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## Effect of Pension Fund Assets on Ghana's GDP

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### **Abstract:**

*The decision to implement pensions as a unique compensation scheme to reward individuals and civil servants who commit themselves to work and contribute meaningfully to the socio-economic development and growth of their economies dates back to over four centuries in some jurisdictions. The foregoing affirms the significant role of pensions in living standards and life expectancy of workers after retiring from active work. However, access to reliable and credible data on pension fund assets in most developing economies, including Ghana, remains a challenge. The aim of this study was to examine the contributions of workers to the various pension schemes operable in Ghana; and the impact of those contributions on gross domestic product (GDP). A cross-sectional design, an example of quantitative approach to scientific inquiry, was applied to the current research. This design allowed the researchers to gather relevant research data over a specific period of time. Data required for the research were obtained mainly from secondary sources including text books, peer-reviewed articles published in journals, research papers, newspaper publications; Google Search Engine, financial websites such as Tradingeconomics.com; and electronic databases of the Bank of Ghana (BoG), Ghana Statistical Service (GSS), National Pensions Regulatory Authority (NPRO), Social Security and National Insurance Trust (SSNIT); the World Bank and World Economic Outlook, among others. Annual data on the World's total gross domestic products (GDPs); data on pension fund assets (PFAs) values for selected economies; and pension fund assets to GDP ratios for Ghana during the period were computed and used in the study. Regression models and descriptive statistics were used to describe the research variables; and to evaluate their behaviour over the stated time frame in the Ghanaian economy. Findings from the research revealed positive relationship between pension fund assets and Ghana's GDP. The findings revealed pension fund assets account for about 94.93% of the variation in Ghana's GDP. However, with the exception of Kenya, the World Bank has no data on African economies in relation to annual pension fund assets. Since volatilities are inevitable in the financial markets, recommendation was made for the Trustee and other pension fund managers to constantly monitor and explore the local and international financial markets for the best financial investment "deals" to assure higher real returns on pension funds investments. Investment decisions of pension fund managers must be prudent; and be guided by the "principles of security, profitability and liquidity." The Regulator, Board of Trustees, and other fund managers must review their existing investment framework and capabilities to conform to contemporary global standards to assure flexibility and rapid response to changes in global investment opportunities and challenges. Necessary steps must be taken to reduce operating and investment costs to increase investment funds available for retirees. This would help improve the lives of millions of individuals whose financial and retirement well-being depend on the strategic investment decisions of the Trustee and other fund managers. Effective corporate governance and risk management are essential attributes that require the utmost attention of all pension fund managers. Consistent with Bloom et al., the researchers recommended reduction in contribution rates and increase in benefit rates; these adjustments would be mitigated with an increase in the present retirement age by a year or two. The expected proportionate increase in contributions would outweigh or offset any extended superannuation income arising from prolonged life expectancy at retirement. The Board of Trustees and other pension fund managers are encouraged to pool resources to ensure sustainability of their long-term pension funds investment mandates while putting the necessary internal measures in place to enhance their understanding of stranded asset risks to minimise the negative impact of the latter on long-term investment fortunes.*

**Keywords:** Pensions, pension fund assets, pension scheme, pension theory, types of pension

### **1. Introduction**

The introduction, adaption, and implementation of public and private pension schemes in some jurisdictions across the globe date back to several centuries. Pradmin (n.d.) notes the implementation of pensions as a compensation

scheme in the United States of America (USA) dates back to 1636 when the States were colonies. Individuals who enlisted in the military and became disabled in the course of defending the Plymouth colony from the attacks of the Native Americans (Indians) were given pensions as extra compensation. Pension payments to disabled veterans became the responsibility of the United States federal government in 1789 following a legislative enactment in that year. Payments of pension benefits to veterans and their families in subsequent years were increased through further legislative enactments to commensurate with the growth in economic prosperity of the nation. Prior to 1818 pensions were offered to beneficiaries for few years; and pension beneficiaries were chosen on a case-by-case basis. However, in 1818, payment of pension benefits to veterans was extended for life. During the early years of implementation in the United States of America, public pension scheme was seen as an effective means of improving on social standards. In 1920, the United States government began to extend pension benefits to non-military federal employees. The latter benefitted from a defined benefit programme implemented under the Civil Service Retirement System (CSRS). Europe witnessed growth in its welfare state; public servants were offered public pension schemes.

Pradmin (n.d.) identifies two basic reasons underlying the implementation of public pensions in the United States of America in the 19<sup>th</sup> century. The first reason involves meeting the demands of workers' groups on the need for the nation to create a more extensive welfare state as it pertained in Europe. The other reason is providing non-military federal employees with an incentive to transition to permanent civil servants from the status of patrons.

Bond (2017) reveals public pension scheme for New York City police officers in the State of New York (in the United States of America) was established over 160 years ago. The public pension scheme enacted in 1857 in United States allowed for a lump sum payment to New York City police officers who sustained injuries in their lines of duty. Public pension coverage in New York City was extended to include fire fighters in 1866. In 1878, the public pension enactment was reviewed to allow police officers to enjoy pension benefits at age 55 after 21 years of active service. The maiden pension plan for teachers in the United States of America was established in the borough of Manhattan in the State of New York in 1894. The City of New York is described as the birthplace of numerous pension schemes in the United States of America.

According to Bond (2017), an implementation of private sector pension schemes in the United States also started in 1857. One of the traditional firms that introduced its workers to pension plans during the early period is American Express; the staff of American Express were provided with a pension plan in 1878. Pradmin (n.d.) indicates employers in the private sector used pension benefits as an enticing tool for their employees during periods of economic boom. The recognition for pensions soared through the Second World War; employees focused more on the pension benefits than on the jobs they signed up for. During World War II, wages of employees were frozen by the National Labour Board to strategically tame inflationary levels. The economic essence of this strategy was short-lived by the resultant massive shortage in the supply of labour; fewer employees were available to work; the only available means of increasing employees' compensation were through defined benefit pension plan.

Varied definitions have been proffered to explain the concept of pension scheme. The Pensions Advisory Service (2019) defines a pension scheme as a form of savings plan intended to help individuals save funds to meet their needs later in life. A pension scheme is believed to have favourable tax treatments compared with other types of savings. Business Dictionary.com (2019) describes pension scheme as a usual arrangement by employers which allows employees to contribute to a fund to provide the latter with pension during retirement. The contributions of employees are usually invested by fund managers to assure returns on their investments.

Benefits accruing from pensions can be categorised into two main forms. These include defined contribution scheme and defined benefit pension scheme. A *defined contribution scheme* allows contributors (employees) to build their pot of investments. Funds in the investment could increase or decrease based on conditions in the investment markets. However, over time, the investments grow and tax benefits are derived by beneficiaries. Value of the investment in a defined contribution scheme is a lump sum paid to contributors or their dependants. Examples of a defined contribution scheme include multi-employer pension scheme, NEST pension schemes, personal pension plans, group personal pensions, stakeholder pension plans, self-invested personal pensions (SIPPs), and pension plan for the self-employed (The Pensions Advisory Service, 2019; Money Advise Service, 2019e).

A *multi-employer pension scheme* is also called a *master trust*. It is the "mother" of pension scheme in the workplace that could be accessed by unconnected and different employers and their employees. *NEST pension schemes* are large multi-employer schemes for employers and employees set up by governments in some jurisdictions. Another form of defined contribution scheme is the *personal pension plan*. Under this plan, the contributor (in this case the employee) chooses the provider and makes the necessary arrangements for contribution payments. This serves as additional source of retirement income if the worker has already enrolled in other pension schemes in the workplace. The *group personal pension plan* offered by some employers to their employees is another form of defined contribution scheme. Employees enrolled in this plan have the opportunity to increase their personal savings towards retirement. These savings could be converted into income at retirement. *Stakeholder pension plans* have default investment strategies which allow employees with limited interest in available large number of plans, to choose. This plan is an example of defined contribution personal pension, and has low and flexible minimum contributions as well as capped charges. *Self-invested personal pensions (SIPPs)* work in the same way as a standard personal pension plan. SIPPs allow employees to invest and hold it until retirement before drawing a retirement income. However, unlike personal pensions, SIPPs provide employees with pool of investment eligibles to choose from. Another form of pension plan is the *pension plan for the self-employed*. It is imperative for the self-employed to contribute to a plan, so life after active service would be worth living. Prior to settling for a particular pension plan, it is essential for the contributor to assess the various pension options to determine the most suitable and financially beneficial one or ones (Money Advise Service, 2019a, b, c, d, and f).

A defined benefit pension scheme allows contributors to receive a specified level of income that is computed based on a number of factors, including years of active service and salary earned in the final year of active service. This scheme enables contributors to receive monthly payments during retirement or lump sum payable to dependants (The Pensions Advisory Service, 2019).

In the United States of America, federal civil service pension schemes came into effect following the enactment of the Civil Service Retirement Act in 1920. The underlying idea was to encourage a considerable number of federal civilian employees to retire by the end of the First World War (Bond, 2017). Private sector participation in pension schemes in the United States increased to cover about 10 million employees in 1950. By 1960, pensions coverage for employees in the private sector had increased to about 50% of the total workforce. The Employee Retirement Income Security Act (ERISA) was promulgated in 1974 to provide security for workers' investments in various pension schemes in the United States. ERISA demands legal participation, disclosure and accountability to contributors to the pension plans (Phipps, 2019).

### 1.1. Background of the Study

Extant research reveals the adaption and implementation of pension schemes in jurisdictions such as the United States of America date back to the 1600s specifically, 1636. However, considerations for and implementation of same in Ghana came into effect in the 1940s under the then Gold Coast, the country's name prior to independence in 1957. The British Colonial Ordinances, Pension Ordinance Number 42, commonly called CAP 30 remained the dominant pension scheme in Ghana in prior years. However, after independence in 1957, Ghana's first President, the late Osagyefo Dr. Kwame Nkrumah, instituted measures to ensure the review of existing pension schemes and establishment of a comprehensive pension scheme that would meet the retirement needs of workers during retirement. In 1972, the Social Security and National Insurance Trust (SSNIT) scheme was introduced in Ghana as mandatory and universal pension scheme for all workers while workers enrolled earlier under the CAP 30 scheme were allowed to remain on that plan.

However, the SSNIT pension scheme did not address the concerns of retired workers; workers who retired under the CAP 30 were paid more retirement income than those enrolled under the SSNIT pension scheme. A Presidential Commission on Pensions was established by the Government of Ghana in July 2004 to commence major reforms in Ghana's Pension System. The Commission's work included inter alia, examination of existing pension arrangements; and making appropriate recommendations for the implementation of sustainable pension scheme or schemes that would assure retirement income security for Ghanaian employees, with special emphasis on the public sector. The Presidential Commission's final report was submitted in March 2006. Almost all the recommendations contained in the final report were accepted by the Government; and a Government White Paper (W.P. No. 1/2006) was issued to that effect in July 2006 (NPRA, 2019a and c).

The Presidential Commission recommended the creation of a novel Three-Tier Pension System for Ghana. The three-tier pension schemes would be funded directly by employers and employees; and these schemes are expected to replace existing parallel pension schemes in Ghana. The novel three-tier contributory pension scheme comprises two mandatory schemes and a voluntary scheme. The mandatory pension schemes include the Tier One SSNIT benefits scheme and Tier Two Occupational or Work-based pension scheme. The voluntary scheme includes the Provident Fund and Personal Pension schemes. Based on its findings, the Presidential Commission recommended the need for the Government of Ghana to decentralise management of pensions for the public sector; and restructure administrative systems for CAP 30, while it remains operable in the country. Further, the Commission recommended the need to restructure SSNIT, including an overhaul of its administrative, management, and governance structures; review existing SSNIT Laws; ensure pension coverage for the informal sector of the Ghanaian economy; phase out CAP 30 due to non-sustainability; establish a National Pensions Regulatory Authority (NPRA) to regulate the country's public and private pension schemes; and the need for the NPRA to ensure unification of all pension schemes in Ghana within five (5) years of coming into effect of the new pension scheme. Following recommendations of the Presidential Commission, an 8-member Implementation Committee was appointed by the President in October 2006. The mandate of the Committee included the implementation of accepted recommendations on pensions as contained in the Government White Paper No. W.P. No.1/2006 of July 2006; and drafting of a new pension reform bill that would provide legal backing for all the recommendations accepted in the Presidential Commission's report on pensions (NPRA, 2019a, and b).

