An investigation into life assurance markets in Africa

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ABSTRACT

The life assurance industry has grown significantly worldwide and the African life assurance market has been one of the fastest growing assurance industries globally. Nevertheless, Africa's life assurance market remains under-developed and life assurance contributes only a small portion to Africa's economy. The research identifies several factors that drive life assurance consumption and the development of the life assurance market in Africa. These factors include economic, demographic, social and institutional factors. A key outcome of the research is the development of a scorecard, based on these factors, for benchmarking the maturity and potential of life assurance markets in individual Africa countries. Countries are ranked according to their scorecard value, indicating their relative attractiveness for future life assurance business potential. The top and bottom five performing countries are explored further in more detail.

KEYWORDS

Life assurance consumption; Africa; life assurance density; life assurance penetration

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1. INTRODUCTION

The darkest thing about Africa has always been our ignorance of it.
George Kimble, Africa Today, Lifting the Darkness

1.1 Life assurance has become an increasingly important part of the financial services sector worldwide. Over the last two decades, global life assurance has shown stronger growth on average than non-life insurance and global economic growth (Arena, 2008). Despite this rapid rise in the importance of life assurance in the global economy, there has been disparate growth between industrial and developing countries, with life assurance markets in developing countries tending to be slower (Beck & Webb, 2003). There are also striking variations in growth among individual developing countries (Beck & Webb, 2003). Differences in the development of life assurance markets is reflected in the disparity in life assurance consumption between countries, which is more pronounced in developing countries than the more advanced economies (Lester, unpublished).

1.2 The financial sector in Africa has for decades lagged behind the rest of the world in assurance development. In 2013, Africa accounted for only 1.9% of global life assurance premia. This figure reduces to 0.3% of global life assurance premia when excluding South Africa, the largest life assurance market in Africa. In addition, life assurance contributes a small portion to Africa's economy, with life assurance premia making up 2.52% of GDP in Africa in 2013.[1] Despite the slow pace of development, Africa has made some steady improvements in its assurance developments since the early 2000s.[2] The under-development of the market, low levels of assurance consumption, large underserved population and promising growth levels for life assurance business highlights the potential for growth in the life assurance markets in Africa. Recent activities in the African assurance market seem to suggest that there are assurance players serious about expanding their African footprint. For example, large life assurance companies in South Africa have set aside billions of rands of funds for African expansion projects.[3] Thus it is not surprising that Africa's assurance potential is expected to improve, making it the second fastest growing region in the world.[4]

1 Swiss Re, World Assurance in 2013, www.tsb.org.tr/images/Documents/sigma3_2014_en.pdf, 28 February 2014

2 KPMG Issues and Insights Report, South African Assurance Industry Survey 2012, www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Financial/Documents/Assurance%20Survey%202012-2.pdf, 2 March 2014

3 KPMG Issues and Insights Report, South African Assurance Survey 2013, www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Financial-Services/Documents/Assurance-Industry-Survey-2013.pdf, 16 March 2014

4 Swiss Re, Sigma 3/2013, World Assurance in 2012: Progressing on the long and winding road to recovery. www.swissre.com/media/news_releases/Swiss_Re_sigma_study_on_world_assurance_in_2012_shows_premium_growth__resumed.html, 16 March 2014

1.3 There has been little research on understanding the lack of assurance development and exploring the factors that influence development of life assurance markets for developing countries. Further exploration into factors that drive life assurance consumption is important for understanding the differences in stages of market development and growth opportunities for life assurance in Africa. This paper explores explanatory factors affecting life assurance consumption and assesses the relative life assurance consumption levels of 51 African countries relative to these factors.

1.4 The research aims to identify the key economic, social and country institutional factors driving life assurance consumption levels across countries. These factors are used to develop a rating system for comparing the development of the life assurance market for individual African countries and gauging the relative attractiveness of a country for life assurance business.

1.5 Specifically, this paper addresses the following research questions:

— What are the key socio-economic and country institutional factors driving life assurance consumption between countries?
— How do these factors explain the positions of the best and worst African countries in terms of current life assurance consumption levels?
— Which African countries are projected to have the best improvement in life assurance consumption from 2014 to 2020 and what are the key drivers of this projected improvement?

1.6 This paper is intended to assist policy makers and life assurance firms in identifying key economic, social and country institutional determinants of life assurance consumption across different African countries. Understanding the key country-specific factors influencing life assurance consumption for the best and worst performing African countries may give assurance players insights into favourable indicators that need to be present for market expansion into Africa.

1.7 The rest of the paper is structured as follows: Section 2 gives an overview of the life assurance market in Africa. Section 3 reviews existing empirical literature on life assurance consumption and discusses the factors affecting life assurance consumption across countries. Section 4 outlines Africa's market potential and scope of the paper. Section 5 presents the data and methodology. Section 6 gives the main results and their analysis. Section 7 projects life assurance consumption for each country, while section 8 concludes.

2. OVERVIEW OF LIFE ASSURANCE IN AFRICA

2.1 The size and depth of the life assurance market is commonly measured by gross premium income, penetration ratio being premia relative to Gross Domestic Product (GDP) and density ratio being premia relative to population size. Premia relating

to life assurance products refer to all life assurance policies that are provided by life assurance firms and other life assurance providers such as banks. These products include whole life, term life, endowment, unit-linked, credit life, funeral, disability, long-term care, annuities, critical illness and savings-related policies and can be sold to either individuals or groups. It is important to note this measure of premia for life assurance products includes premia relating to products where the core benefits are assurance or protection benefits (for example, term life and disability products) and products where the core benefits are investment benefits (for example, low guaranteed sum assured endowment products) and products that focus on post-retirement needs (for example, immediate annuity products). There may be different factors driving the demand and supply and subsequent consumption of protection and savings life assurance products. These differences may explain some of the inconsistencies in the findings from previous research.

2.2 Table 1 provides the depth of each life assurance market by global region in 2013. Africa's penetration ratio of 2.42% is below the global average of 3.53%, but it is above the average for emerging markets of 1.41%. Gross life assurance premia in Africa are higher than that of Middle East and Central Asia, Oceania, and Central and Eastern Europe. However, in terms of premia per capita, Africa's density ratio is very low (US$45.80), second lowest to that of Middle East Asia and below that of emerging markets. South Africa is the distorting exception with one of the world's largest life assurance penetration ratios, accounting for 89.22% of Africa's life assurance business in 2013[5] and this skews Africa's life assurance consumption results. Excluding South Africa, Africa's penetration ratio stands about 0.31% and premia per capita are US$5.18, which are lower than that of emerging markets such as Emerging Asia and the Middle East and Central Asia, as per Table 1. In addition, about 70% of African countries fall below this low penetration ratio and density ratio (see Appendix A2).

2.3 Life assurance penetration and density is substantially higher for the Southern African countries of Botswana, Lesotho and Namibia, with Malawi also showing a relatively high penetration ratio (Appendix A2). Morocco and Mauritius also have relatively high life assurance penetration and density, with the Seychelles showing a relatively high density ratio. The higher life assurance market development for southern Africa is primarily attributable to the presence of South African life assurance firms in the southern African countries.[6]

5 Swiss Re, World Assurance in 2013, www.tsb.org.tr/images/Documents/sigma3_2014_en.pdf, 20 June 2014

6 KPMG Issues and Insights Report, South African Assurance Industry Survey 2012, www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Financial/Documents/Assurance%20Survey%202012-2.pdf, 2 March 2014

Table 1 The depth of the life assurance markets by region in 2013

Region	Total gross premia in US$ billions	Life assurance penetration rate	Gross premium per capita in US$	Share of global market
Americas	665.56	2.73%	690.60	25.52%
North America	585.19	3.14%	1 664.30	22.44%
Latin America & Caribbean	80.36	1.39%	131.30	3.08%
Europe	946.73	4.00%	1 075.70	36.30%
Western Europe	925.93	4.75%	1 738.20	35.50%
Central and Eastern Europe	20.79	0.54%	64.50	0.80%
Asia	898.41	3.76%	212.60	34.45%
Advanced Asia	636.10	8.91%	2 981.60	24.39%
Emerging Asia	250.48	1.85%	68.30	9.60%
Middle East and Central Asia	11.84	0.38%	35.20	0.45%
Africa	49.94	2.42%	45.80	1.91%
South Africa	44.56	12.69%	843.86	1.71%
Rest of Africa	5.38	0.31%	5.18	0.21%
Oceania	47.46	2.75%	1 285.90	1.82%
World	2 608.09	3.53%	366.20	100.00%
Advanced Markets	2 200.25	4.73%	2 073.80	84.36%
Emerging Markets	407.84	1.41%	66.90	15.64%

Source: Swiss Re Sigma 2013;[7] internal Munich Re Economic Research

2.4 There are numerous reasons for the relative development of a few African countries and the under-development of others. These reasons may differ across countries and factors influencing the development of life assurance markets may change over time. It is therefore important to understand the factors influencing the development of life assurance markets to assess the potential for the development of the market in individual African countries.

3. FACTORS AFFECTING LIFE ASSURANCE CONSUMPTION

A number of factors affect the development of life assurance markets across countries. These factors can be grouped into economic, demographic, social and cultural, market structure and institutional development factors. These factors drive different dimensions of assurance demand and supply. It is important to note upfront that there is likely to be a dependency structure between these factors.

7 Swiss Re, World Assurance in 2013, www.tsb.org.tr/images/Documents/sigma3_2014_en.pdf, 28 February 2014

3.1 Economic Indicators

3.1.1 GDP AND DISPOSABLE INCOME

3.1.1.1 These indicators capture the overall economic situation of a country and determine if the demand can be sustained by available means. Economic growth affects life assurance market developments, as there is more scope for other financial services sectors to develop when the economy is growing (Arena, 2008). Numerous studies have shown that income measured by GDP per capita, gross national product (GNP) or GNP per capita is the central factor affecting life assurance market developments, this being shown to increase life assurance consumption across countries (Arena, 2008; Babbel, 1985; Beck & Webb, 2003; Beenstock, Dickinson & Khajuria, 1986; Brown & Kim, 1993; Feyen, Lester & Rocha, 2013; Hwang & Gao, 2003; Truett & Truett, 1990; Lewis, 1989; Li et al., 2007; Outreville, 1996).

3.1.1.2 A deeper investigation of the effects of GDP and the income of consumers may reveal that income dispersion or inequality may be an important factor driving life assurance consumption. Studies suggest that life assurance products become more affordable if disposable income is higher (Feyen, Lester & Rocha, 2013). Higher income stimulates life assurance consumption in order to safeguard against potential lost income for the wage earner's dependants in the event of premature death (Li et al., 2007). With more income, consumers are able to save a larger portion of their disposable income in saving-related products (Kjosevski, 2012). Lorent (unpublished) remarked that life assurance consumption tends to be low in countries where many consumers are unable to afford life assurance. The lack of affordability of premia for lower income consumers has been cited as the main barrier to purchasing life assurance products in Africa.[8]

3.1.1.3 According to the World Bank, the income level is normally measured using GDP per capita, defined as GDP divided by midyear population. Compared to other regions, many African countries have a low GDP per capita. The global average GDP per capita in 2013 was US$10 748, while for developed economies it was US$42 000 and for emerging economies US$9 000.[9] For Africa, as shown in Appendix A3, approximately 70% of countries have a GDP per capita of less than US$3 000 with an average of US$4 500. Only seven African countries – Botswana, Equatorial Guinea, Gabon, Libya, Mauritius, Seychelles, and Tunisia – have a GDP per capita above the average for emerging economies, with GDP per capita ranging from approximately US$9 500 to US$30 000. This hampers life assurance market development in Africa.

8 KPMG, Financial Services in Africa, www.kpmg.com/Africa/en/IssuesAndInsights/Articles-Publications/Documents/KPMG%20Financial%20Services%20in%20Africa.pdf, 16 March 2014

9 World Bank Indicators, http://data.worldbank.org/indicator/NY.GDP.PCAP.CD, 20 March 2014

3.1.2 INTEREST RATES

3.1.2.1 The interest rate environment has an effect on consumers and life assurance firms in terms of pricing, demand, investment income through the income statement and the value of the assets in the assurer's balance sheet.[10] Higher interest rates may reduce premia for a set level of life assurance benefits (Li et al, 2007). Thus it would appear that higher real interest rates, at least in theory, would be expected to have a positive effect on life assurance consumption of protection and fixed annuity products, as they may decrease the cost of assurance, thus increasing the quantity demanded.[11] On the other hand, an increase in interest rates could reduce the number of life assurance purchases and increase the number of lapses, due to the anticipated higher returns arising from higher real interest rates from investment and other savings products (Li et al., 2007).

3.1.2.2 Lower interest rates make annuity products more expensive thus reducing the quantity demanded.[12] Conversely, in this environment, the demand for savings products could increase temporarily due to the increased attractiveness of relatively high guaranteed returns, if there is a delay in life assurers adjusting investment guarantees lower.[13] In addition tax incentives may play a role in the consumption of life assurance products, increasing demand for life assurance products despite poorer pre-tax returns relative to other savings products in the market.

3.1.2.3 Beck & Webb (2003) found a slight positive relationship between real interest rates and purchase of life assurance, while Li et al. (2007) found a negative relationship between real interest rates and demand for life assurance. Furthermore, some studies have failed to show a significant relationship between interest rates and life assurance demanded (Outreville, 1996; Kjosevski, 2012 and Lorent, unpublished). Despite the findings above, interest rate sensitivity between lines of business and target markets can vary greatly. However, it is important to note that central banks – and, by proxy, governments – try to manage both inflation and economic growth through the primary monetary tool of interest rates, thereby affecting consumer and firm spending.

3.1.3 INFLATION RATES

3.1.3.1 The magnitude and volatility of inflation disrupts financial market operations, may deter long-term savings and erodes the value of assurance policies with fixed monetary benefits, thereby making them less attractive (Kjosevski, 2012). As life assurance products usually provide cash benefits over a long time horizon, high inflation rates can erode the real value of this monetary amount, making policy

10 Swiss Re, Facing the interest rate challenge. http://media.swissre.com/documents/sigma4_pdf\, 20 March 2014
11 Ibid.
12 Ibid.
13 Ibid.

benefits particularly sensitive to the effects of inflation (Li et al., 2007). In addition, inflation volatility affects economic and monetary stability, and this is detrimental to the profitability and efficiency of life assurance firms in general (Feyen, Lester & Rocha, 2013). As such, price stability is considered one of the major determinants for life assurance market development (Beck & Webb, 2003).

3.1.3.2 For example, life assurance consumption in Brazil over long periods before and after 1968 was adversely affected by rampant inflation, even for benefits that were adjusted for inflation (Babbel, 1981). These findings are supported by the majority of other research studies, which show that inflation has a negative effect on life assurance consumption (Beck & Webb, 2003; Brown & Kim, 1993; Fortune, 1973; Hwang & Gao, 2003; Outreville, 1996; Ward & Zurbruegg, 2002). In 2013, the average inflation rate per annum in Africa was about 7%, compared to 6% for emerging and developing economies, 1% for advanced economies, and the world's average of 4%.[14] For Middle East and North Africa, the average inflation rate was 9% per annum, while for Sub-Saharan Africa it was 7%. Africa reports higher inflation rates than other regions. According to Allen, Otchere & Senbet (2011), historically, inflation has contributed to the low life assurance consumption levels in Africa, especially in Central and Eastern Africa. Some African markets have been largely characterised by high inflation: inflation averaged more than 10% for 14 markets (Appendix A3) linked to a penetration ratio below 1%.

