risk in China, India, and South Africa. Implying that changes in the investment profile of these countries, law, and order, democracy and accountability, internal and external conflicts, socio-economic conditions, and government stability impact the behaviour of financial risk. Further, for all the countries but China, economic risk and financial risk have a positive relationship. Lower economic risk leads to less financial risk, and higher economic risk results in increased financial risk. China, India, and Russia showed sensitivity concerning political risk, with Russia being the most volatile. One can envisage how much more sensitive Russian markets are now to political risk after it invaded Ukraine on 24 February 2022. A political shock of that nature has never been sighted since World War II and the effects of the crises have significantly impacted the political landscape in Europe (Drager et al., 2022). Ultimately, in China, India, and Russia, financial and political risk seem more intertwined. Hammoudeh et al. (2013) posit that this is because the financial risk index of The ICRG encompasses government policies like exchange rate stability, international liquidity, and public debt. Overall, only the Chinese stock exchanges reacted to changes in all three of the country's risk components and other international factors. Sari et al. (2013) also examined if all the country risk components affected stock market behavior in Turkey. This study is unique from other studies in this section as it reviewed a single country. The study's main objective was to add to the literature about the long-run and short-run dynamics of its economic, political and political fundamentals for foreign and domestic investors as an aid for investment decisions. The study spanned from 2002 through to 2010, the study probed the effects of country risk rating from the International Country Risk Guide (ICRG) changes on stock markets at a disaggregated level. This approach allows separate evaluations of the relative effects of the country's risk rating components on stock market movements, which can provide insight to international investors. The study used the autoregressive distributed lag (ADRL). The results revealed that in the long-run political,

financial, and economic risk are the main contributors to stock market movement in the Morgan Stanley Capital International (MSCI's) total dollar-denominated equity return index for Turkey; and in the short-run, financial and political risk are the main variables on the index's movements. The results are contrary to studies by Hanousek and Filer (2000) and Carmichael and Samson (2003) both these studies found that no relationship exists between macroeconomic variables and stock returns.

In a more recent study, Mensi et al. (2016) tackled the following questions in their study. Is there a significant relationship between the country risk ratings of BRICS countries and their stock markets? Do the relationships vary under different market environments? Does global risk, uncertainty and oil prices from prominent international economic and financial factors affect stock markets in the BRICS countries? The research sample period was from January 1995 to August 2013. Country risk data was from the international country risk guide (ICRG). Data for the prominent global economic and financial factors included the St. Louis Fed's financial stress index (STRESS), the United States economic policy uncertainty index (USEPUI) and the implicit volatility the Chicago Board Exchange market volatility index-(VIX) which is an equity market in the United States. By including these influential global factors, the authors hoped they would better understand how the BRICS emerging markets respond to international fluctuations and international market news. To account for the market-switching behaviour of the relationship between the country risk ratings and the BRICS stock markets, the study employed the dynamic panel threshold models and estimated endogenous threshold coefficients.

Results revealed that economic risk has no significant effects on stock returns for all the BRICS markets, but for the benchmark model in a market rally, meaning that an increase in economic risk ratings result to a decline in the returns. In contrast, the study found that, financial and political risk has a significant impact on the BRICS stock markets; this is consistent with (Hammoudeh et al., 2013). In high market conditions, political risk ratings had a positive impact on the markets, meaning that a stable government, absence of internal and external conflict, promising socio-economic conditions, the alleviation of corruption sends a favourable signal to investors, which results in market rallies. Conversely, financial risk affected the stock markets' negatively in low market conditions. If the country's financial stability is down-graded (financial risk increases), it is related to higher stock market returns. The effects of global financial and economic factors on the BRICS market were also asymmetrical in high and low

markets. These asymmetric movements prove that emerging markets are sensitive to severe conditions.

Another recent study by Sensoy et al. (2016) evaluated ten economies in Central and Eastern Europe (CEE) including, Bulgaria, Latvia, Czech Republic, Romania, Hungary, Croatia, Poland, Lithuania, Estonia and Slovakia; Turkey was added as the 11th country, from South-eastern European. The study's objective was to investigate the impact of the changes in credit ratings on the correlations of stock markets returns in the CEE region. The dynamic correlations between stock market returns were obtained with the cDCC model. The sample spanned from 2000-2015; this period was characterised by outlooks and reports of 375 long-term sovereign currency ratings of the countries in the sample from the most prominent rating agencies, Standard & Poors, Fitch and Moody's. In contrast to the previous literature examined above, the study revealed that the combined effects of rating announcements on pair-wise correlations are generally not significant. Additionally, the individual rating agency effect shows that announcements from Moody's have more influence than the others; however, this effect is not solid and limited to a small number of pair-wise correlation coefficients. It also presents alternative opportunities for international portfolio diversification. Overall, the study found that rating change announcements are part of the critical news leading to changes in the allocation of portfolios.

Lastly, Suleman et al. (2017) investigated the relationship between stock returns and aggregate country risk, and it components. The International Country Risk Guide (ICRG) ratings were used to predict stock returns and volatility movements of 83 developed and developing countries, including South Africa. The study was conducted from 1984 through to 2015; the authors employed the kth order nonparametric causality test at monthly frequency. A nonparametric approach was used because, besides accounting for predictability in returns and volatility. The approach also adjusts for any possible misspecification of a linear causality framework, which is likely to exist in the relationship between stock returns and aggregated components of country risks. While there is no evidence of predictability of squared stock returns except for one country, there is nearly 50 percent of the cases where the composite risk index, financial risk, political and economic risk were able to predict stock returns and realised volatility. Out of 83 countries, 50 percent of the countries' results showed that country risk impacts the stock market returns and movements in the stock returns. Only one case depicted that country risk doesn't predict the stock return.

2.4.3 Effects of Country Risk on Equity Returns in South Africa

Nhlapho and Muzindutsi (2020) researched the effects of country risk ratings on bond and equity markets in South Africa. The sample period ranged from 2001 to 2015 of monthly data. Data for country risk was retrieved from the international country risk guide and included three measures economic risk, financial risk and political risk. The bond market used in their study was the All-Bond Indices (ALBI); the JSE All-Share Index (ALSI) from the Johannesburg Stock Exchange represented the stock market. The authors aimed to investigate the effects of disaggregated country risk on the markets in the long-run and the short-run. This was done using the non-linear autoregressive distributed lag model (NARDL). The model included the logged values of political, economic, and financial risk. Another critical variable in the model is the dummy variable constructed to account for the impact of the Global Financial Crises. The study found that in the short-run and the long-run, there is no interaction of stock returns and economic risk, the same results were found in a study by (Nasr et al., 2018; Sari et al., 2013). Political and financial risk have an asymmetric effect in both the long and short run. Thus, if financial or political risk increases, stock returns drop; Bansal and Dahlquist (2001) also found a negative relationship between country risk and stock prices. It is essential to note that the JSE ALSI is mainly affected by political risk like most emerging markets (Erb et al., 1995; Erb et al. 1996; Bilson et al., 2002).

Another study focusing on South Africa examined the effects of country risk fluctuations on various sectors from the Johannesburg Stock Exchange (JSE) Vengesai et al. (2022). The sectors included oil and gas, the All-Share Index (ALSI), health care, consumer goods, basic materials, industrials, and financials. The study spanned between 1996 and 2018 and used monthly data. The research aimed to ascertain the effects of the components of country risk on these sectors and investigate the impact of country risk dynamics on the various markets. The study used the GARCH model; a financial model used to model volatility. The results suggested that, financial risk does not impact the JSE and the various sectors except for the oil and gas economic sector. This means that, with regards to the returns of the oil and gas sector, there is a statistically significant relationship with financial volatility. In contrast, only one economic sector is not affected by political risk, the health care sector. All the economic sector returns are negatively and significantly affected by shocks in political risk. Finally, economic risk shocks only affected returns in the oil and gas sector, the financial sector, and the JSE all-

share index. Similar to Nhlapho and Muzindutsi (2020) the study found that, the effects of political risk were more pronounced in the South African economic sectors than in the economic and financial risk.

The empirical evidence was centered around country risk's impact on equity markets since literature examining the effects of country risk on equity portfolios is scant. The empirical literature review revealed that emerging markets like South Africa seem to bring about more lucrative investment opportunities with increased integration of global financial markets. Furthermore, it was uncovered that financial integration exposes investors to different country risks and that political risk is the most significant risk when investing in emerging markets than developed markets.

2.5 Gap in the Empirical Literature

From the empirical literature, it is evident that country risk components impact equity and other financial markets. The above literature demonstrated that in some cases, all the components affect stock market returns. In other markets, not all the country risk components affect the behaviour of financial markets. Evidently, existing literature produces conflicting results, and none of the studies covered the South African context extensively. Furthermore, the empirical evidence showed that both linear and nonlinear literature relationships exist between country risk and stock markets, but limited studies examine the relationship between country risk and investment portfolio returns under changing market conditions (bull and bear markets). Additionally, the reviewed studies have not extensively, compared how country risk affects domestic and foreign portfolios. This study addresses all the gaps mentioned above. The tables below is a summary of some of the studies reviewed above.

Table 2.1: Summary of Empirical Evidence on International Diversification

International Diversification	
Author (s)	**Evidence**
Grubel (1968)	International diversifying of risk brings about novel and lucrative investment opportunities.
Levy and Sarnat (1970)	The inclusion of low-income countries in a portfolio provides the most significant diversification benefits
Solnik (1974)	International diversification was more attractive than purely domestic diversification
Shawky et al. (1997)	When ex-ante data is examined, it is not easy to detect international portfolio diversification benefits.
De Roon et al. (2001)	Short sale and transaction costs eliminate the benefits of diversification in emerging markets.
Driessen and Laeven (2007)	Developing countries experience more global diversification benefits than developed countries
Abid et al. (2014)	If the level of risk is the same, there is no difference in performance between internationally diversified portfolios and domestically diversified portfolios.
Sgammini and Muzindutsi (2020)	The appreciation of the foreign exchange rate reduces the returns of internationally diversified portfolios

Source: *Author (2022)*

Table 2.2: Summary of Empirical Evidence on Studies Reviewing Emerging and Developed Markets

Country Risk and Stock Markets		
Author (s)	**Emerging Markets**	**Developed Markets**
Erb et al. (1995)	Associated with lower returns due to higher credit ratings	Associated with lower returns due to higher credit ratings
Erb et al. (1996)	They found that political risk has some explanatory power only for emerging markets,	Economic and financial measures are significant for the developed markets.
Bilson et al. (2002)	Political risk is the most significant, particularly in the Pacific Basin.	Economic and financial risk have an impact on stock market

Source: *Author (2022)*

Table 2.3: Summary of Empirical Evidence on Studies Reviewing Emerging Markets

Country Risk and Stock Markets	
Author (s)	**Emerging Markets**
Kaminsky and Schmukler (2002)	There is evidence of spill over effects of country-risk especially at regional level
Hammoudeh et al. (2013)	financial risk is the most sensitive, especially for BRICS especially South Africa
Sari et al. (2013)	In the long run all components are significant. In the short run the only financial and political risk.
Umar and Sun (2015)	The relationship can be explained as unidirectional. Exchange rate and country risk did not explain, the variation in the stock market index.
Sensoy et al. (2016)	Rating announcements did not influence stock return co-movements
Mensi et al. (2016)	The behaviour of BRICS stock markets mainly depended on market conditions.
Suleman et al. (2017)	Out of 83 countries only one case depicted that country risk does not predict the stock returns.
Nhlapho and Muzindutsi (2020)	Political risk has long-run and short-run implications on stock returns in South Africa
Vengesai et al. (2022)	Political risk plays a huge role in stabilising the volatility of stock markets in South Africa.

Source: *Author (2022)*

2.6 Chapter Summary

The consensus on international diversification explored above reveals that emerging markets seem to bring about more lucrative investment opportunities with increased integration of global financial markets. This is due to more diversification benefits and high returns since these markets are associated with more country risks and lower correlations. Conversely, investing in developed markets allows for better diversification due to low correlation, but the returns are lower since developed markets are not associated with stability and lower market volatility. Moreover, the empirical evidence proves that financial integration exposes investors to different country risks depending on the development stage. Most studies found that political risk is the most significant risk when investing in an emerging market. However, the most significant risks when investing in a developed market are economic and financial risks. The reviewed empirical literature provided enough evidence that regulators must stabilise fluctuations in stock markets and have precautionary measures to bolster the effects of these country risks. The empirical evidence also showed the asymmetric impact of country risk on stock markets. Mensi et al. (2016) went as far as probing the behaviour of stock markets in the presents of country risk in high and low markets. This study adds a new facet to the body of literature in South Africa since previous studies have not investigated the relationship between economic, political, and financial components of country risk and investment portfolio returns, but only on financial markets. Ultimately, the study assists global and local investors, portfolio managers, scholars, and policymakers in analysing and predicting the effects of country risk on investment portfolios. Consequently, minimising any substantial negative impact on the South African economy caused by country risk.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The review of literature presented in Chapter 2 showed that there are no extant studies examining the disaggregated effects of country risk on portfolio returns in South Africa. Thus, the primary objectives of this study were to compare how long domestic and foreign equity portfolios stay in a bull or bear market and assess if country risk factors affect these portfolios in time-varying market conditions. Previous studies examining the effects of country risk on financial markets have primarily relied on linear models, but such models could not capture the switching market conditions (Hammoudeh et al., 2013; Sari et al., 2013; Muzindutsi., 2022). Thus, this study adopts a quantitative approach using the Markov-Switching Model of Conditional Mean (MSM) to conquer this limitation. The MSM is non-linear and allows data to switch in different market conditions. The observation period contains time series data of monthly frequency spanning between 2000 and 2019. The sample period starts in 2000 due to data availability. The observation period encompasses the 2008/2009 Global Financial Crisis to demonstrate the significance of changing market conditions. The current chapter commences by providing a thorough description of country risk and equity portfolio data. Secondly, the nature of the data is presented, and finally, the model and method of analysis is described.

3.2 Country Risk Data Description

Country risk rating (CRR) is usually measured using a weighted average of the political risk, financial risk and economic risk indices of a country (Erb et al., 1996; Harvey, 2004). Various institutions offer country-specific risk analysis, including the International Country Risk Guide (ICRG) of the Political Risk Services Group (PRGS), Euromoney, Economist Intelligence Unit, Standard and Poor's Rating Group, Institutional Investor, Business Environment Risk Intelligence, Bank of America, Moody's and Coplin-O'Leary Rating system, among others (Suleman et al., 2017). This study used the International Country Risk Guide (ICRG) to retrieve country risk data. This is because the institution estimates and forecasts risk better than other institutions or agencies (Howell, 2013; Bekaert and Hoerova, 2014; Vengesai and Muzindutsi, 2019; Nhlapho and Muzindutsi, 2020).

The ICRG provides monthly (which increases the frequency of the data) quantitative analysis of economic, financial, political, and composite risk ratings for a total of 140 countries, including South Africa. The ICRG is recognized for its strength in its analysis and rating

system. For example, Hoti et al. (2005) compared the assessment systems of seven major country risk assessment institutions and agencies, including the ICRG. The authors found that the ICRG was superior in predicting economic, financial, and political risks. Furthermore, providing separate political, financial, and economic risk ratings facilitates practical analysis of country-by-country fundamentals. Moreover, if several components have more influence on investments, adjusted composite ratings can be estimated by simply altering the weights of the disaggregated components (Sari et al., 2013). The subsequent section provides a detailed description of the three main country risk (economic, financial, and political risk) components used in this study, together with the composite risk rating index.

3.2.1 Economic Risk Measurement

Sissani and Belkacem (2014) describe economic risk as the possibility that macroeconomic factors such as inflation may negatively impact investments. The international country risk guide (ICRG) provides an index for economic risk. The economic risk index has seven components that form part of it. The components are rated and ranked separately by importance and then added with the rest of the components to give a total of 100 percent. The economic risk index components include Current Account as a Percentage of GDP (15), Real GDP Growth (10), Annual Inflation Rate (10), Budget Balance as a Percentage of GDP (10), Real GDP Growth (9), current account as a percentage of GDP (7.5), and GDP per head (5). It is imperative to note that the number next to the component represents each component's total contribution to the overall economic risk assessment. For each component, the higher the risk point total, the lesser the risk, and the lower the risk point total, the higher the risk (Howell, 2011). Equally, 100 exhibits the lowest risk for the overall economic risk index, while 0 reflects the maximum risk.

3.2.2 Financial Risk Measurement

Financial risk is the possibility that a country may default on repaying foreign debt (Oetzel, 2001). Therefore, a system of measuring a country's ability to finance its official, commercial, and trade debt obligations is required (Howell, 2011). The international country risk guide (ICRG) provides an index for financial risk. The total financial risk index comprises of five components. The components are rated and ranked by importance and then added with the rest of the components to give a total of 100 percent. The financial risk index comprises Current Account as a Percentage of Exports of Goods and Services (15), Foreign Debt as a Percentage of GDP (10), Foreign Debt Service as a Percentage of Exports of Goods and Services (10),

Exchange Rate Stability (10), and the Net International Liquidity as Months of Import Cover (5). It is imperative to note that the number next to the component represents each component's total contribution to the overall financial risk assessment. For each component, the higher the risk point total, the lesser the risk, and the lower the risk point total, the higher the risk (Howell, 2011). Equally, 100 exhibits the lowest risk for the overall economic risk index, while 0 reflects the maximum risk.

3.2.3 Political Risk Measurement

In this study, political risk is described as government actions that impact businesses and may result in a loss of profit (Boshoff, 2010; Jakobsen, 2012; Garcia, 2014). Since political risk is a qualitative non-commercial measure, the ICRG quantifies it to assess its contribution to financial data (Suleman et al., 2017). The International Country Risk Guide uses the political risk index as a proxy for political risk. The total political risk index has 12 components that form part of it. The components are rated and ranked individually by importance and then added with the rest of the components to give 100 percent. These are socio-economic conditions (12), government stability (12), investment profile (12), democratic accountability (6), internal conflict (12), external conflict (12), military in politics (6), ethnic tensions (6), corruption (6), law & order (6), religious tensions (6) and bureaucracy quality (4). It is imperative to note that the number next to the component represents each component's total contribution to the overall political risk assessment. For each component, the higher the risk point total, the lesser the risk, and the lower the risk point total, the higher the risk (Howell, 2011). Equally, 100 exhibits the lowest risk for the overall economic risk index, while 0 reflects the maximum risk

3.2.4 Composite Risk Index Measurement

The composite risk index accounts for all three country risk components, economic, financial, and political risk (Howell, 2013). The combined rating ranges from 0 to 100 and is separated into subcategories (Howell, 2013). Very Low Risk (80 to 100 points), Low Risk (70.0 to 79.9 points), Moderate Risk (60.0 to 69.9 points), High Risk (50.0 to 59.9 points), and Very High Risk (zero to 49.9 points). According to the ICRG methodologies, the higher the rating, the less risk a country possesses (Howell, 2013). The lower the rating, the more risk a country has. Financial and economic risk contribute 50 percent each, while political risk contributes 100 percent to the total composite index (Howell, 2013). The composite risk rating is essentially a weighted average of all the three components of country risk and is calculated as follows:

Composite Risk Index = 0.5*(Political risk + Economic risk + Financial risk) (3.1)

The higher the risk point total, the lesser the risk, and the lower the risk point total, the higher the risk (Howell, 2011). Equally, 100 exhibits the lowest risk for the composite risk index, while 0 reflects the maximum risk. Table 3.1 below provides a summary of the components of country risk. below shows the trends of all the country risk components in South Africa between 2000 and 2019.

Table 3.1: Summary of Country Risk Components

Country Risk	Variables
Economic Risk	➢ Current Account as a Percentage of GDP ➢ Real GDP Growth ➢ Annual Inflation Rate ➢ Budget Balance as a Percentage of GDP ➢ Real GDP Growth ➢ Current account as a percentage of GDP ➢ GDP per Head
Financial Risk	➢ Current Account as a Percentage of Exports of Goods and Services ➢ Foreign Debt as a Percentage of GDP ➢ Foreign Debt Service as a Percentage of Exports of Goods and Services ➢ Exchange Rate Stability ➢ Net International Liquidity as Months of Import Cover
Political Risk	➢ Socio-economic conditions ➢ Government stability ➢ Internal conflict ➢ External conflict ➢ Investment profile ➢ Democratic accountability ➢ Military in politics ➢ Ethnic tensions ➢ Corruption ➢ Religious tensions ➢ Law and order ➢ Bureaucracy quality

Source: *Author's compilation from Howell (2013)*

3.2.5 Country Risk Trends in South Africa

The following section discusses trends in country risk components. Analysing trends in time series data is crucial as it provides a visual summary of the variables in question.

3.2.5.1 Economic Risk Trend

Figure 3.1 shows that the economic risk index has been high over the years. The index ranged between 29 and 40 percent for the entire sample period. Thus, South Africa has been experiencing "very high" economic risk levels since it ranges between 0-49.9 percent. Between 2009 and 2010, economic risk was at its highest due to the Global Financial Crisis. After the GFC, the economic risk index for SA never reached a level above 35 percent. In 2016, the World Bank delivered an update detailing that it forecasts South Africa's GDP growth rate to be at its lowest percentage since 2009 (Frisbie, 2018).