#### 1.1.1. National Pensions Act of 2008. Act 766

The National Pensions Act of 2008, Act 766, was passed into law on 4<sup>th</sup> December, 2008 to give legal backing to the Contributory Three-Tier Pension Scheme and National Pensions Regulatory Authority in Ghana. Act 766 comprises 221 Sections and a Schedule. The Sections in Act 766 are categorised into four parts, parts one through four. Part One of this Act focuses on the *establishment of contributory three-tier pension scheme and national pensions regulatory authority*. This part covers Sections 1 through 29. Part Two addresses issues related to the *basic national social security* scheme. It covers Sections 30 through 94. Part Three explains matters related to *occupational pension schemes, provident fund, personal pension schemes, and management of the schemes*; and covers Sections 95 through 181. Part Four relates to *general provisions* and covers Section 182 through 221. *Section 1 and its related sub-sections* elucidate the establishment of a contributory three-tier pension scheme in Ghana. This comprises compulsory or mandatory basic national social security scheme; compulsory privately managed and fully funded occupational pension scheme; and voluntary privately managed and fully funded provident fund and personal pension scheme. Rationale for establishment of the new pension scheme is spelt out in *Section 2 and its related sub-sections of Act 766*. This includes the establishment of uniform set of rules, regulations and standards for administration and payment of superannuated and related benefits to employees in the public and private sectors; provision of pension benefits that would assure income security for employees during

retirement; and prompt payment of retirement benefits to beneficiaries. *Section 3 and its attendant sub-sections* state how employers and workers could contribute to the scheme. Employers are expected, immediately at the end of each month, to deduct 5.5% contribution from the salary of each worker. Employers of an establishment are expected to contribute 13% of each worker's salary to the scheme. Thus, monthly contribution of each worker shall be 18.5% (5.5% contribution by the worker and 13% contribution by the employer). 13.5% of the total monthly contribution shall be paid into the mandatory tier one basic national social security scheme; the remaining 5% shall be paid into the tier 2 mandatory occupational pension scheme. The minimum contribution is 18.5% of the monthly earnings of a worker based on the approved national daily minimum wage or its equivalent. Employers are expected to hold the monthly deductions from salaries of workers in trust for the purpose of Act 766 until they are remitted to the relevant schemes. *Section 4 and its related sub-sections* indicate how the various schemes could be managed. The tier one mandatory basic social security scheme is expected to operate under the Trust established in Section 32 of Act 766. However, the mandatory tier two occupational pension schemes; voluntary provident fund and personal pension scheme as well as other privately managed pension schemes shall be managed by trustees approved by the Board (ILO, 2008; IPO, 2008).

Powers establishing the National Pensions Regulatory Authority are enshrined in *Section 5 and its sub-sections*. This section affirms the perpetual succession of the NPRA, and its ability to sue and be sued; right of the NPRA to immovable and movable property, and enter into a contract or any other transaction; and the right of the NPRA to acquire a property (where there is hindrance) for its functions under the State Property and Contracts Act of 1960 (C.A. 6) or the State Lands Act of 1962, Act 125. The cost of acquiring the property shall be borne by the NPRA. Regulation and monitoring of operations of the various schemes constitute the main objective of the NPRA. In addition to the foregoing, the NPRA is expected to ensure effective administration of pensions in the country. This provision is contained in *Section 6 of Act 766*. Functions to be performed by the NPRA to ensure the realisation of its stated objectives are spelt out in *Section 7 and its related sub-sections*. Some of these functions include ensuring compliance to Act 766; registering personal pension schemes, provident funds, and occupational pension schemes; issuing guidelines for effective investment of pension funds; approving, monitoring and regulating trustees, custodians, pension fund managers, and other institutions dealing with pensions as the NPRA may determine; establishing guidelines, rules, and standards for effective management of pension funds under Act 766; regulating the activities and affairs of approved trustees and ensuring approved trustees administer the registered schemes; monitoring and regulating the implementation of the basic national social security scheme; conducting research and ensuring maintenance of a national data bank on matters related to pensions; advising government on the general welfare state of pensioners; and advising government on overall pension policy in the country, among other significant functions. Composition of the governing body or Board of the NPRA is stated in *Section 8 and its attendant sub-sections*. In accordance with Article 70 of the Republican Constitution of Ghana, the President is mandated to appoint Chairperson and other members of the Board of the NPRA. Persons with experience in finance and investment, law, accounting, pension management or actuarial science, business administration or other related areas of expertise may be considered strongly by the President in the appointment process. Proper and effective performance of NPRA functions are the oversight responsibility of the Board (ILO, 2008; IPO, 2008).

The tenure of office of appointed Board members and conditions under which a member may resign, cease to be a member, or have his or appointment revoked by the President are explained in *Section 9 and its sub-sections*. Each board member shall hold office for a maximum period of three years and may be eligible for re-appointment for another term; a member shall not serve more than two terms. However, the foregoing provision does not apply to the Chief Executive Officer. Organisation of board meetings, disclosure of interest, establishment of committees, and payment of allowances are spelt out in *Sections 10 through 13* respectively. The Board's ability to determine the establishment of offices in regional and district capitals is stated in *Section 14* while *Section 15* indicates the sector Minister's ability to issue directives to the Board on policy matters. The appointment of and functions of a person to the position of Chief Executive Officer are stated clearly in *Sections 16 and 17 and their related sub-sections*. *Sections 18 and 19* provide useful information on the appointment of and functions of a person to the position of Deputy Chief Executive Officer. The President reserves the right under Article 195 of the Ghanaian Constitution to appoint persons to the positions of Chief Executive Officer and Deputy Chief Executive Officer of the NPRA. The appointment of a Solicitor Secretary by the President in accordance with Article 195 of the Republican Constitution; and duties of same are stated in *Section 20 and its sub-sections*. Powers of the President under Article 195 of the Republican Constitution to appoint other staff to assure proper and effective performance of NPRA's functions are stated in *Section 21 and its related sub-sections* (ILO, 2008; IPO, 2008).

Sources of funding and the need for maintenance of proper records and books of account by the NPRA are stated in *Sections 22 and 23 and their related sub-sections*. Board of the NPRA is obliged to submit its final accounts to the Auditor-General for audit within three months after the end of the financial year. Financial year of the NPRA is the same as Government of Ghana's financial year. The Auditor-General is expected to complete the audit within three months upon receipt and submit a copy of the audited accounts to the sector Minister. The Internal Audit Agency Act of 2003, Act 658, is applicable to Act 766. The need for the Board of the NPRA to submit an annual report and other reports to the sector Minister within one month upon receipt of the audit report from the Auditor-General is stipulated in *Section 24 and its related sub-sections*. The annual report is expected to contain details of NPRA's activities and operations for the referenced year. Right of the Board to engage the services of consultants as and when necessary is stated in *Section 25 of Act 766*. Condition under which an NPRA official could disclose confidential information in his or her possession is outlined in *Section 26 and its attendant sub-sections*. Powers of the NPRA to inspect the premises of authorised persons between the hours of 8.00am and 5.00pm to ensure compliance with the provisions in Act 766 are stated in *Section 27 and its ensuing sub-sections*. Responsibility of the Chief Executive Officer to prepare budget and work programmes for the NPRA within six months of the commencement of each New Financial Year is indicated in *Section 28 and its following sub-sections*. *Section 29*

notes, the sector Minister in consultation with the Board may make regulations for effective implementation by the NPRA. Contributions to the basic social security scheme and establishment of the Social Security Trust under section 32 of this Act are mentioned in *Section 30 and its ensuing sub-sections*. This section hints on monthly contribution of each worker to the tier one or mandatory social security scheme. This section of Act 766 allows self-employed persons who opt to join the basic social security scheme to make monthly contributions to the scheme. Monthly contributions to the basic social security scheme do not apply to men and officers of the Ghana Armed Forces and any other person expressly exempted by law. The foregoing is expressly stated in *Section 31 of Act 766* (ILO, 2008; IPO, 2008).

Establishment of the Social Security and National Insurance Trust (SSNIT) as a corporate body with perpetual succession and common seal; and with the ability to sue and be sued are stipulated in *Section 32 and its related sub-sections*. Further, this section states SSNIT's ability to acquire immovable and movable properties for effective performance of its operations. Where there is hindrance, SSNIT may acquire property for the performance of its operations under the State Property and Contracts Act of 1960 (C.A. 6) or under the State Land Act of 1962, Act 125. SSNIT shall bear the cost of acquiring the property. *Section 33* outlines the rationale behind the establishment of SSNIT: based on recommendations of the NPRA, SSNIT shall operate the basic national social security scheme and other schemes as by law determined. Functions of SSNIT expected to be performed to assure realisation of its stated objectives are expressly stated in *Section 34 and its ensuing sub-sections*. Some of these functions include the operation of a basic national social security pension scheme and other schemes as determined by law; maintaining a fund for all paid contributions and other moneys received as may be required under Act 766; taking responsibility for general administration of the social security scheme and regulations made thereof; making provision for social protection of the working population for various contingencies, including death, invalidity, and old age; being responsible for administration and investment of funds in line with directives of the Board of Trustees and approval of the NPRA; collaborating with other complementary social protection schemes to avoid duplication of functions while achieving operational efficiency and cost savings; and performing other functions that are considered auxiliary to the general objective framework of SSNIT, among other important functions. Composition of the governing body or Board of SSNIT is enumerated in *Section 35 and its related sub-sections*. The President reserves the right under Article 70 of the 1992 Constitution of Ghana to appoint members to the SSNIT Board. It is the responsibility of the Board of Trustees to ensure the functions and operations of SSNIT are properly performed (ILO, 2008; IPO, 2008).

Persons appointed by the President to the Board of Trustees of SSNIT are expected to demonstrate knowledge and understanding in social security law and any regulations made thereof, among others. The foregoing provision is explicit in *Section 36 and its attendant sub-sections*. Tenure of office of membership to the Board of Trustees of SSNIT, and conditions under which a member may resign, cease to be a member, or have his or her membership revoked are expressed in *Section 37 and its following sub-sections*. Where there is a vacancy, the sector Minister is expected to notify the President, the latter could appoint a person to fill the vacancy. *Sections 38 through 41* outline the organisation of meetings, disclosure of interest, establishment of committees, and payment of allowances to members of the Board of Trustees of SSNIT. Rights of the Board of trustees to establish offices in regional and district capitals across the country; and have assigned officers perform functions in those offices as may be directed by the Board of Trustees are explicit in *Section 42 and its attendant sub-sections*. Powers of the President to appoint a person to the position of a Director-General of SSNIT is explicit in Article 195 of the 1992 Republican Constitution of Ghana. The Director-General is expected to hold office in accordance with terms and conditions specified in his or her letter of appointment. The above provision is stated in *Section 43 and its related sub-sections*. Responsibilities and functions of the Director-General of SSNIT are outlined in *Section 44 and its sub-sections*. Powers of the President to appoint a person to the position of Deputy Director-Generals may be necessary is stated in *Section 45 and its sub-sections*. Tenure of office and terms and conditions of the Deputy Director-General shall be specified in the letter of appointment. *Section 46 and its related sub-sections* state the powers of the President to appoint other staff to complement the efforts of and assure proper functioning of SSNIT. The powers of the President are explicit in Article 195 of the 1992 Republican Constitution of Ghana. Right of the SSNIT Board to a Secretary to facilitate the functions and performance of the former is noted in *Section 47 and its related sub-sections*. The need for SSNIT to have Internal Auditor and Actuary is expressly stated in Sections 48 and 49 and their attendant sub-sections (ILO, 2008; IPO, 2008).

The need for the SSNIT Board to keep proper records and books of account, prepare and submit annual financial statements to the Auditor-General for audit, and submit an annual report to the sector Minister within one month upon receipt of a copy of the audit report from the Auditor-General is stipulated in Sections 50 and 51 and their ensuing sub-sections. Section 52 of Act 766 gives NPRA the power to regulate the activities of SSNIT to ensure compliance. Receipt of actuarial valuation report from an external actuary, exemption from payment of corporate tax and other taxes, and matters related to the administrative expenses of SSNIT are explained, clearly, in Sections 53 through 55 and their attendant sub-sections. Conditions under which expenditure or deductions may be charged to the funds of the scheme are explained in Section 56 of Act 766. Creation of separate accounts to record the contributions of members of the Board of Trustees is explicit in Section 57 and its related sub-sections. Section 58 and its related sub-sections tell us persons to whom the social security scheme applies: each employer and employees employed by the organisation; any other employer, employee and self-employed to whom the Social Security Act of 1991 (P.N.D.C.L. 247) applied immediately before the start of Act 766; and self-employed individuals who opt to enrol in the social security scheme. Section 59 reveals the minimum age (15 years) and maximum age (45 years) at which a person could join the social security scheme. Section 60 and its related sub-sections indicate the age at which one is exempted from joining the social security scheme, that is, when a worker is 55 years or older before the commencement of Act 766 and is entitled to retirement benefits under a different pension scheme. A worker is entitled to a Social Security Number (SSN) on registration with SSNIT. The

SSN is non-transferrable; the worker is expected to use it throughout his or her working life and for the purposes of Act 766. This information is contained in *Section 61 and its attendant sub-sections* (ILO, 2008; IPO, 2008).