3.1.4 Most African countries perform poorly, as seen by the low GDP per capita, high inflation rates and low real interest rates. For life assurers seeking to do business in volatile African markets, it is important to understand the current economic environment as this may affect the future development of the life assurance market. The economic factors influencing the development of life assurance markets are investigated further in the Results section.

3.2 Demographic Factors

Demographic, social and cultural factors may influence life assurance potential and demand patterns in a given country.

3.2.1 POPULATION SIZE AND GROWTH

3.2.1.1 Population size and the potential size of the economically active population influences potential size of the life assurance industry, particularly in the long term (Mantis & Farmer, 1968). The relationship between population size and demand for life assurance is supported by the findings of Feyen, Lester & Rocha (2013). These findings suggest that a larger population provides a larger clientele for life assurance products.

14 International Monetary Fund, www.imf.org/external/pubs/ft/weo/2015/01/weodata/download.aspx, 20 March 2014

3.2.1.2 If the population size, particularly the economically active population, increases, this may increase the consumer market for life assurance and this will position life assurance firms to sell more products, thereby increasing life assurance gross premium income. Africa's share of the world's population is predicted to grow from the current 15% to 27% by 2040.[15] From a demographic point of view, Africa's population will rise, leading to a potentially rising consumer market. This rising consumer market will need to be served with financial services such as life assurance products. According to the United Nations (UN) World Population Prospects, the more developed markets composed 18% of the world's total population in 2010, as compared to 82% in the less developed regions.[16] This contrasts sharply with Table 1, where the less developed markets roughly accounted for less than 16% of the world's share of the life assurance market. This suggests that there may still be substantial scope and potential for life assurance consumption in emerging and developing markets such as Africa where population sizes are quite large and life assurance consumption is still very low.

3.2.2 LIFE EXPECTANCY AT BIRTH

3.2.2.1 This indicates how long a person is expected to live until death. The impact of life expectancy on life assurance consumption is two-fold. Higher life expectancy reflects lower mortality rates at younger ages, thus reducing the price of life assurance and possibly increasing consumption of products focusing on death coverage (Outreville, 1996). However, it is recognised that this is a crude view of the relationship between country life expectancy and life assurance premiums and that pricing of life assurance contracts is more complex (Ward & Zurbruegg, 2002). Secondly, countries with higher life expectancies may depict aging populations, which may indicate opportunities for life assurance consumption of appropriate products, such as annuities, long-term care, disability, critical illness and savings, thereby stimulating life assurance consumption. However, empirical studies appear to have mixed results on the effect of life expectancy on life assurance consumption. Brown & Kim (1993) and Beck & Webb (2003) found no significant effect, while Outreville (1996) and Ward & Zurbruegg (2002) showed a positive effect, but Feyen, Lester & Rocha (2013) and Li et al. (2007) found a negative effect. These results could have been affected by the different compositions of business lines of assurers and country specific differences.

3.2.2.2 The more developed regions have higher life expectancy than emerging markets. For example, for the period spanning from 2010 to 2013, more developed economies had an average life expectancy of approximately 78 years, while the less developed and least developed markets stood at 68 and 61, respectively.[17] Africa has a

15 United Nations, World Population Prospects, http://esa.un.org/unpd/wpp/Excel-Data/population.htm, 20 June 2014
16 Ibid.
18 Ibid.

much lower life expectancy than other regions at 58 years,[18] impacting negatively on life assurance consumption.

3.2.3 DEPENDENCY RATIO

3.2.3.1 The need to protect dependants against financial hardships when events of premature death, disability or severe illness occur is the major force driving life assurance demand (Hussels, Ward & Zurbruegg, 2005; Campbell, 1980). The dependency ratio represents the ratio of dependants to the working-age population aged between 15 and 64 (Li et al., 2007). This ratio is split between young and old dependency ratio. A higher old dependency ratio indicates an older population, indicating a need for savings, annuity, disability and long-term care components of life assurance products (Beck & Webb, 2003; Lorent, unpublished). A higher young dependency ratio indicating a younger population may show future opportunities for life assurance consumption (Li et al., 2007). A higher young dependency ratio tends to stimulate life assurance consumption across countries (Burnett & Palmer (1984); Beenstock, Dickinson & Khajuria (1986); Brown & Kim (1993); Li et al. (2007)). But Beck & Webb (2003) found contrasting and inconclusive results relating to young dependency ratio and life assurance consumption.

3.2.3.2 Compared to the rest of the world, the young dependency ratio in Africa is quite high, while the old dependency ratio is similar to that of other emerging markets. The young dependency ratio for more developed regions in 2010 was 24 (approximately one child for four working age adults), while it was 44 (approximately two children for four working age adults) for less developed markets, 73 (approximately three children for four working age adults) for the least developed markets and 74 for Africa. This suggests that Africa has a much younger population than many regions. The old dependency ratio is similar across the developing markets at 6 (approximately 0.25 adults over 64 years for four working age adults), while for more developed markets the UN reported it as 24 (approximately 1 adult over 64 years for four working age adults) compared to the world's average of 12 (approximately 0.5 adults over 64 years for four working age adults).[19] This is line with the higher life expectancy in developed regions, reflecting the higher life assurance consumption of appropriate products.

3.2.4 Demographic profiles seem positive for future life assurance consumption in Africa, generally reflecting a young population. In addition, there is a substantial population size that is expected to double in 2040, thereby increasing the potential consumer market for life assurance, providing scope for improving life assurance consumption in Africa.

18 Ibid.

19 Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2012 Revision, http://esa.un.org/unpd/wpp/index.htm, 20 June 2014

3.3 Social and Cultural Factors

3.3.1 EDUCATION LEVEL AND HUMAN CAPITAL

3.3.1.1 Population education levels affect life assurance demand for several reasons. Firstly, an increased level of education raises the awareness and understanding of the need for life assurance products (Hussels, Ward & Zurbruegg, 2005), the importance of long-term saving and benefits and complexity of risk management (Lorent, unpublished). Secondly, higher levels of education are usually linked with stronger motivation to protect the financial security of dependants (Truett & Truett, 1990; Kjosevski, 2012). Thirdly, higher levels of education are associated with higher disposable income and hence the need to protect higher income for individuals (Li et al., 2007). Finally, education levels are also associated with increasing risk aversion (Brown & Kim, 1993, Beck & Webb, 2003, Hwang & Gao, 2003). Lack of actuarial skills as a result of poor education levels may also influence the lack of assurance development in some developing countries (Lester, unpublished).

3.3.1.2 Brown & Kim (1993), Hwang & Gao (2003), Li et al. (2007), Kjosevski (2012) and Ward & Zurbruegg (2002) all found that higher education levels stimulated life assurance consumption.

3.3.2 URBANISATION

3.3.2.1 The proportion of urbanised population in a country may affect life assurance consumption. Urbanisation allows life assurance firms to sell and distribute assurance products more easily (Beck & Webb, 2003). Markets with more highly concentrated and urbanised populations would be expected to have higher life assurance demand (Hwang & Gao, 2003). Hwang & Gao (2003) found that increased urbanisation fostered life assurance consumption in China.

3.3.2.2 Urbanisation rates vary greatly between regions. In 2014, the more developed regions had high levels of urbanisation at or above 80% for Latin America, the Caribbean and North America, and 73% for Europe.[20] Asia and Africa, in contrast, remain mostly rural, with 48% and 40% as urbanised populations, respectively. However, over the coming decades, the UN projects that urbanisation levels will increase for all regions, with Africa and Asia growing faster than the rest. The rate of urban growth in regions that are already highly urbanised is slow, while Africa is expected to be the fastest urbanising region by 2020. This may yield future potential for life assurance in African markets where regions are currently characterised by rural populations.

20 United Nations, World Urbanisation Prospects, http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf, 20 June 2014

3.3.3 RELIGION, CULTURE AND ATTITUDES

3.3.3.1 Religious and cultural inclinations may affect a populace's attitudes to risk and views and behaviours towards life assurance (Chui & Kwok, 2008; Feyen, Lester & Rocha, 2013). In the past in some countries, there has been strong opposition to life assurance due to religious attitudes and culture (Zelizer, 1979). Moreover, Hussels, Ward & Zurbruegg (2005) also pointed out that some religious groups believe that relying on life assurance is contrary to God's protective care. This has been particularly evident in Islamic countries, where religious laws preclude some traditional forms of life assurance as they are viewed as speculation on future events (Zelizer, 1979; Redzuan, Rahman & Aididi, 2009). As a result, life assurance consumption tends to be low in predominantly Islamic countries (Beck & Webb, 2003; Brown & Kim, 1993; Feyen, Lester & Rocha, 2013; Lorent, unpublished; Outreville, 1996; Wasaw & Hill, 1986; Ward & Zurbruegg, 2002). For other religions – Catholicism, Christianity and other composite groups – there was little effect on life assurance consumption levels (Brown & Kim, 1993).

3.3.3.2 Takaful assurance – assurance designed to be compliant with Islamic Shari'ah law – has opened the life assurance market to Muslim consumers, but it is still in a nascent stage and life assurance penetration ratios remain low in Muslim-dominated countries (Gustina & Abdullah, 2012). In general, predominantly Muslim populations, in countries such as Algeria, Egypt, Kuwait, Libya, Sudan, Tunisia, United Arab Emirates and Qatar, show very low life assurance penetration ratios compared to the rest of the world (Lester, unpublished). For example, as shown in Appendix A1, most North African countries such as Libya and Sudan have virtually non-existent life assurance markets with penetration ratios under 0.5%.

3.3.3.3 Africa has modest education levels, with mostly rural populations and some countries with dominant Muslim populations. Some countries, such as Libya, Seychelles and Zimbabwe, still have low penetration ratios even though their education levels are high in comparison to the rest of Africa, as shown in Appendix A3. Most Muslim-dominated countries show low life assurance consumption, but takaful may provide scope for assurance development.

3.4 Life Assurance Market Structure

3.4.1 MARKET CONCENTRATION

3.4.1.1 The concentration of market share among the largest assurers gives an indication of the openness, competitiveness and saturation of a particular life assurance market and consequently plays an important contribution in life assurance market development and life assurance consumption (Brown & Kim, 1993; Ma & Pope, 2003; Feyen, Lester & Rocha, 2013; Outreville, 1996). Concentrated markets have lower life assurance consumption than non-concentrated markets (Feyen, Lester & Rocha, 2013). The studies by Brown & Kim (1993) and Sliwinski, Michalaki & Roszkiewicz (2013) showed that monopolistic markets tend to be less developed than competitive markets.

3.4.1.2 An example of a country with a well-developed and competitive assurance market with large number of assurance players is South Africa. This has proven to be a key driver in making it one of the top life assurance markets in the world.[21] Lester (unpublished) analysed the assurance sectors in the Middle East and North Africa and noted that the slow life assurance development in these markets was due to a lack of assurance players in these regions. The bulk of the licensed assurers in the Middle East and North Africa were non-life insurers or composites (Lester, unpublished). For example, in Algeria there was one life assurance firm and 14 composite insurers with the market being dominated by the non-life insurance segment.[22] Thus Algeria's life assurance penetration ratio is extremely low, representing less than 0.1% of GDP, as shown in Appendix A1. Li et al. (2007) showed that the growth in developing markets was hampered, partially as a result of a lack of assurance development arising from too few life assurers operating.

3.4.2 PRESENCE OF STATE ASSURERS

3.4.2.1 The presence of State assurers can stifle life assurance market development, resulting in low life assurance penetration ratios (Feyen, Lester & Rocha, 2013). A life assurance market that is majority-owned by the State tends to have less variety in life assurance products offered in the market leading to lower life assurance consumption levels (Lester, unpublished). Countries where, historically, State assurers hold the largest market share have shown lower life assurance consumption levels (Lester, unpublished). For example, prior to the early 2000s, the State controlled about 70% of the life assurance market in India and close to 50% in China respectively, thereby contributing to the low life assurance penetration ratios of less than 2% in these countries (Lester, unpublished).

3.4.2.2 According to Lester (unpublished), some African countries are still transitioning from the historical dominance and legacy of large State monopoly life assurance firms. For example, Allen, Otchere & Senbet (2011) noted that Tunisia is largely characterised by State-owned monopolies representing more than 91% of the life assurance market, while Egypt has 78%, with Libya and Algeria standing at 44% and 72% respectively. Libya has a "practically non-existent" life assurance market (Allen, Otchere & Senbet, 2011: 92). In general, North African countries have been characterised by State dominance and these countries have some of the poorest life assurance consumption levels in Africa, reflecting the State's influence on poor life assurance market development (Allen, Otchere & Senbet, 2011; Lester, unpublished). However, in recent years, some reforms have been made in countries such as Egypt

21 KPMG Issues and Insights Report, South African Assurance Industry Survey 2012, 2012. www.kpmg.com/ZA/en/IssueasAndInsights/ArticlesPublications/Financial-Services/Documents/Assurance%20SurveyUS$202012-2-2.pdf, 14 June 2014

22 KPMG Issues and Insights Report, April 2012. www.kpmg.com/Africa/en/IssuesAndInsights/Articles-Publications/Documents/KPMG%20Financial%20Services%20in%20Africa.pdf, 16 March 2014

and Morocco to correct this State dominance and this may prove to be crucial on fostering life assurance markets in these countries (Lester, unpublished).

3.4.3 PRESENCE OF FOREIGN ASSURERS

3.4.3.1 The market share of foreign assurers may have an impact on life assurance consumption. Foreign involvement in the assurance industry may be an encouraging sign for the future development of the local life assurance market. Foreign firms would tend to enter the local life assurance market if there are opportunities for profit and few foreign competitor restrictions (Outreville, 1996; Li et al. 2007). In addition, the presence of foreign firms may also drive down the price of life assurance products due to the increased competition and thus increase the quantity demanded (Outreville, 1996).

3.4.3.2 Sliwinski, Michalaki & Roszkiewicz (2013) found that a lack of foreign assurers had a negative influence on life assurance consumption. Li et al. (2007) showed that there was a greater influence on life assurance consumption at lower and higher levels of foreign participation. Outreville (1996) found insignificant effects of the presence of foreign firms in the market. Assurance markets in developing countries are often characterised by large numbers of small assurance firms with relatively small capacity (Outreville, 1996).

3.4.3.3 Foreign firms may also be a source of capital funding for life assurance providers, which is crucial for the expansion of life assurance business (Fortune, 1973). Foreign Direct Investment (FDI) has been argued to be a major growth trigger for the development of financial sectors (Ford, Rock & Elmslie, 2008). FDI support may lead to increased competition in the domestic market which may help improve the efficiency of the market (Claessens, Demirgüč-Kunt & Huizinga, 2001). Also, more funding may lead to more diversified portfolios for some firms, thus allowing domestic firms to incorporate lower risk margins in products offered by life assurance providers, thereby making them more affordable (Ford, Rock & Elmslie, 2008). On the other hand, FDI could encourage mergers and acquisitions thereby contributing to the growing concentration in the market.[23] Countries with higher FDI appear to demonstrate higher life assurance penetration ratios, but the level of financial development affects the efficiency of the FDI impact (Carson, Chen & Outreville, forthcoming). Developing countries that are more financially developed are expected to attract more FDI than other countries and hence are expected to have more life assurance consumption (De Mello, 1997).

23 BIS, 2004, Foreign direct investment in the financial sector of emerging market economies. Report Submitted by the Committee on the Global Financial System. Bank for International Settlement. www.bis.org/publ/cgfs22.pdf, 16 June 2014

3.4.3.4 Challenging business environments and restrictions on investments often make it difficult to conduct life assurance business in some African markets (Lester, unpublished). This often leads to a lack of private sector development, which makes the life assurance industry less dynamic, competitive and innovative than it could possibly be.[24]

3.4.3.5 Thus, there may be a relationship between the effects of competition, market concentration, presence of foreign assurers and life assurance consumption (Feyen, Lester & Rocha, 2013). However, there has been little research to test this hypothesis. Despite this, markets that attract higher FDI may be expected to develop faster, *ceteris paribus*, due to access to capital to write more business (De Mello, 1997).