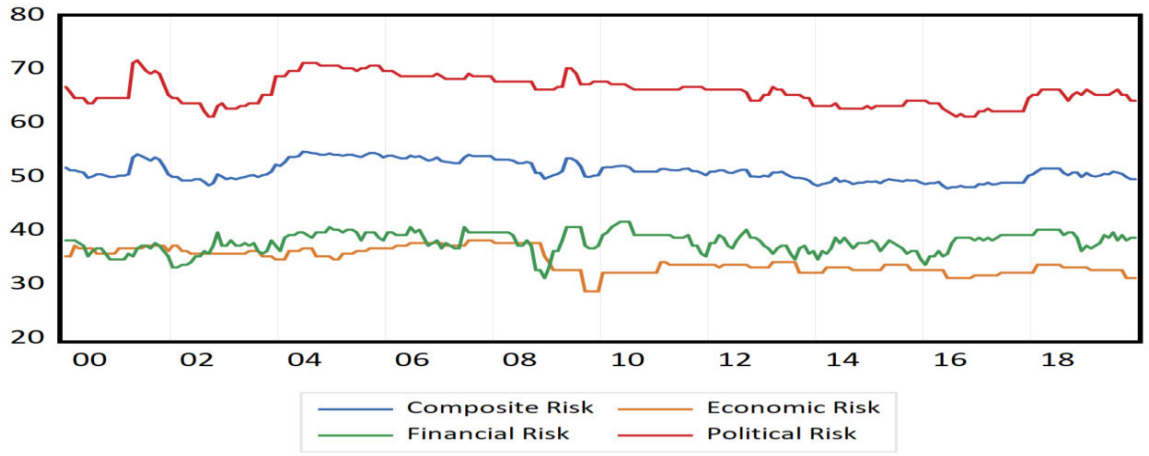

Figure 3.1: Plot of the Economic, Financial, Political, and the Composite Risk Index
Source: *Author's estimation (2022)*

3.2.5.2 Financial Risk Trend

The financial risk index ranged between 30 and 40 percent throughout the sample period. Like economic risk, South Africa has been experiencing "very high" financial risk levels since it ranges between 0-49.9 percent. Financial risk increased drastically during the Global Financial Crisis but improved after the crisis. However, financial risk went up again in 2018, as several credit rating agencies downgraded SA to sub-investment grade (junk status) in the previous year. Moreover, in 2018, President Cyril Ramaphosa was internationally criticized for discouraging investments as the President supported the ruling party's agenda on land

expropriation without compensation. Domestic and international investors need certainty that property rights remain protected (Fribie, 2018).

3.2.5.3 Political Risk Trend

Political risk has been significantly lower than the other risk components for the entire period. It exhibits a stable trend with a few dips and spikes. Political risk has been above 60 percent for the entire period. Meaning that between January 2000 and December 2019, South Africa has been associated with "moderate risk" political risk as it ranges between 60 and 69.9 percent. However, in 2006 the country experienced "very low" political risk levels, between 70 and 79.9 points. This could be due to the re-election of former president Thabo Mbeki, as his policies motivated economic growth. Another significant period is between 2016 and 2017; even though South Africa was still associated with "moderate risk" it was in the lower 60s. Due to a hike in corruption within the ruling party, for example, it became public knowledge that the former president Jacob Zuma renovated his home using taxpayer's money, this was referred to as the Nkandla scandal. Moreover, during this time, the country faced the most contested local government elections, where the ruling party lost a significant number of voters due to corruption (Frisbie, 2018).

3.2.5.4 Composite Risk Index Trend

The composite risk index, which encompasses all the country risk components, follows the same shape as the political risk index throughout the sample period. However, the composite risk index is higher than the political index due to financial and economic risk. Financial and economic risk each contribute 50 percent, and political risk contributes 100 percent to the composite risk index. Due to its higher contribution political risk has a more significant impact on the total composite risk index. Thus the composite risk index is closer to and follows a similar trend as political risk. The composite risk index ranges between 40-54 percent. Therefore, between January 2000 and December 2019, South Africa's country risk has been “high”.

3.3 Portfolio Data Description

The current study focuses on all the domestic and global general equity portfolios in South Africa as described by the Association of Savings and Investment South Africa (2018). The ASISA (2018) database was used as a point of reference to ascertain the characteristics of the study’s population (general equity portfolios). Secondly, the sampling method and sample

period are described together with the return trends. Finally, because the portfolios in this study suffer from survivorship bias, the concept of survivorship is discussed.

3.3.1 Equity Portfolio Population

A South African general equity portfolio invests a minimum of 80 percent of the portfolio's market value in stocks within South Africa. On the other hand, a global general equity portfolio is a collective investment portfolio that invests at least 80 percent of its stocks outside South Africa, with no more than 80 percent exposure to shares in a specific geographical region (ASISA, 2020). Including foreign portfolio investments allow for better comparison and analysis since country risk does not affect domestic and international investments in the same manner (Damodaran, 2021). It is important to note that the term South African general equity portfolio is used interchangeably with South African portfolio and domestic portfolio throughout this study. Global general equity portfolio is used interchangeably with foreign portfolio and international portfolio.

The ASISA database consists of types of portfolios, but this study focuses on general equity portfolios since they invest in stocks from all market capitalization (small, medium, and large). General equity portfolios also invest in all sectors of the economy and are not restricted to any investment style (ASISA, 2018). This means that comparison amongst the portfolios is fair and consistent since all South African equity general portfolios display similar investment limitations and mandates. Likewise, general foreign equity portfolios are exposed to the same drawbacks and laws, making it easy to compare them (ASISA, 2018). Shariah (Islamic) portfolios were not part of the population since these funds are managed using Islamic regulations (PricewaterhouseCoopers, 2009). In conclusion, the study's population consisted of all general domestic and global equity portfolios on 31 December 2019. They amounted to 238 domestic general equity portfolios and 90 foreign general equity portfolios.

3.3.2 Sample Period and Portfolio Sample Selection

General equity portfolios that formed part of the sample included all portfolios that were in existence between January 2000 and December 2019. The sample begun in 2000 due to data constraints, and ended in 2019 so as to control for the Covid 19 period which may distort country risk patterns due to lockdown and other measures taken to control the spread of the pandemic. The sample period also includes the Global Financial Crisis (GFC). The inclusion the financial crisis demonstrates that the sample included different changing market conditions.

For this reason, portfolios established after the GFC compromised this objective since no other global financial shock has occurred. Of the whole population, 193 South African and 42 foreign equity portfolios were formed after the Global Financial Crises (ASISA, 2019) and were consequently excluded from the study. Furthermore, 35 and 39 domestic and foreign portfolios, respectively, had missing information such as the date of inception or return data, and these were also excluded from the sample.

Furthermore, portfolios tend to incorporate multiple fund classes, depending on the portfolio manager's expenses and fees. However, when these charges are not accounted for, the different fund classes of a specific portfolio generate similar returns (Ferreira et al., 2013). Therefore, this study excluded different fund sizes of a particular portfolio to avoid double counting and multiple monthly data for a specific fund (Chen et al., 2004). The sample also included multi-manager equity portfolios. A multi-manager portfolio is an investment style where a portfolio invests in other portfolios instead of standard asset classes, such as bonds and stocks (Wessels, 2019). These portfolios were included in the study because the rate of this investment strategy proliferated following the Global Financial Crisis. Thus, these portfolios assist in providing more robust results of the performance of multi-manager portfolios under different market conditions. Additionally, the South African portfolio market consists of many multi-manager funds Pardoe (2018) which have a significant impact on the study results. Finally, portfolios acquired or merged during the period were excluded, but the surviving portfolio data was used. ASISA (2018) posits that a portfolio that stops to exist in its original form is assumed to have altered mandates and regulations.

In summary, the portfolios in the sample, both South African and Global general equity portfolios, had to subscribe to the following criteria:

- Established before the Global Financial Crisis and continued to exist until December 2019
- Non-Shariah equity portfolios.
- Return data for each South African general equity portfolio was from inception until December 2019.
- Return data for each Global general equity portfolio was available from inception until December 2019.

Following the selection process above, the sample for this study comprised ten South African general equity portfolios and nine Global general equity portfolios, presented in Tables 3.2.

Table 3.2: Sampled South African (Domestic) and Global (Foreign) General Equity Portfolios

South African General Equity Portfolios	Global General Equity Portfolios
➢ **BOVA-** Nedgroup Investments Value Fund A ➢ **CGMG-** Community Growth Fund ➢ **CORA-** Coronation Equity Fund A ➢ **FEQF-** Foord Equity Fund ➢ **LIPA-** Stanlib SA Equity Fund - A ➢ **LIWA-** Stanlib Equity Fund - A ➢ **MHGE-** Harvard House BCI Equity Fund A ➢ **MSTT-** Sasfin BCI Equity Fund A ➢ **NEGF-** Nedgroup Investments Growth Fund A1 ➢ **PSGG-** PSG Equity Fund A	➢ **AGOE-** Allan Gray - Orbis Global Equity Feeder Fund ➢ **CNIG-** Coronation Global Opportunities EQT [ZAR] Feeder A ➢ **FGFA-** Ninety-One Global Franchise Feeder Fund A ➢ **ISGE-** AF Investments Global Equity Feeder Fund A ➢ **OCIF-** Oasis Crescent International Feeder Fund ➢ **OMGA-** Old Mutual Global Equity Fund A ➢ **RMBI-** Momentum International Equity Feeder Fund A

***Source**: Author's compilation based on ASISA (2019)*

3.3.3 Return Calculation and Trend of Sampled Portfolios

The net asset value prices (NAV) of each portfolio were used to calculate the returns of the portfolios, and the raw data was retrieved from the Integrated Real-time Equity System (IRESS) database. The returns were calculated as follows:

$$I_{it} = \frac{NAVprice_{it} - NAVprice_{it-1}}{NAVprice_{it-1}} \quad (3.2)$$

The data spanned from January 2000 to December 2019 (sample periods varied depending on the portfolio's inception date). Figures 3.2 and 3.3 below demonstrate the trend of domestic and foreign portfolio returns for the sample period.

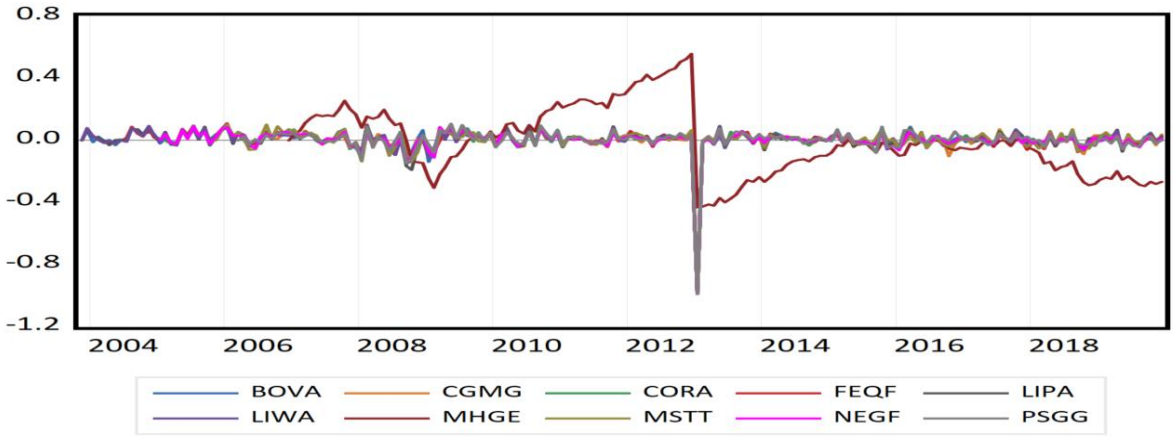

Figure 3.2: Returns of South African (Domestic) General Equity Portfolios
Source: *Author compilation based on IRESS (2019)*

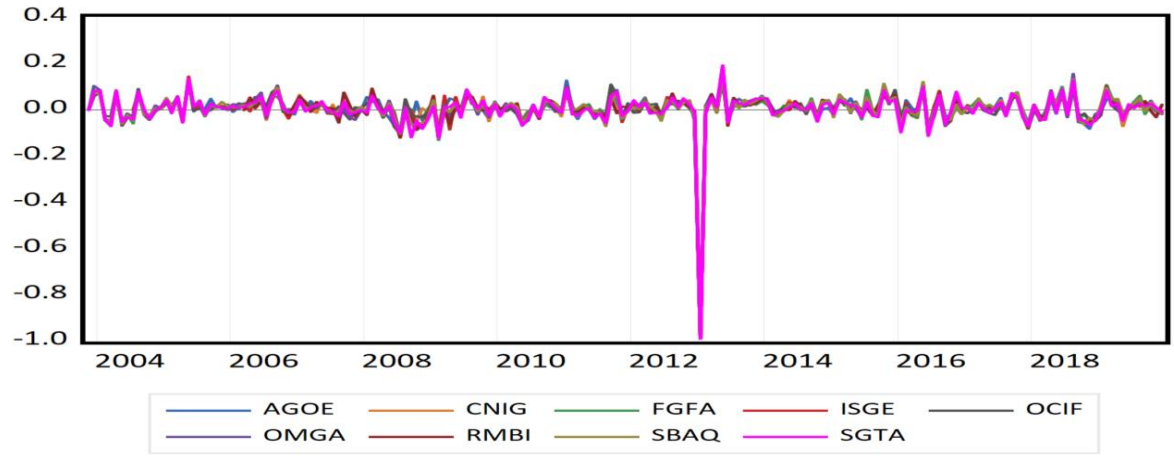

Figure 3.3: Returns of Global (Foreign) General Equity Portfolios
Source: *Author's compilation based on IRESS (2019)*

Figures 3.2 and 3.3 depict a white noise process since there is no observable trend in the behavior of the portfolios. Brooks (2014) states that a white noise series has the following properties: the data is deemed stationary, and shocks disappear over time and do not alter the robustness of the series (Granger et al., 2001). A white noise process also has a constant autocovariance, variance, and mean value. The data also crosses the mean value frequently. Two domestic equity portfolios, the Harvard House BCI Equity Fund A (MHGE) and the Stanlib Equity Fund A, demonstrated heightened volatility compared to the rest of the domestic funds. The Sanlam Global Equity Fund A (SGTA) had the most volatile returns out of all the foreign equity portfolios.

3.3.4 Survivorship Bias in the Selected Sample

Survivorship bias is influential in almost all empirical literature involving financial data. It occurs when a study only includes entities such as companies, funds or portfolios that existed continuously for the whole sample period (Pawley, 2002). This means that terminated portfolios or deregistered companies, acquired portfolios, or portfolios/companies that went through a merger are not considered. According to Bodie et al. (2014), when worst-performing portfolios are disregarded from the sample selection, the average measured performance portfolios is higher than when the whole sample is included. It is important to note that the sample for this study suffered from survivorship bias; this is because only funds that existed from inception until December 2019 were considered. Elton et al. (1996) state that the phenomenon is more pertinent in smaller portfolios; the study found that smaller portfolios fail to survive compared to the larger portfolios; moreover, portfolios that survive tend to perform better than funds that do not survive. Therefore, survivorship bias was not considered a major limitation since the study does not focus on the effects of the size of the portfolio on returns but instead is focused on the impact of disaggregated country risk on portfolio returns. Moreover, Hibbert (2003) states that survivorship bias can be reduced by shrinking the sample period. However, long-term time series data is imperative for this study to optimize on different market conditions and obtain reliable results.

3.4 Methodology and Data Analysis

This section focuses on the nature of the study's data, specifically the descriptive statistics of country risk components, domestic equity portfolios, and foreign equity portfolios, from January 2000 to December 2019 (the number of observations varied depending on the portfolio's inception date). Descriptive statistics are vital because they provide better insight into the nature of the data. The following descriptive statistics are interpreted: the mean, standard deviation, maximum value, minimum value, median, skewness, Jarque-Bera test, and the Kurtosis. The concept of normality is discussed to rationalize the Kurtosis and Jarqu-Bera test. Moreover, the correlation between portfolio returns and country risk is presented.

3.4.1 Normality Test

Normality testing assesses whether the data follows a normal distribution, a positively skewed shape, or a negatively skewed one. The study focused on two measures of normality, the Kurtosis, and the Jarque-Bera. The Kurtosis estimates the flatness or steepness of a series. It describes data in three ways, mesokurtic, platykurtic, and leptokurtic (Fiori and Zenga 2009).

A mesokurtic distribution means that the data is normally distributed and has a kurtosis value of 3. A platykurtic series has a flat curve and a negative kurtosis value indicating that the data has more values that are lower than the mean. A leptokurtic series has a steep curve and a positive kurtosis value, indicating that the data has more values above the mean. The Jarque-Bera (1981) test statistic measures the difference between the skewness and the kurtosis of a variable with those of a normally distributed variable. The null hypothesis of the Jarque-Bera test is that the data is normally distributed. The Jarque-Bera test has probabilities or p-values, if the probability value is lower than 0.05 the null hypothesis is rejected at 5 percent, which means the data is not normally distributed.

3.4.2 Correlation Analysis

Correlation tracks the direction and the strength of the relationship between two variables. The correlation section shall provide the correlation amongst domestic portfolio returns, foreign portfolio returns, and finally, the correlation between the portfolios and the composite risk index are discussed. If the correlation between two portfolios is positive, the returns of those two portfolios move in tandem, and market conditions affect them similarly. In contrast, if the correlation between two portfolios is negative, market conditions affect the portfolios differently; therefore, diversification opportunities exist. This section examines the correlation between the composite risk index and the equity portfolios to ascertain if country risk has a positive or negative relationship with the dependent variables and determine the strength. If the correlation is greater than 0, there is a positive relationship. If it is less than 0, there is a negative relationship. However, there is a perfect correlation between the variables when the correlation is 1.

3.4.3 Country Risk Descriptive Statistics

Table 3.3 shows that the average monthly risk rating for economic, financial, political and the composite risk rating index are 34.74 percent, 38.16 percent, 66.29 percent, and 51.37 percent, respectively. Political risk had the lowest monthly average risk. Economic risk reflected the highest monthly average risk. Moreover, since the average monthly risk rating of economic and financial risk is "very high" and political risk is "moderate," this affects the monthly average composite risk index differently. Since political risk is "moderate," the monthly average composite risk rating index is reduced. However, a "very high" economic and financial combination increases the composite risk rating index. Consequently, the composite risk falls under the category of "high" risk between moderate risk (political risk) and very high risk

(economic and financial risk). The lowest monthly risk rating (represented by the maximum value) was 72 percent, 42 percent, 38.5 percent, and 55 percent for political, financial, economic, and composite risk indices, respectively. The highest values (demonstrated by the minimum value) were economic 29, 31.5, 61.5, and 48,13 percent for economic, financial, political, and the composite risk indices, respectively.

Table 3.3:Country Risk Descriptive Statistics

	Economic risk	Financial risk	Political risk	Composite risk
Mean	34.7438	38.1646	66.2896	51.3719
Median	34.0000	38.5000	66.5000	51.0625
Maximum	38.5000	42.0000	72.0000	55.0000
Minimum	29.0000	31.5000	61.5000	48.1250
Std. Dev	2.1686	1.8800	2.6184	1.8174
Skewness	-0.0252	-0.5979	0.2237	0.3604
Kurtosis	2.2074	3.2028	2.1587	1.9696
Jarque-Bera	6.3076	14.7094	9.0801	15.8132
Probability	0.0427	0.0006	0.0107	0.0003
Observations	240	240	240	240

Source: *Author's estimations (2022)*

The standard deviation for all the country risk ratings is extremely low. Thus the components are not volatile over the sample period, which is emphasized by the maximum and minimum values that are not far apart from each other and not far from the mean. Financial and political risk are negatively skewed, meaning that the mean lies to the left of the median, and more values are below the mean value. Economic risk and composite risk index are positively skewed, meaning that the mean lies to the right of the median, and there are more values above the mean value. Moreover, financial risk reflected a leptokurtic distribution since its kurtosis value was above three. In contrast, the rest of the country risk components and the composite index followed a platykurtic distribution since the kurtosis value is below three. The Jarque-Bera test confirms that the data for all the country risk indices are not normally distributed as the null hypothesis of a normal distribution is rejected at the 5 percent significance level; all the probability values are lower than 0.05. The Markov- Switching Model does not require data to be normally distributed to produce reliable and accurate results. Therefore, skewed data is not a limitation for this study.

3.4.4 South African (Domestic) Equity Portfolios Descriptive Statistics

Panel A of table 3.4 below, provides the descriptive statistics of domestic portfolios. Panel B illustrates the correlation amongst South African equity portfolios and the correlation between the portfolios and the composite risk index. The composite risk index was chosen since it encompasses all of types of country risk. Panel A shows that the discrepancy of the monthly returns for all the South African general equity portfolios in the sample is substantial; this variation in the returns is demonstrated by the average (mean) monthly return for all the portfolios being smaller than the standard deviation (variance). Furthermore, this extreme disparity illustrates the existence of outliers in the data.