*Section 62 and its attendant sub-sections* affirm the need for an employer, in addition to already existing provident pension fund and other private schemes apply the content of Act 766 by deducting the 5.5% contribution from the monthly salary of workers under its establishment along with its 13% contribution for payment into the SSNIT Fund. Obligation of employers to remit 13.5% of the total 18.5% contribution of each worker to the tier one compulsory social security scheme within 14 days after the end of each month to SSNIT is explicit in *Section 63 and its ensuing sub-sections*. The minimum monthly contribution of each worker is 13.5% of the approved monthly earnings equivalent to earnings from the national daily minimum wage. 2.5% of the 13.5% contribution of each worker is deductible and transferrable to the National Health Insurance Fund. Further, the employer holds the monthly deductions in trust until they are transferred to the SSNIT Fund. Conditions under which penalties would apply for non-payment and delay in the payment of contributions are stated in *Section 64 and its attendant sub-sections*. *Section 65* addresses challenges likely to be associated with multiple employments by a worker. This section of Act 766 states when a worker works for two or more companies concurrently, each employer shall be responsible for only its obligation, and not the obligation of the other employer or employers. Inability of an employer to reduce directly or indirectly the remuneration or emoluments of a member of the scheme as a result of a liability for contribution to the scheme or any other charges under Act 766 is stipulated in *Section 66*. The Board of Trustees' responsibility to ensure SSNIT prepares and maintains a statement of investment policy for the social security scheme; review and revise the statement when necessary is contained in *Section 67 and its related sub-sections*. The investment policy statement is expected to include SSNIT's investment objectives, types of securities and other assets that may be acquired, risk in implementing the investment policy, balance between the different types of securities and other assets, and the expected return on the implementation of the investment policy (ILO, 2008; IPO, 2008).

*Section 68* affirms SSNIT's ability to invest pension fund assets in units of an investment subject to approval by the Board of Trustees. *Section 69* states the Board of Trustees in consultation with the Finance Minister may invest a percentage of pension fund assets outside Ghana. However, the initiative of the Board of Trustees shall be subject to existing Bank of Ghana (BoG) exchange rules; and the funds to be invested externally shall not exceed a percentage of SSNIT's total funds available for investments as determined by the National Pensions Regulatory Authority. Payment of superannuation pension to contributors is clearly stated in *Section 70 and its ensuing sub-sections*. This section notes a worker who is a member of the social security scheme and retires mandatorily at the age of 60 years; embarks on voluntary retirement at the age of 55 years; has contributed a minimum of 15 years or an aggregate of 180 months to the tier one scheme is entitled to a superannuation or retirement pension. *Section 71 and its related sub-sections* explain conditions for which a contributor (worker) would be considered invalid and entitled for invalidity pension. Here, a member qualifies for invalidity pension if he or she has contributed for a period not less than 12 months in the last 36 months prior to the occurrence of the invalidity; and presents a medical board certification affirming his or her inability to continue with normal gainful employment due to permanent mental or physical disability. Where the person initially declared invalid is subsequently certified by a medical board to continue with gainful employment, he or she may rejoin the social security scheme. *Section 72 and its attendant sub-sections* outline conditions for which a lump sum payment would be made to a member of the social security scheme. If a worker contributes less than 15 years to the social security Fund before he or she retires either mandatorily or voluntarily, the worker shall be entitled to a lump sum payment equal to his or her contribution as benefit; and an interest of 75% at the prevailing government Treasury bill rate on the lump sum (ILO, 2008; IPO, 2008).

Conditions for payment of lump sum benefit to the survivor or survivors of a contributor are spelt out in *Section 73 and its related sub-sections*. Upon the death of a contributor, a lump sum benefit may be paid to dependants validly nominated as beneficiaries of the deceased. If the contributor made no nomination prior to his death, or SSNIT finds the nomination invalid, the lump sum shall be distributed to the dependants in accordance with the Intestate Succession Act of 1985, P.N.D.C.L. 111. The surviving spouse and children may apply to the court for a variation of the nomination to include them if the deceased contributor failed to nominate the surviving spouse and children as beneficiaries. *Section 74* states the right of the sector Minister on the advice of the NPRA; and in consultation with the Board of Trustees of SSNIT to prescribe other classes of benefits through the use of a legislative instrument. *Section 75 and its ensuing sub-sections* note, workers engaged in jobs described as hazardous employment, contributed to the social security scheme for an aggregate period of not less than 180 months, and have attained the age of 55 years are entitled to full retirement benefit. Here, *hazardous employment* includes working at underground mine, steel works or any other employment determined by the NPRA as hazardous. *Sections 76 through 79 and their related sub-sections* affirm the conditions for which a worker would qualify for pensions; formula for computing pension benefits for a contributor (worker); formula for computing benefits for survivors; and formula for computing invalidity benefits respectively. SSNIT is obliged to review pension payments annually by indexing the pension payments to wage inflation rates of active contributors or other rate as it may determine in consultation with the NPRA Board. This provision is contained in *Section 80 of Act 766*. The process for nomination of beneficiaries to receive benefits upon the death of the contributor is explained in *Section 81 and its related sub-sections*. Government of Ghana's ability to enter into reciprocal agreement with the government of another country with a scheme similar to the social security scheme is stated in *Section 82 and its sub-sections* (ILO, 2008; IPO, 2008).

*Section 83 and its attendant sub-sections* explain conducts of persons or employers that constitute an offence to the operations and performance of SSNIT. Ability of the Attorney-General or an officer of SSNIT who is appointed through an executive instrument by the Attorney-General to institute criminal proceedings against offenders under Act 766 and Regulations made thereof is specified in *Section 84 and its related sub-sections*. Explanations on prosecution for offences



committed by corporate body and partnership; and conditions for which a person shall not be convicted under offences committed by corporate body and partnership are stated in *Section 85 and its ensuing sub-sections*. SSNIT's ability to initiate civil proceedings against defaulting companies and claims on students' loans under the Students Loans Act of 1992, P.N.D.C.L. 276, is explicit in *Section 86 and its attendant sub-sections*. Priority for payment of deducted contributions as a result of the initiation of legal proceedings; and protection against attachment issued by SSNIT against the property of an employer in execution of a decree are expressed in *Sections 87 and 88 and their related sub-sections* respectively. *Section 89 and its sub-sections* note the exemption of employers and employees' contribution to the pension scheme and benefits from tax. Indemnity of officers or workers of SSNIT and members of the Board of Trustees for actions in good faith and in pursuit of the objective of SSNIT is indicated in *Section 90*. Functions of SSNIT Inspectors, including entering premises with employees at a reasonable time to inquire and examine to gather information for the purposes of Act 766 are stated in *Section 91 and its attendant sub-sections*. The right of SSNIT to electronically record, file, and transfer documents related to the pension scheme is expressed in *Section 92 and its sub-sections*. Right of the sector Minister to make Regulations for the purpose of executing the principles and provisions in this Part is outlined in *Section 93 and its sub-sections*. The sector Minister's right is contingent on the recommendation of the SSNIT Board of Trustees and advice of the NPRA. Transitional provisions which bring into effect pensions arrangements under prior social security laws such as the Social Security Act of 1991, P.N.D.C.L. 247, are explained in *Section 94 and its ensuing sub-sections*. Definition of the term *occupational pension scheme* for the purpose of this Part is stated in *Section 95 and its sub-sections*. Mandatory 5% contribution to the occupational pension scheme by employers within 14 days of the deductions is stipulated in *Section 96 and its related sub-sections*. *Section 97 and its sub-sections* tell us existing schemes prior to Act 766 do not exempt employers and employees from deductions for the purpose of this enactment. Provisions in *Section 98 and its related sub-sections* reveal contributions paid by an employer to SSNIT are immediately vested as accrued benefits to the implied employees. The obligations of SSNIT to preserve accrued benefits derived from members' contributions; and to ensure disbursements in accordance with provisions in Act 766 are explicit in *Section 99 and its following sub-sections*. A contributor's ability to transfer accrued benefits from one scheme to the other in accordance with regulations of the scheme is noted in *Section 100 and its sub-sections*. Conditions under which a contributor (citizen or non-citizen) would qualify for withdrawal of accrued benefits are enumerated in *Section 101 and its attendant sub-sections*. Provisions for protection of accrued benefits, assignment of benefits, and exemption of contributions into the occupational pension scheme from tax are respectively stated in *Sections 102 through 104 and their related sub-sections*. Obligations of employers to record and maintain up-to-date records of all direct payments on contributions are expressed in *Section 105 and its related sub-sections* (ILO, 2008; IPO, 2008).

Definitions of the terms *provident fund scheme* and *personal pension scheme* for the purpose of this Act are expressed in *Section 106 and its sub-sections*. Persons to whom the personal pension scheme applies are explained in *Section 107 and its sub-sections*. Arrangements by an employer to facilitate employees' voluntary contributions to provident fund and personal pension scheme are outlined in *Section 108 and its ensuing sub-sections*. Categories of persons who could join and pay contributions as self-employed under the personal pension scheme are defined in *Section 109 and its related sub-sections*. Qualifying conditions for withdrawal of accrued benefits by contributors in the formal and informal sectors to the provident fund and personal pension scheme are explained in *Section 110 and its related sub-sections*. Mode of retirement benefits disbursement to a contributor who is not covered under a compulsory pension scheme or any other pension scheme is explicitly stated in *Section 111 and its attendant sub-sections*. Provisions in *Section 112 and its related sub-sections* depict tax reliefs on monthly contributions not exceeding 16.5% to the provident fund. Other conditions for which a contributor would be exempted from tax deductibles are stated in this section. A contributor's ability to create an encumbrance on all or part of his or her accrued benefits is outlined in *Section 113 and its related sub-sections*. A contributor's ability to withdraw all benefits to secure mortgage for the acquisition of primary residence without any tax liability on the withdrawal is expressed in *Section 114 and its attendant sub-sections*. Responsibilities of an employer to ensure an employee is able to contribute to any personal pension scheme of his or her choice are clearly stated in *Section 115 and its related sub-sections*. Provisions in *Section 116 and its related sub-sections* affirm the responsibility of an employer to monitor provident fund contributions by keeping up-to-date record of all direct payment arrangements, among others. *Section 117 and its related sub-sections* explain the responsibility of life insurance companies that add provident fund and personal pension business to their operations. This section affirms the need for the life insurance companies to maintain separate and distinct fund called the *Pension Fund* to represent the liabilities of the insurer in relation to provident fund and pension business. Non-availability of provident fund scheme contributions by an employer on behalf of a contributor to a liquidator of the employer in the event of folding up, among others, is expressed in *Section 118 and its ensuing sub-sections of Act 766* (ILO, 2008; IPO, 2008).

For the purposes of Act 766, conditions under which persons may not be considered as independent director and independent trustee are explained, clearly, in *Section 119 and its related sub-sections*. *Section 120* states pursuant to the beginning of Act 766, only trustees licensed and approved by the SSNIT shall manage occupational pension schemes, personal pension schemes, and other privately-managed pension schemes in Ghana. The prescribed functions of an approved trustee under Act 766 are detailed in *Section 121 and its related sub-sections*. The process of applying for a trustee licence and conviction of a person who performs the functions of a trustee without an authorised licence are stated in *Section 122 and its related sub-sections*. Conditions under which an applicant would qualify to be appointed as a trustee are revealed in *Section 123 and its ensuing sub-sections*. These conditions include meeting the minimum capital and net asset value requirements, or a lump sum to be determined by the Board; ensuring management staff possess the requisite qualifications to facilitate their performance as professionals; obtaining a licence from the Board to manage pension schemes, among other important conditions. The Board of Trustees' process of considerations for and approval of

submitted applications are duly stipulated in *Sections 124 and 125 and their ensuing sub-sections*. The Board of Trustees powers to impose appropriate conditions in relation to the conduct of an applicant's business are enshrined in *Section 126 and its related sub-sections*. An applicant's ability to make a written or an oral representation before an application for the rejection of an appointment as a trustee is stated in *Section 127 and its sub-sections*. The Board of Trustees' right to waive a condition where compliance with the condition in a particular case is determined not to be reasonably practicable is expressed in *Section 128*. Companies and persons who qualify to apply to the Board of Trustees for registration of occupational pension scheme or provident fund scheme as employer sponsored scheme or master trust scheme are explicit in *Section 129 and its sub-sections*. *Section 130 and its related sub-sections* require the content or particulars of the scheme to be registered by the applicant in *Section 129* to be stated. Act 766 requires the Board to consider an application for registration of a scheme and make a decision thereon within 90 days after receipt of same. The Board reserves the right to register a scheme if it is satisfied of compliance to the scheme or there would be compliance with the requirements and standards prescribed by the regulations in accordance with Act 766. These and other considerations of an application are stipulated in *Section 131 and its related sub-sections*. Inability of the Board to refuse an application without giving the applicant an opportunity to make verbal or written representation or both is stated in *Section 132 and its attendant sub-sections*. Where an application is refused by the Board, a written notice shall be served on the applicant. Issuance of certificate of registration to approved trustees of the occupational pension scheme or provident fund after registration is set out in *Section 133 and its related sub-sections*. The Board is required to specify any accompanying conditions to administration of the scheme in the certificate or in a document attached to the certificate. Finally, the certificate shall indicate the type of scheme registered: a master trust scheme or an employer sponsored scheme (ILO, 2008; IPO, 2008).