3.4.4 FINANCIAL DEVELOPMENT AND THE BANKING SECTOR

3.4.4.1 Financial development plays a crucial role in providing a conducive business environment and is an important foundation for growth in the life assurance industry (Beck & Webb, 2003; Lorent, unpublished; Feyen, Lester & Rocha, 2013). A good business environment may provide foundations for a competitive and efficient industry (Li et al., 2007). Banking sector development is used to measure the financial development of a country. A well-functioning bank system provides efficient payment systems for financial services, including life assurance (Beck & Webb, 2003). These payment systems can support the development of the life assurance sector through facilitating the collection of premiums. An efficient banking sector can also facilitate the availability of investment instruments for life assurance firms to invest more efficiently and diversify (Feyen, Lester & Rocha, 2013). In addition, a more developed banking sector may also compete with the life assurance sector through savings and bancassurance products, tapping into an expanded customer base (Feyen, Lester & Rocha, 2013).

3.4.4.2 Beck & Webb (2003), Feyen, Lester & Rocha (2013), Li et al. (2007), Lorent (unpublished), Outreville (1996) and Ward & Zurbruegg (2002) showed that a strong financially developed market and banking sector resulted in higher life assurance consumption. The World Bank has an Ease of Doing Business Index measuring the business environment in a market and whether that market is conducive for doing business. The World Bank defines the index as an average of a country's score rankings on 10 key topics covered in the World Bank's Doing Business report.[25] Higher rankings indicate better financially developed countries with sophisticated and conducive environments for business. Most of the African countries are ranked very low, with 43

24 KPMG Issues and Insights Report, South African Assurance Industry Survey 2013. www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Financial-Services/Documents/Assurance-Industry-Survey-2013.pdf, 16 June 2014

25 World Bank, www.doingbusiness.org/~/media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB13-full-report.pdf, 20 May 2014

of the 54 African countries ranked in the bottom 100. Only South Africa and Mauritius make the top 30 ranked countries according to this index. The significant higher ranking of South Africa and Mauritius is consistent with their higher life assurance consumption levels (Appendix A1).

3.4.5 SOCIAL SECURITY EXPENDITURE

Life assurance and government-aided social security systems usually interact with each other. Social security programmes provide basic protection benefits to the citizens of a country, thus displacing private life assurance (Brown & Kim, 1993). Generally, there is a disagreement on the effect of social security on life assurance consumption. Research studies show that the extent to which social security influences life assurance consumption differs across countries. Early research indicated that an increase in social security expenditure decreased life assurance provided by private life assurance firms (Lewis, 1989; Beenstock, Dickinson & Khajuria, 1986; Li et al., 2007; Skipper & Klein, 2000). However, other studies showed little effect of social security on life assurance demand (Fitzgerald, 1987) and contrasting results on the effect of social security on life assurance consumption (Lorent, unpublished; Feyen, Lester & Rocha 2013; Ward & Zurbruegg, 2002). The differences in the results could arise from the country data samples used. For example, historically, social security has tended to be less prevalent in Africa than it is Europe.

3.5 Governance Development Factors

3.5.1 Institutional structures are formal and informal mechanisms which govern human behaviour in a country (Elango & Jones, 2011) and include the legal and judicial systems in place to protect consumers and private firms. The level of development of governance and institutional structures gives an indication of:

— the extent to which financial markets are regulated and supervised;
— the processes governing interactions between economic and social aspects of financial institutions;
— the political and business environment;
— the rule of law and how government is selected and monitored;
— government's capacity to formulate and implement sound policies; and
— respect for a country's citizens and freedom of speech.

All these aspects are important for financial market development (Kaufmann, Kraay & Mastruzzi, 2010; Ward & Zurbruegg, 2002). Few studies have tested the effect of legal and regulatory environments on life assurance consumption due to a lack of good indicators to measure these variables. There have, however, been developments of indicators for these variables, enabling researchers to test their significance.

3.5.2 Kaufmann, Kraay & Mastruzzi (2010) introduced the Worldwide Governance Indicators (WGI)[26] which are a number of indicators that can be used to measure the institutional development of a country. These indicators include:

— **Rule of Law** indicates the perception that consumers and agents abide by society's rules, including the likelihood of crime and violence.
— **Political Stability** indicates the stability of the political system and how consumers have a veto right in the political apparatus of a country.
— **Voice and Accountability** indicates the perception that consumers are able to take part in selecting their government, including freedoms of expression and association.
— **Control of Corruption** indicates whether public power can be used by consumers for private gains, as well as petty or grand forms of corruption.
— **Regulatory Quality** indicates whether a country has a sound legal and judicial system, and how the government formulates, plans and implements policies and regulations that permit and promote private sector developments.
— **Government Effectiveness** indicates the quality regulations, policies and implementations and the credibility of its commitment to these formulations.

3.5.3 The quality of the assurance regulatory system is particularly important for the development of the life assurance market, especially within developing countries. A good and well-functioning assurance regulatory framework provides a platform for life assurance markets to flourish (Hussels, Ward & Zurbruegg, 2005; Feyen, Lester & Rocha, 2013; Kjosevski, 2012; Ward & Zurbruegg, 2002). A sound regulatory framework promotes confidence in the life assurance industry Conversely, a poor assurance regulatory framework may hinder the development of the life assurance sector (Lester, unpublished). A lack of regulatory oversight, corruption, fragmented business environments, unstable political systems and other poor institutional measures are key structural failures reducing life assurance consumption in developing economies (Lester, unpublished).

3.5.4 According to KPMG's South African Assurance Industry Survey 2013, poor regulations make it difficult to conduct life assurance business in some parts of Africa.[27] Additionally, weak institutional factors have tended to hinder life assurance market developments (Lester, unpublished). In particular, North Africa and some parts of West Africa have been politically volatile regions.[28] Historically, countries in these

26 Brookings, World Bank, The Worldwide Governance Indicators: Methodology and Analytical Issues, www.brookings.edu/~/media/research/files/reports/2010/9/wgi%20kaufmann/09_wgi_kaufmann.pdf, 22 June 2014

27 KPMG Issues and Insights Report, South African Assurance Industry Survey 2013. www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Financial-Services/Documents/Assurance-Industry-Survey-2013.pdf, 16 June 2014

28 Freedom House, Freedom in the World Survey, 2013. www.freedomhouse.org/report/freedom-world/freedom-world-2013#.VBDEs_mSzCs, 20 June 2014

regions have been characterised by lack of effective governance, lack of regulation and supervision, fragmented market structures and corruption.[29] It is challenging conducting business in African countries with such poor institutional conditions. As a result, life assurance markets in these African countries are still largely underdeveloped (Lester, unpublished).

4. AFRICA'S LIFE ASSURANCE MARKET POTENTIAL

4.1 Although the factors reviewed in Section 3 appear to provide scope for doing business in Africa, there are key challenges. Africa's growth potential has been constrained by insufficient poverty reduction, unemployment, income inequalities, poor regulations, lack of human capital and expertise, as well as shallow financial markets, that make it difficult to raise enough capital for assurance companies (Lester, unpublished).

4.2 Despite the challenges outlined above, since the early 2000s, Africa has made some progress in addressing the above challenges. According to Swiss Re, Africa's economic growth has been accelerating, making Africa the world's second fastest growing continent. According to Allen, Otchere & Senbet (2011), this positions Africa as the next growth potential for investors. Moreover, Africa's share of the world's population is also predicted to grow from the current 15% to 27% by 2040.[30] From a demographic point of view, Africa's population will rise, leading to a rising consumer market, providing that the consumer can afford life assurance premiums. This rising consumer market will need to be serviced with life assurance products. According to Section 3, a number of factors influence this rising consumer market, including smaller family sizes, a growing middle-income class, improving education levels, large growing populations and increasing urbanisation.

4.3 Moreover, Islamic countries have large, stable economies and population sizes. If Takaful assurance becomes popular, this may present growth opportunities for life assurance in Islamic countries (Gustina & Abdullah, 2012). Other growth enablers in Africa include improvements in the macroeconomic landscape, political stability, governance, natural wealth, agriculture, manufacturing and local services.[31] Chen, Lee & Lee (2012) suggested that these factors show the potential for Africa to foster future life assurance demand and supply. This provides an incentive to examine and investigate the potential for African countries for life assurance business activity, and to examine whether there are countries with attractive growth potential to foster

29 BusinessTech, http://businesstech.co.za/news/general/60665/africas-best-country-for-business/, 20 June 2014

30 Swiss Re, Sigma 3/2013, World Assurance in 2012: Progressing on the long and winding road to recovery. www.swissre.com/media/news_releases/Swiss_Re_sigma_study_on_world_assurance_in_2012_shows_premium_growth__resumed.html, 20 June 2014

31 KPMG Issues and Insights Report, South African Assurance Survey 2013. www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Financial-Services/Documents/Assurance-Industry-Survey-2013.pdf, 16 August 2014

life assurance markets. This paper focuses on measuring the life assurance factors discussed in Section 3 and using them to gauge the relative attractiveness of a country for life assurance business activity.

5. DATA AND METHODOLOGY

5.1 Data

5.1.1 Economic, demographic and social, financial sector development and country institutional indicators from 2009 to 2013 for 51[32] African countries were analysed in this paper. The list of the 51 African countries considered in this paper is depicted in Appendix A1. The indicators analysed in this paper are quantifiable and readily available practical measures that reflect the country circumstances for each of the major factors influencing life assurance market developments, as highlighted from previous literature. As socio-economic factors are subject to random variability and fluctuations related to business cycles or political events (Allen, Otchere & Senbet, 2011), to mitigate these fluctuations, the average of the indicator data for the most recent five-year period for which full data were available was used in this analysis. Averages of actual indicator data as well as growth in indicators over the five-year period were included to reflect changes in the indicators over the period.

5.1.2 Economic indicators are based on IMF country data[33] and World Bank Development Indicators (WDI);[34] demographic and social factors are based on African Economic Outlook (AEO) country data[35] and Central Intelligence Agency (CIA) World Fact Book;[36] country institutional development indicators are based on World Bank's Governance Indicators (WGI).[37] The WGI are constructed from a set of surveys from individuals, public firms, organisations and private institutions about views on a country's governance (Kaufmann, Kraay & Mastruzzi, 2010). A summary of these factors is shown in Table 2 and further country statistics on these factors are listed in the Appendices A3, A4, A5 and A6.

32 South Africa was excluded as it is highly developed relative to the rest of Africa, and has a mature and saturated life assurance market. South Sudan and Somalia were excluded as there were very little available data.

33 International Monetary Fund, http://elibrary-data.imf.org/FindDataReports.aspx?d=33061&e=169393, 23 June 2014

34 World Bank, World Development Indicators http://data.worldbank.org/data-catalog/world-development-indicators/, 23 June 2014

35 African Economic Outlook, Statistics, www.africaneconomicoutlook.org/en/statistics/, 22 June 2014

36 Central Intelligence Agency, The World Fact Book, www.cia.gov/library/publications/the-world-factbook/fields/2122.html, 22 June 2014

37 World Bank, Worldwide Governance Indicators, http://data.worldbank.org/data-catalog/worldwide-governance-indicators, 22 June 2014

Table 2 Summary of key factors driving life assurance consumption across countries

Life assurance factor	Description	Expected effect	Source
Economic			
Income level	GDP per capita in constant 2009 US dollars	Positive	IMF[38]
Inflation	Annual change in CPI	Negative	IMF[39]
Real interest rate	Average annual lending interest rate adjusted for inflation	Positive	IMF[40]
Real GDP	Total value of goods or services produced each year	Positive	WDI
Real GDP growth	Rate at which a country's GDP changes each year	Positive	WDI
Financial sector			
Financial development	Private credit from financial institutions as percentage of GDP	Positive	WDI
Social security	Health expenditure as percentage of GDP	Negative	WDI
Demographic			
Average life expectancy	Average number of years a newly born lives until death	Positive	WDI[41]
Young dependency ratio	Ratio of young dependants under 15 to the working-age population aged 15–65	Positive	WDI[42]
Old dependency ratio	Ratio of old dependants to the working-age population	Positive	WDI[43]
Population size	Total population in millions	Positive	AEO[44]
Population growth rate	Annual rate at which population size grows	Positive	AEO[45]
Urbanisation	Proportion of population living in urban areas	Positive	AEO
Urban population growth	Growth rate of the urban population living	Positive	AEO[46]
Social			
Religion and culture	Ratio of Muslim population to the total population[47]	Negative	CIA[48]
Education level	Average adult literacy rate over age 25	Positive	AEO
Institutional			
Political stability	Extent of political violence and terrorism	Positive	WGI
Rule of law	Quality of contract enforcement; property rights	Positive	WGI
Regulatory quality	Sound legal and judicial system	Positive	WGI
Control of Corruption	Petty or grand forms of corruption	Positive	WGI
Voice and accountability	Freedom of expression	Positive	WGI
Government effectiveness	Quality of policy formulation	Positive	WGI

5.1.3 Based on previous research, GDP, interest rates, financial development, life expectancy, dependency ratios, population, urbanisation, education and country institutional factors are expected to have a positive relationship with life assurance

consumption. Inflation, social security and religion are expected to have a negative relationship. This is summarised in Table 2.

5.2 Measuring Life Assurance Consumption

5.2.1 This analysis uses gross life assurance premium income as the indicator of life assurance consumption for each country investigated. Premium volume reflects gross premia written for direct life assurance business by all registered life assurance firms in each country obtained from Munich Re's Economic Research, Swiss Re's various issues of Sigma study, African Assurance Organisation publications and other African country reports. This indicator is relatively easy to obtain, manipulate and understand, and is widely used in the existing literature. It has been used as the major dependent variable for modelling life assurance consumption in a number of previous studies, including Babbel (1985), Beenstock, Dickinson & Khajuria (1986), DePamphillis (1977), Lim & Haberman (unpublished), Mantis & Farmer (1968) and Zhuo (1999).

5.2.2 One of the weaknesses of measures that use premium income is that they are influenced by the price of life assurance products in the country (Cummins, Tennyson & Weiss, 1999). A lack of competition or costly regulation may increase the price of life assurance without actually implying a higher level of life assurance consumption (Beck & Webb, 2003). Differences in the price of life assurance products across countries and across life assurance firms may therefore lead to misleading conclusions about life assurance expenditure across countries. Another weakness with this measure is that premia from different types of life assurance products are aggregated into a single indicator. There may be different factors driving life assurance consumption for different types of products, particularly for protection, investment and products that focus in post-retirement needs. This aggregation of premia for all types of life assurance products could lead to a distortion in the results due to a different mix of protection, investment and post-retirement needs products among the countries investigated.

Table 2 (p.24) Footnotes

38 International Monetary Fund, http://elibrary-data.imf.org/FindDataReports.aspx?d=33061&e=169393, 23 June 2014

39 Ibid.

40 Ibid.

41 World Bank, World Development Indicators http://data.worldbank.org/data-catalog/world-development-indicators/, 23 June 2014

42 Ibid.

43 Ibid.

44 African Economic Outlook, Statistics, www.africaneconomicoutlook.org/en/statistics/, 23 June 2014

45 Ibid.

46 Ibid, 22 June 2014

47 Based on last captured census data from different census years .This should not overly distort the results as the proportion of Muslims should be relatively stable over the investigation period and projection periods.