The Foord equity fund (FEQF) and the Stanlib equity fund - A (LIWA) reflected the highest average monthly returns for the period. The Community growth fund (CGMG) and the Harvard House BCI equity fund A (MHGE) on the other "hand" had the lowest average monthly returns for the entire sample period and were the only portfolios that had negative average returns. The lowest Net Asset Value (NAV) is -0.4328 and was observed from MHGE domestic equity portfolio. The highest NAV is 0.11, observed from FEQF equity fund. The standard deviations (variances) for all the portfolios ranged between 0.0805 (BOVA) and 0.2160 (MHGE). Meaning that the MHGE equity fund returns are the most volatile and the portfolio is expected to generate the highest returns for a given level of risk as stipulated by the Modern Portfolio Theory (Markowitz, 1968). Moreover, the standard deviation (variance) may proxy the diversification opportunities offered by a portfolio. Since the BOVA equity fund had the lowest standard deviation, it is less risky; thus, it is more likely to facilitate efficient diversification. All the returns follow a negatively skewed distribution; this is also reflected in the significant difference between the means and medians. Moreover, the portfolios illustrate a long-left tail skewness, meaning that the data is negatively skewed, with more values being lower than the mean. This is confirmed by the kurtosis, which shows that all the distributions are not normal but rather follow a leptokurtic distribution as all the kurtosis values are above 3. The null hypothesis of the Jarque-Bera test confirms that the data is not normally distributed. The null hypothesis of a normal distribution is rejected at 5 percent since all the p-values are lower than 0.05. The Markov- Switching Model does not require data to be normally distributed to produce reliable and accurate results. Therefore, skewed data is not a limitation for this study.

Table 3.4: South African (Domestic) Equity Portfolios Descriptive Statistics

	BOVA	CGMG	CORA	FEQF	LIPA	LIWA	MHGE	MSTT	NEGF	PSGG
Panel A										
Mean	0.0039	-0.0010	0.0039	0.0048	0.0026	0.0040	-0.0104	0.0023	0.0018	0.0009
Median	0.0093	0.0097	0.0126	0.0131	0.0112	0.0100	-0.0283	0.0107	0.0105	0.0067
Maximum	0.0973	0.0975	0.0960	0.1100	0.0998	0.0936	0.5570	0.0997	0.0893	0.1074
Minimum	-0.9901	-0.9897	-0.9895	-0.9897	-0.9900	-0.9897	-0.4328	-0.9901	-0.9898	-0.9894
Standard Deviation	0.0805	0.0861	0.0840	0.0812	0.0829	0.0814	0.2160	0.0870	0.0822	0.0866
Skewness	-9.7566	-9.2058	-9.3199	-9.5478	-8.9912	-9.4936	0.3639	-8.8550	-9.8665	-9.1060
Kurtosis	120.98	106.02	111.12	117.64	107.71	116.19	2.75	101.24	119.39	104.63
Jarque-Bera	115593.6	75752.09	89771.98	109182.9	91244.67	106482.	3.8863	70589.02	104518.6	73732.24
Probability	0	0	0	0	0	0	0.1433	0	0	0
Observations	194	166	179	194	194	194	157	170	180	166
Panel B										
BOVA	1.00									
CGMG	0.9660	1.00								
CORA	0.9751	0.9783	1.00							
FEQF	0.9813	0.9759	0.9827	1.00						
LIPA	0.9691	0.9824	0.9749	0.9792	1.00					
LIWA	0.9671	0.9781	0.9781	0.9770	0.9882	1.00				
MHGE	0.2034	0.1702	0.1868	0.2080	0.2242	0.2076	1.00			
MSTT	0.9588	0.9608	0.9700	0.9733	0.9685	0.9749	0.2135	1.00		
NEGF	0.9795	0.9769	0.9788	0.9773	0.9751	0.9751	0.1856	0.9678	1.00	
PSGG	0.9680	0.9553	0.9690	0.9683	0.9610	0.9591	0.1809	0.9458	0.9759	1.00
Country Risk	0.0247	0.0345	0.0336	0.0270	0.0313	0.0293	0.3436	0.0328	0.0294	-0.0007

Source: *Author's estimation (2022)*

Panel B of figure 3.4 on the previous page shows a significant positive correlation among the domestic portfolios since the p-values are all zero. This implies that these portfolios offer fewer diversification benefits, as they would react similarly to changing market conditions. The correlation coefficients range from 0.1702 for Harvard House BCI equity fund A (MHGE) and the Community growth fund (CGMG) to 0.9882 (between the Stanlib equity fund - A (LIWA) and the Stanlib SA equity fund – A (LIPA). Most of the equity portfolios have strong positive correlations that are above 0.95. However, all the domestic portfolios have a weak positive correlation with the MHGE fund. The MHGE (0.3436) has the highest positive correlation with country risk, and the PSG Equity Fund A (-0.0007) is the only fund negatively correlated with country risk, all the correlation are statistically significant as the p-values corresponding them are equal to zero.

3.4.5 Global (Foreign) Equity Portfolios Descriptive Statistics

Panel A of Table 3.5 below provides the descriptive statistics for foreign portfolio equity returns. Panel B illustrates the correlation amongst foreign equity portfolios and the correlation between the portfolios and the composite risk index. Panel A of Table 3.5 demonstrates that, the discrepancy of the monthly returns for all the global general equity portfolios in the sample is substantial; similar to the domestic portfolios this variation in the returns is demonstrated by the average (mean) monthly for all the portfolios being smaller than the standard deviation (variance). Furthermore, this extreme disparity illustrates the existence of outliers in the data. The Allan Gray - Orbis global equity feeder fund (AGOE) reflected the highest average monthly returns. On the other " hand ", the Sanlam global equity fund A (SGTA) had the lowest average monthly returns; however, all the portfolios reflect positive average returns.

Table 3.5: Global (Foreign) Equity Portfolios Descriptive Statistics

	AGOE	CNIG	FGFA	ISGE	OCIF	OMGA	RMBI	SBAQ	SGTA
Panel A									
Mean	0.0048	0.0036	0.0047	0.0047	0.0034	0.0056	0.00280	0.0044	0.0019
Median	0.0090	0.0101	0.0108	0.0108	0.0044	0.0117	0.0093	0.0095	0.0079
Maximum	0.1853	0.1567	0.1360	0.1564	0.1281	0.1556	0.1759	0.1520	0.1906
Minimum	-0.9885	-0.9888	-0.9889	-0.9887	-0.9890	-0.9887	-0.9889	-0.9888	-0.9887
Std. Dev	0.0860	0.0880	0.0826	0.0850	0.0824	0.0841	0.0883	0.0835	0.0847
Skewness	-8.8172	-8.9428	-8.9428	-8.5657	-8.9754	-8.510	-8.5510	-8.6553	-8.2231
Kurtosis	103.25	98.65	109.06	101.46	109.73	101.99	97.18	104.33	97.82
Jarque-Bera	75543.6	65345.48	93507.53	77409.51	94689.00	81536.9	63373.3	85420.85	74867.60
Probability	0	0	0	0	0	0	0	0	0
Observations	175	166	194	186	194	194	166	194	194
Panel B									
AGOE	1.00								
CNIG	0.9623	1.00							
FGFA	0.9511	0.9766	1.00						
ISGE	0.9619	0.9842	0.9822	1.00					
OCIF	0.9678	0.9741	0.9772	0.9788	1.00				
OMGA	0.9613	0.9783	0.973	0.9839	0.9748	1.00			
RMBI	0.9528	0.9709	0.9663	0.9741	0.9610	0.9766	1.00		
SBAQ	0.9681	0.9784	0.9765	0.9860	0.9756	0.9862	0.9744	1.00	
SGTA	0.9753	0.9724	0.9611	0.9769	0.9731	0.9831	0.9711	0.9829	1.00
Country Risk	0.0129	0.0160	0.0317	0.0157	0.0374	0.0087	0.0306	0.0210	0.0171

Source: *Author's estimations (2022)*

The standard deviation of the foreign portfolios was slightly higher than that of domestic portfolios, meaning that foreign portfolios are riskier and more volatile than domestic portfolios. The returns follow a negatively skewed distribution similar to the South African equity portfolios. The returns show a long-left tail skewness, with more values being lower than the mean. The distribution is leptokurtic as all the kurtosis values are above 3. The null hypothesis of the Jarque-Bera test confirms that the data is not normally distributed. The null hypothesis of a normal distribution is rejected at 5 percent since all the p-values are lower than 0.05. The Markov- Switching Model does not require data to be normally distributed to produce reliable and accurate results. Therefore, skewed data is not a limitation for this study.

Panel B illustrates the correlation amongst global general equity portfolios and the correlation between the portfolios and the composite risk index. There is a significant strong positive correlation amongst the foreign portfolios, all the correlation have p-values that are equal to zero, this implies less diversification benefits. The correlation coefficients range from 0.9511 (between the Ninety-One Global franchise feeder fund A (FGFA) and the Allan Gray - Orbis global equity feeder fund (AGOE) to 0.9860 (between the Stanlib Global equity feeder fund - A (SBAQ) and the AF investments global equity feeder fund A (ISGE). The range of the correlation coefficients of foreign portfolios is lower than that of domestic portfolios. Moreover, all the foreign portfolios are positively correlated with South Africa's country risk score although it is significant (the p-values are equal to zero) the correlation coefficients are low. The range of the correlation coefficients of foreign portfolios is lower than that of domestic portfolios. Moreover, all the foreign portfolios are positively correlated with South Africa's country risk score although it is significant (the p-values are equal to zero) the correlation is weak. Against this background, the following sections of this chapter provide the description and specification the of the Markov Switching Model which assist in explaining how country risk factors affect the sampled portfolios in time-varying market conditions.

3.4.6 Model Description

This study uses the Markov switching approach to determine the effects of disaggregated country risk on domestic and foreign equity portfolio returns in different market conditions (Hamilton,1989). Several studies have used the model to analyse time-series data (Hamilton, 1989; Chen and Tsay, 2007; Kuan, 2002; Muzindutsi and Obalade, 2020). The main advantage of Markov switching models is that they allow for flexibility by capturing structural breaks and regime shifts in time series data (Brooks, 2014). A structural break occurs when a series

changes behavior once and for all, whereas a regime shift can take two forms. Firstly, a regime shift appears when a series changes to another style of behavior forever (Muzindutsi and Obalade, 2020). Secondly, a regime shift occurs when a series changes its behavior for a specific period and later returns to its original behavior (Brooks, 2014). For example, a series shifts from being bearish to bullish and back to being bearish. According to Moolman (2004) and Napolitano (2009), the Markov regime-switching model is the best model to examine changing market conditions. This is because economic (Hamilton, 1989) and financial data (Ang and Timmermann, 2012) tend to display nonlinear or abrupt shifts or regime shifts in behaviour that linear models cannot cover (Muzindutsi and Obalade , 2020).

Further, the Markov switching model allows for time-variation in parameters through their regime or state-specific values. Thus, the value at time t of the regime indicator is given by the value of the regime indicator at time t-1, which is the transition matrix and the Markov property (Brooks, 2014). The transition matrix distinguishes the properties of the switching process by investigating with what probability the regimes can be demonstrated at t +1given the regime at time t (Brooks, 2014). To put it into perspective, this essentially means that the model can capture the probability of a specific portfolio being in a bearish or bullish market condition and how many months (since the study uses monthly frequency) it stays in that particular regime or state (bull/bear). By doing so, the model facilitates addressing the study's first objective, which is to compare the level of bull and bear market conditions in domestic and foreign equity portfolios. This leads to the estimation of the probability of state occurrences in the sample period by using smoothing methods. The smoothing feature opens the opportunity for refined interpretations of the parameters linked with states combined with the corresponding state probabilities, thereby, strengthening forecasting performance based on persistent states and parameters distinguishing them (Spears, 2021). Against this background, the next session provides a detailed specification of the Markov Switching Model of Conditional Mean used in this study.

3.4.7 Model Specification

A regime-switching model that accounts for switching parameters explains the effects of country risk on equity portfolio returns under different market conditions in South Africa. Equation 3.1 represents the Markov regime-switching model of conditional mean. I_t is the Net Asset Value (NAV) of the portfolios. I^t follows the switching regime C*t* which is not observed.

The possibility of a regime occurring is split into *N* states in period *t* when *Ct = N*, where *N* = 1,2,3…., *N*. Regimes, both bull (regime 1) and bear (regime 2) ought to keep a first-order Markov process, illustrated by a transition probability matrix. Each regime has an alternate regression model containing regressors, a switching intercept, and an error variance as presented below:

$$I_t = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t} \quad (3.3)$$

μ_{ct} is the state-dependent intercept (mean), and the different conditions in the market are represented by C_t=1,2: where bullish conditions are regime 1, bearish conditions are regime 2 and $\varepsilon_{c_t}, i.i.d\ (0, \sigma_{c_t}^2)$, with $\sigma_{c_t}^2$ being the regime-dependent variance of returns. β_1, β_2 and β_3 are the coefficients of country risk components and are discussed in detail later in the section. ΔECO is the change in economic risk, ΔFIN, is the change in financial risk and ΔPOL is the change in political risk. Furthermore, economic, financial, and political risk comprise of state-dependent coefficients. Given that the study aims to assess if country risk components affect equity portfolio returns on ten domestic and nine foreign equity portfolios, equation 3.3 is estimated as follows:

$$I_{dp} = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t} \quad (3.4)$$

$$I_{fp} = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t} \quad (3.5)$$

Where I_{dp} represents the returns of a domestic equity portfolio and I_{fp} illustrate the returns of foreign equity portfolios. Equations 3.4 and 3.5 are to be used for ten different estimations for domestic portfolios and nine estimations for foreign portfolios, respectively. The Markov Switching model was estimated using the EViews 12 statistical package. Each portfolio has a regression model comprising of a regime 1 (bull) and regime 2 (bear). The impact of the β_1, β_2 and β_3 on portfolio returns are estimated for both regimes, thereby addressing the study's second and third objectives. Consequently, the following hypothesis were tested.

H1: The effects of country risk components on domestic portfolio returns are regime dependent
H2: The effects of country risk components on foreign portfolio returns are regime dependent

Regimes, for both market conditions ought to keep a first-order Markov process illustrated by a transition probability matrix. Furthermore, under this process, the chances of occurring in a specific regime relies on the latest state (the state, from one period ago) given by:

$$Prob(C_t = \text{j I } C_{t-1} = \text{i}) = Prob_{ij}(\text{t}) \quad (3.6)$$

Where ij are constant probabilities and, (t) and $t-1$ show time periods. The probabilities show the chances of moving from regime *i* in time $t-1$ into another regime represented by *j* in time *(t)* (Brooks, 2014). It is important to note that the probabilities do not change for all the periods; therefore, $Prob(t) = Prob_{ij}$.The following matrix illustrates the two-regime model:

$$Prob = \begin{bmatrix} Prob(C_t = 1 \text{ I } C_{t-1} = 1) & Prob(C_t = 2 \text{ I } C_{t-1} = 1) \\ Prob(C_t = 2 \text{ I } C_{t-1} = 2) & Prob(C_t = 1 \text{ I } C_{t-1} = 2) \end{bmatrix} = \begin{bmatrix} Prob_{11} & Prob_{21} \\ Prob_{22} & Prob_{12} \end{bmatrix} \quad (3.7)$$

Where, $Prob_{11}$ are the chances that equity portfolio returns are in state number 1 at t-1 and will still be at the first state at time t, while $Prob_{12}$ are the chances that equity portfolio returns will be in the first state at t-1 and alternate to the second state at t. $Prob_{21}$ is the likelihood that equity portfolio returns are in state two at time t-1 and move to state 1 at time t. Lastly, $Prob_{22}$ shows the likelihood that equity portfolio returns are in state 2 at time t-1 and remain there at time t (Brooks, 2014). The first state is a bullish market, and the second is a bearish market. The probability of each regime staying in a particular state were calculated and compared across all domestic and global equity portfolios.

Like all time-series models, the Markov switching model has its drawbacks. Firstly, the model produces inefficient and biased results if the data is not stationary or the variables are autocorrelated. Next, even in the presence of structural breaks, the Markov regime-switching model assumes the times series data encompasses stationary characteristics. According to Paliouras (2007) the transition properties of the model do not cater for structural breaks that are not stationary. Due to these limitations and prioritizing accurate and unbiased results, preliminary and diagnostic statistical tests were conducted.

3.4.8. Preliminary and Diagnostic Tests

To ensure that the Markov Switching Model of Conditional mean does not generate spurious results, there is a need to check if the series is stationary with and without structural breaks. The Augmented Dickey-Fuller test (1981) and the Phillips and Perron (1988) were used to test for unit root with and without structural breaks, while the Kwiatkowski Phillips Schmidt Shin (KPSS) by Kwaitkowski et al. (1992) tested for stationarity. Moreover, after the Markov switching model is estimated it can only be deemed accurate if the variables are not autocorrelated; this study employed the Breusch-Godfrey LM to test for autocorrelation.

3.4.8.1 Augmented Dickey-Fuller

The test statistic for the Augmented Dickey-Fuller (ADF) is shown below:

$$\Delta y_t = \psi\, y_{t-1} + \sum_{i=1}^{p} \alpha_i\, \Delta\, y_{t-1} + u_t \qquad (3.8)$$

Where Ψ is the unit root, μ is an intercept, λ is the time trend (the time trend is not always part of the regression, it is included when necessary), p represents the number of lags and μi is the white noise disturbance term.

The optimal lag length is determined using information criteria (Brooks, 2014), including the Akaike Information Criterion (AIC) (1973), the Schwarz's Bayesian Information Criterion (SBIC) (1978), and the Hannan and Quin Information Criterion (1979) (HQIC). The information criteria can be represented mathematically, like below:

$$AIC = I(\theta 2\,) + 2k\,T \text{ (19)} \qquad (3.9)$$

$$SBIC = I(\theta 2\,) + 2k\,T\,In\,T \text{ (20)} \qquad (3.10)$$

$$HQIC = I(\theta 2\,) + 2k\,T\,In(In(T)) \qquad (3.11)$$

Where T is the number of observations and represents the number of parameters calculated, $\theta 2$ represents the residuals, and k = p + q + 1. According to Brooks (2014), the Akaike Information Criterion picks long lag orders and is better for a small sample.

The Schwarz Bayesian Information Criterion selects shorter lag orders and performs better in larger samples, and the Hannan and Quin Information Criterion is an in-between information criterion. Hypothesis testing for the ADF test follows this process:

H_0*: The series has a unit root.*

H_1*: The series is stationary.*

The null hypothesis is rejected if the test statistic is more negative than the probability value, at the specific significance of significance. It is important to note that the above depicts the methodology for testing unit root in the series without structural breaks. The Augmented Dickey-Fuller min-t structural break test by Enders and Lee (2012) was used to test for unit root with structural breaks. The test statistic for the ADF min-t structural break test is shown below:

$$\Delta yt = \Psi yt{-}1 + \mu DL + \lambda t + \sum \beta i \; p \; i{=}1 \; \Delta yt{-}i + \mu i \qquad (3.12)$$

Where Ψ represents the unit root, μ represents the intercept, DL and βi represent breakpoint parameters, λ is time trend (the time trend is not always part of the regression, it is included when necessary), p shows the number of lags and μi represents the white noise disturbance term. The ADF min-t structural break test uses the information criteria to determine the optimal lag length like the ADF without structural breaks. Hypothesis testing for the ADF min-t structural break test is as follows:

H_0*: Unit series with an indeterminate number of structural breaks.*

H_1*: Stationary series with an indeterminate number of structural breaks.*

The null hypothesis is rejected if the test statistic is more negative than the probability value, at the specific level of significance.

3.4.8.2 Philips and Perron Test

Another model that was used to test for the presence of unit root is the Philips and Perron unit root test established by Phillips and Perron (1998). Newey-West (1987) states that the PP test is more robust than the ADF unit root test. Escobari *et al.* (2017) believe that it is more powerful

because uses autocorrelation and heteroscedasticity persistent standard errors. The test statistic is:

$$Z_{\propto} = t_{\propto}(\frac{\gamma_0}{f_0})^{\frac{1}{2}} - \frac{T(f_0-\gamma_0)(s(\hat{\alpha}))}{2^{\frac{1}{2}}_{f_0} s} \quad (3.13)$$

Where, T represents the number of observations, $t\alpha$ denotes the t-ratio of α, $\hat{\alpha}$ is the estimate, $s(\hat{\alpha})$ represents the standard error and the error variance is denoted by $\gamma 0$. Moreover, $f0$ represents is the residual spectrum at a frequency of zero and finally the standard error of the test regression is denoted by s. The null and alternative hypothesis for the test are:

H_0: *There is a unit root in the univariate time series.*
H_1: *There is deterministic trend in the univariate time series.*
If the null hypothesis is accepted, it means the data is not stationary and the probability value is greater than the stated level of significance. Conversely, the null hypothesis of unit root in the univariate times series is rejected when the probability value is smaller than the stated level of significance and the data is stationary.