Situations in which the Board may waive the imposition of conditions on an applicant are spelt out in *Section 134 and its attendant sub-sections*. The application process for registration as personal pension scheme is stated in *Section 135 and its ensuing sub-sections*. Contents or particulars required in the application for registration as personal pension scheme are specified in *Section 136 and its attendant sub-sections*. *Section 137 and its sub-sections* state the Board is required to consider an application for registration as pension scheme within 30 days and make a final decision within 90 days after receipt of the application. Inability of the Board to refuse an application for registration as personal pension scheme without an opportunity for verbal or written representations by the applicant is indicated in *Section 138 and its related sub-sections*. Provisions in *Section 139 and its ensuing sub-sections* reveal after registering a scheme as a personal pension scheme, the Board is expected to publish same in the Gazette; issue a certificate of registration to the trustee; state conditions for administration or marketing of the personal pension scheme in the certificate or in an accompanying document to the certificate; and specify the type of scheme, that is, a personal pension scheme. *Section 140 and its related sub-sections* affirm powers of the Board to impose conditions on the administration or marketing of a personal pension scheme; make amendments or waive the conditions thereon. The need for at least one-third of the total number of trustees of an occupational pension scheme to be member-nominated trustees within a reasonable period of the commencement date of operations is explicit in *Section 141 and its attendant sub-sections*. Contents of *Section 142 and its sub-sections* stipulate, where a company is the registered trustee of an occupational pension scheme and each trustee of the scheme is a company, at least one-third of the total number of trustees of an occupational pension scheme must be member-nominated trustees within a reasonable period of the commencement date of operations. *Section 143 and its following sub-sections* indicate individual trustees of an occupational pension scheme are expected to demonstrate knowledge and understanding of trust deed and scheme rules, any statement of investment policy while it is maintained under Section 153 of Act 766, and any other document recording policy adapted by the trustees for implementation in relation to administration of the scheme in general. Similar to Section 143, *Section 144 and its sub-sections* stress on the demonstration of knowledge and understanding in occupational pension scheme management by corporate trustees. Payment of fees to trustees is expressed in *Section 145*. This section asserts payment of fees to a trustee shall be subject to limits determined by the Board. *Sections 146 through 149 and their attendant sub-sections* affirm the management of pension funds by pension fund managers approved by the Board, functions of pension fund managers, requirements for registration as a pension fund manager, and application for a fund manager of a scheme respectively (ILO, 2008; IPO, 2008).

Grant of an application to operate as a pension funds manager within 60 days after receipt of the application and satisfaction of all conditions, including payment of registration fees is spelt out in *Section 150 and its related sub-sections*. *Section 151* obliges the Board to notify an applicant of its decision to refuse an application. *Section 152 of Act 766* gives an applicant the opportunity to refer the matter of a refused application for resolution through an appropriate dispute resolution mechanism. Right of the Board to review the investment policy statement of a trustee at regular intervals is explicitly stated in *Section 153 and its related sub-sections*. Provision in *Section 154* relates to payment of fees to pension fund managers. This section indicates payment of fees to a pension fund manager shall be based on fees agreed with the trustee subject to limits determined by the Board through notices. *Section 155* states pension fund assets shall only be held by pension fund custodians registered by the Board. *Sections 156 through 159 and their ensuing sub-sections* explain the functions of custodians of pension fund assets, requirements for registration as a custodian, conditions for registration as a custodian, and the application process for registration as a custodian of pension fund assets respectively. Steps for the settlement of dispute between an applicant for the custodian of pension fund assets and the Board; and payment of fees to an approved custodian of pension fund assets are explained in *Sections 160 and 161*. Limitations of permitted expenditure from funds of the scheme to those prescribed by the Board are enshrined in *Section 162*. Limitation of total expenses, fees and charges to the maximum prescribed by the Board are outlined in *Section 163*. Conditions for which the Board may cancel the registration or revoke the licence of a trustee, pension fund manager, or custodian are stipulated in *Section 164 and its attendant sub-sections*. Obligation of the Board to publish the list of trustees, pension fund managers, and



custodians registered or licensed by it at the end of each calendar year; and other provisions are set out in *Section 165 and its ensuing sub-sections*. Content of *Section 166 and its sub-sections* affirm the need for trustees, pension fund managers, and custodians registered or licensed under Act 766 to keep proper records and books of account related to the scheme as may be determined by the Board. Trustees, pension fund managers, and custodians are required to submit an annual report, within 4 months after the end of each financial year, to the Board. The annual report is expected to explain their activities in relation to the scheme in the previous year. The foregoing is contained in *Section 167 and its following sub-sections*. Information in *Section 168 and its sub-sections* indicate the need for each licensed trustee, pension fund manager, and custodian to appoint an external auditor to audit its financial statements; and report on same to the Board. Specific obligation of the custodian such as maintaining pension fund and assets subject to directions of the trustee is expressed in *Section 169 and its sub-sections*. *Section 170* obliges trustees, pension fund managers, and custodians to submit to the Board reports of acts of theft, fraud, forgery or any other unapproved act that occurs in its establishment (ILO, 2008; IPO, 2008).

Trustees, pension fund managers, and custodians are obliged to notify the Board of any staff that is dismissed; or has his or her appointment terminated on grounds of theft, forgery, fraud or any other act of dishonesty that is spelt out in *Section 171 and its attendant sub-sections*. Provision in *Section 172* indicates a trustee, pension fund manager or custodian's inability to engage the services of a person on the list of the Board under *Section 171* unless with the prior approval of the Board. *Sections 173 through 176 and their related sub-sections* outline penalties for non-compliance by trustees, pension fund managers, prohibited transactions by same, investment of pension funds by same, and areas of permissible investment of pension funds by same. Conditions under which a trustee or pension fund manager could invest pension funds in other jurisdiction or jurisdictions, restrictions on investments by a trustee or pension fund manager, and restrictions on sale, purchase or disposal of pension fund assets are explicitly stated in *Sections 177 through 179 and their ensuing sub-sections*. Additional restrictions on investment by trustee and pension fund manager, and penalties for non-compliance are spelt out in *Section 180, and Section 181 and its related sub-sections* respectively. Powers of the Board to inspect, examine, investigate trustees, pension fund managers at least once a year for compliance; appointment of officers of the Board, agents, or other qualified persons as examiners to discharge their duties under Act 766; and powers of the appointed examiners are clearly stated in *Sections 182 through 184 and their related sub-sections* respectively. The Board's submission of a copy of a report at the end of an examination or investigation to the implied trustee, pension fund manager, custodian or corporate body; and instruct that the report be placed before the governing body of the trustee, pension fund manager, custodian or any other corporate body or person; and other obligations are set out in *Section 185 and its attendant sub-sections*. Content of *Section 186 and its related sub-sections* affirm powers of the Board to order special examination or investigation of the affairs and books of a trustee, pension fund manager or custodian on grounds of suspicion or satisfaction of public interest, among other considerations. Powers of the Board to request for specific documentation from any of its licensed scheme operators; and obtain a legal search warrant are enshrined in *Sections 187 and 188 and their sub-sections*. Definition of *privileged document and information*, non-disclosure of privileged document and information, and condition for disclosure of privileged document and information are outlined in *Section 189 and its attendant sub-sections*. The Board's ability to disclose information in its custody to a foreign regulatory authority; and due considerations required prior to the disclosure are set out in *Section 190 and its sub-sections*. Rights of the Board to publish results and reports of an investigation in a manner or form that it may deem fit while considering the law of defamation are disclosed in *Section 191 and its sub-sections* (ILO, 2008; IPO, 2008).

Responsibility of the Board to compile and maintain a register of registered personal pension schemes, occupational pension schemes, and provident fund schemes, among other related ones, are clearly elucidated in *Section 192 and its attendant sub-sections*. Details in *Section 193 and its attendant sub-sections* reveal the right of a person to inspect registers and records designated as public records and kept by the Board. *Section 194 and its ensuing sub-sections* affirm the Board's ability to formulate regulations to create a system that allows for electronic filing of required documents from applicants. Punitive measures to be meted out to trustees, pension fund managers, custodians or directors who misappropriate pension funds are clearly expressed in *Section 195 and its related sub-sections*. This section states any of the foregoing found to have misappropriated funds commits an offence and is liable on summary conviction to a fine of an amount equal to three times the amount misappropriated or to an imprisonment for a term of not less than ten years or both. *Section 196* notes trustees, pension fund managers or custodians who fail to comply with the provisions in *Section 170* related to fraud commit an offence and are liable on summary conviction to a fine of two thousand penalty units or a term of imprisonment of not more than two years or both. Powers of the Board, in addition to the penalties stipulated in Act 766, and despite any other law, to remove from office a pension fund manager, custodian, director, or an officer of a trustee are explicit in *Section 197 and its related sub-sections*. Rights of the Board to prosecute each director or officer in an offence involving a corporate body is outlined in *Section 198*. This section further states the right of a director or an officer to prove his or her innocence. *Section 198 and its sub-sections* indicate penalties to be imposed on employers, trustees, pension fund managers, custodians, persons or corporate bodies that refuse to provide information, explanation, document, voucher, accounts or books on request to the Board. *Section 200* discloses the penalty to be imposed on a person who acts in contravention to a provision in Act 766 for which a penalty is not specified. The person shall be liable on summary conviction to a fine of not more than one thousand penalty units or to a term of imprisonment of not less than one year or both. Powers of the Court to order a person convicted of an offence under Act 766 or any of the Regulations therein to comply with the provision of Act 766 or the Regulations for which the person has been convicted in addition to any punishment it may impose are stated in *Section 201*. Steps for the resolution of disputes that may arise between employees or beneficiaries of a scheme and trustees, pension fund managers or custodians are spelt out in *Section 202 and its related sub-sections*. Respective provisions in *Sections 203 and 204* indicate a person dissatisfied with the decision of the

Board could refer the matter for settlement through an appropriate dispute resolution mechanism; and settlements reached and agreed to by the parties involved under Act 766 remain binding on the parties and enforceable by the courts (ILO, 2008; IPO, 2008).

The establishment of Pensions Adjudication Committee, composition of the Committee and its functions under Act 766 are explained in *Section 205 and its attendant sub-sections*. Indemnity of the Board, members of the Board, and agents of the Board from liability for acts committed in the discharge of their duties is stated in *Section 206*. Rights of the sector Minister to make regulations for effective implementation of Act 766 are explicit in *Section 207 and its sub-sections*. The sector Minister's actions would be contingent on the recommendations of the Board. Content of *Section 208 and its ensuing sub-sections* discloses the Board's ability to issue operating guidelines and codes of practice to facilitate the works of approved trustees, pension fund managers, custodians, other service providers, the basic national social security scheme, the Controller and Accountant General's Department, participating employers and their employees, self-employed persons, and other persons concerned with Act 766. *Section 209 and its sub-sections* are categorical on the exemption of pension funds from attachment and liquidation process of any custodian of pension funds. An amendment to Section 60, sub-sections (3), (4), and (5) of the Internal Revenue Act of 2000, Act 592, to reflect the new contribution rates imposed under Section 3 of Act 766 is presented in *Section 210*. Interpretation of key terms such as *accounting records, accrued benefits, active member, actuary, annual report, annuity*, among others, are submitted in *Section 211*. Content of *Section 212 and its sub-sections* mention the repeal of the Social Security Act of 1991, P.N.D.C.L. 247 and the Long-Term Savings Act of 2004, Act 679. This section also states liabilities, obligations, rights and assets existing under the P.N.D.C.L. 247 are transferred to SSNIT, among other considerations, on the repealed enactments.