48 Central Intelligence Agency, The World Fact Book, www.cia.gov/library/publications/the-world-factbook/fields/2122.html, 22 June 2014

5.2.3 Life assurance consumption can also be measured using life assurance penetration ratio (see studies by Beck & Webb, 2003; Kjosevski, 2012; Feyen, Lester & Rocha, 2013) and life assurance density (see studies by Beck & Webb, 2003; Browne & Kim, 1993; Hwang & Gao, 2003; Li et al., 2007; Kjosevski, 2012; Outreville, 1996; Truett & Truett, 1990; Zhuo, 1999). The penetration ratio gives an indication of the maturity of the life assurance market and its relative importance to the economy (Beck & Webb, 2003). Life assurance density indicates how much a consumer in a country spends on average on life assurance (Beck & Webb, 2003). Developing countries show lower life assurance density ratios due to lower levels of disposable income for consumers (see Table 1). Critically, these measures are ratios divided by GDP and population size respectively and since these indicators are used as independent variables in the modelling, these ratios were not used in the regression modelling to avoid confounding effects. This is consistent with the approach taken by Zhou (1999).

5.3 Modelling Life Assurance Consumption

5.3.1 This paper uses multiple linear regression (Montgomery, Peck & Vining 2006) on the averaged data to investigate the relationship between each factor in Table 2 and total life assurance premia using the R statistical software programme. Regression techniques are widely used and understood statistical techniques to capture relationships between variables and allow one to understand which explanatory variables matter the most for life assurance consumption and hence their relative importance (Brown & Kim, 1993; Montgomery, Peck & Vining, 2006; Outreville, 1996). Thus, as per Brown & Kim's (1993) logarithmic specification, the multiple linear regression model given below was fitted to the averaged data:

$$\log\left(\text{LifePrem}\right)_j = \beta_0 + \sum_{i=1}^{i=21} \beta_i X_{ij} + \varepsilon_j \,; \tag{1}$$

where:

LifePrem denotes total gross life assurance premia in constant 2009 US$ million amounts for country *j*;
X_{ij} denotes socio-economic explanatory factor *i* for country *j* from Table 2;
β_0 is the intercept term;
β_i's are the regression parameter coefficients, i.e. the score weights; and
ε_j's are random error terms for country *j* and these random error terms have an expected mean of zero and constant variance and are assumed to be normally distributed and independent.

5.3.2 This log linear model was used in the analysis, thus creating linearity for multiplicative factors, and provides for estimates of elasticities following the method adopted by Brown & Kim (1993) and Li et al. (2007). The stepwise regression technique was then used to find the best parsimonious model for analysis purposes and to

account for multicollinearity of the explanatory factors from Table 2. The stepwise regression results are explained in detail and shown in Table 3, below.

5.3.3 The analysis of the residuals indicated that independent variables not represented in percentage format from Table 2 demonstrated increasing variance in direct proportion to the mean; thus a log transformation was required for financial development, life expectancy, social security, population size, real GDP, GDP per capita, education level, young dependency, old dependency and urbanisation. Log transforming these variables satisfied the assumption of symmetry and constant variance of residuals. Analysis of the residuals versus the leverage indicated that values for Comoros and Zimbabwe appeared to be outliers. These outlier points were tested whether they were influential by removing them and re-fitting the model. The results did not appear to change significantly and therefore they were retained in the final model for completeness. There were no significant points that appeared to be a cause for a concern.

5.3.4 The resulting final stepwise regression model is one that has robust socio-economic variables with less multicollinearity and improved model fit. This model gave significant and reliable regression parameter estimates for each key remaining socio-economic factor. The resulting regression parameter estimates, i.e. the β_i's, could then be used as score weights for country life assurance consumption projections.

6. RESULTS, ANALYSIS AND DISCUSSION

Table 3 shows the socio-economic factors with the most robust effect on life assurance consumption after stepwise regression. The final model is adequate and significant and therefore may be used for prediction purposes, as the p-value of the F statistic is close to zero. In addition, the R^2 value, which measures the variability in life assurance consumption, explained by all the remaining socio-economic factors in the model, has a reasonable value of 74%, close to the 80% level generally used for models of this type (Awe, Ajao & Olagunju, 2013). The variables that were excluded are real GDP growth, GDP per capita growth, life expectancy, young dependency, old dependency, population growth, education level, regulatory quality and rule of law. Some of these variables are correlated with the remaining variables. For example, life expectancy is also correlated with both education level and GDP per capita as well as with the old dependency ratio.

6.1 Analysis of Significant Factors

6.1.1 There are differences in terms of the impact of each variable to the modelling results in Table 3. One can observe that real GDP and population size are the most dominant contributors in terms of relatively large positive variable weighting and their means. The effect of these variables is about four times that of the next largest contributing variable. According to Table 3, countries with large populations and bigger economies appear to be the top performing countries on life assurance consumption or at least are modelled

to having higher life assurance consumption. Mantis & Farmer (1968) and Hwang & Gao (2003) also found a positive similar significant effect for population size. A country with a larger population suggests favourable conditions for growth in life assurance consumption due to a large, untapped and rising consumer market.

Table 3 Final stepwise regression model output[49]

Socio-economic factor	Mean of Bi*Xi	Variable weight Bi	Standard error	t-value	p-value
Intercept		–6.24	1.97	–3.17	0.00314**
Real GDP	6.49	0.65	0.31	2.13	0.04042*
Expected inflation	–0.44	–6.07	2.08	–2.91	0.00612**
Real interest rate	0.03	0.21	0.17	1.21	0.23445
Financial development	1.71	1.36	0.41	3.35	0.0019**
GDP per capita	1.83	0.54	0.34	1.61	0.11618
Population size	5.19	0.76	0.32	2.34	0.02505*
Urbanisation	–1.33	–0.84	0.61	–1.37	0.17861
Urban growth	–0.56	–17.11	12.21	–1.40	0.16972
Social security	0.67	0.88	0.60	1.47	0.15171
Voice and accountability	0.36	–0.59	0.22	–2.67	0.01127*
Political stability	–0.17	0.37	0.15	2.37	0.02312*
Government effectiveness	–0.64	0.91	0.33	2.73	0.00983**
Control of corruption	0.41	–0.74	0.32	–2.28	0.02857*
Religious attitudes	–0.33	–0.83	0.27	–3.14	0.00334**
Significant levels: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 Residual standard error: 0.6378 on 36 degrees of freedom Multiple R-squared: 0.813; Adjusted R-squared: 0.7402 F-statistic: 11.18 on 14 and 36 degrees of freedom, p-value: 3.28e-09					

6.1.2 The real GDP significant effect is also consistent with empirical findings by Arena (2008) and Chen, Lee & Lee (2012), where it was shown that economic growth is related to life assurance market potential. This result is also consistent with the expected effect according to Table 2.

49 The asterisks next to each p-value denote at what significant level each regression parameter is significant. Those variables with no asterisk next to them are less significant in explaining life assurance consumption across countries.

6.1.3 As expected from previous literature and expected effects, financial development, government effectiveness, social security, population size, real GDP, GDP per capita, political stability and real interest rate are all positive, meaning that they have a positive effect of increasing life assurance consumption whenever they are increasing.

6.1.4 Financial development is the most significant variable, as well as having the largest score weighting, suggesting that this factor is an additional key driver of life assurance markets in Africa. This is crucial for life assurance firms seeking to conduct businesses in Africa. Life assurance markets differ greatly as a result of differences in country levels of financial markets. This result is consistent with that of other studies where it was found that financial development plays a crucial role in fostering life assurance markets (Beck & Webb, 2003; Feyen, Lester & Rocha, 2013; Lorent, unpublished).

6.1.5 Government effectiveness appears as instrumental in these financial markets as it has the second largest score weight, whilst also being a significant contributor to life assurance consumption. Political stability is also positive and significant, suggesting that a more politically stable country provides a good environment for doing life assurance business.

6.1.6 The overall results suggest that institutional development factors are also major determinants of life assurance consumption in Africa, providing substance to Lorent's (unpublished: 22) conclusions that: "these variables are key structural determinants of future expansion."

6.1.7 The overall impact of voice and accountability and control of corruption suggests that these two factors are key variables for life assurance consumption despite their negative signs. For voice and accountability and control of corruption this appears to reduce the overall impact of institutional development indicators as they all measure the same effects on institutional development. The negative overall result of government effectiveness and political stability arises from many other countries pulling these values down and skews the effect of these variables. Individually, countries with better values for these countries show substantial life assurance consumption level.

6.1.8 GDP per capita and social security are positive, but not significant. This is contrary to other previous studies. In Africa, income, as proxied by GDP per capita, is lower than average values for emerging economies and thus income may not be large enough for many consumers to buy life assurance. Few African countries have universal national health or other social security systems, therefore social security is not an important factor as it is expected to be in developed economies with well-developed social security systems.

6.1.9 Expected inflation, voice and accountability, control of corruption and religious attitudes are all negative, meaning that life assurance consumption declines if these factors increase.

6.1.10 Inflation appears to have a detrimental effect on life assurance consumption as it has a large negative score weight and is significant. This finding is consistent with that of Babbel (1981), where inflationary periods in Brazil significantly pushed down assurance sales. Inflation has an effect on the monetary and macroeconomic stability in a country. Hence an environment that is hampered by high inflation shows lower life assurance consumption levels for that African country. For example, for those countries that were hit by excessive inflation above 10%, life assurance density was around US$1.19, while life assurance penetration ratio stood at 0.15%, on average. Guinea and Eritrea were among the lowest performing countries in life assurance consumption during this study period, partially as a result of an inflation rate above 13% (see Appendix A2 and A3).

6.1.11 Religion also has a negative score weight and is significant, suggesting that populations with more Muslims than other countries appear to have less life assurance consumption. This is consistent with the expected results and other empirical studies, and is line with countries such Algeria, Comoros, Libya, Mauritania, Sudan and Tunisia where a large portion of the population is purely Muslim and penetration ratios are close to 0%.

6.1.12 Urbanisation has the most negative mean among the variables, but is not significant. This is contrary to what other empirical studies and reviewed literature suggested and concluded: that the more urbanised a population is, the easier it should be to penetrate the market with life assurance. Africa has an average urbanisation rate of 40%, suggesting that in many countries where this is significantly low, life assurance consumption should also be low. In Africa, this does not appear to be evident in the urbanisation value and is an area for further research. This may be due to differences in the urbanisation patterns in Africa, particularly by income group. Urbanisation in Africa is often into the extremely poor urban areas, where the population would be unlikely to afford life assurance products.

6.2 Analysis of Country Performance on Current Indicators

6.2.1 ACTUAL VERSUS FITTED VALUES

6.2.1.1 Each country was ranked according to the level of the actual life assurance consumption level (ALACL) and the fitted current life assurance consumption level (CLACL), using the stepwise regression model. Both ALACL and CLACL were ranked and absolute ranking differences were computed to determine whether there were any significant movements in country rankings after fitting the model. Appendix A7 ranks the ALACL in decreasing order of magnitude, with all comparisons made relative to

that. From Appendix A9, it can be noted that both the means of the actual and the response values yielded by the model are very close. There are some differences in the actual and the fitted rankings of the level of life assurance consumption between countries. From Appendix A7, it can be noted that both the means of the actual and the response values yielded by the model are very close.

6.2.1.2 For those countries where the absolute ranking difference is zero, it means that those countries did not change their rankings. For those countries where the absolute ranking differences were quite large, reasons causing these differences were investigated. From the initial insights regarding the effects of real GDP and population size as per Table 3, it was clearly determined that the largest ranking moves were mainly influenced by the effect of these variables. Hence, the rankings appear to be driven mainly by real GDP and population size. These two variables pretty much drive the CLACL rankings and hence the disparities in some country rankings.

6.2.1.3 There are countries that suddenly jumped places and those that dropped mainly due to the effects of these two variables. Botswana, Lesotho and Malawi show the largest fall in rankings due to smaller populations and lower GDP. This was further investigated by analysing the top five and bottom five performing countries on ALACL.

6.2.2 PERFORMANCE OF TOP FIVE AND BOTTOM FIVE RANKED COUNTRIES

6.2.2.1 Table 4 shows the top five performing countries based on ALACL: Morocco, Egypt, Namibia, Mauritius and Kenya. These countries report higher life assurance consumption for all life assurance consumption indicators (see Appendix A7). The high rankings for these countries are due to favourable values for key variables that influence life assurance consumption, particularly real GDP, population and financial development. For example, Mauritius is the top ranked country on life assurance consumption, only lagging behind South Africa on African life assurance consumption. This is mainly due to its relative financial development standing, which is among the best in the world according to World Bank's Doing Business rankings. The higher life assurance consumption levels for Mauritius are also explained by favourable values for the auxiliary variables that influence life assurance consumption (Table 4).

6.2.2.2 Morocco and Egypt did not change in their rankings. Egypt and Morocco's standings are heavily influenced by their large economy and population size compared to other countries as well as being better developed than other countries. Moreover, Morocco is the third largest assurance market in Africa, based on life assurance consumption.

Table 4 Values of Beta*explanatory variable for each top performing country

Variable	Means	Morocco	Egypt	Namibia	Mauritius	Kenya
Real GDP	6.49	7.13	7.38	6.54	6.51	6.86
Population size	5.19	5.67	5.97	4.80	4.62	5.76
GDP per capita	1.83	2.02	2.07	2.09	2.30	1.76
Financial development	1.71	2.51	2.06	2.30	2.67	2.09
Social security	0.67	0.69	0.61	0.64	0.68	0.57
Control of corruption	0.41	–0.25	0.28	0.43	0.44	0.81
Voice and accountability	0.36	–0.50	0.84	0.11	0.56	0.18
Real interest rate	0.03	0.02	0.00	0.00	0.01	0.02
Political stability	–0.17	0.35	0.06	0.13	–0.41	–0.47
Religion	–0.33	–0.83	–0.75	–0.00	–0.14	–0.09
Inflation	–0.44	–0.07	–0.60	–0.37	–0.23	–0.51
Urban growth	–0.56	–0.28	–0.35	–0.54	–0.10	–0.75
Government effectiveness	–0.64	0.85	–1.00	–0.58	–0.83	–0.50
Urbanisation	–1.33	–1.49	–1.38	–1.34	–1.37	–1.14

Table 5 Values of Beta*explanatory variable for bottom performing countries

Variable	Means	Guinea-Bissau	São Tomé and Príncipe	Guinea	Comoros	Central African Republic
Real GDP	6.49	5.80	5.45	6.31	5.69	6.04
Population size	5.19	4.69	3.96	5.33	4.42	5.02
GDP per capita	1.83	1.70	1.81	1.64	1.65	1.48
Financial development	1.71	1.35	2.13	1.08	1.72	1.34
Social security	0.67	0.70	0.78	0.68	0.63	0.51
Control of corruption	0.41	0.82	0.29	0.06	–1.15	0.66
Voice and accountability	0.36	0.64	–0.08	–0.24	–0.62	0.74
Real interest rate	0.03	0.00	0.03	–0.00	0.01	0.03
Political stability	–0.17	–0.47	0.01	0.04	0.13	–0.68
Religion	–0.33	–0.42	–0.01	–0.71	–0.82	–0.13
Inflation	–0.44	–0.11	–0.76	–0.83	–0.29	–0.22
Urban growth	–0.56	–0.61	–0.52	–0.66	–0.49	–0.44
Government effectiveness	–0.64	–1.16	–0.65	–0.07	1.14	–1.33
Urbanisation	–1.33	–1.25	–1.52	–1.31	–1.22	–1.34

6.2.2.3 Namibia and Kenya have higher actual life assurance consumption than would be expected based on the stepwise regression model. The modelled values are affected by the small population of Namibia and low GDP per capita for Kenya, but despite this, these countries score favourably compared to other countries. These two countries, of the top ranked countries, appear to be more heavily influenced by the ancillary explanatory variables.