3.4.8.3 Kwiatkowski Phillips Schmidt Shin (KPSS)

The KPSS statistic consists of three variables: a random walk (r_t), a deterministic trend (β_t) and a stationary error (ε_1), with the regression equation:

$$x_t = r_t + \beta_t + \varepsilon_1 \quad (3.14)$$

The KPSS hypothesis is as follows:
H0: There series is stationary
H1:The series is not stationary

The null hypothesis is rejected if the test statistic is more negative than the critical value at that specific significance level (Shin and Schmidt, 1992). KPSS tests are intended to complement unit root tests. Should the results obtained from the unit root tests clash with the KPSS. The KPSS test is favoured over the ADF and PP tests. This is because KPSS tests for a null hypothesis of stationarity while ADF and PPP test for the presence of a unit root. A null hypothesis cannot be proven – it can only be affirmed or rejected.

3.4.8.4 Residual Diagnostic Test

Residual diagnostic tests verify that the model employed generated reliable and accurate results (Atkinson, 1986). The Markov-Switching Model requires independent and dependent variables to be free from autocorrelation or serial correlation. To test for serial correlation graphical test such as the correlogram of standardized residuals and standardized residual squared, can be used, however, these methods are not formal. This study employs the Breusch-Godfrey LM test which is a formal test and was established by Breusch (1978) and Godfrey (1978).

Charemza and De Adman (1997) state that the serial correlation test statistic with h lags estimates the residuals on the lagged residuals $\varepsilon t{-}1$ and of the residuals εt on the initial righthand predicting variables, and $\varepsilon t{-}h$ values are equal to zero for the missing first lag order h using an auxiliary regression. The LM test static is:

$$(T-h)R^2 \qquad (3.15)$$

Where, T denotes the sample size, the number of lags for the error term are represented by h, and R^2 represents is the coefficient from the auxiliary regression. The null and the alternative hypothesis are:

H_0: There is no autocorrelation in the model
H_1: There is autocorrelation in the model

The null hypothesis of no serial correlation at lag h is rejected if the critical value is less than the LM test statistic since the test static (Brook, 2002). It is important to note that, there exist various diagnostic tests, such as test for non-normality and heteroscedasticity test. However, these diagnostic tests were conducted since they are not necessary in verifying that the results generated by the Markov-Switching Model of conditional mean are accurate and reliable.

3.5 Chapter Summary

This chapter critically discussed and analysed the nature of data used for the research. A detailed description of the three main country risk (economic, financial, and political risk) components used in this study, together with the composite risk rating index was provided. Furthermore, the sample selection comprised only general equity portfolios as they have similar limitations and mandates allowing for fair and consistent comparison. The Markov-Switching Model of Conditional Mean, which is the model used for this research and captures the effects

of country risk components of portfolio returns which linear model fail to cover was presented. To sum up the methodology, the estimated model for both domestic and foreign portfolios has been described, and two equations will be estimated to explain the effects of country risk components on general domestic and foreign equity portfolios in different market conditions. Moreover the model is designed to identify bull and bear states (state 1 and state 2, respectively) and provide the total number of months each equity portfolio stays in each state. The probability of each portfolio staying in a particular state ought to be calculated and compared across all equity portfolios. The next chapter provides the empirical results and analysis and addresses the study's objectives.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Introduction

This chapter addresses the study's objectives by comparing the level of bull and bear market conditions in domestically and globally diversified equity portfolios and how the portfolio returns respond to changes in economic, financial, and political components of country risks in time-varying market conditions. This was done using the Markov Switching Model. In an attempt to verify that the data is suitable for the Markov-Switching Model of Conditional Mean preliminary tests discussed in the previous chapter were conducted. The current chapter is structured as follows: unit root (ADF and PP) and stationarity test results (KPSS) are presented and analysed with and without structural breaks. Secondly, the constant Markov transition probabilities and constant expected durations results, which speak to the amount of time a portfolio spends in a specific regime, are examined. Finally, the Markov-Switching Model of Conditional Mean results depicting the effects of country risk components on domestic and foreign portfolios under changing market conditions are exhibited and critically discussed from a theoretical perspective.

4.2 Country Risk Stationarity and Unit Root Test Results

To ascertain that the results were consistent, all the country risk components were tested for stationarity tests at 1st difference since changes in country risk components were used as regressors. Table 4.1 illustrates the unit root tests, given by the Augmented Dickey-Fuller (ADF) and the Philips and Perron (PP) test. In Table 4.1, the value on top depicts the test statistic for the ADF and PP tests, and the probability value lies below the test statistic. Regarding the economic, financial, and political risk scores for the ADF and the PP test, the probability value is 0, which is smaller than 1 percent. The null hypothesis of a unit root in the series is rejected at the 1 percent significance level. Therefore, all the country risk components' data is stationary. Furthermore, the Kwiatkowski Phillips Schmidt Shin (KPSS) test confirms that economic, financial, and political risk data is stationary since the test statistics are less than the critical value (0.7390) at the 1 percent significance level.

Table 4.1: Stationarity and Unit Root Tests

Country Risk	ADF Test	PP Test	KPSS Test
Unit Root and Stationarity Test in Levels with Intercept			
At 1st Difference			
ΔEconomic Risk	-15.0361* (0)	-15.0969* (0)	0.06238*
ΔFinancial Risk	-15.8609* (0)	-16.9883* (0)	0.0302*
ΔPolitical Risk	-13.9575* (0)	-13.9059* (0)	0.0386*
Break Point Unit Root Test in Levels with an Intercept			
At 1st Difference			
ΔEconomic Risk	-16.7779* (< 0.01)	none	
ΔFinancial Risk	-16.6977* (< 0.01)		
ΔPolitical Risk	-16.6206* (< 0.01)		

Source: *Author's estimations (2022)*
Note: ** denotes a 1% level of significance, and 0.7390, 0.4630 and 0.3470 are the LM critical values for the KPSS at 1%, 5% and 10%, respectively.*

The study also conducted stationarity tests with the presence of structural breaks using the ADF min-t structural break test. The economic, financial, and political risk scores were significant at 1 percent, meaning that country risk data was stationary even when structural breaks were considered.

4.3 South African (Domestic) Equity Portfolios Stationarity and Unit Root Results

Table 4.2 below illustrates the unit root tests given by the ADF and the PP test for domestic equity portfolios. The unit root tests were conducted on each domestic portfolio. For each portfolio, the value on top represents the test statistic of the ADF test and the PP test, and the probability value lies below the test statistic. For all the South African equity portfolios except the Harvard House BCI equity fund A (MHGE) equity fund, the probability value is 0, thus smaller than 1 percent. The null hypothesis of a unit root in the series for those portfolios is rejected. Under the ADF and the PP test, the MHGE equity fund is not statistically significant; the null hypothesis of a unit root in the series cannot be rejected.

Moreover, the KPSS confirmed that the domestic portfolios are all stationary since the test statistics are less than the critical value (0.7390) at a 1 percent significant level. The null hypothesis that the domestic portfolio return data is stationary is not rejected.

Table 4.2: South African (Domestic) Equity Portfolio Results of Unit root and Stationarity Tests

Domestic Portfolios	ADF Test	PP Test	KPSS Test
At Level			
Unit Root and Stationarity Tests in Levels with an Intercept			
BOVA	-13.7706* (0.)	-13.7706* (0)	0.2662*
CGMG	-12.9188* (0)	-12.9188* (0)	0.0630*
CORA	-13.3895* (0)	-13.3947* (0.0000)	0.1265*
FEQF	-13.7407* (0)	-13.7407* (0)	0.2831*
LIPA	-13.6723* (0)	-13.6723* (0.)	0.2508*
LIWA	-13.6290* (0)	-13.6323* (0)	0.1742*
MHGE	-2.4449 (0.13)	-2.5055 (0.12)	0.5186
MSTT	-13.0599* (0)	-13.0614* (0)	0.0932*
NEGF	-12.9736* (0)	-12.9736* (0)	0.1744*
PSGG	-12.8264* (0)	-12.8267* (0)	0.0444*
BreakPoint Unit Root Test in Levels with an Intercept			
BOVA	-29.5877* (< 0.01)	none	
CGMG	-28.15410* (< 0.01)		
CORA	-28.6019* (< 0.01)		
FEQF	-29.10510* (< 0.01)		
LIPA	-26.5291* (< 0.01)		
LIWA	-28.3304* (< 0.01)		
MHGE	-28.2913* (< 0.01)		
MSTT	-26.1461* (< 0.01)		
NEGF	-29.8012* (< 0.01)		
PSGG	-27.6898* (< 0.01)		

Source: *Author's estimations (2022)*
Note: ** denotes a 1% level of significance. The LM critical values for the KPSS are 0.7390, 0.4630 and 0.3470 at 1%, 5%, and 10%, respectively.*

The study also conducted stationarity tests in the presence of structural breaks. Under the break-point unit root test, at the 1 percent level of significance, all the portfolios, including the MHGE, had probability values below 1 percent. The null hypothesis of a unit root is rejected, which means that after considering structural breaks, the MHGE equity portfolio returns are stationary. Thus, structural breaks made the MHGE return data non-stationary, it is for this reason that it was not differenced.

4.4 Global (Foreign) Equity Portfolios

Table 4.3 below illustrates the unit root tests given by the ADF and the PP test for each foreign portfolio. The value on top represents the test statistic of the ADF test and the PP test, and the probability value lies below the test statistic. For both the ADF and the PP test, the probability value is 0, thus smaller than 1 percent. The null hypothesis of a unit root in the series for all the foreign equity portfolios is rejected, and the data is stationary. The KPSS confirms that the portfolios are stationary since the test statistics are lower than the critical value (0.7390) at 1 percent. The null hypothesis that the portfolio returns are stationary cannot be rejected. Under the break-point unit root test at the 1 percent significance level, all the global general equity portfolios have probability values below 1 percent. Thus, the null hypothesis of a unit root is rejected in favour of the alternative hypothesis of no unit in the series.

Table 4.3: Global (Foreign) Portfolio Results of Unit root and Stationarity Tests

Foreign Portfolios	ADF Test	PP Test	KPSS Test
Unit Root and Stationarity Tests in Levels with an Intercept			
AGOE	-13.0429* (0)	-13.5184* (0)	0.0737*
CNIG	-13.0301* (0)	-13.2847* (0)	0.0749*
FGFA	-13.6338* (0)	-13.6624* (0)	0.0720*
ISGE	-13.7322* (0)	-13.8773* (0)	0.0742*
OCIF	-13.7743* (0)	-13.8713* (0)	0.0781*
OMGA	-13.6663* (0)	-13.7483* (0)	0.0646*
RMBI	-12.7298* (0)	-12.8309* (0)	0.0712*
SBAQ	-13.7505* (0)	-13.7917* (0)	0.0791*

SGTA	-13.9240* (0)	-14.0934* (0)	0.0758*
BreakPoint Unit Root Test in Levels with an Intercept			
AGOE	-16.8099* (< 0.01)	none	
CNIG	-28.0541* (< 0.01)		
FGFA	-28.4051* (< 0.01)		
ISGE	-27.5464* (< 0.01)		
OCIF	-28.2055* (< 0.01)		
OMGA	-26.7862* (< 0.01)		
RMBI	-26.4518* (< 0.01)		
SBAQ	-27.4911* (< 0.01)		
SGTA	-26.0102* (< 0.01)		

Source: *Author's estimations (2022)*
Note: ** denotes a 1% level of significance. The LM critical values for the KPSS are 0.7390, 0.4630 and 0.3470 at 1%, 5%, and 10%, respectively.*

4.5 Markov Regime-Switching Model of Conditional Mean Results

Given that country risk and portfolio data is stationary, this section depicts the regression results and analysis of the effects of country risk components on domestic and foreign portfolio returns under changing market conditions. The constant Markov transition probabilities and constant expected durations results are presented, followed by the Markov Regime-Switching Model of Conditional Mean results. The constant Markov transition probabilities and expected duration results consist of two panels. Panel A (constant transition probabilities) displays the chances of moving from a bull regime (regime 1) to a bear regime (regime 2) and vice versa. Panel B (constant expected duration) illustrates how long a portfolio stays in regime 1 and how long a portfolio stays in regime 2. Since the study uses monthly data, the constant expected duration indicates how many months a portfolio stays in a particular regime. Akaike (1973) found that if inverse correlations between the two regimes exist, the probability of regime 1 will be close to one, and the probability of regime 2 will be near zero, and vice versa. Consequently, the probability of remaining in the same regime for extended periods is substantial.

For the Markov Regime-Switching Model of Conditional Mean regression results, all domestic and foreign equity portfolios are non-switching dependent variables. The regressors for the model include the intercept, error variance, and switching country risk components. The regression results represent equations 3.2 and 3.3 for domestic and foreign portfolios, respectively. It is essential to note that the model could not produce a switching error variance and a switching intercept for all the portfolios. However, it is not a significant limitation since the intercept and the error variance do not form part of the analysis. The error variance and the intercept do not contribute any value in addressing the study's objectives.

The Markov Regime-Switching Model of Conditional Mean regression results consists of three panels; Panel A, Panel B, and Panel C. Panel A illustrates how the equity portfolios respond to changes in economic risk (β_{1u}), financial risk (β_{2u}), and political risk (β_{3u}) when the market is up and booming (regime 1 or bull market). Panel B illustrates how the equity portfolios respond to changes in economic risk (β_{1L}), financial risk (β_{2L}), and political risk (β_{3L}) when the market is low and declining (regime 2 or bear market). If the (β_{1u}), (β_{2u}) and (β_{3u}) coefficients in panel A are lower than 0.05, meaning they are significant at 5 percent. There is a relationship between the equity portfolio in question and that particular risk component in a bull regime. Similarly, if the (β_{1L}), (β_{2L}) and (β_{3L}) coefficients in panel B are lower than 0.05, meaning they are significant at 5 percent. A relationship exists between the equity portfolio in question and that particular risk component in a bear regime. Panel C depicts the autocorrelation residual diagnostic test results. The Breusch-Godfrey LM test was employed to test for serial correlation in the data. The test determined the accuracy and reliability of the model.

4.5.1 MSM South African (Domestic) Equity Portfolios Results

4.5.1.1 BOVA- Nedgroup Investments Value Fund A Results

Panel A of Table 4.4 below indicates that the probability of the Nedgroup investments value fund A (BOVA) being in a bear regime (0.980548) is greater than that of being in a bull regime (0.280244). The chances of transitioning from a bear market (0.019452) to a bull market are 37 times lower than the probability of moving from a bull market (0.719756) to a bear market. As expected, Panel B shows that, on average, the returns of the BOVA equity fund are in a bear market for approximately four years (51.41 months), and the portfolio's returns are in bull periods for about 1.39 months. In short, between December 2003-December 2019, the

Nedgroup Investments Value Fund A has been in bear market conditions. During that period, investors believed that the portfolio's net asset value was on a downward trend, which exacerbated the trend for extended periods

Table 4.5 illustrates the Markov-Switching Model of Conditional Mean regression results of the disaggregated effects of country risk on the returns of the BOVA domestic equity fund. In a bull market (Panel A), the impact of the political risk score ($\beta_{3u)}$ is not significant at the 5 percent level of significance. Whereas changes in the financial risk score ($\beta_{2u)}$ increased the BOVA equity fund returns and changes in the economic risk score ($\beta_{1u)}$ brought about a decrease; the effects are significant at the 5 percent level of significance. In contrast, the impact of economic and financial risks scores on the portfolio's returns in a bear market (β_{1L} and β_{2L} in Panel B) are not statistically significant at the 5 percent significance level. Whereas the effect of political risk is significant at the 5 percent level of significance, meaning that changes in political risk score ($\beta_{3L)}$ brings about decreases in returns. Thus, economic and financial risks affect BOVA in bullish market conditions, while the political risk affects it in bearish market conditions. Fund investors are exposed to economic and financial risk when the market is booming and to political risk when the market is low. These results imply that the effects of country risk components on the BOVA portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.9506), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.4: BOVA Constant Probabilities and Expected Duration

Nedgroup Investments Value Fund A (BOVA) **Constant Markov Transition and Probabilities and Expected Duration**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.2802	0.7198
Regime 2	0.0195	0.9805
Panel B		
Constant Expected Duration	Regime 1 (1.3894)	Regime 2 (51.4076)

Source: *Author's estimations (2022)*

Table 4.5: BOVA Markov Regime-Switching Model of Conditional Mean Result

$BOVA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Nedgroup Investments Value Fund A Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.0105	0.0026	3.9802	0.0001
β_{1u}	-0.0094**	0.0045	-2.0820	0.0373
β_{2u}	0.0063**	0.0026	2.4197	0.0155
β_{3u}	0.0009	0.0041	0.2416	0.8091
σ^2_u	-3.3833	0.0550	-61.4787	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	-0.0237	0.0579	-0.4092	0.6824
β_{1L}	0.0526	0.0959	0.5491	0.5829
β_{2L}	0.0001	0.0411	0.0042	0.9966
β_{3L}	-0.9662*	0.0826	-11.6902	0.0000
σ^2_L	-3.2093	0.4054	-7.9155	0.0000
Panel C	Residual Diagnostic Test			
	Serial Correlation			
LM Test	F-Stat 0.0490		none	0.9506

Source: *Author's estimations (2022)*
Note: ** and ** denote 1% and 5% level of significance, respectively*

4.5.1.2 CGMG- Community Growth Fund Results

Panel A of Table 4.6 below shows that the probability of the Community Growth Fund (CGMG) being in regime 1 (0.984764) is higher than that of being in regime 2 (0.333151). The chances of transitioning from regime 1 (0.015236) to regime 2 are 44 times lower than the probability of moving from regime 2 (0.666849) to regime 1. The above is confirmed by Panel B, which shows that, on average, the returns of the CGMG equity fund are in a bull market for approximately five years (65.63 months) and the portfolio's returns are in a bear regime for about 1.5 months. Table 4.7 illustrates the Markov-Switching Model regression results of the disaggregated effects of country risk on the Community Growth Fund returns. In a bull market (Panel A), changes in the economic risk score (β_{1u}) are not statistically significant at 5 percent. Whereas changes in the financial risk score (β_{2u}) increase the CGMG equity fund returns and changes in the political risk score (β_{3u}) bring about a decrease in the fund returns; the effects are statistically significant at 5 percent. Thus, one can posit that CGMG returns are only affected by financial and political risk during favorable market conditions. However, all the country risk components ($\beta_{1L}, \beta_{2L}, \beta_{3L}$) have no impact on the portfolio's returns in bear market conditions (Panel B). These results imply that the effects of country risk components on CGMG portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Fund investors are exposed to economic and financial risk when the market is booming and to none of the country risk components when the market is low. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.8721), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.6: CGMG Constant Probabilities and Expected Duration

Community Growth Fund (CGMG) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9848	0.0152
Regime 2	0.6668	0.3332
Panel B		
Constant Expected Duration	Regime 1 (65.6341)	Regime 2 (1.4996)

Source: *Author's estimations (2022)*

Table 4.7: CGMG Markov Regime-Switching Model of Conditional Mean Results

$CGMG = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Community Growth Fund Sample: 2006M04 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
β_{1u}	0.0285	0.7008	0.0406	0.9676
β_{2u}	0.2593*	0.0221	11.7556	0.0000
β_{3u}	-0.7046*	0.0573	-12.2908	0.0000
σ^2_u	-2.6144	0.4148	-6.3033	0.0000
Panel B	Regime 2: Bear Market Condition			
β_{1L}	-0.0008	0.0048	-0.1674	0.8671
β_{2L}	0.0001	0.0028	0.2337	0.8152
β_{3L}	0.0006	0.0051	0.1153	0.9082
σ^2_L	-3.3351	0.0587	-56.8560	0.0000
Non-Switching Constant				
μ	0.0067	0.0030	2.2720	0.0231
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.1322		none	0.8721

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.5.1.3 CORA- Coronation Equity Fund A Results

Panel A of Table 4.8 below shows that the probability of the Coronation Equity Fund A (CORA) being in a bull period (0.992393) is higher than that of being in a bear period (4.05E-09), and the chances of transitioning from a bull market (0.007607) to a bear are 0. In contrast, there is a 100 percent probability of moving from a bear market (1.000000) to a bull market. This is confirmed by Panel B, which shows that, on average, the returns of the CORA equity fund are in a bull market for approximately ten years (131.46 months) and the portfolio's returns are in a bear regime for one month. The Coronation Equity Fund A has been in a bullish trend for most of the sample period.