Provisions in *Section 213 and its sub-sections* affirm the following enactments and schemes shall be operable for a four-year transitional period following the implementation of Act 766: the Pensions Ordinance No. 42, 1950 (CAP 30) as amended; Teachers Pension Ordinance of 1955 as amended; Ghana Universities Staff Superannuation Scheme; Ghana Police Pensions Act of 1985, P.N.D.C.L. 168; Section 34 of the Security and Intelligence Agencies Act of 1996, Act 526; and Section 27 of the National Fire Service Act of 2000, Act 537. It is the Board's responsibility to ensure unification of all pension schemes in accordance with Regulations under Act 766 within five years after its implementation. Obligation of the Controller and Accountant General's Department to continue payment of pension benefits under the CAP 30 scheme is stated in *Section 214 and its attendant sub-sections*. Payments of gratuity and pension benefits to the next-of-kin or designated survivors of an officer exempted under Section 31 of Act 766; or a public servant under CAP 30 who dies while in service or in the course of duty are expressed in *Section 215*. Persons in active service who are enrolled in the CAP 30 scheme and other related schemes have the option to join the new pension scheme within four years after the implementation of Act 766 as enshrined in *Section 216*.

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Decentralisation and regulation of the management and administrative functions related to the CAP 30 scheme following the implementation of Act 766 are explained in *Section 217*. Provisions in *Section 218 and its related sub-sections* posit at the outset of Act 766 and prior to the registration or licensing of custodians, pension fund managers, trustees, and each employer to whom Act 766 applies is obliged to open a temporary Occupational Pension Fund Account with the Bank of Ghana for "safe keep" of the 5% tier two contribution until the foregoing scheme operators are duly licensed to operate same. *Section 219 and its attendant sub-sections* tell us, among other statements, subject to the provisions in Section 213, computation of accrued retirement benefits for employees shall be based on the terms of conditions of service existing before the implementation of Act 766. Each retiring worker shall be issued with a Ghana Government Retirement Bond. This Bond shall be equivalent to the total retirement benefit due the worker as calculated at the beginning of Act 766. Prevalence of Act 766 over other enactments related to pensions that are inconsistent with it (Act 766) is clearly stated in *Section 220*. Rights of the sector Minister to formally direct the Pension Reform Implementation Committee to perform functions of the National Pensions Regulatory Authority until the Board of NPRA is constituted are explicit in *Section 221*. Act 766 concludes with a *Schedule of paternal system* (mother and father; husband; wife, son and daughter; brother and sister; father's father; and father's brother) and *maternal system* (mother and father; husband; wife, son and daughter; brother and sister; mother's mother; mother's brother; mother's sister; sister's son; sister's daughter; mother's sister's son; and mother's sister's daughter) with special reference to Section 213 (ILO, 2008; IPO, 2008).

### 1.1.2. National Pensions (Amendment) Act of 2014, Act 883

Amendment of Act 766 was deemed necessary to help address issues related to the transfer of contributions; reduce the age at which an employee is exempted from the tier one pension scheme; and to address other significant pension-related issues. Thus, some Sections of the National Pensions Act of 2008, Act 766, were amended to improve the content and implementation of pension schemes in Ghana; and to meet international standards in pension administration. The foregoing affirms the National Pensions (Amendment) Act of 2014, Act 883, was promulgated in furtherance of the National Pensions Act of 2008, Act 766. The Amended Act of 2014 was passed by Parliament and received Presidential assent on 31<sup>st</sup> December, 2014. The new amendment affected thirteen existing Sections while one new Section was inserted. Specifically, the following Sections of Act 766 were amended: 55, 60, 64, 77, 81, 83, 91, 94, 100, 108, 109, 120, and 147. The following Section was inserted: 73A (NPRA, 2019b).

*Sub-section 3 of Section 55 of Act 766* is substituted as follows: "(3) The administrative expenses involved in the transfer of the two and a half per centum of the social security contributions to the National Health Insurance Scheme shall be charged to the National Health Insurance Authority on a formula to be agreed on by the National Health Insurance Authority and the Trust." Similarly, *sub-sections 1, 2, 3, and 4 of Section 60 of Act 766* are amended to read as follows: "60 (1) A worker who is entitled to retirement benefits under a pension scheme in existence before the commencement of this

Act and is aged fifty years or above is exempt from the scheme. (2) Despite the provisions of subsection (1), a person who is fifty years and above and exempted from this Act may opt to join the new scheme. (3) For members exempted under subsection (1), the employer and the worker shall continue to contribute to the worker's retirement benefit at the same level of contribution before the commencement of this Act until the worker retires. (4) Where a worker is exempted under subsection (1) but has already contributed to the second-tier scheme, the contributions and returns of the worker under the second-tier scheme shall be refunded to the Trust." Equally, *paragraph (b) of sub-section 1 in Section 64 of Act 766* is substituted as follows: "(b) the Director-General shall serve a demand notice on the defaulting employer and if payment is not made within thirty-days after the date of the service of the notice, the Director-General may proceed to collect and recover the contribution and the penalty and the employer is liable to prosecution by the Trust." Further, *Section 73A* is inserted to explain how benefits could be paid to a non-Ghanaian member of the scheme, including the payment of lump sum benefits. In *sub-section 2 of Section 77 of Act 766*, the phrase, "fifty-per centum," is substituted with "thirty-seven and half per centum" while *sub-section 3 of Section 77* is substituted to read: "(3) Where a member works beyond the minimum contribution period the amount of pension payable shall be increased by 1.125 per centum for every additional twelve months worked up to a maximum of sixty per centum."

*Sub-section 1 of Section 81 of Act 766* is substituted to read as follows: "(1) A person who is required or entitled to become a member of the Social Security Scheme shall furnish to the employer particulars concerning the dependants of the member nominated by that member for receipt of benefits on the death of that member." *Paragraph (d) of sub-section 1 of Section 83 of Act 766* is substituted to read: "(d) fails to pay contributions or a penalty imposed by the trust in respect of unpaid contributions or fails without reasonable excuse to submit or refuses to submit contribution payment with a contribution reportor accompany contribution to the Trust within the prescribed period in the form and manner prescribed." *Sub-section 3 of Section 91 of Act 766* is substituted to read: "(3) In the discharge of duties under this section, where an inspector requires an employer to produce documents related to appointment, attendance, wages of workers and contributions or liability of employees to contribute to the scheme or any other relevant document, the employer shall produce the documents within seven days of receipt of the request and the inspector may take copies of or extracts from the documents." *Paragraph (b) of sub-section 1 of Section 94 of Act 766* is substituted as follows: "(b) where within five years after the commencement of this Act, a member retires on attaining the age of fifty-five years and has contributed to the scheme for a period of less than twenty years that member is entitled to a reduced pension." *Sub-section 2 of Section 100* is substituted to read: "(2) Subsection (1) does not apply if a member exercises an option to have the accrued benefit of the member transferred to another scheme in accordance with the regulations of the scheme." *Paragraph (a) of sub-section 1 of Section 108 of Act 766* is substituted as follows: "(a) is at least fifteen years of age." *Sub-section 1 of Section 109 of Act 766* is substituted as follows: "(1) A self-employed person may join and pay contributions to a personal pension scheme if that person is of an age that is, not more than the statutory retirement age or is at least fifteen years of age." *Section 120 of Act 766* is substituted to read: "120. At the commencement of this Act, occupational pension schemes, provident fund schemes, personal pension schemes and other privately-managed pension schemes shall only be managed by trustees approved and licensed by the Board." *Paragraphs 9 (a) and (b) of sub-section 1 of Section 147 of Act 766* are substituted as follows: "(a) advise the Trustee on the investment of pension funds and assets in accordance with the provisions of this Act; and (b) advise the Trustee on the investment of pension funds in different investments to minimise investment risks" (NPRA, 2019b).

## 1.2. Problem Statement

The decision to implement pensions as a unique compensation scheme to reward individuals and civil servants who commit themselves to work and contribute meaningfully to the socio-economic development and growth of their economies dates back to over four centuries in some jurisdictions. The foregoing implies the significant role of pensions in living standards and life expectancy of workers after retiring from active work cannot be over emphasised. In most parts of the world, pensions constitute an integral part of employer-employee collective bargaining agreements; governments throughout the world have realised the need to pay special attention to pension systems and their related schemes to prolong life and ease living conditions and standards of workers at retirement. To this end, most governments of advanced and emerging economies have documented, effectively, their respective total pension fund assets; and often measure the relativity of these total pension fund assets to total gross domestic product. For instance, the governments of countries such as New Zealand and France have reliable data on total pension fund assets and their relative contributions to national gross domestic product (GDP). Data released by the World Bank (as cited in Geofred, 2018) revealed the respective pension fund assets to GDP ratios for New Zealand for the years 2012 through 2016 as 17.11%, 18.80%, 21.49%, 23.32%, and 24.83%. The respective pension fund assets to GDP ratios recorded by France during the same period were 8.87%, 9.30%, 8.68%, 8.89%, and 9.80%. However, access to reliable and credible data on pension fund assets in most developing economies, including Ghana, remains a challenge.

The general management problem is failure of the Regulator and Trustee of Ghana and other African economies to effectively document and present reliable data on pension fund assets to facilitate measurement of the sub-sector's relative contribution to overall national gross domestic product. Though evidence of these challenges exists, there are no scientific inquiries to clearly establish the impact of pension fund assets on Ghana's GDP.

The specific management problem is how the Regulator and Trustee of Ghana could effectively implement provisions in the National Pensions Act of 2008 (Act 766), and the National Pensions (Amendment) Act of 2014 (Act 883) by improving on monitoring and evaluation of various licensed and registered pension service providers; and adopting improved technological standards that meet international specifications to assure timely availability and release of pension fund assets data for analysis; and efficiency in retirement investment for national development and growth

purposes. The aim of this study was to examine the contributions of workers to the various pension schemes operable in Ghana; and the impact of those contributions on gross domestic product.

### 1.3. Research Objectives

#### 1.3.1. General Objective

The main objective of this research was to evaluate workers' contributions to pension schemes operable in Ghana; and the relative effect of those contributions on the nation's total gross domestic product.

#### 1.3.2. Specific Objectives

Specifically, the study sought to achieve the following objectives:

- Assess trends, enactments, and challenges associated with the implementation of pension schemes in Ghana.
- Assess the relative contributions of pension fund assets to the gross domestic product of some economies across the globe.
- Examine the economic significance of pension fund assets to the overall gross domestic product of Ghana.
- Make recommendations to stimulate meaningful contributions by workers to increase pensions' contributions to gross national product; and enhance superannuation income and benefit payments to contributors and beneficiaries by pension fund managers.

## 2. Literature Review

The current study was conducted under the topic: "Effect of Pension Fund Assets on Ghana's GDP." The underlying objective of this research was to assess the contributions of employees to various pension schemes operable in Ghana and the relative contribution of pensions to Ghana's annual GDP. This section presents a review of related and existing literature in the research area. Stated differently, this section presents a synthesis of literature related to the research. Discussion in this section reveals relationship between the reviewed literature and research objectives. Data required for discussion in this section were obtained from text books, peer-reviewed articles published in journals, research papers, newspaper publications; and Google Search Engine, among others. The following key words were used to generate relevant information from the Google Search Engine and other sources: pensions, pension fund assets, pension scheme, pension theory, and types of pension. Discussions in this section were preceded by a theoretical framework. The following sub-themes were used in this section: financial literacy and retirement planning, alternative investments to pensions, and governance and management of pensions. Discussions in this section contributed significantly to the study objective. That is, identifying challenges inherent in the successful implementation of various pension schemes to increase pension fund assets, and the relative contribution of pensions to national GDP; and how the various trustees could ensure effective management of pension funds to maximize returns on investments; and payment of superannuation income and benefits to contributors at retirement, and possibly to their beneficiaries.

### 2.1. Theoretical Framework

The *theory of retirement* propounded by Bloom, Canning and Moore (2007) was considered an appropriate prototype for our understanding and explanation of key financial concepts such as pension schemes or systems. Bloom et al. (2007) believe significant improvement in the welfare of individuals could be attributed largely to tremendous increases in standards of living and life expectancy over the last one and half centuries. Bloom et al. note global life expectancy witnessed significant increase from 30 years in 1900 to 65 years in 2000; and expected to increase to 81 years by the end of the current century. They believe these improvements in human life span have two significant effects. These include increase in individual welfare; and change in human life cycle behaviour owing to changes in time horizons of persons. Bloom et al. define the term *retirement* as a condition that arises from ill-health owing to age; and this condition reduces the utility of labour and productivity of work. Although there is a relationship between age and ill-health, Bloom et al. believe individuals are living healthier and longer due to improvements in age-specific health conditions. In developing economies where extended family systems are very strong and well-organised to a large extent, retirees are likely to derive some care and financial assistance from family members in addition to any available pension scheme or schemes' benefits. However, in most developed economies, retirees' mode of livelihood and survival is mainly dependent on social security systems and other voluntary pension schemes. The Theorists examined the optimal choices of agents in a model with complete markets and concluded significant improvements in individuals' life span have an impact on income: the budget set is expanded; and substitution effects are generated through changes in the rewards to work and savings.