6.2.2.4 Countries in the bottom rankings scored relatively worse than the average score for each key explanatory variable, as shown in Table 5. Guinea-Bissau shows the largest difference between the ALACL and CLACL, which improved from rank 51 to 47. This appears, again, to be due a slightly larger real GDP and population size, as compared with some of the bottom ranked countries. The Comoros is the only country in bottom 5 where the actual life assurance consumption is better than that expected from the model.

7. PROJECTIONS FOR LIFE ASSURANCE CONSUMPTION

7.1 The life assurance market potential for each African country is investigated using the stepwise regression model and projected values for the explanatory variables for each of the 51 African countries. Projected values for all the socio-economic variables retained in the stepwise regression model (Table 3) from 2014 to 2020 were obtained from Munich Re's Economic Research, Swiss Re, IMF, United Nations, World Bank, CIA, African Development Bank, AEO, AIO reports and other African reports (Appendix A8). The average of value over the 6-year projection period was used in the model. The projected values for religion, social security, financial development and institutional development are based on 2014/15 figures, as data was not available for the full projection period.

7.2 This new raw data was used to determine future or projected life assurance consumption levels (PLACL) – projected life assurance premium volume – for each country. This raw data was combined with the score weights from Table 3, i.e. the PLACL was calculated for each African country by inputting the projected socio-economic explanatory variable data into the final stepwise regression model. Projected changes in life assurance consumption were investigated by comparing the PLACL and the CLACL and calculating the logged life assurance consumption level projected growth rate (LACLG), where:

$$\left(LACLG\right)_j = ln\left(\frac{PLACL_j}{CLACL_j}\right) \text{ for each country } j \qquad (2)$$

7.3 The average LACLG logged growth rate is around 6.44%, showing that, in general, Africa is projected to improve its average current life assurance consumption level. Those countries where LACLG logged growth rate is less than 6.44% are getting

marginally worse, i.e. they are not taking part in the improvement in Africa. The main crux of this paper focuses on the significant changes on the best and worse moving countries. The paper considers the projected change in premium income by considering the change in the rank of the country, as well as the size of the increase in premium income, reflecting the size of the opportunity for life assurance business in the country. The top five and bottom five moving countries are analysed further.

7.4 The top five countries with best movements in ranking differences and LACLG are Equatorial Guinea, Libya, the Democratic Republic of Congo, Ethiopia and the Republic of Congo. These five countries also showed the greatest projected increase in premium income, with Libya and Ethiopia having a greater increase in their premium income than reflected in their change in ranking. Zimbabwe, Cape Verde, Côte d'Ivoire, Lesotho and Ghana have the greatest decline in ranking, whereas Zimbabwe, Liberia, Comoros, Cape Verde and Lesotho and Ghana have the highest reduction in LACLG and projected gross premium income. The poor outlook in terms of premium volumes and growth in LACLG for Liberia and the Comores is due to worsening of institutional factors, while projected premium income for Liberia is also negatively impacted by a projected decline in real GDP. Although the decline in the LACLG for Côte d'Ivoire and Ghana was lower than that of Liberia and the Comoros they fall into the bottom eight countries with the highest decline in LACLG, so Côte d'Ivoire and Ghana were retained in the five countries with the worst outlook for projected life assurance consumption. The remainder of the paper investigates the differences in the CLACL and PLACL models for these best five and worst five movers, comparing the current and projected values of the socio-economic variables.

7.5 Analysis of the Best Five Movers

Table 6 shows the values of the current and projected socio-economic indicators multiplied by fitted parameter from the stepwise regression for the best five movers. Differences between current and projected data show how the values of the current data are projected to change over the projection period. Each of the best five movers countries appears to have its unique set of driving factors for the projected change in life assurance consumption and these are each explored in turn.

7.5.1 EQUATORIAL GUINEA

7.5.1.1 Equatorial Guinea moved from its CLACL Rank 38 to the PLACL Rank 20, improving by eighteen places with an LACLG growth rate of 25.76%. Equatorial Guinea is the richest country per capita in Africa, but real GDP for this country is projected to be declining marginally, as the country is still recovering from a recession due to a decline in oil revenue and this is expected to reflect in the economic projections.[50]

50 African Development Bank, Countries, Economic Outlook, www.afdb.org/en/countries/central-africa/equatorial-guinea/equatorial-guinea-economic-outlook/, 16 December 2014

7.5.1.2 The biggest model influencers, real GDP and population size, do not appear to be the major drivers of the change. The other macroeconomic indicators are slightly positive, but are of negligible impact as shown by small differences. The biggest changes arise mainly from the institutional development indicators: voice and accountability, control of corruption, political stability and a small contribution by financial development. In contrast government effectiveness is negative.

7.5.1.3 Equatorial Guinea has experienced strong economic growth since the discovery of the oil and gas in early 1990s.[51] This economic growth has allowed this country's income per capita to surge more than any other African country. However, growth has not really been supported by a process to help diversify the economy and improvements in the population's living conditions have been particularly slow. To counter the above, and to make growth more inclusive and broaden its base, the government developed a plan to enable Equatorial Guinea to improve the infrastructure, business climate, national economic and social developmental plans. This explains why financial development appears to be improving.

7.5.1.4 According to the African Economic Outlook, the current political system is one of dictatorship, thus current voice and accountability indicators are low for Equatorial Guinea. The private sector has been hampered by excessive red tape and poor governance.[52] According to the World Bank, Equatorial Guinea has poor rankings for starting a business, transparency and governance. Hence the large negative difference of government effectiveness. However, economic growth and a high income per capita coupled with a very low life assurance consumption level may present life assurance opportunities for Equatorial Guinea.

7.5.2 LIBYA

7.5.2.1 Libya improved from its current CLACL Rank 30 to PLACL Rank 12 with an expected growth in life assurance consumption of 24.96%. Its current penetration ratio is approximately 0.01%, showing a practically non-existent life assurance market. This penetration ratio may partly be due to Islam being the dominant faith in conjunction with growth in the private sectors being stifled as a result of state owned enterprises (Lorent, unpublished). In Libya alone, the State controls about 40% of the life assurance market (Lester, unpublished). Another key factor improving the prospects for Libya is its rather high life expectancy level in Africa, which may be quite important for its life assurance potential. These reasons may provide ample opportunities for life assurance growth.

51 African Economic Outlook 2013, Structural Transformation and Natural Resources, www.undp.org/content/dam/rba/docs/Reports/African%20Economic%20Outlook%202013%20En.pdf, 29 March 2014

52 World Bank's Doing Business Report 2013. www.doingbusiness.org/reports/global-reports/~/media/GIAWB/Doing%20Business/Documents/Annual-Reports/English/DB14-Chapters/DB14-Country-tables.pdf, 22 August 2014

7.5.2.2 Growth in Libya has been hampered by a poorly developed private sector, limitations in the infrastructure and the regulatory environment. However, these are projected to improve, particularly financial development, which shows a larger improvement than other countries in the best five movers. The biggest changes for Libya are improvements in voice and accountability and control of corruption, relative to other countries. GDP per capita also appears to have improved slightly, while other variables have negligible effects. Political stability and government effectiveness appear to have dropped slightly. This may be expected as North African countries generally face barriers arising from regional and tribal factions (Lester, unpublished).

7.5.3 DEMOCRATIC REPUBLIC OF THE CONGO

7.5.3.1 The Democratic Republic of the Congo ranks 39th CLACL, while it improves to the 23rd PLACL Rank over the projection period. The improvement in the Democratic Republic of Congo's ranking appears to be primarily fuelled by better inflation targeting. It shows a more stable macroeconomic environment creating a developmental platform. Voice and accountability and control of corruption have improved, while political stability and government effectiveness have dropped slightly. The overall effect of institutional indicators suggests that there is some development projected to happen. According to the African Economic Outlook, out of the ten countries that improved their business and regulatory environment, this country was among the top five on governance improvements.[53] Despite being in the bottom quintile globally and in Africa for governance, this country shows that with further efforts, life assurance consumption may improve, especially as it has the third largest population in Africa.

7.5.4 ETHIOPIA

7.5.4.1 Ethiopia improved quite significantly from its current CLACL Rank 15 to being the fourth best country for life assurance business potential. Its life assurance penetration ratio for the investigation period was 0.03% and its premium per capita was US$0.13, which is quite small relative to other countries, despite its large population size.

7.5.4.2 Prudent fiscal and monetary policies have improved Ethiopia's financial stability and reduced inflation in the country. The government has managed Ethiopia's inflation down to single figures over the investigation period. This is the second biggest driver in the change for this country. Government effectiveness has the biggest change and financial development and GDP per capita are both projected to improve. Ethiopia compares favourably on average to other Africa countries in terms of real GDP and population size, thus expected improvements in socio-economic indicators have resulted in Ethiopia being grouped with African countries with the greatest improvement in projected life assurance consumption.

53 African Economic Outlook, 2015, Regional Development and Spatial Inclusion, www.africaneconomicoutlook.org/en/outlook/governance/, 20 May 2015

TABLE 6 Quantitative analyses and summary of the best five movers between CLACL and PLACL

Country	RGDP	INFL	RIRATE	FIDEV	GDP PER	POPSIZ	URB	URB GRW	SOCSEC	VA	PS	GE	CC	CLACL then PLACL
Equatorial Guinea (c)	6.58	–0.41	–0.02	1.29	2.40	4.43	–1.35	–0.54	0.53	0.44	–0.54	–0.70	0.42	6.29
Equatorial Guinea (p)	6.57	–0.33	0.02	1.39	2.43	4.48	–1.35	–0.47	0.85	1.10	0.09	–1.52	1.11	8.14
Difference	–0.01	0.07	0.04	**0.10**	0.03	0.06	0.00	0.07	0.33	**0.66**	**0.63**	**–0.82**	**0.69**	1.85
Libya (c)	7.02	–0.36	0.01	1.50	2.24	5.13	–1.59	–0.17	0.57	0.21	–0.17	–1.07	0.42	6.69
Libya (p)	7.06	–0.39	0.02	1.80	2.37	5.15	–1.59	–0.13	0.82	0.92	–0.19	–1.14	0.94	8.58
Difference	0.03	–0.03	0.01	**0.30**	0.13	0.02	0.00	0.04	0.25	**0.71**	**–0.01**	**–0.07**	**0.52**	1.90
Congo, Dem. Rep. (c)	6.74	–0.91	0.05	0.92	1.98	5.91	–1.51	–0.72	0.82	0.31	–0.14	–1.41	0.53	6.25
Congo, Dem. Rep. (p)	6.63	–0.15	0.01	1.08	2.06	5.96	–1.52	–0.43	0.722	0.87	–0.78	–1.54	1.01	7.69
Difference	–0.11	**0.76**	–0.05	0.17	0.08	0.05	–0.01	**0.29**	–0.1	**0.56**	**–0.64**	–0.13	**0.47**	1.34
Ethiopia (c)	6.86	–0.98	–0.03	1.68	1.68	6.01	–1.04	–0.61	0.59	1.27	–0.25	–1.38	0.48	7.77
Ethiopia (p)	6.84	–0.47	0.03	1.97	1.80	6.06	–1.05	–0.44	0.89	0.77	–0.57	–0.41	0.50	9.10
Difference	–0.02	**0.51**	0.05	**0.29**	0.11	0.05	–0.01	0.17	0.30	**–0.50**	**–0.32**	**0.97**	0.02	1.62
Congo, Rep. (c)	6.56	–0.27	0.03	1.17	1.58	5.00	–1.32	–0.49	0.34	0.89	–0.78	–1.51	0.96	5.93
Congo, Rep. (p)	6.44	–0.21	0.03	1.34	1.61	5.04	–1.30	–0.46	0.73	0.65	–0.13	–1.11	0.84	7.22
Difference	–0.12	0.06	–	**0.17**	0.03	0.04	0.01	0.02	0.39	**–0.24**	**0.64**	**0.40**	–0.12	1.28

Description of the abbreviations used in the above table:

RGDP – Real GDP; **INFL** – Inflation; **RIRATE** – Real Interest Rate; **FIDEV** – Financial Development; **GDPPER** – GDP per capita; **POPSIZ** – Population Size; **URB** – Urbanisation; **URB GRW** – Urban Growth; **SOCSEC** – Social Security; **VA** – Voice and Accountability; **PS** – Political Stability; **GE** – Government Effectiveness; **CC** – Control of Corruption;

*Religious effects were not shown as they barely moved over the projection period as the proportion of Muslim population in the country is not expected to change much. However, it is expected that due to the emergence of Takaful assurance, Muslim-dominated countries may have the scope to boost life assurance consumption as life assurance firms may develop Shari'ah compliant products.

7.5.5 THE REPUBLIC OF CONGO

7.5.5.1 The Republic of Congo's current CLACL Rank is 41 ,and is projected to improve to a PLACL Rank of 31. The main improvements appear to be political stability, government effectiveness and financial development. Governance indicators are poor compared to emerging economies, but similar to other countries in the region. The business environment is challenging compared to peer countries, but there are some efforts to improve the business climate and plans to revise the financial sector strategy.[54] These efforts are reflected in the projected improvements in financial development and country institutional factors underpinning the projected improvement in life assurance consumption.

7.6 Analysis of the Worst Five Movers

Table 7 provides the results for the worst five movers. All of these countries exhibit a decline in projected life assurance consumption from their current modelled position. This decline in projected life assurance consumption is magnified by the fact that the majority of countries show increases in projected life assurance consumption – two-thirds of the African countries showed an LALCG of 4% or more.

7.6.1 ZIMBABWE

7.6.1.1 Zimbabwe has dropped most significantly, falling from the current 11th CLACL Rank to the 37th PLACL Rank and shows the greatest reduction in projected life assurance consumption of –16%. Zimbabwe's penetration ratio (0.8%) was in the top ten African countries and premium per capita (US$6.41) was in the top 15 African countries over the current investigation period. The primary reason for this significant fall in projected life assurance consumption is a large fall in real GDP, while political stability and government effectiveness appear to be declining.