Table 4.9 illustrates the Markov-Switching Model regression results of the disaggregated effects of country risk on the Coronation Equity Fund. In a bull market (Panel A), changes in financial risk score (β_{2u}) and political risk score (β_{3u}) decreased the CORA equity fund returns, and changes in economic risk score (β_{1u}) increase portfolio returns. All the country risk components are statistically significant at 5 percent. Only the effect of the financial risk score (β_{2L}) is statistically significant at 5 percent in a declining market, the impact is positive (Panel B). These results imply that the effects of country risk components on CORA portfolio return are explained by Adaptive Market Hypothesis as they change with market conditions. In a booming market, fund investors are exposed to all the country risk components; when markets are low, fund investors are only exposed to financial risk. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.8462), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.8: CORA Constant Probabilities and Expected Duration

Coronation Equity Fund A (CORA) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9924	0.0076
Regime 2	1.0000	4.05E-09
Panel B		
Constant Expected Duration	Regime 1 (131.4630)	Regime 2 (1.0000)

Source: *Author's estimations (2022)*

Table 4.9: CORA Markov Regime-Switching Model of Conditional Mean Results

$CORA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Coronation Equity Fund A Sample: 2005M03 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
β_{1u}	0.0068*	3.88E-05	175.9675	0.0000
β_{2u}	-0.0238*	4.86E-05	-489.4091	0.0000

$\boldsymbol{\beta_{3u}}$	-1.0196*	0.000186	-5488.736	0.0000
$\boldsymbol{\sigma^2_u}$	-8.9933	0.3964	-22.6847	0.0000
Panel B	Regime 2: Bear Market Condition			
$\boldsymbol{\beta_{1L}}$	-0.0021	0.0057	-0.3605	0.7185
$\boldsymbol{\beta_{2L}}$	0.0061**	0.0029	2.1183	0.0342
$\boldsymbol{\beta_{3L}}$	-0.0012	0.0052	-0.2223	0.8241
$\boldsymbol{\sigma^2_L}$	-3.2730	0.0556	-58.8468	0.0000
Non-Switching Constant				
μ	0.0063	9.58E-05	65.2835	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.1617		none	0.8462

Source: *Author's estimations (2022)*
Note: ** and ** denote 1% and 5% level of significance, respectively.*

4.5.1.4 FEQF- Foord Equity Fund Results

Panel A of Table 4.10 below demonstrates that the probability of the Foord Equity Fund (FEQF) being in regime 1 (0.980852) is higher than that of being in regime 2 (0.227837). The chances of transitioning from a bull market (0.019148) to a bear market are 40 times lower than the probability of moving from a bear market (0.772163) to a bull market. The above is confirmed by Panel B, which shows that, on average, the returns of the FEQF equity fund are in a bull market for approximately four years (52.22 months), and the portfolio's returns are in a bear regime for about 1.3 months. Between December 2003 and December 2019, the Foord equity fund has been predominantly in a bullish trend.

Table 4.11 illustrates the Markov-Switching Model regression results of the disaggregated effects of country risk on the returns of the Foord Equity Fund (FEQF). In a bull market (Panel A), changes in the economic risk score ($\beta_{1u)}$ and political risk score ($\beta_{3u)}$ are not statistically significant at 5 percent. In contrast, a change in the financial risk score ($\beta_{2u)}$ increases the FEQF fund returns, and the impact is statistically significant at 5 percent. In a bear regime (Panel B), changes in all the country risk scores ($\beta_{1L,}\ \beta_{2L,}\ \beta_{3L}$) are statistically significant at 5 percent. Where economic and financial risk scores lead to an increase and the political risk score results in decline in returns. Fund investors are exposed to financial risk when the market

is booming and economic, financial, and political risk when the market is down. These results imply that the effects of country risk components on the FEQF portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.9545), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.10: FEQF Constant Probabilities and Expected Duration

Foord Equity Fund (FEQF) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9809	0.0191
Regime 2	0.7722	0.2278
Panel B		
Constant Expected Duration	Regime 1 (52.2235)	Regime 2 (1.2951)

Source: *Author's estimationS (2022)*

Table 4.11: FEQF Markov Regime-Switching Model of Conditional Mean Results

$FEQF = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Foord Equity Fund Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.0115	0.0026	4.3090	0.000
β_{1u}	-0.0069	0.0046	-1.4969	0.1344
β_{2u}	0.0055**	0.0026	2.1096	0.0349
β_{3u}	-0.0003	0.0043	-0.0810	0.9354
σ^2_u	-3.3388	0.0533	-62.5519	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.0201	0.0004	42.4951	0.0000
β_{1L}	0.3761*	0.0016	229.5492	0.0000
β_{2L}	0.1543*	0.0006	229.0321	0.0000

$\boldsymbol{\beta_{3L}}$	-0.8556*	0.0006	-1227.423	0.0000
$\boldsymbol{\sigma^2_L}$	-7.6420	0.3456	-22.1092	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.0451		none	0.9545

Source: *Author's estimations (2022)*
Note: ** and ** denote 1% and 5% level of significance, respectively.*

4.5.1.5 LIPA- Stanlib SA Equity Fund A Results

Panel A of Table 4.12 below indicates that the probability of the Stanlib SA equity fund - A (LIPA) being in a bear regime (0.989437) exceeds that of being in a bull regime (0.329593), and the chances of transitioning from a bear market (0.010563) to a bull market is 67 times lower than the probability of moving from a bull market (0.670407) to a bear market. As expected, Panel B shows that, on average, the returns of the LIPA equity fund are in a bear market for approximately seven years (94.67 months), and the portfolio's returns are in bull periods for about 1.5 months. The LIPA domestic equity fund has been predominantly in a bear regime for the sample period. Table 4.13 illustrates the Markov-Switching Model regression results of the disaggregated effects of country risk on the Stanlib SA Equity Fund - A returns. In a bull market (Panel A), a change in the economic risk score ($\beta_{1u)}$ is not statistically significant at 5 percent. A change in political risk score ($\beta_{3u)}$ results in a decrease in the LIPA equity fund returns and changes in the financial risk score ($\beta_{2u)}$ result in increases in the LIPA fund returns, both the effects are significant at 5 percent. Changes in the economic, financial, and political risk scores ($\beta_{1L,}\ \beta_{2L,}\ \beta_{3L}$) in a bear regime (Panel B) are statistically insignificant and do not affect the LIPA fund returns. Thus, fund investors are exposed to political and financial risk when the market is booming and are not exposed to any of the country risk components when the market is down. These results imply that the effects of country risk components on the LIPA portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.9888), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.12: LIPA Constant Probabilities and Expected Duration

Stanlib SA Equity Fund - A (LIPA) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.3296	0.6704
Regime 2	0.0106	0.9894
Panel B		
Constant Expected Duration	Regime 1 (1.4916)	Regime 2 (94.6724)

Source: *Author's estimations (2022)*

Table 4.13: LIPA Markov Regime-Switching Model of Conditional Mean Results

$LIPA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Stanlib SA Equity Fund - A Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
β_{1u}	0.0143	0.3533	0.0407	0.9675
β_{2u}	0.2741*	0.0179	15.2758	0.0000
β_{3u}	-0.7000*	0.0468	-14.9585	0.0000
σ^2_u	-2.8095	0.4071	-6.9007	0.0000
Panel B	Regime 2: Bear Market Condition			
β_{1L}	-0.0024	0.0047	-0.5157	0.6060
β_{2L}	0.0013	0.0027	0.4829	0.6292
β_{3L}	0.0032	0.0046	0.7102	0.4776
σ^2_L	-3.2959	0.0534	-61.7609	0.0000
Non-Switching Constant				
μ	0.0098	0.0027	3.5404	0.0004
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.0109		none	0.9888

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.5.1.6 LIWA- Stanlib Equity Fund Results

Panel A of Table 4.14 below indicates that the probability of the Stanlib Equity Fund - A (LIWA) being in a bear regime (0.981532) exceeds that of being in a bull regime (0.497519), and the chances of transitioning from a bear market (0.018468) to a bull market is 50 times lower than the probability of moving from a bull market (0.502481) to a bear market. Panel B confirms that, on average, the returns of the LIWA equity fund are in a bear market for approximately 4.5 years (54.15 months), and the portfolio's returns are in bull periods for about two months.

Table 4.15 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the returns of the LIWA equity fund. In a bull market (Panel A), changes in the economic risk score (β_{1u}) and the financial risk score (β_{2u}) increase the LIWA fund returns; the impact is statistically significant at 5 percent. Changes in the political risk score (β_{3u}) brings about a decrease in return; this effect is also significant at 5 percent. Similar to the Stanlib SA Equity Fund, changes in economic, financial, and political risk scores (β_{1L}, β_{2L}, β_{3L}) in a bear regime are statistically insignificant. Thus, fund investors are exposed to all the country risk components when the market is booming and are not exposed to any of the country risk components when the market is down. These results imply that the effects of country risk components on the LIWA portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.9991), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.14: LIWA Constant Probabilities and Expected Duration

Stanlib Equity Fund - A (LIWA) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.4975	0.5025
Regime 2	0.0185	0.9815
Panel B		
Constant Expected Duration	Regime 1 (1.9901)	Regime 2 (54.1472)

Source: *Author's estimation (2022)*

Table 4.15: LIWA Markov Regime-Switching Model of Conditional Mean Results

$LIWA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Stanlib Equity Fund - A Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	-0.0819	0.1120	-0.7310	0.4648
β_{1u}	0.4303**	0.0613	2.0279	0.0426
β_{2u}	0.2156*	0.1030	3.5146	0.0004
β_{3u}	-0.6357*	0.112057	-6.167609	0.0000
σ^2_u	-2.5696	0.3117	-8.2428	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.0121	0.0026	4.6164	0.0000
β_{1L}	-0.0050	0.0046	-1.0864	0.2773
β_{2L}	0.0008	0.0027	0.3005	0.7638
β_{3L}	0.0026	0.0041	0.6413	0.5213
σ^2_L	-3.3976	0.0582	-58.3615	0.0000
Panel C	Residual Diagnostic Test			
	Serial Correlation			
LM Test	F-Stat 0.0009		none	0.9991

Source: *Author's estimation (2022)*
Note: ** and ** denote 1% and 5% level of significance, respectively.*

4.5.1.7 MHGE- Harvard House BCI Equity Fund A Results

Panel A of Table 4.16 below indicates that the probability of the Harvard House BCI Equity Fund A (MHGE) being in a bear regime (0.983600) exceeds that of being in a bull regime (0.974177); however, the difference is minute. Moreover, the chances of transitioning from a bear market (0.016400) to a bull market are only two times lower than the probability of moving from a bull market (0.025823) to a bear market. Panel B confirms that, on average, the returns of the MHGE equity fund are in a bear market for approximately five years (60.98 months), and the portfolio's returns are in bull periods for about three years (38.73). To summarize the results between January 2007 and December 2019, the Harvard House BCI Equity Fund A can be either on a downward trend or on an upward trend. This information also

confirms the graphical representation of the fund in Figure 3.2, which indicates that the MHGE equity fund demonstrated the most volatile returns compared to other domestic equity portfolios.

Table 4.17 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the MHGE equity fund returns. In a bull market (Panel A), changes in the economic, financial, and political risk scores (β_{1u}, β_{2u}, β_{3u}) are not significant at 5 percent, thus, they do not affect the MHGE fund returns. Similarly, in a bear regime (Panel B), changes in economic, financial, and political risk scores (β_{1L}, β_{2L}, β_{3L}) are also not significant at 5 percent, thus having no impact on the fund's returns. Fund investors are not exposed to any country risk component in both up and low market conditions. These results imply that the effects of country risk components on the MHGE equity portfolio returns are not explained by Adaptive Market Hypothesis but by the Efficient Market Hypothesis, as they are not affected by fundamental factors. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.7068), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.16: MHGE Constant Probabilities and Expected Duration

Harvard House BCI Equity Fund A (MHGE) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9742	0.0258
Regime 2	0.0164	0.9836
Panel B		
Constant Expected Duration	Regime 1 (38.7257)	Regime 2 (60.9773)

Source: *Author's estimations (2022*

Table 4.17 MHGE Markov Regime-Switching Model of Conditional Mean Results

$MHGE = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Harvard House BCI Equity Fund A (MHGE) Sample: 2007M01 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.2214	0.0212	10.4127	0.0000
β_{1u}	-0.0342	0.0413	-0.8296	0.4068
β_{2u}	0.0034	0.0184	0.1884	0.8505
β_{3u}	-0.0074	0.0613	-0.1210	0.9037
σ^2_u	-2.0119	0.0999	-20.1363	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	-0.1416	0.0140	-10.0898	0.0000
β_{1L}	0.0026	0.0212	0.1235	0.9017
β_{2L}	1.23E-05	0.0118	0.0010	0.9992
β_{3L}	-0.0033	0.0187	-0.1756	0.8606
σ^2_L	-2.0888	0.0755	-27.6494	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.3352		none	0.7068

Source: *Author's estimations (2022)*

4.5.1.8 MSTT- Sasfin BCI Equity Fund A Results

Panel A of Table 4.18 below demonstrates that the probability of the Sasfin BCI Equity Fund A (MSTT) being in a bull period (0.974096) is higher than that of being in a bear period (0.014324). The chances of transitioning from a bull market (0.025904) to a bear market are 38 times lower than the probability of moving from a bear market (0.985676) to a bull market. The above is confirmed by Panel B, which shows that, on average, the returns of the MSTT equity fund are in a bull market for approximately three years (38.60 months) and the portfolio's returns are in a bear regime for about one month. Between December 2005 and December 2019, the Sasfin BCI Equity Fund A was on an upward trend.

Table 4.19 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the Sasfin BCI Equity Fund A returns. In a bull market (Panel A), changes in the economic, financial, and political risk scores (β_{1u}, β_{2u}, β_{3u}) are insignificant at

5 percent, meaning they do not affect the fund's returns. In a bear regime (Panel B), changes in the economic ($\beta_{1L)}$ and financial risk scores ($\beta_{2L)}$ are insignificant at 5 percent. However, changes in the political risk score ($\beta_{3L)}$ is statically significant at 5 percent, and its changes decrease the MSTT portfolio returns. Thus, fund investors are not exposed to any country risk component when the market is booming and are exposed to political risk when the market is down. These results imply that the effects of country risk components on the MSTT portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.8215), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.18 MSTT Constant Probabilities and Expected Duration

Sasfin BCI Equity Fund A (MSTT) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9741	0.0259
Regime 2	0.9857	0.0143
Panel B		
Constant Expected Duration	Regime 1 (38.6038)	Regime 2 (1.0145)

Source: *Author's estimations (2022)*

Table 4.19 MSTT Markov Regime-Switching Model of Conditional Mean Results

$MSTT = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Sasfin BCI Equity Fund A (MSTT) Sample: 2005M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.0109	0.0030	3.5232	0.0004
β_{1u}	-0.0089	0.0054	-1.6314	0.1028
β_{2u}	0.0018	0.0033	0.5505	0.5820
β_{3u}	-0.0065	0.0052	-1.2615	0.2071
σ^2_u	-3.3283	0.0709	-46.8869	0.0000

Panel B	Regime 2: Bear Market Condition			
μ_L	-0.1606	0.1958	-0.8203	0.4120
β_{1L}	0.3348	0.3286	1.0189	0.3082
β_{2L}	0.1632***	0.0849	1.9207	0.0548
β_{3L}	-0.4703*	0.1398	-3.3626	0.0008
σ^2_L	-1.7400	0.3250	-5.3524	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.1901		none	0.8215

Source: *Author's estimations (2022)*
Note: ** and *** denote 1% and 10% level of significance, respectively.*

4.5.1.9 NEGF- Nedgroup Investments Growth Fund A1 Results

Panel A of Table 4.20 below demonstrates that the probability of the Nedgroup Investments Growth Fund A1 (NEGF) being in a bull period (0.449236) is lower than that of being in a bear period (0.982098). The chances of transitioning from a bull market (0.550764) to a bear market are higher than the probability of moving from a bear market (0.017902) to a bull market. The above is confirmed by Panel B, which shows that, on average, the returns of the NEGF equity fund are in a bear market for approximately 4.5 years (55.86 months) and the portfolio's returns are in a bull regime for about two months (1.82). Between January 2005-December 2019, the Nedgroup Investments Growth Fund A1 was mainly on a downward trend. Table 4.21 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the Nedgroup Investments Growth Fund A1 returns. In a bull market (Panel A), changes in the economic, financial, and political risk scores ($\beta_{1u,}\ \beta_{2u,}\ \beta_{3u}$) increase the NEGF returns, and all the components are significant at 5 percent. In a bear regime (Panel B), changes in the economic, financial, and political risk scores ($\beta_{1L,}\ \beta_{2L,}\ \beta_{3L}$) are insignificant at the 5 percent significance level; they do not impact the portfolio's returns. Fund investors are exposed to all the country risk components when the market is booming and none of the country risk components when the market is down. These results imply that the effects of country risk components on the NEGF portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.9996), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.20 NEGF Constant Probabilities and Expected Duration

Nedgroup Investments Growth Fund A1 (NEGF) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.4492	0.5508
Regime 2	0.0179	0.9821
Panel B		
Constant Expected Duration	Regime 1 (1.8157)	Regime 2 (55.8589)

Source: *Author's estimations(2022)*

Table 4.21 NEGF Markov Regime-Switching Model of Conditional Mean Results

$NEGF = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Nedgroup Investments Growth Fund A1 (NEGF) Sample: 2005M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.1982	0.0358	5.5282	0.0000
β_{1u}	0.9200*	0.0648	14.1799	0.0000
β_{2u}	0.3474*	0.0187	18.5519	0.0000
β_{3u}	0.8335*	0.0319	-26.0909	0.0000
σ^2_u	-3.6439	0.3181	-11.4539	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.0098	0.0024	4.0857	0.0000
β_{1L}	-0.0065	0.0042	-1.5490	0.1214
β_{2L}	0.0039	0.0024	1.5752	0.1152
β_{3L}	0.0006	0.0042	0.1497	0.8809
σ^2_L	-3.4911	0.0558	-62.4708	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.0003		none	0.9996

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.5.1.10 PSGG- PSG Equity Fund Results

Panel A of Table 4.22 below illustrates that the probability of the PSG Equity Fund A (PSGG) being in a bull period (0.369587) is lower than that of being in a bear period (0.978524). The chances of transitioning from a bull market (0.630413) to a bear market are higher than the probability of moving from a bear market (0.021476) to a bull market. The above is confirmed by Panel B, which shows that the returns of the PSGG equity fund are in a bear market for approximately 3.8 years (46.56 months) and the portfolio's returns are in a bull regime for about two months (1.59). Between April 2004-December 2019, the PSGG equity fund was mainly on a downward trend.

Table 4.23 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the PSG Equity Fund A returns. In a bull market (Panel A), changes in the economic risk score (β_{1u}) and financial risk score (β_{2u}) results in an increase in the PSGG returns, whereas changes in the political risk score (β_{3u}) brings about a decrease. All the country risk scores are significant at 5 percent. In a bear regime (Panel B), changes in the economic, financial, and political risk scores ($\beta_{1L,}\ \beta_{2L,}\ \beta_{3L}$) are not significant at 5 percent, meaning they do not affect the PSGG equity fund returns. Fund investors are exposed to all the country risk components when the market is booming and none of the country risk components when the market is down. The results imply that the effects of country risk components on the PSGG equity portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.9996), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.22 PSGG Constant Probabilities and Expected Duration

PSG Equity Fund A (PSGG). Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.3696	0.6304
Regime 2	0.0215	0.9785
Panel B		
Constant Expected Duration	Regime 1 (1.5863)	Regime 2 (46.5638)

Source: *Author's estimations (2022)*

Table 4.23 PSGG Markov Regime-Switching Model of Conditional Mean Results

$PSGG = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
PSG Equity Fund A (PSGG) Sample: 2006M04 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.1232	0.0382	3.2220	0.0013
β_{1u}	2.0658*	0.1444	14.2971	0.0000
β_{2u}	0.3140*	0.0194	16.1310	0.0000
β_{3u}	-0.7862*	0.0326	-24.0773	0.0000
σ^2_u	-3.6436	0.3505	-10.3952	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.0086	0.0028	3.0409	0.0024
β_{1L}	-0.0043	0.0045	-0.9485	0.3429
β_{2L}	0.0046***	0.0026	1.7076	0.0877
β_{3L}	-0.0008	0.0049	-0.1646	0.8692
σ^2_L	-3.3888	0.0606	-55.8807	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.0003		none	0.9996

Source: *Author's estimations (2022)*
Note: ** and *** denote 1% and 10% level of significance, respectively.*

4.5.1.11.Summary of the MSM South African (Domestic) Portfolios Results

Table 4.24 below illustrates the summary findings on the effects of country risk components on South African (Domestic) equity portfolios. The table comprise two panels, Panel A and B. Panel A depicts the extent to which a portfolio stays in a bull market (regime 1); and the effects of the economic, financial, and political risk scores on the equity portfolios in a bull market. Panel B depicts the extent to which a portfolio stays in a bear market (regime 2), and the effects of economic, financial, and political risk scores on the equity portfolios in a bear market. The BOVA, LIPA, LIWA, MHGE, NEGF, and PSGG stayed longer in regime 2 (bear market), and the CGMG, CORA, FEQF and the MSTT equity fund's stayed longer in regime 1 (bull market). Appendix 1 provides a graphical representation of these switching market conditions in domestic equity funds. It can be concluded that more domestic equity funds spent time in unfavorable market conditions. Furthermore, although more domestic equity spent more time in a bear market, the longest time spent in a market condition was 131.46 months and in a bull market. Finally, the results proved that the effects of country risk components on domestic equity portfolio returns are mostly explained by the Adaptive Market Hypothes as they change with market conditions. However, not all portfolios are affected by country risk components.

Table 4.24: Summary of the Effects of Country Risk Components on South African (Domestic) Portfolios under Changing Market Conditions.