Bloom et al.'s theory on retirement depict a dominance by the *income effect* when standard assumptions on preferences are applied; the income effect shows a positive relationship between increases in leisure and consumption on one hand, and an improvement in life expectancy on the other. The *wealth effect* of increases in life expectancy is a reduction in the proportionate life span committed to work. However, the wealth effect is not likely to result in significant reduction in the complete span of working life. The Theorists opine wage levels have income and substitution effects: increases in wage levels would result in a reduction in the working life span if the employee's "inter-temporal elasticity of substitution with respect to consumption is less than one (corresponding to a coefficient of relative risk aversion greater than one)" (Bloom et al., p. 2). Based on the foregoing results, Bloom et al. argue the long-term decrease in the retirement of the active labour force in industrial economies over the past one and half centuries is as a result of increase in wages. This

argument corroborates earlier analysis by Costa (1998) who found significant improvements in the life span of workers in advanced economies such as the United States of America (USA) over several decades.

Under the standard assumptions on interest rates and wages growth, Bloom et al. affirm the conventional approach to addressing challenges that arise in social security systems owing to increases in life expectancy is reducing benefit rates and increasing member contributions. However, Bloom et al.'s theory presents an alternative, the optimal response is to ensure an increase in benefit rates and reduction in contribution rates; and ensure exclusive maintenance of solvency through an increase in the retirement age, although the proportionate increase in the retirement age could be less than life expectancy. The Theorists argue the foregoing could contribute tremendously to maintaining solvency since compound interest on accumulated savings and increase in wage rates over time imply a longer working life would result in more than proportionate increase in wealth at retirement.

### 2.1.1. Assumptions

The retirement theory was developed based on the following assumptions. First, the mortality schedule is exogenous, and ignores the likelihood of drawing on health services and consumption to extend longevity. Also, there is no period of schooling for the life cycle. The inclusion of schooling would negatively impact employees' productivity, longevity, health, and utility of leisure; and this would complicate the model on retirement and consumption. The mortality rate at time (t) is measured as follows:

$$m(t, \lambda) = -[(ds \div dt)(t, \lambda) \div s(t, \lambda)]$$

Where:

$\lambda$  = A single variable indexing a family of possible survival schedules

$s(t, \lambda)$  = A survival schedule that gives the probability of survival to age (t)

Bloom et al.'s theory includes a health schedule  $h(t, z)$ . The theory further assumes a decline in health with age (t); health at age (t) is dependent on life expectancy (z); and if health is dependent on life expectancy, improvements in life expectancies are not related to general health improvements which take the form of reduction in morbidity or sickness. This suggests an aging population is strongly related to a significant number of people characterised by unhealthy conditions. However, the evidence points to the contrary, age specific disability is reducing while people are living longer; and most workers opt to retire before the onset of any severe disability.

The theory of retirement propounded by Bloom et al. assumes the measurement of life expectancy and age commences at adult life. The theory advances the following assumption to examine the impact of morbidity compression:  $h(\rho t, \rho z) = h(t, z)$  for  $\rho > 0$ . Morbidity compression is the ability to suppress and defer a sickness or disability from affecting the active life span of an individual. In addition to the foregoing, the theory provides proofs for the following propositions: a worker's optimum is derived if he or she starts life working, goes on retirement at age R, and makes a firm decision not to work thereafter; expected lifetime utility is maximised by retirement age and consumption stream, and these features are unique. The theory assumes the growth rate of wages' exogenous component is moderate. This is because frequent increase in wage rates could serve as a motivation tool for a retiree to re-enter the job market to take advantage of the increased remuneration even after retirement. To discourage this occurrence, the theory assumes for each life expectancy, the growth rate of labour disutility with age is more than the exogenous component in wages' growth at any given period. This suggests retirement occurs only once; and it is never reversed by the retiree. Bloom et al. further developed complex econometric models to test and ascertain the veracity of assumptions and propositions underlying the theory.

### 2.1.2. Limitations and Benefits

The theory of retirement developed by Bloom et al. has some noted limitations. For instance, the theory does not represent a complete cycle of savings and retirement behaviour; the theory was developed based on simplified assumptions; and excludes several important extraneous factors that could impact the "complete" life cycle theory of savings and retirement behaviour. The foregoing limitations notwithstanding, Bloom et al.'s model presents a positive theory for observed behaviour; and could serve as a benchmark when designing public pension systems to ensure social security systems are carefully designed to promote optimal retirement and consumption outcomes that rational agents would implement in complete markets. The model allows for effective measurement of welfare effects of proposed modifications of social security systems. The theory presents a life cycle of savings and retirement behaviour of rational agents in complete markets; it presents valuable thoughts into savings and retirement behaviour. Although the theory was developed with complete markets as the main focus, the outcomes of optimal decisions based on perfect or complete markets could be applied to policy decisions in imperfect markets.

## 2.2. Financial Literacy and Retirement Planning

Angrisani and Casanova (2019) examined differences in the level of retirement preparedness among individuals who are under-confident, over-confident, and those with actual knowledge in financial management of retirement. Angrisani and Casanova (2019) conceptually defined under-confident individuals to include those who rate themselves low, but in reality, have high objective financial knowledge in matters related to retirement. Over-confident individuals are those who rate themselves high, but practically, have low objective financial knowledge in retirement-related matters. The third category refers to individuals whose self-assessment and actual financial knowledge in matters related to retirement depict strong relationship. Findings from the research revealed no difference in retirement preparedness between over-confident individuals and others with similarly low levels of objective financial knowledge; and over-confident individuals

expressed no interest in improving on their financial knowledge. The economic outcomes of under-confident individuals were found to be worse compared with others with similarly high financial knowledge. However, the former expressed interest in enhancing their knowledge in retirement-related issues. The researchers believed frequent and intensive campaigns on financial literacy intended to create more awareness would encourage over-confident individuals to improve on their financial competence while spurring the under-confident to increase their knowledge in retirement. This corroborates Lusardi and Mitchell (2011) who found positive relationship between high financial illiteracy rate and sustainable pension schemes in both well-developed and rapidly evolving financial markets across the globe.

Lusardi and Mitchell (2011) examined the relative effect of financial literacy on retirement planning in the increasingly globalised and risky market place. The authors argued well-informed financial decisions are needed to ensure sustainability in the market place. Lusardi and Mitchell (2011) noted novel international research provides ample demonstration of widespread financial illiteracy in both developed economies and rapidly changing ones. Findings from the research revealed men are more financially literate than women; the middle-aged are more financially literate than the young and old; a significant number of educated individuals are more financially knowledgeable; and the financially literate are more likely than not to make adequate plans for retirement. Estimates on instrumental variables computed by the researchers revealed an underestimation of the impact of financial literacy on retirement planning in many jurisdictions. Lusardi and Mitchell (2011) concluded financial literacy is very vital to retirement security.

Lusardi and Mitchell (2011) drew on the National Financial Capability Study to examine the relationship between financial literacy and retirement planning in the United States of America. Findings from the research revealed low financial literacy rate among the less-educated, young, and women while Hispanics and African-Americans had least score on financial literacy concepts. In spite of the actual performance (low performance in some cases) on the key literacy questions, each group rated itself as well-informed about financial matters. The researchers found individuals with higher score on financial literacy are likely to plan effectively towards retirement; and this could enhance their living standards at retirement. In a related study, Bucher-Koenen and Lusardi (2011) relied on data from the SAVE survey to assess the impact of financial literacy on retirement planning in Germany. The authors developed an instrumental variables strategy to examine the causal relationship between financial literacy and retirement planning. The authors utilised regional variation in the financial knowledge of peers in developing the instrumental variables strategy. Findings from the research revealed lack of basic financial literacy knowledge among individuals living in East Germany, women, and the less-educated. Comparatively, individuals who are less-educated and low income earners in East Germany have low financial literacy than their counterparts in West Germany. The study revealed no gender disparity in financial knowledge in East Germany. Overall, the study revealed financial knowledge has a positive effect on retirement planning.

Fornero and Monticone (2011) examined the impact of financial literacy on individuals' participation in pension plans in Italy. Following pension reforms in Italy, the researchers sought to assess individuals' ability to make effective financial decisions, including whether or not to participate in pension fund schemes, the amount to contribute to pension plans, and how to invest their wealth in general. Fornero and Monticone (2011) relied on data from the survey on household income and wealth (SHIW) conducted by the Bank of Italy for their research. Findings from the research revealed knowledge of basic financial concepts such as inflation and interest rates was not known to most respondents. However, the more-educated, men and residents in the Centre-North of Italy possessed higher knowledge in financial literacy; and the effect of financial literacy on the probability of participation in pension plan was found to be positive and significant.

Alessie, Rooij and Lusardi (2011) conducted two separate surveys, one before and another after the global financial crisis to provide scientific evidence on the relationship between financial literacy and the level of preparation towards retirement in the Netherlands. Alessie et al. (2011) relied on available information on financial conditions and financial knowledge of relatives to examine the nexus of causality between financial literacy and preparation towards retirement. The findings revealed low level of financial knowledge between 2005 and 2010; and a significant increase in knowledge about retirement from 2010 onwards; positive impact of financial literacy on preparation for retirement; and positive impact of financial knowledge on planning towards retirement.

Klapper and Panos (2011) sought to evaluate the impact of financial literacy on retirement planning in Russia. Klapper and Panos (2011) revealed Russia is characterised by large regional disparities, emerging financial markets; and old and rapidly aging population. The *socialist economic model* of Russia makes public pensions the dominant scheme in the country. Findings from the research revealed only 36% of the sampled population understood the concept of compound interest; and only 50% could respond effectively to simple questions on inflation. The study revealed significant and positive relationship between financial literacy and retirement planning for private pension funds. The authors affirmed the need for intensification of financial literacy to facilitate expansion and effective utilisation of private pension funds in Russia.

An empirical research conducted by Sekita (2011) sought to assess the relationship between financial literacy and retirement planning in the Japanese economy. Basic questions related financial concepts were posed to the research participants. Findings from the study revealed low level of financial literacy in the Japanese economy; many respondents could not answer the question on financial literacy correctly; majority of the respondents demonstrated good knowledge about interest rates while more than half had challenges answering the question on risk diversification correctly. Sekita (2011) observed the respondents were overly cautious and only answered questions when they were confident about their responses. The findings revealed lowest financial literacy rate among the less-educated, the young, women, and low income earners. The probability of enrolling in a retirement savings plan increases as financial literacy campaigns increase.



Almenberg and S ave-S oderbergh (2011) relied on available data from the 2010 consumer survey conducted by the Swedish Financial Supervisory to examine the link between financial literacy and retirement planning in Sweden. The research results indicated general lower levels of financial literacy rate among the young, low income earners, less-educated, women, and older persons. Attempts at planning for retirement were found to be common among individuals with higher financial literacy rate. The researchers related their findings to features of the prevailing pension systems in Sweden.

Crossan, Feslier and Hurnard (2011) compared financial literacy levels among the general adult population of New Zealand. Specifically, the researchers sought to compare financial literacy level between the Ng ai Tahu people and the M ori ethnic group of New Zealand. The researchers controlled for economic and demographic factors and found lower level of financial knowledge among the M ori ethnic group than among the non-M ori. The research findings revealed little difference between the financial knowledge of other New Zealanders and the Ng ai Tahu people while financial literacy had no strong influence on retirement planning. Crossan et al. (2011) concluded the prevailing financial literacy level may be a contributory factor to the dominance of the universal public pension system as a major source of providing retirement income security for workers in New Zealand.

### 2.3. Alternative Investments to Pensions

Peng and Wang (2019) assessed the effect of increasing reliance on alternative investments (AIs) by public pension plans on the performance of investment. Further, the authors examined factors accounting for the reliance on alternative investments by public pension plans. Peng and Wang (2019) relied on data for 92 largest plans for the years 2001 through 2014. The research findings revealed alternative investment, especially private equity, generally had a positive impact on investment performance. However, the impact was found to be small and unsustainable. The study revealed pension plans with lower-funded ratios and high expectations in terms of investment returns are more likely than not to increase their asset allocation to alternative investments. The researchers noted local governments and states' decision to rely on alternative investments as a viable source of meeting expectations from investment returns remains a long-term challenge.