7.6.1.2 Zimbabwe faces a number of key structural problems in its economy. It remains in a fragile state and economic turmoil, including hyperinflation, has severely damaged the life assurance sector.[55]

7.6.1.3 Despite a modest economic growth over the current investigation period, Zimbabwe remains under significant pressure. The current economy is still largely constrained and faces challenges on policy inconsistencies, financing constraints, corruption, inefficient government bureaucracy, inadequate infrastructure and unstable macroeconomic environment.[56]

54 www.africaneconomicoutlook.org/en/country-notes/central-africa/congo/

55 African Economic Outlook 2013, Structural Transformation and Natural Resources, www.undp.org/content/dam/rba/docs/Reports/African%20Economic%20Outlook%202013%20En.pdf, 29 March 2014

56 KPMG Issues and Insights Report, 2012. www.kpmg.com/Africa/en/IssuesAndInsights/Articles-Publications/Documents/KPMG%20Financial%20Services%20in%20Africa.pdf, 16 June 2014

TABLE 7 Quantitative summary of the worst five movers between current data values, projected values, CLACL and PLACL

Country	RGDP	INFL	RIRATE	FIDEV	GDP PER	POPSIZ	URB	URB GRW	SOCSEC	VA	PS	GE	CC	CLACL then PLACL
Côte d'Ivoire	6.75	–0.14	0.02	1.71	1.80	5.52	–1.45	–0.61	0.73	0.68	–0.18	–1.09	0.88	8.06
Côte d'Ivoire	6.74	–0.17	0.02	1.79	1.87	5.54	–1.45	–0.41	0.62	0.61	–0.50	–1.04	0.78	7.83
Difference	–0.02	–0.03	–	0.08	0.07	0.03	–0.00	0.20	–0.11	–0.07	**–0.33**	0.05	**–0.10**	–0.23
Lesotho	6.06	–0.33	0.01	1.61	1.71	4.77	–1.22	–0.61	0.97	0.37	0.07	–0.07	0.12	7.23
Lesotho	6.07	–0.29	0.01	1.76	1.77	4.79	–1.23	–0.19	0.72	0.05	0.13	–0.29	–0.12	6.95
Difference	0.01	0.04	–0.00	0.15	0.06	0.02	–0.01	0.42	–0.25	**–0.32**	**0.07**	**–0.22**	–0.23	–0.27
Ghana	6.87	–0.72	–0.00	1.62	1.53	5.59	–1.45	–0.60	0.60	0.74	0.00	–0.47	0.47	7.79
Ghana	6.85	–0.56	0.01	1.86	1.62	5.63	–1.45	–0.36	0.70	–0.27	0.03	–0.05	–0.01	7.62
Difference	–0.01	**0.16**	0.01	**0.25**	0.10	0.04	–0.00	**0.24**	0.11	**–1.01**	0.03	**0.42**	**–0.48**	–0.16
Cape Verde	6.75	–0.14	0.01	2.45	1.84	4.30	–1.51	–0.36	0.60	–0.56	0.29	0.09	–0.59	6.90
Cape Verde	6.02	–0.15	0.01	2.54	1.87	4.32	–1.45	–0.43	0.88	–0.55	0.29	0.06	–0.60	6.57
Difference	**–0.73**	–0.01	–	0.10	0.03	0.02	0.06	–0.07	0.29	**0.01**	**0.01**	**–0.03**	**–0.00**	–0.33
Zimbabwe	6.51	–0.30	0.89	1.24	1.47	5.39	–1.34	–0.58	0.53	0.85	–0.29	–1.10	0.94	7.96
Zimbabwe	5.15	–0.23	0.89	1.31	1.59	5.44	–1.34	–0.52	0.53	0.87	–0.37	–1.27	0.97	6.78
Difference	**–1.36**	0.07	–	0.08	0.12	0.05	–0.00	0.06	–	0.02	**–0.08**	**–0.17**	0.03	–1.18

Description of the abbreviations used in the above table:

RGDP – Real GDP; **INFL** – Inflation; **RIRATE** – Real Interest Rate; **FIDEV** – Financial Development; **GDPPER** – GDP per capita; **POPSIZ** – Population Size; **URB** – Urbanisation; **URB GRW** – Urban Growth; **SOCSEC** – Social Security; **VA** – Voice and Accountability; **PS** – Political Stability; **GE** – Government Effectiveness; **CC** – Control of Corruption;

*Religious effects were not shown as they barely moved over the projection period as the proportion of Muslim population in the country is not expected to change much but to stay relatively the same. Hence there was no significant effect of this variable on the changes on country performances. However, it is expected that due to the emergence of Takaful assurance, Muslim dominated countries may have the scope to boost life assurance consumption as life assurance firms may develop Shari'ah compliant products.

7.6.2 CAPE VERDE

7.6.2.1 Cape Verde dropped from rank number 27 to 44 for the projected period. Over the current investigation period, its current life assurance penetration ratio was 0.00% while premium per capita was US$2.46. The current life assurance environment produces little assurance premia and is a marginal contributor to the economy. As for Zimbabwe, a projected decline in real GDP is the primary reason for the rankings drop. Inflation, financial development, population size, GDP per capita, voice and accountability and control of corruption have barely moved.

7.6.2.2 The small island of Cape Verde is situated quite far from many African countries. This isolated and fragmented small territory, the dry climate and its scarce natural resources make its economy vulnerable.[57] According to the African Economic Outlook, since 2009, the country has been severely affected by the global and European debt crisis, most particularly arising from a fall in foreign direct investment and a huge reduction in tourism – the country's major source of growth. Since then, the government's efforts to expand its fiscal policy to stimulate growth and mitigate the crisis have led to heightened budget deficits and indebtedness. These efforts have significantly increased Cape Verde's vulnerability to exogenous economic shocks, which make it risky to conduct business. Thus, according to the African Development Bank, Cape Verde is now at crossroads, facing a development challenge to improve its economy sustainably. These reasons make it difficult for significant developments to start taking place.

7.6.2.3 However, despite these challenges, Cape Verde is widely regarded as one of the leading African countries on governance and received the second highest ranking on governance over the investigation period.[58] It is rather surprising that, despite these remarks, Cape Verde still performs very poorly. It does not appear that there are any significant developments propelling the life assurance sector.

7.6.3 GHANA

7.6.3.1 Ghana had an average life assurance penetration ratio of roughly 0.41%, while its premium per capita was US$6.28 over the study period. This assurance position is poor relative to Africa's average penetration ratio of 0.50%. Ghana's CLACL ranking is 14th, while it dropped to the 24th position in the PLACL rankings and its projected life assurance consumption is projected to decline by 3.53%. Ghana's biggest positive effect appears to come from government effectiveness, while voice and accountability and control of corruption account for Ghana's drop in rankings, losing its place among the top 15 African countries. Ghana's standing falls partly due to other countries

57 African Development Bank, www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/2014-2018_-_Cape_Verde_Country_Strategy_Paper.pdf, 17 December 2014

58 Mo Ibrahim Index of African Governance, www.moibrahimfoundation.org/iiag/, 17 December 2014

improving their life assurance landscape. These results are contrary to Ghana's good governance over the investigation period. It appears that Ghana does not improve as substantially in key life assurance growth factors compared with the countries ranked above it.

7.6.4 LESOTHO

7.6.4.1 Lesotho drops from its current CLACL Rank 24 to PLACL Rank 35. Lesotho's LACSI logged growth rate is projected to be a negative 3.87%. There are few improvements in indicators for Lesotho and the largest negative effect comes from a decline in the indicators for Voice and accountability, government effectiveness, corruption and social security. In general, Lesotho's significant drop in ranking is largely explained by social challenges and political turmoil,[59] making growth prospects for life assurance consumption poor.

7.6.5 CÔTE D'IVOIRE

7.6.5.1 Over the current study period, this country recorded a modest life assurance penetration ratio of about 0.71%, while its premium per capita was US$8.94, making it a top-15 African country for life assurance penetration ratio and premium per capita. It ranked in position nine in the current CLACL over the study period, but this ranking is projected to fall to position 18 and life assurance consumption is project to decline by –2.91%. The governance indicators appear to have fallen, while other key life assurance indicators have barely moved. If a country barely moves on key life assurance factors compared to other countries, its ranking will fall as it gets marginally worse than other countries despite its current good standing.

7.6.6 The above discussion on the performance of the five best and five worst movers suggests the following general reasons for projected changes in life assurance consumption:

— The socio-political changes in an African country are key determinants of both positive and negative ranking moves;
— An improvement in the control of inflation is very beneficial in improving the standing of an African country; and
— Real GDP is a core driver to establish whether an African country will fall in relative rankings.

8. CONCLUSION

8.1 The top performing countries provide ample factors to show potential for life assurance expansion. The current life assurance consumption for these countries is very low. The large untapped populations in Ethiopia and the Democratic Republic of

59 www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN_data/CN_Long_EN/ Lesotho_GB_2015.pdf

the Congo provide key potential clientele for purchase of life assurance. Improvements in key macroeconomic and institutional development factors in these countries are positive for life assurance firms. In particular, Libya's Islamic population, if Takaful assurance becomes more widely acceptable, may provide ample life assurance growth prospects. Equatorial Guinea's institutional development, economic growth and high income per capita are lucrative prospects for future life assurance market development. The bottom performing countries face challenges on key structural factors, hindering development, while countries showing little or no movement relative to their peers will fall in rankings.

8.2 Through a thorough investigation of the existing literature followed by methodical step-wise regression modelling, the following socio-economic and country institutional factors were determined as the key drivers of life assurance consumption in Africa:

— real interest rate;
— financial development;
— GDP per capita;
— population size;
— urbanisation;
— urban growth;
— social security;
— voice and accountability;
— political stability;
— government effectiveness;
— control of corruption; and
— religious attitudes.

8.3 Real GDP and population size are the most dominant contributors to an African country's life assurance consumption, having the largest positive explanatory variable weights and means in the regression model. The effect of these two explanatory variables is about four times that of the next largest contributing variable. Financial development is the most significant variable, as well as having the largest score weighting, suggesting that this factor is an additional key driver of life assurance markets in Africa.

8.4 The top five countries with best projected ranking changes using the regression model are Equatorial Guinea, Libya, the Democratic Republic of Congo, Ethiopia and Malawi. Zimbabwe, Cape Verde, Ghana, Mali and Côte d'Ivoire have the greatest decline in projected rankings.

8.5 An analysis of the projected ranking changes suggests that:

— The socio-political changes in an African country are key determinants of both positive and negative ranking moves;

— An improvement in the control of inflation is very beneficial in improving the standing of an African country; and
— Real GDP is a core driver to establish whether an African country will fall in relative rankings.

8.6 Areas for Further Research

8.6.1 The analysis of the relative importance of the individual factors for projection of life assurance consumption and the five best and five worst movers highlights the need to investigate the effects of financial development (including the development of the life assurance market) and country institutional factors further.

8.6.2 The current research models aggregate premia for all types of life assurance products. There may be different factors influencing demand and consumption of protection, savings and post-retirement needs products. Further research that models these products separately may provide insights into these factors.

8.6.3 A number of countries in this investigation have developing or emerging economies. It may be useful to understand the influence of additional indicators of social development (for example, income inequality and unemployment) on consumption of life assurance.

8.6.4 There is wide disparity between life assurance consumption across the 51 African countries. Further research into the factors impacting life assurance consumption across economic regions would add insights into differences between countries in the same economic community (for example, the South African Development Community or SADC).

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APPENDIX

A1 List of all the 51 sovereign African countries considered, divided according to geographical region.

Southern	Eastern	Central	Western	Northern
Angola	Burundi	Cameroon	Benin	Algeria
Botswana	Comoros	Central African Republic	Burkina Faso	Egypt
Lesotho	Djibouti	Chad	Cape Verde	Libya
Malawi	Eritrea	Congo, Democratic Republic of	Côte d'Ivoire	Morocco
Mauritius	Ethiopia	Congo, Republic of	Gambia, The	Tunisia
Mozambique	Kenya	Equatorial Guinea	Ghana	
Namibia	Rwanda	Gabon	Guinea	
Swaziland	Seychelles	Madagascar	Guinea-Bissau	
Zambia	Sudan	São Tomé and Príncipe	Liberia	
Zimbabwe	Tanzania		Mali	
	Uganda		Mauritania	
			Niger	
			Nigeria	
			Senegal	
			Sierra Leone	
			Togo	

A2 The depth of the life assurance market in Africa for the period 2009–2013

Country	Gross life assurance premium (millions)	Premium per capita	Life assurance penetration ratio
Algeria	76.63	2.03	0.04%
Angola	43.88	2.51	0.05%
Benin	20.48	2.09	0.28%
Botswana	301.29	151.66	2.21%
Burkina Faso	26.13	1.63	0.26%
Burundi	3.66	0.38	0.16%
Cameroon	73.12	4.06	0.22%
Cape Verde	1.21	2.46	0.00%
Central African Republic	0.14	0.03	0.01%
Chad	1.47	0.12	0.01%
Comoros	0.12	0.17	0.02%
Congo, Dem. Rep.	0.45	0.01	0.00%
Congo, Rep.	6.62	1.61	0.05%
Côte d'Ivoire	177.48	8.94	0.71%
Djibouti	0.59	0.7	0.05%
Egypt	747.95	9.42	0.32%
Equatorial Guinea	0.24	0.34	0.00%
Eritrea	0.18	0.03	0.01%
Ethiopia	11.68	0.13	0.03%
Gabon	29.32	19.29	0.18%
Gambia, The	0.19	0.11	0.02%
Ghana	155.73	6.28	0.41%
Guinea	0.03	0.01	0.00%
Guinea-Bissau	0.02	0.01	0.00%
Kenya	384.92	9.15	1.05%
Lesotho	70.58	34.75	3.23%
Liberia	0.31	0.07	0.02%
Libya	8.75	1.44	0.01%
Madagascar	12.36	0.57	0.13%
Malawi	50.98	3.3	1.11%
Mali	9.72	0.67	0.10%
Mauritania	0.22	0.06	0.01%

Country	Gross life assurance premium (millions)	Premium per capita	Life assurance penetration ratio
Mauritius	410.64	314.33	3.84%
Morocco	941.20	29.32	0.97%
Mozambique	23.81	0.97	0.19%
Namibia	639.58	288.03	5.52%
Niger	6.65	0.4	0.10%
Nigeria	373.89	2.27	0.10%
Rwanda	11.09	0.99	0.17%
São Tomé and Príncipe	0.02	0.14	0.01%
Senegal	44.80	3.51	0.32%
Seychelles	6.26	68.18	0.60%
Sierra Leone	1.77	0.3	0.05%
Sudan	16.91	0.44	0.03%
Swaziland	25.49	23.82	0.67%
Tanzania	23.94	0.52	0.09%
Togo	25.78	3.98	0.69%
Tunisia	125.48	11.67	0.28%
Uganda	13.65	0.39	0.08%
Zambia	64.85	4.75	0.35%
Zimbabwe	86.15	6.41	0.80%

A3 Economic indicators for African markets for the period 2009–2013

Country	RGDP GRW	RGDP (billions)	INFL	RIRATE	FIDEV	GDPPER GRW	GDPPER (1000s)
Algeria	2.74%	1824.01	5.26%	2.77%	15.2	2.62%	6.98
Angola	5.74%	998.23	12.15%	8.54%	21.6	4.13%	6.07
Benin	3.84%	72.58	3.41%	12.11%	23.59	3.53%	1.61
Botswana	3.00%	136.94	7.37%	4.45%	28.47	2.63%	15.45
Burkina Faso	6.26%	100.52	1.91%	10.23%	18.71	5.68%	1.65
Burundi	4.44%	22.63	10.80%	1.02%	18.89	10.46%	0.52
Cameroon	2.68%	17.77	2.43%	8.41%	13.55	3.66%	4.16
Cape Verde	3.32%	251.79	2.38%	5.66%	62.45	2.38%	2.51
Central African Republic	2.85%	19.74	3.66%	12.92%	9.71	3.00%	0.56
Chad	5.64%	116.74	2.75%	9.43%	4.65	7.05%	2.15
Comoros	1.86%	5.88	4.82%	6.21%	18.35	1.91%	1.11
Congo, Dem. Rep.	5.86%	241.40	15.04%	24.55%	4.71	7.25%	4.52
Congo, Rep.	6.06%	127.63	4.42%	13.72%	7.2	2.52%	0.85
Côte d'Ivoire	2.72%	251.25	2.30%	11.00%	17.92	6.00%	2.11
Djibouti	4.66%	12.75	3.39%	8.59%	29.66	4.50%	2.82
Egypt	4.20%	2357.35	9.93%	0.72%	32.36	3.45%	6.71
Equatorial Guinea	3.50%	137.49	6.70%	–10.15%	8.86	2.62%	27.73
Eritrea	2.40%	26.24	16.56%	0.14%	15.55	5.58%	0.70
Ethiopia	10.38%	364.54	16.13%	–12.71%	17.19	10.25%	1.31
Gabon	4.44%	165.17	1.70%	–0.03%	9.58	4.60%	17.21
Gambia, The	3.96%	9.16	4.89%	22.11%	15.52	3.68%	2.02
Ghana	8.68%	374.77	11.89%	–0.03%	15.43	8.73%	0.66
Guinea	2.86%	52.51	13.73%	–0.11%	6.24	2.40%	1.09
Guinea-Bissau	2.98%	8.63	1.86%	0.01%	9.75	2.59%	1.39
Kenya	3.80%	363.67	8.46%	7.99%	34.52	4.37%	1.80
Lesotho	5.10%	21.86	5.40%	6.24%	15.32	4.80%	1.47
Liberia	6.76%	15.34	7.47%	3.66%	18.96	8.65%	0.77
Libya	10.56%	658.29	5.90%	6.35%	12.62	11.70%	13.64
Madagascar	1.42%	95.57	7.95%	42.03%	11.34	0.11%	0.92
Malawi	6.26%	48.01	14.14%	13.11%	17.94	2.89%	0.96
Mali	3.36%	100.64	2.25%	1.00%	19.31	2.96%	1.20