Domestic Portfolio	Constant Expected Duration (months)	Regime	Economic Risk β_1	Financial Risk β_2	Political Risk β_3
Panel A	Regime 1: Bull Market Condition				
BOVA	1.38	x	-	+	none
CGMG	65.63	√	none	+	-
CORA	131.46	√	+	-	-
FEQF	52.22	√	none	+	none
LIPA	1.50	x	none	+	-
LIWA	2.00	x	+	+	-
MHGE	38.73	x	none	none	none

MSTT	36.60	√	none	none	none
NEGF	1.82	x	+	+	+
PSGG	1.59	x	+	+	-
Panel B	Regime 2: Bear Market Condition				
BOVA	51.41	√	none	none	-
CGMG	1.50	x	none	none	none
CORA	1.00	x	none	+	none
FEQF	1.30	x	+	+	-
LIPA	94.67	√	none	none	none
LIWA	54.15	√	none	none	none
MHGE	60.98	√	none	none	none
MSTT	1.01	x	none	none	-
NEGF	55.86	√	none	none	none
PSGG	46.56	√	none	none	none

Source: *Author's (2022)*
Note: *√ implies that the portfolio stayed in the regime under consideration for longer months. X means that the portfolio stayed longer months in the alternative regime. + and – denote a positive and negative effect at 5 % significance level, respectively.*

4.5.2 MSM Results of Global (Foreign) Equity Portfolios

4.5.2.1 AGOE- Allan Gray - Orbis Global Equity Feeder Fund Results

Panel A of Table 4.25 below demonstrates that the probability of the Allan Gray - Orbis Global Equity Feeder Fund (AGOE) being in a bear period (0.985668) exceeds that of being in a bull period (0.330822). The chances of transitioning from a bear market (0.014332) to a bull market are less than the probability of moving from a bull market (0.669178) to a bear market. The above is confirmed by Panel B, which shows that, on average, the returns of the AGOE equity fund are in a bear market for approximately 5.75 years (69.77 months) and the portfolio's returns are in a bull regime about 1.5 months. Between July 2005-December 2019 the AGOE equity fund was mainly in a bear regime.

Table 4.26 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the returns of the Allan Gray - Orbis Global Equity Feeder Fund. In a bull market (Panel A), changes in the economic ($\beta_{1u)}$ and financial risk scores ($\beta_{2u)}$, lead to

an increase in the AGOE equity fund returns, whereas changes in the political risk score (β_{3u}), bring about a decrease, all the components are significant at 5 percent. In a bear regime (Panel B), changes in the economic (β_{1L}) and and financial risk scores (β_{2L}) are statistically insignificant at 5 percent. Whereas, changes in the political risk score (β_{3L}) result in a drop in the returns of the AGOE equity fund, the impact is significant at 5 percent. Fund investors are exposed to all the country risk components when the market is booming and exposed to political riskwhen the market is down. These results imply that the effects of country risk components on the AGOE portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.7657), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.25: AGOE Constant Probabilities and Expected Duration

Allan Gray - Orbis Global Equity Feeder Fund (AGOE) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.3308	0.6692
Regime 2	0.0143	0.9857
Panel B		
Constant Expected Duration	Regime 1 (1.4944)	Regime 2 (69.7740)

Source: *Author's estimations (2022)*

Table 4.26: AGOE Constant Probabilities and Expected Duration

$AGOE = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Allan Gray - Orbis Global Equity Feeder Fund Sample: 2005M07 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.1312	0.0020	63.3436	0.0000
β_{1u}	0.3735*	0.0048	77.2360	0.0000
β_{2u}	0.0998*	0.0018	53.5233	0.0000

$\boldsymbol{\beta_{3u}}$	-1.0202*	0.0038	-266.5991	0.0000
$\boldsymbol{\sigma^2_u}$	-5.8235	0.3452	-16.8681	0.0000
Panel B	Regime 2: Bear Market Condition			
$\boldsymbol{\mu_L}$	0.0095	0.0028	3.3169	0.0009
$\boldsymbol{\beta_{1L}}$	-0.0040	0.0049	-0.8112	0.4172
$\boldsymbol{\beta_{2L}}$	0.0008	0.0027	0.2975	0.7660
$\boldsymbol{\beta_{3L}}$	-0.0105**	0.0050	-2.0931	0.0363
$\boldsymbol{\sigma^2_L}$	-3.3244	0.0570	-58.2635	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.258664		none	0.7657

Source: *Author's estimations (2022)*
Note: ** and ** denote 1% and 5% level of significance, respectively.*

4.5.2.2 CNIG- Coronation Global Opportunities EQT [ZAR] Feeder A Results

Panel A of Table 4.27 below demonstrates the probability of the Coronation global opportunities EQT [ZAR] feeder A (CNIG) to be in a bear period (2.92E-05) is less than that of being in bull periods (0.981070). The chances of transitioning from a bear regime (0.999971) to a bull market are higher than the probability of moving from a bull market (0.018930) to a bear market. The above is confirmed by Panel B, which shows that the returns of the CNIG global equity fund are in a bear market for one month (1.00), and the portfolio's returns are in a bull regime for approximately 4.3 years (52.83 months). Between July 2005 and December 2019, the CNIG equity fund is mainly in a bull regime.

Table 4.28 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the returns of the CNIG foreign equity fund. In a bull market (Panel A), a change in the economic, financial, and political risk scores risk ($\beta_{1u,}$ $\beta_{2u,}$ β_{3u}) are not significant at 5 percent. This means that, they do not affect the returns of the CNIG equity fund returns. In a bear regime (Panel B), changes in the political risk score ($\beta_{3L),}$ result in a decrease in the returns of the CNIG equity fund; whereas the economic ($\beta_{1L),}$ and financial risk scores ($\beta_{2L),}$ result in an increase, and all the components are statistically significant at 5 percent. Thus, fund investors are exposed to none of the country risk components when the market is booming and exposed to all the country risk components when the market is low. The results imply that the effects of country risk components on the CNIG portfolio returns are explained

by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.7568), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.27 CNIG Constant Probabilities and Expected Duration

Coronation Global Opportunities EQT [ZAR] Feeder A (CNIG) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9811	0.0189
Regime 2	1	2.92E-05
Panel B		
Constant Expected Duration	Regime 1 (52.8253)	Regime 2 (1.0000)

Source: *Author's estimations (2022)*

Table 4.28: CNIG Constant Probabilities and Expected Duration

$CNIG = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Coronation Global Opportunities EQT [ZAR] Feeder A (CNIG) Sample: 2005M07 2019M12				
Panel A	Regime 1: Bull Market Condition **-v**			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
β_{1u}	0.0009	0.0055	0.1704	0.8646
β_{2u}	-0.0018	0.0032	-0.5696	0.5689
β_{3u}	-0.00603	0.0057	-1.0458	0.2956
σ^2_u	-3.2171	0.0586	-54.8961	0.0000
Panel B	Regime 2: Bear Market Condition			
β_{1L}	0.0517*	0.0176	2.9316	0.0034
β_{2L}	0.2608*	0.0043	60.0998	0.0000
β_{3L}	-0.7401*	0.0088	-83.8193	0.0000
σ^2_L	-4.5943	0.5760	-7.9755	0.0000
Non-switching Constant				
μ	0.0101	0.0035	2.8779	0.0040
Panel C	Residual Diagnostic Test			

Serial Correlation				
LM Test	F-Stat 0.568371		none	0.7568

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.5.2.3 FGFA- Ninety-One Global Franchise Feeder Fund A Results

Panel A of Table 4.29 below demonstrates that the probability of the Ninety-One Global Franchise Feeder Fund A (FGFA) being in a bear regime (9.38E-09) is less than that of being in bull periods (0.990235). The chances of transitioning from a bear regime (1.000000) are 100 percent; there are meager chances of transitioning from a bull market (0.009765) to a bear market. The above is confirmed by Panel B, which shows that, on average, the FGFA global equity fund returns are in a bear market for one month and bull market conditions for about 8.5 years (102.4048). Between December 2003 and December 2019, the FGFA equity fund is mainly in an upward trend.

Table 4.30 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the Ninety-One Global Franchise Feeder Fund A returns. In a bull market (Panel A), changes in the economic ($\boldsymbol{\beta_{1u}}$), financial ($\boldsymbol{\beta_{2u}}$) and political risk scores ($\boldsymbol{\beta_{3u}}$) are not statistically significant at 5 percent, thus do not affect the fund's returns. In a bear regime (Panel B), changes in the economic risk score ($\boldsymbol{\beta_{1L}}$) are not statistically significant at 5 percent. Whereas changes in the financial risk score ($\boldsymbol{\beta_{2L}}$) increase the returns of the FGFA equity and changes in the political risk score ($\boldsymbol{\beta_{3L}}$) decrease the fund returns fund, both the effects are statistically significant at 5 percent. Thus, fund investors are exposed to none of the country risk components when the market is booming and to political and financial risks when the market is low. The results imply that the effects of country risk components on the FGFA equity portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.8586), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.29 FGFA Constant Probabilities and Expected Duration

Ninety-One Global Franchise Feeder Fund A (FGFA) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9902	0.0098
Regime 2	1.0000	9.38E-09
Panel B		
Constant Expected Duration	Regime 1 (102.4048)	Regime 2 (1.0000)

Source: *Author's estimations (2022)*

Table 4.30 FGFA: Markov Regime-Switching Model of Conditional Mean Results

$FGFA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Ninety-One Global Franchise Feeder Fund A Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.0097	0.0030	3.2238	0.0013
β_{1u}	-0.0016	0.0051	-0.3157	0.7522
β_{2u}	-0.0048	0.0030	-1.5834	0.1133
β_{3u}	-0.0011	0.0050	-0.2211	0.8250
Panel B	Regime 2: Bear Market Condition			
μ_L	-0.2453	0.0763	-3.2141	0.0013
β_{1L}	0.1236	0.1089	1.1348	0.2564
β_{2L}	0.1563*	0.0364	4.2880	0.0000
β_{3L}	-0.2453*	0.0495	-3.2141	0.0013
Non-Switching Variance				

σ2	-3.2165	0.0556	-57.8173	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.1479		none	0.8586

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.5.2.4 ISGE- AF Investments Global Equity Feeder Fund A Results

Panel A of Table 4.31 below demonstrates that the probability of the AF Investments Global Equity Feeder Fund A (ISGE) being in a bear period (3.60E-06) is lower than that of being in a bull period (0.975460). The probability of transitioning from a bull market (0.024540) to a bear market is less than the probability of moving from a bear market (0.999996) to a bull market. The above is confirmed by Panel B, which shows that, on average, the returns of the ISGE equity fund are in a bear market for one month, and the portfolio's returns are in a bull regime for approximately three years (40.75). Between July 2004 and December 2019, the ISGE equity fund was mainly in a bull regime.

Table 4.32 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the AF Investments Global Equity Feeder Fund A returns. In a bull market (Panel A), changes in the economic ($\beta_{1u)}$ and financial risk scores ($\beta_{2u)}$ lead to an increase in the ISGE equity fund returns, whereas changes in the political risk score ($\beta_{3u)}$ decreases returns, all the components are significant at 5 percent. In a bear regime (Panel B), changes in the economic, financial, and political risk scores ($\beta_{1L,}$ $\beta_{2L,}$ β_{3L}) are all insignificant at 5 percent, meaning they do not affect the returns of the ISGE equity fund. Thus, fund investors are exposed to all the country risk components when the market is booming and exposed to none of the country risk components when the market is down. These results imply that the effects of country risk components on the ISGE portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.6393), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.31: ISGE Constant Probabilities and Expected Duration

AF Investments Global Equity Feeder Fund A (ISGE) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9755	0.0245
Regime 2	1	3.60E-06
Panel B		
Constant Expected Duration	Regime 1 (40.7496)	Regime 2 (1.0000)

Source: *Author's estimations (2022)*

Table 4.32: ISGE Markov Regime-Switching Model of Conditional Mean Results

ISGE= $\mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
AF Investments Global Equity Feeder Fund A (ISGE) Sample: 2004M07 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
β_{1u}	0.1686*	0.0187	8.9721	0.0000
β_{2u}	0.4194*	0.0282	14.8640	0.0000
β_{3u}	-0.8332*	0.0324	-25.7060	0.0000
σ^2_u	-3.4630	0.4611	-7.5090	0.0000
Panel B	Regime 2: Bear Market Condition			
β_{1L}	0.0017	0.0030	0.5772	0.5637
β_{2L}	-0.0057	0.0057	-1.0128	0.3112
β_{3L}	-0.0069	0.0055	-1.2386	0.2155
σ^2_L	-3.2116	0.0594	-54.0361	0.0000
Non-Switching Constant				
μ	0.0106	0.0031	3.3846	0.0007
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.4350		none	0.6393

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance*

4.5.2.5 OCIF- Oasis Crescent International Feeder Fund Results

Panel A of Table 4.33 below demonstrates that the probability of the Oasis Crescent International Feeder Fund (OCIF) being in a bull regime (0.424156) is less than that of being in bear periods (0.987867). The probability of transitioning from a bear regime (0.012133) to a bull market is less than the probability of moving from a bull market (0.575844) to a bear market. The above is confirmed by Panel B, which shows that the returns of the OCIF global equity fund are in a bear market for approximately 6.8 years (82.42 months) and the portfolio's returns are in a bull regime for about two months (1.73). Between December 2003-December 2019, the OCIF equity fund was mainly in a bear regime.

Table 4.34 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the Oasis Crescent International Feeder Fund returns. In a bull market (Panel A), changes in the economic ($\beta_{1u)}$ and financial risk scores ($\beta_{2u)}$ are not significant at 5 percent, whereas changes in the political risk score ($\beta_{3u)}$ decreases the portfolio returns, and this is significant at 5 percent. In a bear regime (Panel B), changes in the economic, financial, and political risk scores ($\beta_{1L,}$ $\beta_{2L,}$ β_{3L}) are not significant at 5 percent, meaning they do not impact the OCIF equity fund returns. Fund investors are exposed to political risk when the market is booming, and none of the country risk components when the market is down. The results imply that the effects of country risk components on the OCIF equity portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.7495), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.33: OCIF Constant Probabilities and Expected Duration

Oasis Crescent International Feeder Fund (OCIF) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.4242	0.5758
Regime 2	0.0121	0.9879
Panel B		
Constant Expected Duration	Regime 1 (1.7366)	Regime 2 (82.4191)

Source: *Author's estimations (2022)*

Table 4.34: OCIF Markov Regime-Switching Model of Conditional Mean Results

$OCIF = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Oasis Crescent International Feeder Fund (OCIF) Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	-0.0251	0.0605	-0.4150	0.6781
β_{1u}	0.0146	0.1209	0.6516	0.5146
β_{2u}	0.0787	0.0399	0.3665	0.7140
β_{3u}	-0.9491*	0.0668	-14.1893	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.0091	0.0031	2.9107	0.0036
β_{1L}	0.0003	0.0052	0.0659	0.9474
β_{2L}	-0.0045	0.0030	-1.4876	0.1368
β_{3L}	-0.0069	0.0048	-1.4322	0.1521
Non-Switching Error Variance				
σ2	-3.2238	0.0567	-56.8125	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.2802		none	0.7495

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance*

4.5.2.6 OMGA- Old Mutual Global Equity Fund A Results

Panel A of Table 4.35 below depicts that the probability of the Old Mutual Global Equity Fund A (OMGA) being in a bear regime (0.978387) exceeds that of being in bull periods (4.69E-11). The chances of transitioning from a bull regime (1.000000) to a bear market are guaranteed. However, the probability of moving from a bear regime (0.021613) to a bull regime is only 2 percent. The above is confirmed by Panel B, which shows that the returns of the OMGA global equity fund are in a bear market for approximately four years (46.27 months), and the portfolio's returns are in a bull regime for a one month. Between December 2003 and December 2019, the OMGA equity fund was predominantly in a bear regime.

Table 4.36 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the Old Mutual Global Equity Fund A returns. In a bull market (Panel A), changes in the financial risk score (β_{2u}) increases the OMGA returns, and changes in the political risk score (β_{3u}) bring about a decrease, both the effects are significant at 5 percent. Changes in the economic risk score (β_{1u}) is not statistically significant at 5 percent. In a bear regime (Panel B), changes in the economic, financial and political risk score (β_{1L}, β_{2L}, β_{3L}) are not significant at 5 percent, meaning they do not impact the returns of the OMGA equity fund. Fund investors are exposed to political and financial risk when the market is booming, and none of the country risk components when the market is down. These results imply that the effects of country risk components on the OMGA equity portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.8120), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.35: OMGA Constant Probabilities and Expected Duration

Old Mutual Global Equity Fund A (OMGA) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	4.69E-11	1.0000
Regime 2	0.0216	0.9784
Panel B		
Constant Expected Duration	Regime 1 (1.0000)	Regime 2 (46.2692)

Source: *Author's estimations (2022)*

Table 4.36: OMGA Markov Regime-Switching Model of Conditional Mean Results

$OMGA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Old Mutual Global Equity Fund A Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	-0.0494	0.0347	-1.4207	0.1554
β_{1u}	-0.0912	0.1734	-0.5262	0.5987
β_{2u}	0.3891*	0.0421	9.2310	0.0000
β_{3u}	-0.5500*	0.0445	-12.3552	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.00958	0.0031	3.0510	0.0023
β_{1L}	0.0033	0.0052	0.6334	0.5264
β_{2L}	-0.0033	0.0029	-1.1423	0.2533
β_{3L}	-0.0005	0.0051	-0.1143	0.9090
Non-Switching Error Variance				
σ2	-3.190670	0.056963	-56.01262	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.202190		none	0.8120

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.2.5.7 RMBI- Momentum International Equity Feeder Fund Results

Panel A of Table 4.37 below illustrates that the probability of the Momentum International Equity Feeder Fund (A) (RMBI) being a bull regime (0.985752) exceeds that of being in bear periods (2.75E-08). The chances of transitioning from a bear regime (1.00000) to a bull market are guaranteed; however, moving from a bull regime (0.014248) to a bear regime is 1 percent. The above is confirmed by Panel B, which shows that, on average, the returns of the RMBI global equity fund are in a bull market for about six years (70.18 months), and the portfolio's

returns are in a bear regime for one month. Between March 2006 and December 2019, the RMBI equity fund was mainly in a bull regime.

Table 4.38 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the returns of the Momentum International Equity Feeder Fund A. In a bull market (Panel A), changes in the economic, financial, and political risk scores (β_{1u}, β_{2u}, β_{3u}) do not affect the returns of the RMBI equity fund returns since they are not statistically significant at 5 percent. In a bear regime (Panel B), changes in economic risk score ($\beta_{1u)}$ are not statically significant at 5 percent. Changes in the political risk score ($\beta_{3u)}$ result in a decrease in the returns of the RMBI equity fund, whereas changes in the financial risk score ($\beta_{2u)}$ result in an increase; the effects are significant at 5 percent. Thus, fund investors are exposed to none of the country risk components when the market is booming and to political and financial risk when the market is down. The results imply that the effects of country risk components on the RMBI equity portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.7499), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.37: RMBI Constant Probabilities and Expected Duration

Momentum International Equity Feeder Fund (A) (RMBI) Constant Markov Transition and Probabilities and Expected Durations		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	0.9858	0.0142
Regime 2	1.0000	2.75E-08
Panel B		
Constant Expected Duration	Regime 1 (70.1840)	Regime 2 (1.0000)

Source: *Author's estimations (2022)*

Table 4.38: RMBI Markov Regime-Switching Model of Conditional Mean Results

$RMBI = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Momentum International Equity Feeder Fund (A) (RMBI) Sample: 2006M03 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.0092	0.0033	2.7342	0.0063
β_{1u}	0.0027	0.0055	0.4921	0.6226
β_{2u}	-0.0008	0.0034	-0.2440	0.8072
β_{3u}	-0.0072	0.0059	-1.2115	0.2257
Panel B	Regime 2: Bear Market Condition			
μ_L	-0.1162	0.0510	-2.2779	0.0227
β_{1L}	0.0415	0.1836	0.2260	0.8212
β_{2L}	0.2124*	0.0270	7.8623	0.0000
β_{3L}	-0.6601*	0.0447	-14.7363	0.0000
Non-Switching Error Variance				
σ2	-3.1928	0.0616	-51.8108	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.2783		none	0.7499

Source: *Author's estimations (2022)*

Note: ** denotes 1% level of significance.*

4.5.2.8 SBAQ- Stanlib Global Equity Feeder Fund A Results

Panel A of Table 4.39 below depicts that the probability of the Stanlib global equity feeder fund - A (SBAQ) being in a bear regime (0.991957) exceeds that of being in bull periods (5.16E-06). The chances of moving from a bear market (0.008043) to a bull regime are lower than the probability of moving from a bull market (0.999995) to a bear market. The above is confirmed by Panel B, which shows that the SBAQ global equity fund returns are in a bull market for only one month, and the portfolio's returns are in a bear regime for more than ten years (124.34 months). Between December 2003 and December 2019, the SBAQ equity fund was predominantly in regime 2.