Dushi and Webb (2004) adapted scientific analyses and simulations to explain household decisions on annuitisation. Prior researches to Dushi and Webb (2004) assumed for many households, the actuarial unfairness of prices in the voluntary annuity market must outweigh the value of longevity insurance. However, Dushi and Webb (2004) argued rates associated with voluntary annuitisation are extremely low. Earlier studies on annuitisation value assumed the alternative of annuitising all unannuitised wealth at age 65 could be compared with an optimal decumulation of unannuitised wealth. For the purpose of their study, Dushi and Webb (2004) relaxed the foregoing assumptions; allowed a household to annuitise any part of its unannuitised wealth at any age; and to return to the annuity market whenever it wishes to do so. They assumed the levels of actuarial unfairness of annuities computed in prior studies are correct and fit for analysis in their research; and retained the assumption in prior studies which stated one half of household wealth is pre-annuitised. Using numerical optimisation techniques, Dushi and Webb (2004) found it is optimal for couples to delay annuitisation until they are between ages 73 and 82. For single men and women, it is optimal for them to annuitise at substantially younger ages, preferably between ages 65 and 70. The findings revealed a household fond of annuitising would generally be interested in annuitising only a fraction of its unannuitised wealth. Analysis of data drawn from the *asset and health dynamics among the oldest old and health and retirement study panels* revealed average current retired households fail to annuitise; and this is attributable to pre-annuitisation of significant proportions of their wealth. For younger households, the authors envisaged smaller pre-annuitised wealth with gradual increase in annuitisation as they advance in age.

Albrecht and Maurer (2003) examined alternative investment opportunities available to a retiree; and measured the personal probability of consumption shortfall associated with the selected investment opportunities with special reference to insurance and capital market conditions in the German economy. Albrecht and Maurer's (2003) study was premised on a retiree endowed with a certain amount of wealth and saddled with a cogent decision on alternative investment opportunities. The authors noted a possibility is to purchase a single premium immediate or participating annuity-contract. The other possibility is the investment of the single premium in a portfolio of mutual funds. The former possibility is expected to make a life-long pension payment of a certain amount to the retiree. However, the payments would depend on a number of factors including realised return on investments, operating cost, and age of the retiree. The latter possibility is expected to facilitate periodic withdrawal of a fixed amount by the retiree; this amount is presumed to be equivalent to the consumption stream generated by the annuity. Comparatively, the latter possibility was found to have higher liquidity and the likelihood of bequeathing heirs with funds. However, the retiree may outlive his or her investment assets. That is, the retiree may utilise all the funds available from the investment before his or her uncertain date of death. Albrecht and Maurer (2003) laid much emphasis on investment alternatives with little emphasis on the research methodology. In spite of this limitation, the research outcomes shed essential light on strategic ways of investing pension funds to assure retirees of "decent" living at retirement.

Horneff, Maurer, Mitchell, and Stamos (2010) demonstrated how an investor could maximise his or her utility from holding both long-term insurance and equity. The following assumptions were advanced for the study: the investor is free to make adjustment to the portfolio allocation of his or her investment wealth; and buy variable payout annuities incrementally, and at any time. Findings from the research revealed even in the absence of heirs, a pensioner would not fully annuitise his or her wealth; rather a consideration would be given to the combination of variable annuities and withdrawals from liquid financial assets to match the desired consumption profile while optimal stock exposures within the variable annuity and withdrawal plan decrease over time. The research results indicated welfare gains to be derived

from the proposed strategy could amount to 40% of financial assets. This is however, contingent on other resources and risk parameters while optimisation may be assured if investment in variable annuities is spread at 60/40 in stocks/bonds respectively.

Belloni, Brugiavini, Buia and Carrino (2019) relied on the SHARE survey and rigorous methodology to present individual-level based new estimates for social security wealth (SSW). Belloni et al.'s (2019) study took into consideration specific legislations of each country, earning history, and the prospects of individuals living longer. Findings from the study revealed comparable social security wealth measures across economies. Based on the research outcomes, Belloni et al. constructed indices to align with the redistribution enshrined in Europe's pension systems; and demonstrated, descriptively, the relationship between private wealth and social security wealth. Milevsky (2019) examined the scientific conditions under which a retiree may or may not benefit from longevity risk pooling. To achieve the research objective, Milevsky (2019) created a link between the economics of annuity equivalent wealth and actuarially models of aging. The author laid emphasis on the Compensation law of Mortality, which posits a person with higher relative mortality such as lower income is likely to age slowly; and experience higher uncertainty about longevity. The author noted extant research depicts growing disparity in longevity expectations between the poor and rich.

Bronshtein, Scott, Shoven and Slavov's (2019) comparative research assessed the relative strengths of an employee working longer against saving more to enhance sustainability and affordability of living standards of households during retirement. Actual households and stylised households were sampled and used in the study. Bronshtein et al. (2019) assumed an employee's access to social security benefits begins at retirement. Findings from the study revealed an employee's decision to delay retirement between three and six months has an effect on standard of living at retirement as the decision to increase savings by an additional one percent of labour earnings for thirty years. The research outcomes revealed the relative power of increased savings becomes lower if the decision to increase savings is made later in the work life of the individual. Bronshtein et al. found no difference between sustainable standard of living during retirement as the employee decides to extend work between one and two months longer; and the decision to increase retirement savings by one percent ten years prior to retirement. The researchers computed the relative power of saving more and working longer for a wide range of realised rates of return on savings for households with different income levels, married couples, and singles. The outcomes were not at variance with the foregoing circumstances.

Settergren and Mikula (2005) developed a model to compute the cross-section internal rate of return on contributions to pension systems, which are financed on the principle of pay-as-you-go. The model identifies the complete set of factors determining the cross-section internal rate of return; and involves a procedure that allows for valuation of the contribution flow of financing on the basis of pay-as-you-go. The procedure included in the model makes the application of the algorithm of double-entry bookkeeping possible in the analysis and presentation of the financial position and development of pay-as-you-go pension systems easier.

Börsch-Supan, Reil-Held and Schunk (2008) examined the effectiveness of the voluntary and heavily subsidised private pension schemes as an alternative to the pay-as-you-go pension scheme in the German economy. Börsch-Supan et al. (2008) observed a reduction in the implementation of the pay-as-you-go pension schemes in all developed economies owing to their aging population. Börsch-Supan et al. sought to examine the level of dependence of the *Riester pensions* which was introduced following the pension reforms in Germany on saving incentives provided by the State. They also investigated the extent to which the decision to target low income households and families worked in practice. Findings from the research revealed smooth implementation of private pensions despite a slow start; saving incentives were not enough to attract low income earners to the private pension schemes, but were effective in attracting parents; *Riester pensions* exhibited a more equal pattern by income than unsubsidised private pension plans and occupational pensions. The results indicated a displacement effect between saving for other purposes and saving for provision during old age while *Riester pensions* are not appropriate for households seeking to purchase a house or attach strong importance to inheritance. The relationship between occupational pensions and other forms of private pensions was found to be complementary.

#### 2.4. Governance and Management of Pensions

Clark, Caerlewy-Smith and Marshall (2006) assessed the relationship between trustee competence and long-term interest of defined benefit pension plan beneficiaries. Specifically, Clark et al. (2006) sought to achieve the following objectives: practically demonstrate the competence of trustees in decision making; illustrate the range of responses provided by trustees for relevant investment problems; examine the risk preparedness of trustees relative to their own funds and funds of others; and draw implications from the research outcomes that would be relevant to the relationship among board of trustees, advisers, and service providers. Clark et al. drew on a set of identified problems from the psychology literature to examine trustees' appreciation of probability, their reliance on evidence for problem-solving, their discount functions, and willingness to risk their funds and funds of others. Findings from the research revealed trustee competence is heterogeneous in nature; and the implications of the absence of basic approaches to challenges relevant to investment practice for fund management and governance were found to be significant.

Clark, Caerlewy-Smith and Marshall (2007) employed a set of problems requiring the same judgement techniques to examine the decision-making of pension trustees in the United Kingdom (UK). Clark et al. (2007) posited the theory and practice of individual decision-making under risky and uncertain conditions constitute an integral part of research programmes in the domain of social sciences. Further, reliance on individuals for planning and maintenance of savings programmes to meet their income aspirations by western governments is apparent. Research participants included a group of trustees drawn from selected defined benefit pension plans in the United Kingdom; this group was compared with a larger group of undergraduates selected from the Oxford University. The research outcomes revealed inconsistency

among respondents in terms of related problems requiring the application of probabilistic judgement. However, trustees demonstrated more consistency than many undergraduates. The researchers believed the level of education and professional qualifications of trustees are major attributes to the consistency in their decision-making. The study indicated consistency of judgement and substantive knowledge are crucial elements required by an expert to "triumph" in a more challenging task. One observes similarity in the works of Clark et al. (2006) and Clark et al. (2007); both works sought to examine the relevance of trustees' decision-making to effective management of pension funds. The difference in both works however, relates to the "overt" limitation of the topic for the research conducted in 2007 to the United Kingdom. The foregoing notwithstanding, both works add to the existing pool of knowledge in the study area.

Bikker and De Dreu (2007) determined the effect of administrative and investment costs on the rate of return on investments of pension funds. Some of the specific administrative and investment costs considered in the research included costs related to governance, pension plan design, size, and outsourcing decisions. The researchers relied on data drawn from the Dutch pension funds spanning from 1992 through 2004. The data included more than ten thousand observations. The research results showed the strong dispersion in investment and administrative costs across pension funds was controlled by economies of scale. Company and other pension funds were found to be less efficient than industry-wide pension funds while the operating costs of defined benefit plans were higher than those of defined contribution plans. Finally, the operating costs of pension funds are high when the number of retirees is high, vice versa. This implies a reduction in the number of active retirees is likely to moderate the operating costs of pension funds.

Coronado, Mitchell, Sharpe and Blake (2008) examined the valuation of defined benefit pensions in the financial market. They noted extant research has shown significant misvaluation of defined benefit pension assets; and this could be attributed to the decision by most companies to embed pension net liabilities and pension cost in their financial statements. The foregoing practice, Coronado et al. (2008) argued, could lead to a great misconception about pension finances, if considered on the face value. Coronado et al. posited the decision by most companies to relegate important information on pension finances to the footnotes is not helpful; this pertinent financial information may not court the attention of portfolio managers. Pension accounting practices and their attendant challenges among managers of large defined benefit pension plans dominated discussions in pension funds management during the turn of the decade. Further, there were growing dissatisfactions with the prevailing accounting standards; these concerns prompted the Financial Accounting Standards Board (FASB) to review and revamp defined benefit accounting. Coronado et al. hypothesised the increased attention on defined benefit pensions would make investors responsive to the informational challenges and strive to eliminate systematic mispricing. Findings from their research revealed little effort on the part of investors; and misvaluation of defined benefit pensions by investors continued uninterrupted, leading to sizable valuation errors in the stock of many organisations. The study outcomes suggested efforts by FASB to introduce reforms in accounting for defined benefit pensions would contribute significantly to effective valuation of firms with defined benefit pensions in the financial market.

Olivieri and Pitacco (2003) evaluated solvency requirements for pension funded plans and life annuities portfolios with special emphasis on longevity risk. The authors defined longevity risk as the risk likely to arise from the uncertainty associated with trends in future mortality. Longevity risk is a "burden" on pension plans and insurance companies with guaranteed lifelong payoffs to contributors or beneficiaries. Olivieri and Pitacco (2003) examined the solvency of immediate annuities; and addressed the decumulation phase as a result. To ensure effective measurement of solvency, random present value of liabilities was compared with assets; and several requirements were considered. The research outcomes indicated a required asset level that should be financed with capital allocation and premiums of contributions.

Cooper and Ros (2001) examined the underlying causes of underfunding in a work environment without pension benefit insurance; and highlighted a link between underfunding pensions and the financial markets. The authors noted the viability of employers to keep their promises on retirement benefits has come under attack following widespread underfunding of private defined benefit pensions in recent years. The study outcomes revealed an employer's ability to offer optimal level of retirement benefit is predicated on two significant factors. These include the availability of sufficient funds internally or the employer's ability to access all the borrowing needs. Further, the findings revealed pensions would be underfunded if loans are not enforceable, the employer has limited resources, and returns on pension investments are lower than expected.