Country	RGDP GRW	RGDP (billions)	INFL	RIRATE	FIDEV	GDPPER GRW	GDPPER (1000s)
Mauritania	3.52%	37.62	4.67%	14.90%	29.49	3.86%	2.21
Mauritius	3.96%	106.37	3.87%	6.30%	90.71	3.51%	18.25
Morocco	4.34%	962.49	1.21%	9.89%	69.67	4.02%	5.56
Mozambique	6.94%	122.38	6.55%	9.60%	25.45	7.05%	1.16
Namibia	3.86%	116.59	6.14%	2.32%	48.91	3.70%	7.42
Niger	6.14%	63.31	1.38%	0.05%	13.06	5.20%	0.78
Nigeria	6.36%	3863.26	11.49%	8.81%	19.6	7.03%	5.02
Rwanda	7.70%	63.65	5.77%	9.20%	10.18	7.42%	1.20
São Tomé and Príncipe	5.30%	2.44	12.60%	14.66%	36.65	4.86%	2.26
Senegal	3.10%	138.76	1.14%	2.00%	27.22	3.13%	1.73
Seychelles	2.68%	10.36	8.72%	5.30%	25.4	3.32%	29.42
Sierra Leone	7.94%	33.36	12.99%	7.96%	7.5	11.76%	1.63
Sudan	3.62%	630.74	24.10%	3.40%	11.85	4.61%	2.50
Swaziland	1.34%	38.05	6.78%	2.85%	23.61	0.73%	4.85
Tanzania	6.74%	259.26	10.98%	5.47%	16.79	6.61%	1.58
Togo	4.10%	36.69	2.85%	0.01%	25.31	4.52%	0.98
Tunisia	2.46%	451.65	4.63%	–0.02%	70.89	2.17%	9.32
Uganda	5.94%	175.73	11.03%	10.16%	15.93	5.20%	1.48
Zambia	6.74%	182.35	8.31%	6.38%	12.65	7.04%	2.00
Zimbabwe	2.64%	107.69	5.00%	433.65%	8.07	10.38%	0.52

Description of the abbreviations used in A3:
RGDP GRW – Real GDP Growth; **RGDP** – Real GDP; **INFL** – Inflation; **RIRATE** – Real Interest Rate;
FIDEV – Financial Development; **GDPPER GRW** – GDP per capita growth**; GDPPER** – GDP per capita

A4 Demographic variables in Africa for the period 2009–2013

Country	LIFEP	YD RATIO	OD RATIO	POPSIZ (millions)	POP GRW	URB	URB GRW
Algeria	73.08	39.1	6.76	37.78	1.40%	67.7	2.49%
Angola	51.06	90.22	4.85	17.51	2.70%	60.2	3.97%
Benin	56.01	81.43	5.69	9.78	2.70%	43	4.12%
Botswana	53.02	50.58	6.4	1.99	1.10%	62.5	2.07%
Burkina Faso	55.36	86.09	4.26	16.00	3.00%	27.4	6.02%
Burundi	50.34	62.91	4.81	9.53	2.00%	11.7	4.45%
Cameroon	51.58	72.17	6.27	18.01	2.20%	59.9	3.23%
Cape Verde	73.92	48.88	9.18	0.49	0.90%	62.5	2.12%
Central African Republic	48.35	71.72	7.09	4.44	2.00%	39.5	2.60%
Chad	49.52	87.37	5.51	12.09	2.60%	28.7	3.00%
Comoros	61.04	78.01	4.93	0.70	2.50%	28.5	2.84%
Congo, Dem Rep.	48.37	89.59	5.2	65.74	2.20%	62.9	4.19%
Congo, Rep.	57.36	72.53	6.57	4.11	2.60%	36.5	2.84%
Côte d'Ivoire	55.42	73.28	6.91	19.85	2.20%	52.1	3.56%
Djibouti	57.91	57.86	5.52	0.85	1.90%	76.4	1.96%
Egypt	73.20	49.22	8.12	79.40	1.70%	43.7	2.04%
Equatorial Guinea	51.14	67.26	4.89	0.72	2.80%	40.2	3.16%
Eritrea	61.42	74.32	4.48	5.94	3.00%	22.6	5.01%
Ethiopia	59.24	73.1	6.06	89.43	2.10%	17	3.57%
Gabon	62.69	57.73	7.15	1.52	1.90%	86.8	2.27%
Gambia, The	58.48	80.7	3.99	1.73	2.70%	59.7	3.63%
Ghana	64.22	66.51	6.72	24.81	2.30%	52.9	3.50%
Guinea	54.09	79.2	6.14	11.17	2.50%	36.4	3.86%
Guinea-Bissau	48.11	73.98	6	1.62	2.10%	30.3	3.59%
Kenya	57.08	77.3	4.84	42.06	2.70%	22.9	4.36%
Lesotho	47.98	62.9	7.28	2.03	1.00%	28.4	3.57%
Liberia	56.74	80.84	5.2	4.10	2.80%	48.6	3.43%
Libya	74`.95	47.15	6.83	6.09	0.70%	78.3	1.00%
Madagascar	66.7	78.99	5.8	21.69	2.80%	31	4.73%
Malawi	54.14	89.72	6.09	15.46	3.20%	20.8	4.20%
Mali	51.37	92.88	4.29	14.41	3.00%	37.4	4.77%

Country	LIFEP	YD RATIO	OD RATIO	POPSIZ (millions)	POP GRW	URB	URB GRW
Mauritania	58.55	68.79	4.7	3.70	2.30%	42	2.91%
Mauritius	73.27	29.95	10.02	1.31	0.60%	41.9	0.57%
Morocco	72.13	41.37	8.33	32.10	1.00%	59.4	1.62%
Mozambique	50.15	83.31	6.3	24.59	2.30%	40	3.05%
Namibia	62.33	59.58	6.18	2.22	1.70%	39.2	3.14%
Niger	54.69	100.16	4.55	16.54	3.50%	17.4	4.91%
Nigeria	51.86	79.57	6.34	164.35	2.50%	51.2	3.75%
Rwanda	55.39	78.39	4.91	11.15	3.00%	19.5	4.50%
São Tomé and Príncipe	64.59	70.92	6.69	0.17	2.00%	63.7	3.01%
Senegal	59.27	80.4	4.42	12.76	2.60%	43	3.32%
Seychelles	73.46	81.09	4.06	0.09	1.00%	35	1.05%
Sierra Leone	47.78	77.57	3.43	5.87	2.10%	39.1	3.04%
Sudan	61.45	70.31	6.38	38.14	2.40%	41.6	2.60%
Swaziland	48.66	64.55	5.8	1.07	1.40%	21.3	1.19%
Tanzania	58.15	86.03	6.07	46.37	3.10%	27.3	4.77%
Togo	57.03	68.51	5.99	6.48	2.10%	44.8	3.30%
Tunisia	74.75	33.31	10.02	10.75	1.00%	68.1	1.34%
Uganda	54.07	98.27	5.09	35.44	3.20%	13.7	5.74%
Zambia	48.97	92.17	6.05	13.66	3.00%	36.1	4.15%
Zimbabwe	51.24	66.81	7.35	13.44	2.00%	39.3	3.40%

Description of the abbreviations used in A4:
LIFEP – Life Expectancy at Birth; **YDRATIO** – Young Dependency Ratio; **ODRATIO** – Old Dependency Ratio;
POPSIZ – Population Size; **POPGRW** – Population Growth **URB** – Urbanisation; **URBGRW** – Urban Growth

A5 Institutional development indicators for the period 2009–2013

Country	VA	PS	GE	RQ	ROL	CC
Algeria	–0.91	–1.34	–0.55	–1.29	–0.79	–0.54
Angola	–1.08	–0.38	–1.02	–0.98	–1.28	–1.29
Benin	0.07	0.31	–0.53	–0.39	–0.64	–0.92
Botswana	0.5	1.11	0.44	0.69	0.66	0.94
Burkina Faso	–0.35	–0.62	–0.63	–0.12	–0.43	–0.52
Burundi	–0.93	–1.68	–1.33	–0.96	–1.09	–1.46
Cameroon	–1.03	–0.58	–0.9	–0.93	–1.02	–1.24
Cape Verde	0.95	0.78	0.1	0.04	0.48	0.81
Central African Republic	–1.26	–1.87	–1.46	–1.09	–1.45	–0.89
Chad	–1.33	–1.07	–1.49	–1.08	–1.45	–1.25
Comoros	1.04	0.35	1.25	1.54	1.37	1.56
Congo, Dem. Rep.	–0.53	–0.39	–1.55	–1.42	–1.03	–0.73
Congo, Rep.	–1.52	–2.12	–1.66	–1.51	–1.65	–1.3
Côte d'Ivoire	–1.16	–0.48	–1.2	–1.38	–1.12	–1.19
Djibouti	–0.79	–1.26	–1.11	–0.77	–1.11	–0.91
Egypt	–1.42	0.17	–1.1	–0.44	–0.78	–0.38
Equatorial Guinea	–0.74	–1.48	–0.77	–0.49	–0.45	–0.57
Eritrea	–1.87	0.21	–1.65	–1.42	–1.26	–1.56
Ethiopia	–2.15	–0.69	–1.51	–2.24	–1.36	–0.65
Gabon	–1.28	–1.54	–0.44	–1.07	–0.66	–0.6
Gambia, The	–0.85	0.31	–0.78	–0.51	–0.45	–0.55
Ghana	–1.25	0.01	–0.51	–0.23	–0.54	–0.64
Guinea	0.41	0.1	–0.07	0.12	–0.03	–0.09
Guinea-Bissau	–1.08	–1.28	–1.27	–1.02	–1.44	–1.11
Kenya	–0.3	–1.29	–0.55	–0.31	–0.87	–1.1
Lesotho	–0.62	0.18	–0.08	–0.05	0.38	–0.16
Liberia	0.04	0.25	–0.38	–0.54	–0.29	0.11
Libya	–0.36	–0.47	–1.18	–1.05	–0.92	–0.57
Madagascar	–0.94	–1.56	–1.49	–1.66	–1.15	–1.4
Malawi	–0.85	–0.57	–1.08	–0.58	–0.89	–0.61
Mali	–0.23	–0.01	–0.5	–0.71	–0.24	–0.45
Mauritania	–0.55	–1.98	–0.99	–0.42	–0.69	–0.76
Mauritius	–0.94	–1.13	–0.91	–0.64	–0.87	–0.6

Country	VA	PS	GE	RQ	ROL	CC
Morocco	0.86	0.97	0.93	0.98	0.94	0.33
Mozambique	–0.61	–0.46	–0.04	–0.09	–0.19	–0.41
Namibia	–0.18	0.35	–0.64	–0.46	–0.6	–0.59
Niger	0.39	0.94	0.12	0.06	0.24	0.32
Nigeria	–0.4	–1.17	–0.7	–0.61	–0.74	–0.69
Rwanda	–1.24	–0.21	–0.06	–0.1	–0.26	0.66
São Tomé and Príncipe	0.13	0.02	–0.72	–0.8	–0.81	–0.39
Senegal	–0.05	–0.1	–0.46	–0.1	–0.33	–0.32
Seychelles	0.09	0.75	0.38	–0.31	–0.04	0.33
Sierra Leone	–0.36	–0.27	–1.21	–0.71	–0.87	–0.94
Sudan	–1.78	–2.27	–1.46	–1.51	–1.21	–1.51
Swaziland	–1.21	–0.4	–0.57	–0.56	–0.46	–0.33
Tanzania	–0.22	0.03	–0.69	–0.4	–0.58	–0.85
Togo	–1.02	–0.42	–1.32	–0.86	–0.92	–0.99
Tunisia	–0.19	–0.73	–0.02	–0.21	–0.14	–0.18
Uganda	–0.49	–0.89	–0.57	–0.24	–0.36	–0.95
Zambia	–0.16	0.61	–0.5	–0.43	–0.4	–0.36
Zimbabwe	–1.45	–0.79	–1.21	–1.83	–1.62	–1.27

Description of the abbreviations used in A5:

VA – Voice and Accountability; **PS** – Political Stability; **GE** – Government Effectiveness;

RG – Regulatory Quality; **ROL** – Rule of Law; **CC** – Control of Corruption

A6 Social and cultural variables for the period 2009–2013

Country	Social security	Average adult literacy rate	Proportion of Muslim population
Algeria	3.93	72.6	99.00%
Angola	3.49	70.1	0.00%
Benin	4.57	42.4	24.40%
Botswana	5.06	84.5	0.00%
Burkina Faso	6.51	28.7	60.50%
Burundi	8.73	67.2	2.50%
Cameroon	5.23	70.7	20.00%
Cape Verde	4.76	84.3	1.80%
Central African Republic	3.79	56	15.00%
Chad	4.28	34.5	53.10%
Comoros	5.26	74.9	98.00%
Congo, Dem. Rep.	8.55	80.5	10.00%
Congo, Rep.	2.45	66.8	1.60%
Côte d'Ivoire	6.78	56.2	38.60%
Djibouti	7.87	54.3	94.00%
Egypt	4.88	72	90.00%
Equatorial Guinea	3.95	93.9	0.01%
Eritrea	2.56	67.8	75.00%
Ethiopia	4.65	55	33.90%
Gabon	3.22	88.4	0.08%
Gambia, The	4.39	50	90.00%
Ghana	4.78	67.3	17.60%
Guinea	5.96	41	85.00%
Guinea-Bissau	6.28	54.2	50.00%
Kenya	4.49	87.4	11.10%
Lesotho	12.76	89.6	0.01%
Liberia	19.48	60.8	12.20%
Libya	4.39	89.2	96.60%
Madagascar	4.07	64.5	7.00%
Malawi	8.38	74.8	13.00%
Mali	6.81	31.1	94.80%
Mauritania	5.39	58	100.00%

Country	Social security	Average adult literacy rate	Proportion of Muslim population
Mauritius	5.89	88.5	17.30%
Morocco	6.03	56.1	99.00%
Mozambique	6.59	56.1	17.90%
Namibia	5.34	88.8	0.01%
Niger	5.32	28.7	80.00%
Nigeria	5.32	61.3	50.00%
Rwanda	10.76	71.1	1.80%
São Tomé and Príncipe	7.73	89.2	1.00%
Senegal	5.98	49.7	94.00%
Seychelles	3.78	91.8	1.60%
Sierra Leone	18.84	42.1	60.00%
Sudan	8.39	71.1	98.00%
Swaziland	8.01	87.4	10.00%
Tanzania	7.28	73.2	63.00%
Togo	8.01	57.1	20.00%
Tunisia	6.16	77.6	99.10%
Uganda	9.45	73.2	12.10%
Zambia	6.12	71.2	2.70%
Zimbabwe	4.01	92.2	1.00%