Table 4.40 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the returns of the Stanlib global equity feeder fund - A. In a bull

market (Panel A), changes in the economic, financial risk, and political risk scores ($\boldsymbol{\beta_{1u}}$, $\boldsymbol{\beta_{2u}}$, $\boldsymbol{\beta_{3u}}$) are not significant at 5 percent, meaning they do not have an impact on the returns of the SBAQ equity fund returns. Similarly, in a bear market (Panel B), changes in the economic, financial risk, and political risk scores (($\boldsymbol{\beta_{1L}}$, $\boldsymbol{\beta_{2L}}$, $\boldsymbol{\beta_{3L}}$) are not significant at 5 percent, meaning that they do not have an impact on the returns of the SBAQ equity fund returns. Fund inventors are not exposed to any of the country risk components in both up and low market conditions. These results imply that the effects of country risk components on the SBAQ equity portfolio returns are not explained by Adaptive Market Hypothesis but by the Efficient Market Hypothesis, as they are not affected by fundamental factors. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.7878), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.39: SBAQ Constant Probabilities and Expected Duration

Stanlib global equity feeder fund - A (SBAQ) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	5.16E-06	1
Regime 2	0.0080	1
Panel B		
Constant Expected Duration	Regime 1 (1.0005)	Regime 2 (124.3369)

Source: *Author's estimations (2022)*

Table 4.40: SBAQ Markov Regime-Switching Model of Conditional Mean Results

$\boldsymbol{SBAQ = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}}$				
Stanlib global equity feeder fund - A Sample: 2003M12 2019M1				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
$\boldsymbol{\beta_{1u}}$	-0.1085	0.0823	-1.3175	0.1877
$\boldsymbol{\beta_{2u}}$	0.0484	0.2032	0.2384	0.8115

$\boldsymbol{\beta_{3u}}$	0.1192	0.0819	1.4562	0.1453
$\boldsymbol{\sigma^2_u}$	-0.7603	0.1170	-6.4979	0.0000
Panel B	Regime 2: Bear Market Condition			
$\boldsymbol{\beta_{1L}}$	0.0097	0.0031	3.0448	0.0023
$\boldsymbol{\beta_{2L}}$	-0.0019	0.0053	-0.3556	0.7221
$\boldsymbol{\beta_{3L}}$	-0.0023	0.0030	-0.7761	0.4376
$\boldsymbol{\sigma^2_L}$	-0.0035	0.0051	-0.6822	0.4951
Non-Switching Error Variance				
σ2	-3.1567	0.0531	-59.3671	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.2316		none	0.7878

Source: *Author's estimations (2022)*
Note: ** denotes 1% level of significance.*

4.2.5.9 SGTA- Sanlam Global Equity Fund A Results

Panel A of Table 4.41 below shows that the probability of the Sanlam global equity fund A (SGTA) being in a bear regime (0.967561) exceeds that of being in bull periods (1.19E-05). Moreover, the probability of the returns to transition from a bear market (0.032439) to a bull regime is less than that of moving from a bull market (0.999988) to a bear market. The above is confirmed by Panel B, which shows that the returns of the SGTA global equity fund are in a bull market for only one month, and the portfolio's returns are in a bear regime for approximately 2.5 years (30.83 months). Between December 2003 and December 2019, the SGTA equity fund was predominantly in a bear regime.

Table 4.42 represents the Markov-Switching Model regression results of the disaggregated effects of country risk on the Sanlam global equity fund A returns. In a bull market (Panel A) change in the economic risk score ($\beta_{1u)}$ are not significant at 5 percent, meaning it does not affect the SGTA equity fund returns. Changes in the financial risk score ($\beta_{2u)}$ increases the returns of the SGTA, the impact is significant at 5 percent. Changes in the political risk score ($\beta_{3u)}$ decrease the returns; the impact is significant at 5 percent. In a bear regime (Panel B), changes in economic, financial, and political risk scores ($\beta_{1L,}\ \beta_{2L,}\ \beta_{3L}$) are not significant at

5 percent. Thus, fund investors are exposed to political and financial risk when the market is booming and to none of the country risk components when the market is low. The results imply that the effects of country risk components on the SGTA equity portfolio returns are explained by the Adaptive Market Hypothesis as they change with market conditions. Panel C depicts the model diagnostic residual test; since the critical value is greater than the LM test statistic (p-value = 0.8573), the null hypothesis of no autocorrelation cannot be rejected. Thus, the results are reliable and accurate.

Table 4.41: SGTA Constant Probabilities and Expected Duration

Sanlam global equity fund A (SGTA) **Constant Markov Transition and Probabilities and Expected Durations**		
Panel A		
Constant Transition Probabilities	**Regime 1**	**Regime 2**
Regime 1	1.19E-05	1
Regime 2	0.0324	0.9676
Panel B		
Constant Expected Duration	Regime 1 (1.0000)	Regime 2 (30.8268)

Source: *Author's estimations (2022)*

Table 4.42: SGTA Markov Regime-Switching Model of Conditional Mean Results

$SGTA = \mu_{ct} + \beta_{1ict}\Delta ECO + \beta_{2ict}\Delta FIN + \beta_{3ict}\Delta POL + \varepsilon_{c_t}$				
Sanlam global equity fund A (SGTA) Sample: 2003M12 2019M12				
Panel A	Regime 1: Bull Market Condition			
Independent Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
μ_u	0.0937	0.0236	3.9739	0.0001
β_{1u}	-0.7248***	0.3742	-1.9369	0.0527
β_{2u}	0.2093*	0.0399	5.2408	0.0000
β_{3u}	-0.8709*	0.0583	-14.9257	0.0000
Panel B	Regime 2: Bear Market Condition			
μ_L	0.0059	0.0031	1.8747	0.0608
β_{1L}	0.0002	0.0051	0.0408	0.9674
β_{2L}	-0.0039	0.0029	-1.3442	0.1789
β_{3L}	-0.0043	0.0049	-0.8716	0.3834

Non-Switching Error Variance				
σ2	-3.1943	0.0586	-54.5059	0.0000
Panel C	Residual Diagnostic Test			
Serial Correlation				
LM Test	F-Stat 0.1494		None	0.8573

Source: *Author's estimatons (2022)*
Note: ** and *** denote 1% and 10% level of significance, respectively*.

4.5.2.10 Summary of the MSM Global (Foreign) Equity Portfolios

Table 4.43 below illustrates the summary findings on the effects of country risk components on Global (Foreign) equity portfolios. The table comprises two panels, Panel A and B. Panel A depicts the extent to which a portfolio stays in a bull market (regime 1); and the effects of economic, financial, and political risk on the equity portfolios in a bull market. Panel B depicts the extent to which a portfolio stays in a bear market (regime 2), and the effects of economic, financial, and political risk on the equity portfolios in a bear market. The AGOE, OCIF, OMGA, SBAQ, and SGTA stayed longer in regime 2 (bear market), and the CNIG, FGFA, ISGE, and RMBI equity fund's stayed longer in regime 1 (bull market). Appendix 2 provides a graphical representation of these switching market conditions in foreign equity funds. Therefore, it can be concluded that, like domestic equity portfolios, foreign equity funds spent more time in unfavourable market conditions. Furthermore, the longest amount of time spent in a market condition was 124.34 months in a bear market. Finally, the results proved that the effects of country risk components on foreign equity portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. However, not all portfolios' returns were affected by country risk components.

Table 4.43: Summary of the Effects of Country Risk Components on Global (Foreign) Portfolios under changing market conditions.

Foreign Portfolio	Constant Expected Duration (months)	Regime	Economic Risk β_1	Financial Risk β_2	Political Risk β_3
Panel A	Regime 1: Bull Market Condition				
AGOE	1.00	x	+	+	-
CNIG	52.83	√	none	none	none
FGFA	102.40	√	none	none	none
ISGE	40.75	√	+	+	+
OCIF	1.74	x	none	none	-
OMGA	1.00	x	+	none	-
RMBI	70.18	√	none	none	none
SBAQ	1.00	x	none	none	-
SGTA	1.00	x	none	+	-
Panel B	Regime 2: Bear Market Condition				
AGOE	30.83	√	none	none	-
CNIG	1.00	x	+	+	-
FGFA	1.00	x	none	+	-
ISGE	1.00	x	none	none	none
OCIF	82.42	√	none	none	none
OMGA	46.27	√	none	none	none
RMBI	1.00	x	none	+	-
SBAQ	124.34	√	none	none	none
SGTA	30.83	√	none	none	none

Source: *Author's estimation (2022)*
Note: *√ implies that the portfolio stayed in the regime under consideration for longer months. X means that the portfolio stayed longer months in the alternative regime. + and – denote a positive and negative effect at 5 % significance level, respectively.*

4.6 Discussion of Results

The previous section presented the regression results of the Markov Switching Model of Conditional Mean, and the following sections aim to discuss and interpret the results. In doing so, the study's research objectives are addressed. The reader needs to note that according to the International Country Risk Guide (ICRG) methodology; the higher the risk rating or risk score, the lower the level of risk a country has; and the lower the risk rating or risk score, the higher the level of risk a country has (Howell, 2013). Thus, a positive relationship between the equity portfolios and the country risk score translates to a negative relationship between the equity portfolios and the level of risk, and vice versa.

4.6.1 Research Objective One: Comparing the Level of Bull and Bear Market Conditions in South African (Domestic) and Global (Foreign) equity portfolios

This section addresses the first objective of this study. The reader needs to note that limited reference is made to the existing literature regarding the level of bull and bear market conditions on equity portfolios, as there is sparse research on the topic. Appendix 1 and Appendix 2 show graphical representations (transition probabilities) of switching market conditions of domestic and foreign funds, respectively. These visual representations assist with interpreting the behavior of the data from the perspective of the economy in which they operate, in this case, the South African economy. Both domestic and foreign equity funds stayed longer in bearish market conditions. Turtle and Zhang (2012) elaborated that the returns of portfolios in emerging markets are affected by the outlook of the global financial landscape. This is evident from the transition probabilities of these portfolios as they experienced dips between 2008 and 2009.

Further, the findings are consistent with Boako and Alagidede (2018), who found that portfolios experienced a massive decline in net asset values during the GFC. The impact of the Global Financial Crisis in 2008 affected the South African financial sector adversely. Financial services firms encountered extreme losses due to unsuccessful portfolio management as global stock market returns plummeted (Rena and Msoni, 2014). Consequently, the decrease in equity returns of several financial services organizations continued for extended periods. Investors got into a frenzy and tried to compensate for the losses (Ben-David et al., 2012; Manconi et al., 2012). Apau et al. (2021) state that when the decisions of portfolio contributors are based mainly on risk factors from the market they operate in, this affects the portfolio's returns. Thus, investors adjust to the prevailing market conditions as explained by the Adaptive Market

Hypothesis (AMH), and the psychology that prevails is risk aversion. Ultimately, the study found that, although more domestic equity spent more time in a bear market, the longest time spent in a market condition was in a bull market. This is not expected as more domestic funds stayed longer in bearish market conditions. However, regarding the foreign portfolios, the longest amount of time spent in a market condition was in a bear market. This is expected as more foreign portfolios stayed longer in regime 2 than in regime 1.

4.6.2 Research Objectives Two and Three: Comparing domestic and Foreign Equity Portfolios respond to changes in Country Risk in Bull and Bear Market Conditions.

This section critically analyses how the sampled domestic and foreign equity portfolios respond to changes in economic risk, financial risk, and political risk when the market is up and when the market is declining.

4.6.2.1 Comparative Effects of Economic Risk on Dometic and Foreign Portfolio Returns

The economic risk score in the bull regime affected domestic and foreign portfolios more than in the bear regime. Less than 50 percent of the foreign portfolios were affected by the economic risk score in the bull market. At the same time, 50 percent of the domestic equity portfolios were affected by the economic risk score in a bull market. Thus international and local fund investors were exposed to economic risk when markets were booming, but the exposure of domestic investors was more pronounced. Therefore when markets are booming, economic risk is less diversified. Moreover, the effect of the economic risk score on the domestic and foreign equity funds was primarily positive. The positive impact of the economic risk score suggests that low economic risk (high index score) is associated with high portfolio returns.

In a bear market, only 1 portfolio, each for domestic and foreign portfolios, was affected by the economic risk score . Thus the conclusion is that when the market is down, there is a higher chance that international and domestic fund investors are not exposed to economic risk, meaning that the risk is diversified away. The effects of economic risk on most domestic and foreign portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. It is imperative to note for some of the portfolios, the effects of the economic risk score were not significant in both the bear and the bull market conditions. For these portfolios, the impact of the economic risk score is deemed to be explained by the strong-form efficiency of the Efficient Market Hypothesis. That is, the economic risk does not affect the

portfolios' returns since it is already incorporated in the net asset value. Because it does not affect the returns of these portfolios, it is deemed as diversified risk for both market conditions. Furthermore, Erb et al. (1996), Nasr et al. (2018), Sari et al. (2013), Hammoudeh et al. (2013), and Mensi et al. (2016) found that there is no evidence of a significant relationship between economic risk and stock returns more specifically in the short-run. Sari et al. (2015) argue that the reason behind this is that economic risk indicators are instantaneous, whereas stock returns are forecasting market indicators. Hence, there is a lack of a relationship between stock markets and economic risk indicators since the latter reacts to economic news and shocks instantaneously.

4.6.2.2 Comparative Effects of Financial Risk on Dometic and Foreign Portfolio Returns

In a bull regime, the financial risk score affected 70 percent of domestic portfolios, whereas only 33.33 percent of foreign portfolios were affected. In a bear regime, 20 percent of domestic portfolios were affected by financial risk score, and 33.33 percent of foreign portfolios were affected by financial risk score. Therefore, domestic fund investors are more exposed to financial risk than foreign investors when the market is bullish. Thus, domestic equity portfolios may not offer diversification against financial risk in the bullish market condition. However, domestic fund investors are less exposed to financial risk in a bear market condition, meaning there is some diversification against financial risk. For foreign portfolios, the same number of portfolios is affected by the financial risk score in a bull and bear market; however, none of the portfolios are affected by the financial risk score in both market conditions.

Thus, the effects of financial risk scores on most domestic and foreign portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. Moreover, the significant impact is positive for all the domestic and foreign portfolios affected by the financial risk score. The positive effect of the financial risk score suggests a low level of financial risk (high index score) is associated with high portfolio returns. This is consistent with Mensi et al. (2016) and Gallagher et al. (2017). The scholars found that the impact of the financial risk level on emerging countries such as South Africa is negative in a booming market. Moreover, the negative effect of financial risk suggests that the lower the financial risk level in South Africa, the better the fund returns.

For some of the portfolios, the effects of the financial risk score were not significant in both the bear and the bull market conditions. For these portfolios, the impact of the financial risk

score is deemed to be explained by the strong-form efficiency of the Efficient Market Hypothesis. Financial risk does not affect the portfolios' returns since it is already incorporated in the net asset value. Because it does not affect the returns of these portfolios, it is deemed as diversified risk for both market conditions. In conclusion, since 70 percent of the domestic portfolios are affected by financial risk in bull market conditions. Fund investors should consider the financial risk variables when investing in South Africa. These include current account as a percentage of exports of goods and services, foreign debt as a percentage of GDP, foreign debt service as a percentage of exports of goods and services, exchange rate stability, and net international liquidity as months of import cover. Furthermore, Gallagher et al. (2017) reported that currency fluctuations exhibit diverse effects on portfolio returns. The impact is predominantly adverse; thus, investors should minimize currency exposure through a currency overlay or a hedging program. Nhlapho and Muzindutsi (2020) found that changes in the ratings of financial risk always have an adverse impact stock market, whether the ratings are increasing or decreasing. This is inconsistent with the study's findings, as the effects of financial risk ratings or scores were positive for all the affected portfolios.

4.6.2.3 Comparative Effects of Political Risk on Dometic and Foreign Portfolio Returns

When the market is booming, 60 percent of domestic portfolios are affected by the political risk score, whereas only 66.66 percent of foreign portfolios are affected. In a bear regime, 30 percent of domestic portfolios were affected by the political risk score, and 44.44 percent of foreign portfolios were affected by the political risk score. This means that political risk is not diversified, and domestic and international fund investors are mostly exposed to political risk when the market is bullish. However, the impact of the political risk score is more pronounced on foreign portfolios. Domestic and foreign fund investors are less exposed to political risk in bear market conditions. Ultimately, the effects of political risk on most of the domestic and foreign portfolio returns are explained by Adaptive Market Hypothesis as they change with market conditions. The significant effects of the political risk score were primarily negative.

The negative impact of the political risk score suggests that low political risk (high index score) is associated with low portfolio returns. This indicates that the effects of political risk level have a positive impact on equity portfolios. This is consistent with (Erb et al., 1995; Erb et al., 1996; Pástor and Veronesi, 2013; Sari et al., 2013; Suleman and Daglish, 2015; Nhlapho and Muzindutsi 2020; Vengesai et al., 2021).

Moreover, the results are well-founded, considering how fast news of political uncertainty circulates the globe. This is exacerbated because investors, especially international investors

are extremely sensitive and attached to political shocks. Moreover, Nasr et al. (2018) found that downgrades in political risk ratings have a more significant impact than political risk rating upgrades. An increase in the political risk of a country tells investors that the country will struggle to meet its obligations. This means investors would require a high return Mutize and Goseel (2019), which may explain the positive effect of the political risk level (negative impact of the political risk score) on portfolio returns. It is imperative to note that, for some of the portfolios, the effects of the political risk score were not significant in both the bear and the bull market conditions. For these portfolios, the impact of the political risk is deemed to be explained by the strong-form efficiency of the Efficient Market Hypothesis. That is, political risk does not affect the portfolios' returns since it is already incorporated in the net asset value. Because it does not affect the returns of these portfolios, it is deemed as diversified risk for both market conditions. Overall, since the difference between the affected domestic and foreign portfolios is minute, political risk cannot be diversified through investing in foreign portfolios.

4.7 Chapter Summary

Chapter 4 addressed the study's objectives by comparing the level of bull and bear market conditions in domestically and globally diversified equity portfolios and how the portfolio returns respond to changes in economic, financial, and political components of country risks in time-varying market conditions. However, before the regression results were presented, the preliminary tests illustrated that country risk and equity portfolio data was stationary. After that, the Markov Switching Model results were presented together with the constant Markov transition probabilities and constant expected durations results. First, the study found that, although more domestic equity portfolios spent more time in a bear market, the longest time spent in a market condition by a specific portfolio was in a bull market. However, regarding the foreign equity portfolios, more portfolios spent the longest time in a bear market, and the longest time spent in a market condition by a specific portfolio was also in a bear market.

Furthermore, objectives two and three showed that the effects of country risk components for domestic and foreign portfolios are more prevalent in bull market conditions. The domestic portfolios were mostly affected by the economic and financial risk scores, and the impact was predominantly positive, meaning that the relationship between the economic and financial risk levels and equity returns was negative. Foreign portfolios were mostly affected by the political risk score, and the impact was mainly negative, meaning the relationship between political risk levels and equity portfolio returns was positive. Finally, the effects of country risk components

on domestic and foreign equity portfolio returns were predominantly explained by the Adaptive Market Hypothesis as they changed with market conditions.

CHAPTER 5: SUMMARY, CONCLUSION, LIMITATIONS, AND RECOMMENDATIONS

5.1 Introduction

The aim of this study was to examine the effects of disaggregated country risk on South African equity portfolio returns under changing market conditions. Under the Adaptive Market Hypothesis, changing dynamics in financial markets and participants alike show how efficiency and inefficiency of the market alternate. Contrary to rational investors in an efficient market, investors in an adaptive market commonly make mistakes and learn from such mistakes and adjust their behavior accordingly. The investors' adaptive behaviour can also explain how investors adjust their portfolios in response to changes in risk levels; suggesting that the effect of some risk factors on portfolio returns may be explained by AMH. This adaptive behaviour has been confirmed through research on the response of financial markets to changes in country risk factors but such research has not been extended to investment portfolios. Hence, no existing study has examined the disaggregated effects of country risk on equity portfolio returns, escpecially in the South African context. Thus, the current study adds a new facet to the body of literature by examining the effect of the economic, financial and political components of country risk on equity portfolio returns in the South Africa. To do this, the level of bull and bear market conditions in South African and foreign equity portfolios were compared together with how South African and foreign equity portfolios respond to changes in economic, financial, and political components of country risks in bullish and bearish market conditions.

The current chapter is structured as follows, a summary of the research is discussed, followed by a discussion on the fulfilment of the studies objectives. Thereafter, the implication of findings, conclusion, limitations, and recommendations for future research are discussed.

5.2 Summary of the Study

The thinking behind a thorough understanding of a country's economic, financial, and political stability is to determine the risks involved in doing business or investing in that country. When an economy is in sound conditions, there is increased employment, productivity, GDP per capita, amongst others, and this spills over to financial markets and leads to rising asset prices. When asset prices increase persistently, they are in bullish market conditions. Bull market

conditions are associated with low levels of country risk since market participants believe asset prices will continue soaring. Conversely, if an economy is down, unemployment is increasing, company profits are declining, and workers are being retrenched, it affects financial markets negatively and leads to a downward trend called a bear market. Bear market conditions are associated with high levels of country risk because market participants believe asset prices will continue declining, thus leading to lower returns on investment. According to the Adaptive Market Hypothesis, the impact of country risk on asset prices relies on market conditions. This study aimed to test the effects of disaggregated country risk on South African equity portfolio returns under bull and bear market conditions. The study comprised five chapters. Chapter 1 provided a background of South Africa's position in terms of country risk and how it has affected domestic and foreign investments. The problem statement delivered the motivation of the study. Chapter 1 also highlighted the gap in the extant literature, provided the study's aim and research questions, and briefly discussed how the study's objectives were going to be empirically addressed.