A7 Life assurance consumption between countries, comparisons between CLACL and PLACL and ranking differences

Country	Penetration ratio	Premium per capita	CLACL	PLACL	LACSI growth rate	CLACL rank	PLACL rank	Ranking difference
Equatorial Guinea	0.00%	0.34	6.29	8.14	25.76%	38	16	22
Libya	0.01%	1.44	6.69	8.58	24.96%	30	10	20
Congo, Dem. Rep.	0.00%	0.01	6.25	7.59	19.40%	39	25	14
Ethiopia	0.03%	0.13	7.77	9.39	18.98%	15	3	12
Malawi	1.11%	3.30	6.60	7.22	19.60%	41	31	10
Rwanda	0.17%	0.99	7.32	8.54	12.63%	17	11	6
Cameroon	0.22%	4.06	7.52	7.50	12.56%	32	26	6
Burkina Faso	0.26%	1.63	6.83	7.91	8.55%	23	17	6
Congo, Rep.	0.05%	1.61	5.93	7.20	10.32%	37	32	5
Djibouti	0.05%	0.70	5.59	8.26	10.82%	20	15	5
Madagascar	0.13%	0.57	6.50	7.35	10.68%	33	29	4
Tanzania	0.09%	0.52	7.41	8.73	11.33%	13	9	4
Uganda	0.08%	0.39	7.79	6.37	13.13%	45	42	3
Guinea	0.00%	0.00	5.08	6.42	11.75%	43	40	3
Burundi	0.16%	0.38	6.61	7.85	7.04%	22	20	2
Mauritania	0.01%	0.06	5.71	5.81	13.32%	49	47	2
Sierra Leone	0.05%	0.30	5.68	7.88	6.41%	21	19	2
Tunisia	0.28%	11.67	8.45	5.99	9.65%	48	46	2
Zambia	0.35%	4.75	7.39	7.49	9.20%	28	27	1
Botswana	2.21%	151.66	7.49	5.99	9.08%	46	45	1
Gambia, The	0.02%	0.11	5.47	7.11	8.26%	34	33	1
Angola	0.05%	2.51	8.35	6.05	6.35%	44	44	–
Chad	0.01%	0.12	6.54	9.28	9.37%	4	4	–
Comoros	0.02%	0.17	4.57	7.88	5.18%	18	18	–
Guinea-Bissau	0.00%	0.01	5.44	9.17	9.46%	6	6	–
Kenya	1.05%	9.15	8.34	4.26	–7.20%	51	51	–
Morocco	0.97%	29.32	9.60	9.10	8.71%	7	7	–
São Tomé and Príncipe	0.01%	0.14	4.69	9.56	–0.35%	1	1	–
Seychelles	0.60%	68.18	6.52	5.00	6.45%	50	50	–
Togo	0.69%	3.98	7.12	9.46	5.57%	2	2	–

Country	Penetration ratio	Premium per capita	CLACL	PLACL	LACSI growth rate	CLACL rank	PLACL rank	Ranking difference
Central African Republic	0.01%	0.03	5.44	5.72	5.02%	47	48	–1
Egypt	0.32%	9.42	8.94	6.30	9.63%	42	43	–1
Mauritius	3.84%	314.33	8.47	6.74	3.40%	36	38	–2
Niger	0.10%	0.40	6.67	9.18	8.04%	3	5	–2
Senegal	0.32%	3.51	7.13	8.31	5.68%	12	14	–2
Liberia	0.02%	0.07	6.25	6.97	4.42%	31	34	–3
Mozambique	0.19%	0.97	8.25	7.45	4.43%	25	28	–3
Namibia	5.52%	288.03	7.97	8.33	4.36%	10	13	–3
Nigeria	0.10%	2.27	8.39	9.08	7.93%	5	8	–3
Algeria	0.04%	2.03	7.85	7.79	4.72%	19	22	–3
Sudan	0.03%	0.44	6.54	7.30	2.49%	26	30	–4
Benin	0.28%	2.09	7.43	8.41	1.89%	8	12	–4
Swaziland	0.67%	23.82	7.68	6.38	–2.46%	35	41	–6
Eritrea	0.01%	0.03	5.72	7.76	1.11%	16	23	–7
Gabon	0.18%	19.29	7.26	6.84	1.04%	29	36	–7
Lesotho	3.23%	34.75	7.23	5.69	–9.28%	40	49	–9
Côte d'Ivoire	0.71%	8.94	8.06	7.62	–2.14%	14	24	–10
Mali	0.10%	0.67	6.77	6.95	–3.87%	24	35	–11
Ghana	0.41%	6.28	7.79	7.83	–2.91%	9	21	–12
Cape Verde	0.00%	2.46	6.90	6.57	–4.92%	27	39	–12
Zimbabwe	0.80%	6.41	7.96	6.78	–16.04%	11	37	–26

A8 Life assurance projected/estimated data for computing PLACLs

A8.1 Economic factors

Country	RGDP (billions)	INFL	RIRATE	FIDEV	GDPPER (1000s)
Algeria	182.20	4.10%	3.08%	17.40	7.94
Angola	82.20	8.05%	4.36%	28.55	7.43
Benin	7.22	2.60%	12.11%	28.48	1.92
Botswana	15.92	5.55%	8.68%	33.01	17.60
Burkina Faso	9.61	1.80%	10.23%	25.34	2.17
Burundi	2.24	6.20%	0.33%	23.47	0.86
Cameroon	25.30	1.90%	13.20%	15.47	4.97
Cape Verde	1.89	2.50%	5.66%	73.53	2.82
Central African Republic	2.07	5.15%	12.92%	11.17	0.65
Chad	9.69	3.60%	9.43%	6.12	3.03
Comoros	0.60	4.30%	2.48%	20.13	1.22
Congo, Dem. Rep.	16.11	2.50%	2.48%	6.26	6.42
Congo, Rep.	8.19	3.50%	13.72%	9.67	0.97
Côte d'Ivoire	23.78	2.80%	11.00%	20.49	2.83
Djibouti	1.28	2.25%	5.71%	37.24	3.51
Egypt	229.42	10.25%	0.15%	39.75	7.95
Equatorial Guinea	13.28	5.50%	10.15%	10.53	31.56
Eritrea	2.70	12.26%	14.16%	17.50	0.92
Ethiopia	34.53	7.75%	12.71%	28.17	2.13
Gabon	9.56	2.75%	2.74%	11.90	21.55
Gambia, The	0.72	5.50%	9.26%	18.85	2.42
Ghana	35.92	9.25%	3.21%	23.39	1.01
Guinea	5.44	8.35%	10.87%	7.18	1.23
Guinea-Bissau	0.48	1.65%	1.12%	11.29	1.58
Kenya	36.40	5.05%	2.60%	41.60	2.22
Lesotho	2.25	4.70%	4.22%	19.64	1.86
Liberia	1.01	6.45%	2.95%	26.30	1.16
Libya	74.03	6.45%	11.69%	20.84	23.71
Madagascar	9.54	6.70%	41.71%	12.17	0.92
Malawi	4.96	11.80%	19.24%	24.30	1.11
Mali	9.98	2.15%	1.11%	22.78	1.39

Country	RGDP (billions)	INFL	RIRATE	FIDEV	GDPPER (1000s)
Mauritania	4.51	5.40%	4.40%	35.06	2.67
Mauritius	10.65	3.70%	4.79%	95.15	21.69
Morocco	96.19	2.85%	9.89%	86.16	6.77
Mozambique	12.29	5.35%	7.54%	35.59	1.63
Namibia	11.55	5.40%	1.81%	59.11	8.90
Niger	6.36	1.90%	4.76%	17.59	1.00
Nigeria	401.47	8.15%	13.36%	26.68	7.05
Rwanda	6.49	4.65%	6.62%	14.75	1.72
São Tomé and Príncipe	0.11	8.00%	13.23%	47.45	2.87
Senegal	14.00	1.50%	1.96%	31.71	2.02
Seychelles	1.04	3.65%	4.54%	28.99	34.63
Sierra Leone	2.75	7.30%	2.80%	10.98	2.84
Sudan	53.29	25.00%	3.40%	14.16	3.14
Swaziland	3.73	5.75%	5.92%	25.24	5.03
Tanzania	25.61	5.35%	5.29%	23.27	2.18
Togo	3.58	1.95%	1.25%	30.94	1.22
Tunisia	45.14	5.20%	2.17%	80.05	10.38
Uganda	19.43	4.80%	16.19%	21.26	1.91
Zambia	18.64	6.55%	5.26%	17.52	2.81
Zimbabwe	0.09	3.80%	433.65%	9.19	0.86

A8.2 Social and cultural factors

Country	POPSI	URB	URB GRO	Social Security	Proportion of Muslims
Algeria	41.93	74.68	1.87%	5.11	99.00%
Angola	20.10	60.74	3.08%	5.97	0.00%
Benin	11.37	46.22	2.68%	6.17	24.40%
Botswana	2.09	62.95	0.86%	3.76	0.00%
Burkina Faso	18.87	28.19	2.84%	3.60	60.50%
Burundi	11.30	11.48	3.13%	10.79	2.50%
Cameroon	19.62	64.14	0.91%	3.16	20.00%
Cape Verde	0.52	53.24	2.52%	10.13	1.80%
Central African Republic	5.00	39.55	2.00%	10.93	15.00%
Chad	14.42	21.96	2.98%	8.64	53.10%
Comoros	0.81	28.22	2.40%	3.90	98.00%
Congo, Dem. Rep.	77.21	64.52	2.52%	6.54	10.00%
Congo, Rep.	4.68	35.37	2.72%	6.83	1.60%
Côte d'Ivoire	21.54	52.76	2.37%	5.13	38.60%
Djibouti	0.93	77.22	1.53%	5.85	94.00%
Egypt	87.26	43.81	1.64%	10.65	90.00%
Equatorial Guinea	0.86	39.81	2.77%	9.27	0.01%
Eritrea	7.15	22.24	3.24%	9.62	75.00%
Ethiopia	103.68	17.51	2.55%	10.19	33.90%
Gabon	1.67	86.85	2.37%	9.44	0.08%
Gambia, The	2.04	58.41	3.19%	5.86	90.00%
Ghana	28.09	53.21	2.10%	6.30	17.60%
Guinea	12.99	36.39	2.53%	5.01	85.00%
Guinea-Bissau	1.83	45.29	2.42%	4.74	50.00%
Kenya	49.20	24.78	2.69%	7.13	11.10%
Lesotho	2.16	29.02	1.11%	6.65	0.01%
Liberia	4.92	48.92	2.44%	3.91	12.20%
Libya	6.50	78.06	0.76%	8.48	96.60%
Madagascar	25.64	33.84	2.79%	8.50	7.00%
Malawi	18.33	15.96	2.83%	3.95	13.00%
Mali	17.00	36.22	2.97%	9.09	94.80%
Mauritania	4.26	42.01	2.44%	4.81	100.00%

Country	POPSI	URB	URB GRO	Social Security	Proportion of Muslims
Mauritius	1.35	41.77	0.39%	9.16	17.30%
Morocco	34.76	57.76	1.49%	4.40	99.00%
Mozambique	28.48	31.68	2.47%	6.39	17.90%
Namibia	2.48	39.53	1.93%	5.53	0.01%
Niger	20.74	18.32	3.85%	6.07	80.00%
Nigeria	194.06	50.87	2.79%	8.23	50.00%
Rwanda	13.14	19.70	2.74%	3.97	1.80%
São Tomé and Príncipe	0.21	64.05	2.57%	5.88	1.00%
Senegal	15.59	43.13	2.92%	4.65	94.00%
Seychelles	0.09	54.39	0.54%	3.40	1.60%
Sierra Leone	6.56	39.98	1.88%	6.71	60.00%
Sudan	38.57	33.48	2.05%	4.96	98.00%
Swaziland	1.32	21.16	1.49%	8.01	10.00%
Tanzania	54.51	27.64	3.03%	7.97	63.00%
Togo	7.51	38.98	2.59%	3.93	20.00%
Tunisia	11.46	66.73	1.11%	6.30	99.10%
Uganda	44.28	16.40	3.34%	7.56	12.10%
Zambia	16.60	40.03	3.24%	6.12	2.70%
Zimbabwe	15.89	39.58	3.05%	4.01	1.00%

A8.3 Institutional factors

Country	Voice and accountability	Political stability	Government effectiveness	Control of corruption
Algeria	–1.00	–1.30	–0.55	–0.53
Angola	–1.12	–0.33	–1.07	–1.34
Benin	0.20	0.30	–0.55	–0.74
Botswana	0.44	1.01	0.47	0.96
Burkina Faso	–0.31	–0.33	–0.58	–0.42
Burundi	–0.89	–1.58	–1.13	–1.19
Cameroon	–1.05	–0.61	–0.87	–1.05
Cape Verde	0.93	0.80	0.07	0.81
Central African Republic	–1.12	–1.89	–1.39	–0.87
Chad	–1.37	–1.39	–1.43	–1.30
Comoros	–0.46	–0.53	–1.70	–0.74
Congo, Dem. Rep.	–1.48	–2.14	–1.69	–1.37
Congo, Rep.	–1.11	–0.36	–1.22	–1.14
Côte d'Ivoire	–1.03	–1.38	–1.14	–1.05
Djibouti	–1.31	0.28	–0.99	–0.32
Egypt	–1.03	–1.11	–0.49	–0.55
Equatorial Guinea	–1.86	0.24	–1.67	–1.51
Eritrea	–2.16	–0.75	–1.42	–0.53
Ethiopia	–1.30	–1.57	–0.45	–0.68
Gabon	–0.91	0.28	–0.78	–0.76
Gambia, The	–1.14	0.06	–0.60	–0.57
Ghana	0.47	0.08	–0.05	0.01
Guinea	–1.08	–1.61	–1.14	–1.13
Guinea-Bissau	–1.02	–0.74	–1.09	–1.11
Kenya	–0.28	–1.28	–0.56	–1.01
Lesotho	–0.09	0.36	–0.32	0.16
Liberia	–0.29	–0.61	–1.23	–0.57
Libya	–1.56	–0.51	–1.26	–1.28
Madagascar	–0.84	–0.78	–0.96	–0.36
Malawi	–0.22	0.01	–0.46	–0.42
Mali	–0.06	–0.74	–0.85	–0.65
Mauritania	–0.96	–1.06	–0.92	–0.57

Country	Voice and accountability	Political stability	Government effectiveness	Control of corruption
Mauritius	0.81	0.79	0.85	0.55
Morocco	–0.71	–0.41	–0.10	–0.32
Mozambique	–0.14	0.39	–0.60	–0.48
Namibia	0.37	0.89	0.11	0.30
Niger	–0.55	–1.09	–0.66	–0.65
Nigeria	–0.78	–2.04	–1.11	–1.06
Rwanda	–1.28	–0.25	–0.05	0.42
São Tomé and Príncipe	0.13	0.07	–0.73	–0.40
Senegal	–0.25	–0.26	–0.49	–0.53
Seychelles	0.09	0.81	0.23	0.30
Sierra Leone	–0.26	–0.24	–1.21	–0.87
Sudan	–1.74	–2.53	–1.37	–1.30
Swaziland	–1.23	–0.23	–0.63	–0.24
Tanzania	–0.17	0.01	–0.62	–0.63
Togo	–0.99	–0.25	–1.37	–0.99
Tunisia	–0.81	–0.27	0.17	–0.17
Uganda	–0.51	–0.97	–0.55	–0.90
Zambia	–0.23	0.52	–0.69	–0.48
Zimbabwe	–1.48	–1.01	–1.40	–1.32