The second chapter provided a thorough discussion of finance theories (the Efficient Market Hypothesis, Modern Portfolio Theory, Behavioral Finance Theory, and the Adaptive Market Hypothesis) and key concepts (international diversification, country risk components, and Credit Rating Agencies) associated with the interaction of country risk and equity markets. Chapter 2 was centered around country risk's impact on equity markets since literature examining the effects of country risk on equity portfolios is scant. Furthermore, a detailed review of empirical literature from a local and international perspective was presented. The literature review revealed that emerging markets like South Africa seem to bring about more lucrative investment opportunities with increased integration of global financial markets. Furthermore, it was uncovered that financial integration exposes investors to different country risks and that political risk is the most significant risk when investing in emerging markets. By providing both the theory and empirical evidence, Chapter 2 provided more insight for foreign and local market participants in making research-based portfolio allocations when accounting for country risk components.

Chapter 3 delivered an in-depth research approach conducted to accomplish the objectives of this study. The primary objectives of this study were to compare how long domestic and international equity portfolios stay in a bull or bear market and assess if country risk affects these portfolios in time-varying market conditions. Previous studies examining the effects of country risk on financial markets have only relied on linear regression models; the study's

methodology addressed this limitation by employing the Markov-Switching Model of Conditional Mean, which allows data to switch in different market conditions. This study comprised ten South African general equity portfolios and nine Global general equity portfolios. All the portfolios (dependent variables) were established before the Global Financial Crisis and continued to exist until December 2019. Additionally, all the sampled portfolios had to be non-Shariah equity portfolios.

Data for the country risk components (economic, financial, and political risk) was retrieved from the International Country Risk Guide (ICRG). The country risk components were the regressors of the model and switched with time-varying market conditions and structural breaks. Additionally, preliminary tests were conducted on the dependent and independent variables to ensure that the Markov-Switching Model generated accurate results. Preliminary tests without structural breaks included unit root (ADF and PP) and stationarity (KPSS) tests. The ADF min-t structural break was used to check for unit root with structural breaks. Finally, the Breusch-Godfrey LM test was employed to test for serial correlation in the data, the test aided in determining the model's accuracy and reliability. Chapter 4 presented the preliminary tests and the Markov-Switching Model regression results. The study's objectives were addressed in Chapter 4, which analysed the effects of country risk components on domestic and foreign portfolios under changing market conditions; and a comparison of bull and bear market conditions on domestic and foreign equity portfolios. The findings are elaborated on the subsequent.

5.3 Achievement of the Study's Objectives

This section provides a summary of the study's findings, that is, how long the portfolios stayed in each market condition and how the sampled domestic and foreign equity portfolios respond to changes in economic risk, financial risk, and political risk when the market is up; and when the market is declining.

Research Objective One: Comparing the Level of Bull and Bear Market Conditions in Domestic and Foreign Equity Portfolios

Domestic equity funds spent more months in unfavorable market conditions. Furthermore, although more domestic equities spent more time in a bear market, the longest time spent in a market condition was 131.46 months, and it was in a bull market. Like domestic equity portfolios, foreign equity funds spent more months in unfavorable market conditions. However, the longest amount of time spent in a market condition was 124.34 months in a bear market.

The findings were achieved by using the constant Markov transition probabilities and expected duration results, together with Appendix 1 and Appendix 2, which show the graphical representations (transition probabilities) of switching market conditions of domestic and foreign funds, respectively.

Research Objectives Two and Three: Comparing how Domestic and Foreign Equity Portfolios respond to changes in Country Risk in Bull and Bear Market Conditions.

For objectives two and three, the empirical findings showed that the effects of country risk components for domestic and foreign portfolios are more prevalent in bull market conditions. The impact of economic and financial risk was more pronounced on domestic portfolios; thus economic and financial risk can be diversified through investing in foreign portfolios. However, there was a minute difference between the effects of political risk on domestic and foreign funds, and the impact was more on foreign funds. Thus, political risk cannot be diversified through investing in foreign portfolios. Finally, the effects of country risk components on domestic and foreign equity portfolio returns were predominantly explained by the Adaptive Market Hypothesis as they changed with market conditions. The Markov Regime-Switching Model of Conditional Mean regression was used to illustrate the disaggregated and switching relationship between country risk components and domestic and foreign portfolios.

5.4 Implications of Findings

The Adaptive Market Hypothesis explains the movement of market conditions from bullish/bearish to bearish/bullish market over time. The theory states that the changing dynamics in financial markets and participants alike show how efficient a market is; and that financial markets alternate between efficiency and inefficiency. Thus, the impact of country risk on portfolio returns should depend on market conditions. The findings proved this true and showed that, on average, economic and financial risk negatively impacts portfolio returns and political risk has a positive effect. The effects are dominant in bull conditions. Therefore, before investing in equity portfolios in South Africa, market participants (investors, financial advisors, and portfolio managers) should consider market conditions. Market participants should also assess which country risk component is more significant for a specific portfolio and in which market condition. Moreover, the study found that economic risk had the least impact, since economic risk indicators are instantaneous, whereas stock returns are forecasting market indicators. Hence, there is a lack of a relationship between stock markets and economic

risk indicators since the latter reacts to economic news and shocks instantaneously. This may be because market prices tend to capture economic risk, suggesting that such risk may be less of a concern when investment portfolios are concerned. Furthermore, political risk has the most significant impact in both domestic and foreign; this was expected considering how fast information about political uncertainty circulates the globe. Moreover, an increase in political risk costs South Africa much-needed foreign investments and compromises the quality of domestic portfolio investments. Thus, it is crucial to maintain a stable political environment so as to encourage sustainable portfolio investment.

5.5 Conclusion

The findings of this study revealed that the South African equity portfolio market moves between inefficiency and efficiency. Therefore, the impact of country risk components on equity portfolio returns in South Africa changes with market conditions as potrayed by the AMH. The results also showed that more equity portfolios stayed in unfavorable market conditions (bear market) for extended periods compared to the amount of time spent in rewarding market conditions (bull market), implying that the South African portfolio equity market has been dominated by declining returns over the sample period. Moreover, of all the country risk components political risk proved to affect domestic and foreign portfolios in the same manner, thus, political risk cannot be diversified through investing in foreign portfolios. It is important to note that not all the portfolios were affected by the country risk components, in such cases the effects of the country risk components were said to be explained by the Efficient Market Hypothesis.

5.6 Limitations

The study focused on general equity portfolios since they possess similar mandates and characteristics. However, a significant drawback with centering the study around general equity portfolios is that the rest of the South African equity portfolio industry is not represented. Thus, the study cannot be used to infer the effects of country risk on types of equity portfolios other than general equity portfolios. Moreover, it is imperative to note that the results depicted across the whole study apply only to the study's sample period. The author recognizes that the results and analysis would have been different had the study period and the analysis approach differed. The sampled portfolios suffered from survivorship bias because portfolios in the sample had to exist from inception and continued to exist until December 2019. Survivorship bias is influential in almost all empirical literature involving financial data. Survivorship bias occurs

when a study only includes funds or portfolios that existed continuously for the whole sample period. This means that terminated, acquired, or portfolios that went through a merger were not considered. However, since the phenomenon is more pertinent in smaller portfolios, survivorship bias was not a significant limitation since the study did not focus on the effects of portfolio size on returns.

5.7 Recommendation for Further Research

The research could be broadened to include other forms of equity portfolios in South Africa and not only focus on general equity portfolios. This will assist in determining if the findings of this study are similar to all other equity portfolio classifications in South Africa. For example, general equity portfolios invest in all market capitalization stocks (small, medium, and large); and they invest in all sectors of the economy and are not restricted to any investment style. This study did not consider portfolios that invest only in large capitalization equities or portfolios that solely invest in small-capitalization stocks. It would be thrilling to discover the effects of economic, financial, and political risk on funds that invest entirely in large-capitalization stocks and compare them to equity portfolios that invest entirely in small-capitalization equities.

Moreover, although this study was not centered around portfolio size, the author recommends examining the disaggregated effects of country risk across small and large funds since there is evidence that portfolio returns have a positive correlation with portfolio size. Finally, this study only focused on the disaggregated economic, financial and political risk effects on South African equity portfolio returns. Other factors that could have explanatory power on the returns of the portfolios, such as the expertise of the fund managers, the qualification of the fund managers, how big the research team of a fund is, fund classes, and portfolio family size, amongst others were beyond the scope of the author's research. Exploring the degree to which these factors affect portfolio returns under changing conditions would shed more light on the topic. Additionaly, it would beneficial to determine whether the factors not included in the study provide better clarity on the response of portfolio returns to economic risk, financial and political risks.

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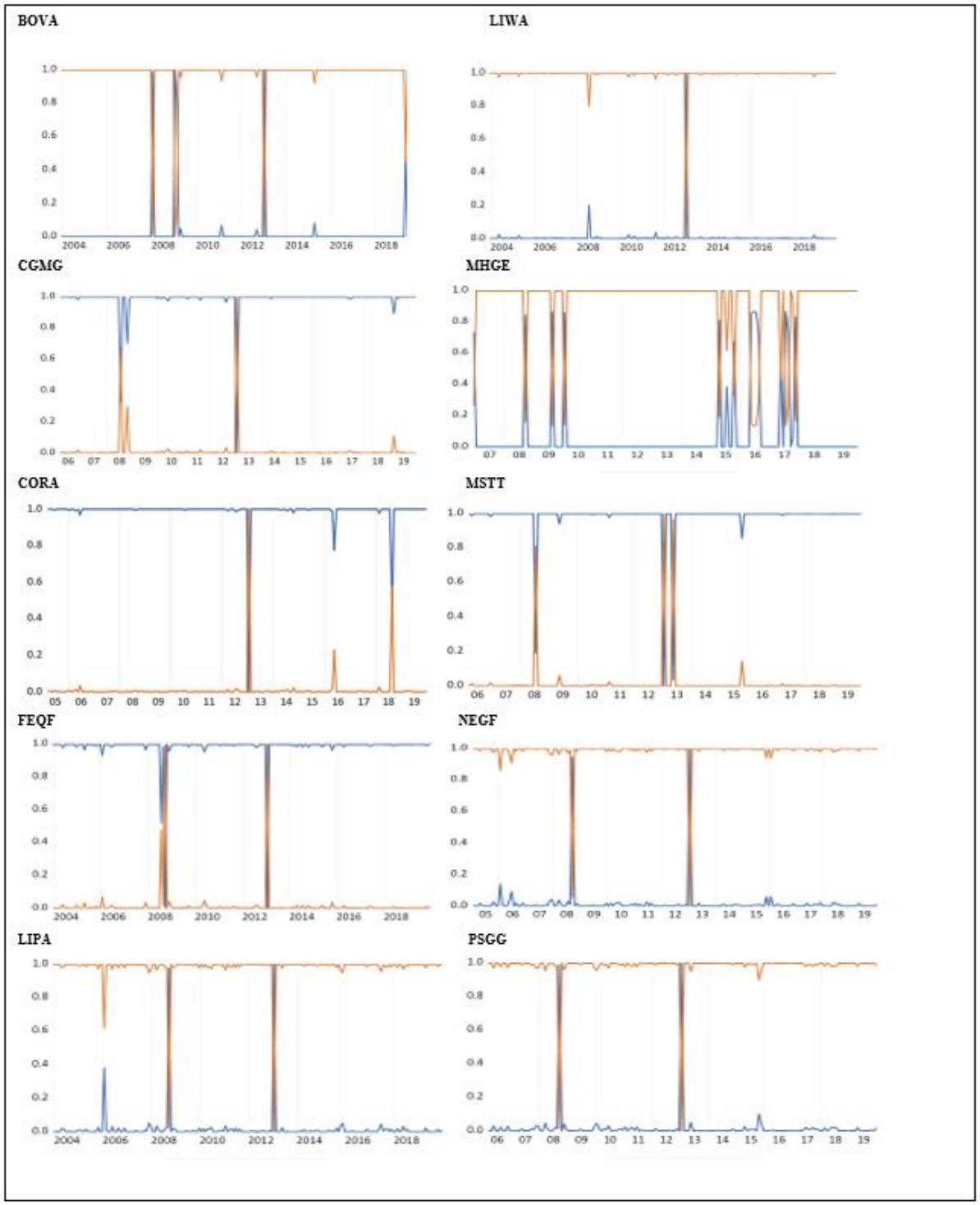
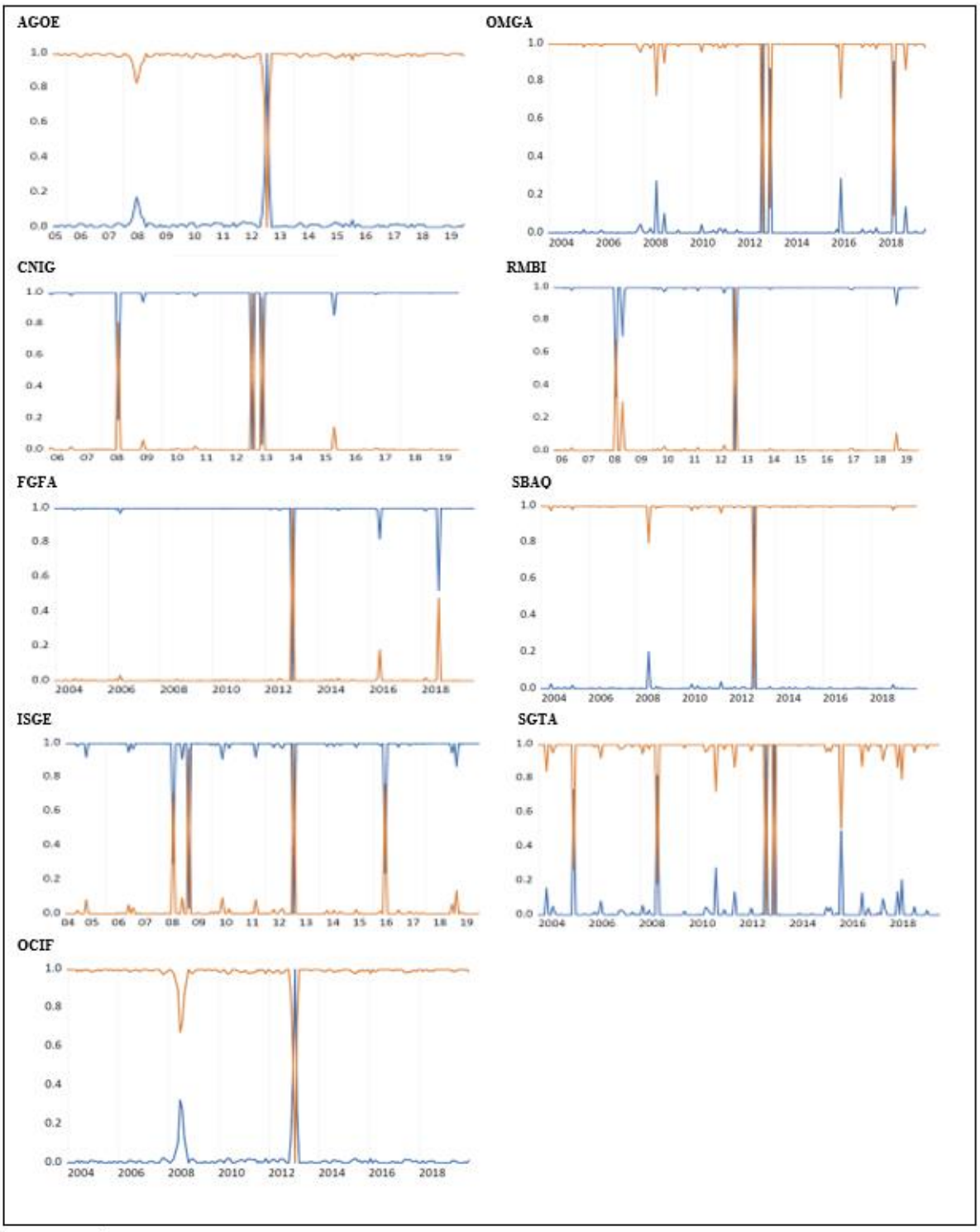
APPENDIX

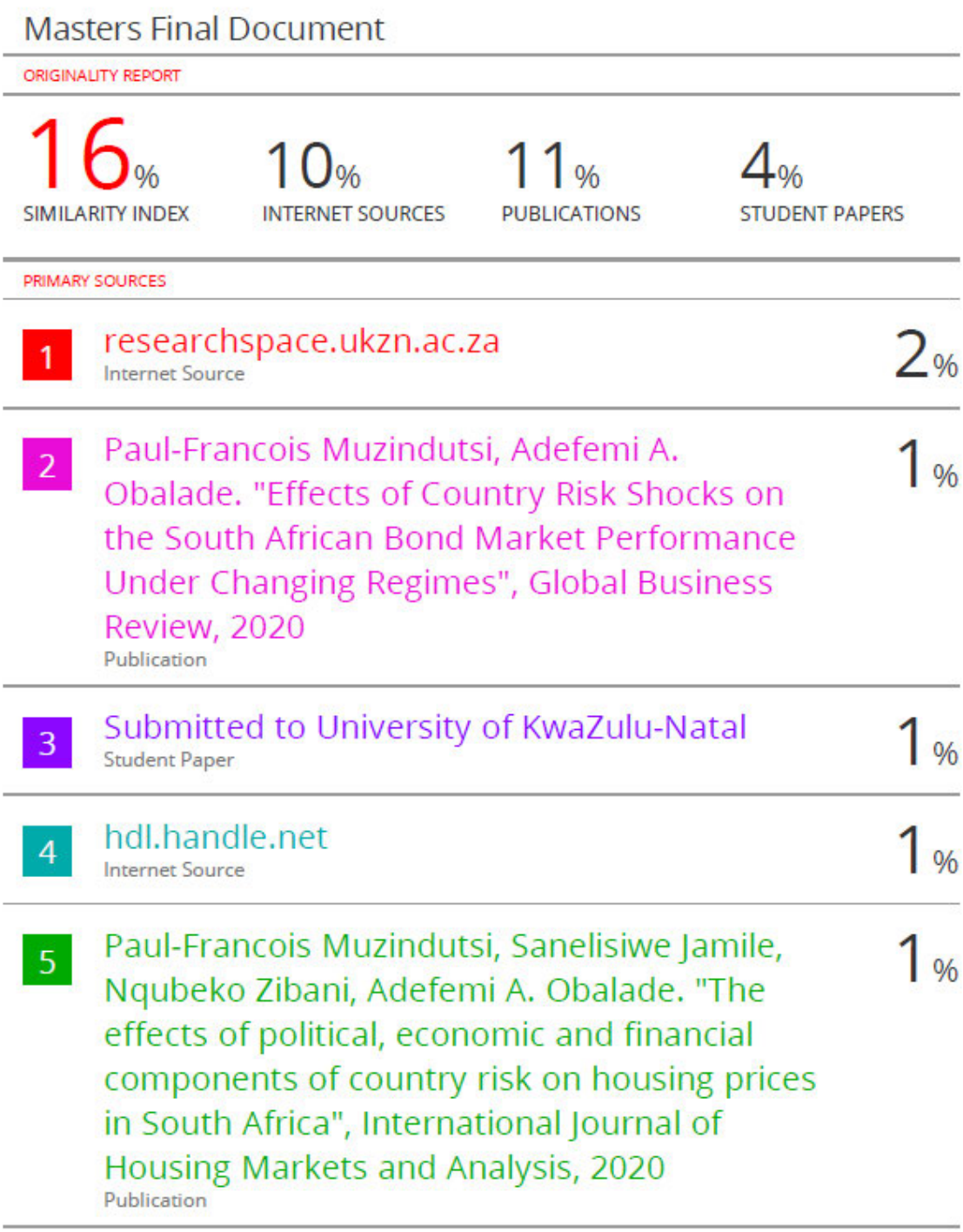
Appendix 1: South African (Domestic) Portfolios: Graphical Comparison of Switching Market Conditions (Transition Probabilities)



Appendix 2: Global (Foreign) Portfolios: Graphical Comparison of Switching Market Conditions (Transition Probabilities)



Appendix 3: Turnitin Report



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Appendix 4: Ethical Clearance Letter

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

12 Nov 2021

Ms Sandisele Ayesha Jaffar (215027365)
School Of Acc Economics&Fin
Westville

Dear Ms Sandisele Ayesha Jaffar,

Original application number: 00015284
Project title: The effect of disaggregated country risk on the South African equity portfolio returns under changing market conditions

Exemption from Ethics Review

In response to your application received on 8 Nov 2021, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW.**

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:
Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,

[redacted]

Prof Josue Mbonigaba
Academic Leader Research
School Of Acc Economics&Fin