Cui, De Jong and Ponds (2010) sought to address the issue of whether or not intergenerational risk sharing is feasible and desirable in funded pension schemes. Cui et al. (2010) adapted the multi-period OLG model to examine the levels of risk sharing between generations for a variety of pension schemes that are realistic and collective in character; and pension funds and contributions that are contingent on the funding ratio and return on assets. The results revealed improvements in welfare relative to optimal individual benchmark when intergenerational risk sharing is well-structured through collective schemes. Further, from an *ex ante* point of view, the expected welfare gain of the current generation would not come at a cost to future and older generations.

McCarthy, Mitchell and Piggott (2003) explored the influence of the design and structure of housing and retirement schemes on asset mix and wealth levels during retirement in Singapore. McCarthy et al. (2003) identified the national defined contribution pension systems as the long-held and major source of retirement income in Asia. The Central Provident Fund is a compulsory retirement scheme managed by the central government of Singapore. This pension scheme has been operational for over a half-century. The required rates of contribution to the scheme range up to 50%; and the impact of this scheme on housing portfolios and asset accumulation patterns has been phenomenal. Findings from the research revealed the success of the programme is predicated on the linkage between the national housing and retirement programmes. The results showed the introduction of novel policies to improve the performance of a programme may boost retirement replacement rates, but could eventually lower total wealth in unexpected ways.

McCarthy et al. believed lessons drawn from the research could serve as a strong guiding model for economies intending to construct a similar pension system.

Clark (2004) examined the internal governance of pension funds with special emphasis on rules and procedures for decision-making, practice codes, and levels of expertise and competence of trustees. He argued trustees, pension fund managers and custodians who are responsible for the welfare of contributors and beneficiaries have multiple functions and tasks and that, issues related to their regulation and governance are of public concern; these factors have direct effect on stakeholders and the performance of financial markets in the Anglo-American area. The research problems were formulated with reference to defined contribution and defined benefit schemes; and their variants. The research findings revealed, though it is important to observe and implement codes of conduct such as those advanced by the Organisation of Economic Cooperation and Development (OECD), any governance system that relies on rules and procedures is likely to encounter significant challenges; the net result of the foregoing initiative may be inertia, and not an innovation. The study outcomes revealed the governance structure of the pension funds was a reflection of prevailing governance structure in the 19<sup>th</sup> century other than the financial administration requirements of the 21<sup>st</sup> century. Clark's (2004) study affirms clearly the need for trustees, pension fund managers, custodians and board of trustees to "up their management game" to reflect contemporary trends; and to assure higher returns on investments of pension fund assets. Clark (2004) identified *discretion* as an important characteristic of the trust institution. That is, a trustee acts on behalf of individuals presumed not to be knowledgeable or well-positioned to effectively manage their long-term welfare. Further, pension funds are presumed to be regulated by a well-defined purpose, that is, to maximise the welfare of beneficiaries. This underscores the need for effective scrutiny of the activities of pension fund trustees to assure contributors and their beneficiaries of value-for-money. Evidently, Clark (2004) adds to the plethora of knowledge in the study area.

### 3. Research Methodology

The quantitative approach to scientific inquiry was applied to the current research. Specifically, a cross-sectional design, an example of survey design, was adapted and used in the study. This allowed the researchers to gather relevant research data over a specific period of time (Ashley, Takyi & Obeng, 2016; Creswell, 2009; Frankfort-Nachmias and Nachmias, 2008). Data required for the research were obtained mainly from secondary sources including text books, peer-reviewed articles published in journals, research papers, newspaper publications; Google Search Engine, financial websites such as Tradingeconomics.com; and electronic databases of the Bank of Ghana (BoG), Ghana Statistical Service (GSS), National Pensions Regulatory Authority, Social Security and National Insurance Trust; the World Bank and World Economic Outlook, among others. Annual data on the World's total gross domestic products (GDPs); data on pension fund assets values for selected economies; and pension fund assets to Ghana's GDP ratios during the period were computed and used in the study.

#### 3.1. Analytical Tools

Regression models and descriptive statistics were used to describe the research variables; and to evaluate their behaviour over the stated time frame in the Ghanaian economy. Measures such as the range, minimum, maximum, skewness, and standard deviation were employed to describe the extent of dispersion about the central tendency (Ashley et al., 2016; Creswell, 2009; Frankfort-Nachmias & Nachmias, 2008). These measures were used to describe trends in pension fund assets for selected economies over a given time period.

#### 3.2. Research Variables

The *independent* research variable was *pension fund assets* while the *dependent* research variable was the level of overall performance of the *Ghanaian economy*, represented by *Ghana's total GDP*.

#### 3.3. Regression Model

Regression statistical model was adapted to measure the effect and level of interaction of pension fund assets on Ghana's total GDP. The Microsoft Excel analytical software was used in the research. Diagrammes and tables were derived from Microsoft Excel to explain the research data; and to determine the fitness of the regression model for the research.

#### 3.4. Research Hypothesis

The study tested the causal relationship between pension fund assets and gross domestic product using the following null and research or alternative hypotheses:

H<sub>0</sub>:  $\mu_1 = \mu_2$ ; this implies pension fund assets do not have strong effect on Ghana's total GDP

H<sub>1</sub>:  $\mu_1 \neq \mu_2$ ; this implies pension fund assets have strong influence on Ghana's total GDP

### 4. Research Findings and Discussions

#### 4.1. Pension Schemes in Ghana

Findings from the current research revealed the National Pensions Act of 2008, Act 766, established the Three-Tier Pension scheme in Ghana while the National Pensions (Amendment) Act of 2014, Act 883, allowed for revision of certain Sections and the insertion of another Section in Act 766. The pension scheme has three significant levels of contribution namely, Tier One, Tier Two, and Tier Three contributions. Tier One is the mandatory national social security scheme managed by the Social Security and National Insurance Trust. The basic monthly contribution to this scheme by each employee is 13.5%. The employee pays 0.5% from his or her monthly salary, and the employer pays 13% on the

employee's salary to the scheme. The worker is entitled to tax reliefs on his or her contribution of 0.5%. Employers are mandated to collect the monthly contribution amounts due on behalf of SSNIT, and forward same to the latter by the 14<sup>th</sup> of each new month. The respective minimum and maximum ages for joining the Tier One scheme are 15 years and 45 years. Four major benefits are identified with the Tier One pension scheme. These include superannuation or old age pension, invalidity pension, survivor's lump sum, and emigration benefit. Tier Two is the mandatory occupational pension scheme that is fully funded and managed by private pension service providers. Contribution to this scheme includes 5% of the worker's basic monthly salary. The worker pays the entire 5%; the employer does not share in the payment to the scheme. The worker's contribution to the Tier Two scheme attracts tax reliefs. Unlike the Tier One pension scheme, employers are allowed to select their preferred pension service providers; and contributions to the Tier Two scheme are not managed by SSNIT. The option to select a pension service provider allows employers to earn higher rates of return on their pension fund investments than SSNIT offers. Tier Three is voluntary provident fund and personal pension scheme fully funded and managed by private pension service providers. This scheme is intended to allow workers in the informal sector to save towards retirement; and to allow workers in the formal sector to save additional funds to enhance their benefits at retirement. Under the Tier Three scheme, contributions up to 16.5% are exempt from tax; contributions in excess of 16.5% are taxable. Contributors to the Tier Three scheme select their preferred pension service providers. Service providers are expected to update contributors regularly on the performance of their investments. Accrued tax benefits remain effective if contributors in the informal sector are able to maintain their investments for at least five years; and contributors in the formal sector keep their investments for at least ten years. However, tax payments on Tier Two and Tier Three contributions are waived if early withdrawals are intended to make down payment for mortgage on the contributor's primary home. The tax reliefs make Tiers Two and Three pension schemes the best investment conduits for contributors to save towards home ownership.

#### *4.2. Factors Affecting Pension Income in Ghana*

The overarching objective for the introduction of pension schemes in economies across the globe is to alleviate the plight of and improve on the living conditions of workers at retirement. This makes any initiative intended to meet the future needs of workers unique and significant; such an initiative requires the concerted effort of all and sundry. Outcomes from the present study revealed some active contributors to the social security scheme questioned the essence of the scheme since they believe the scheme does not contribute meaningfully to living standards and conditions of retirees. Other contributors challenged the essence of the Trustee using luxurious buildings and vehicles for its day-to-day operations while the take-home superannuation monthly income of retirees could barely sustain their livelihood. The formulae for computing pensions, effecting payment on survivors' benefits, and making pension payments in times of invalidity are expressed in Sections 77 through 79 and their related sub-sections of Act 766. Sub-sections 2 and 3 of Section 77 stipulate the minimum pension amount to be paid to a contributor at retirement would be computed on 50% of the average annual remuneration for the three best years of the retiree's working life. Further, the retiree is assured of additional payment rate ranging from 1.5% to 80% if he or she worked beyond the minimum contribution period. However, an amendment to the foregoing in sub-section 3 of Section 77 in Act 883 indicates an additional payment ranging from 1.125% to 60%.

In 2012, benefits paid to 119,323 retirees were based on average monthly salary of GH¢620.80. The real return on investment during the same year was 12.09%. This was an improvement over the 5.60% recorded in 2011. Value of total benefits paid to retirees in 2012 amounted to GH¢443.15 million, with an average processing period of 48 days; a day shy of the processing days (49 days) in 2011. Information on the period for processing pension payments is not consistent. However, we observed consistency in the value of pension payments to retirees from 2012 through 2016: GH¢443.15 million, GH¢692.3 million, GH¢941.27 million, GH¢1.117 billion and GH¢1.236 billion respectively. The foregoing figures affirm steady increase in total annual superannuation and other benefits payments to retirees over the period. Similarly, the number of pensioners paid witnessed significant increase from 2012 through 2016: 119,323; 128,504; 142,076; 156,262; and 174,164 respectively. To ensure smooth transition from its initial development phase to mainstream operations and activities, the NPRA rolled out a five-year strategic plan in 2015. This plan is targeted at the period 2016 through 2020. This plan is pivoted around a risk-based approach and expected to ensure the financial independence of the NPRA. As part of measures to enhance service delivery, the NPRA revised its core values, vision and mission statements.

Recent information released by the chief executive officer (CEO) of SSNIT revealed the monthly earnings of about 25% of the active labour force in Ghana are not more than GH¢400.00; they either earn GH¢400 or less. The inference from the CEO's submission is the overall contribution to the scheme is low; and this could affect the monthly superannuation incomes of the implied workers during retirement. The submission suggests current low monthly pension income of some retirees could be attributed to low monthly earnings and the resultant low monthly contributions to social security while in active service or work. If 25% of the active workforce earn GH¢400 or less, about 75% (100% - 25% = 75%) earn more than GH¢400 monthly implying majority of the retirees should not fall within the "complaint bracket" in terms of low superannuation income. However, the reverse is true. If the average monthly salary contributions which formed the basis for superannuation payments in 2012 was GH¢620.80, it is very likely the average monthly salary contributions in 2019 would be more than GH¢620.80. This argument does not support the statement that the social security investment portfolio would be negatively impacted by the current contribution trend, though the call for strategic increase in contributions is ably supported by the researchers. This raises concerns about the financial ingenuity of managers of the pension funds. Sections 67 through 69 and their attendant sub-sections of the National Pensions Act of 2008, Act 766, explain the investment policy and allow for investments of a fraction of total pension funds in both domestic and external financial markets by the Trustee of social security funds. To this end, contributors to the scheme expect the Trustee to do

due diligence to assure higher returns on invested funds. All else held constant, increased returns on invested funds would assure upward review of superannuation income and benefit payments to retirees and beneficiaries at regular intervals. Further, the CEO did not state the average age of contributors within the 25% category. However, assume the average age of contributors in this category is 45 years. Each contributor has additional 15 years (60 yrs. – 45 yrs. = 15 yrs.) to contribute to the pension scheme. During this period, it is more likely the worker would experience pay raise and retire with a monthly salary above GH¢400. Such a situation may call for relatively better income at retirement than illustrated by the CEO.

Findings from the current research revealed majority of current retirees in Ghana were born during the colonial era and immediately after independence. During these periods, acceptance and enrolment in formal education as an effective tool for future development of individuals were very low. As a result, greater part of the workforce had little or no formal education; and this affected their work status as well as monthly and annual earnings as employees. The foregoing challenges might have contributed strongly to the relatively low monthly superannuation income earned by many current retirees in the country.

#### 4.3. Available Data on Pension Fund Assets at the World Bank

As noted in the preceding section, pensions play a pivotal role in the lives of retirees after active service. To assure retirees of better living standards at retirement, governments through their respective departments and agencies ensure effective management of contributions during active service to facilitate payment of superannuation income and other fringe benefits at old age or retirement. Management of pension funds falls under the domain of finance; most pension funds are invested in the financial markets with expectations of higher returns on investments. The foregoing is expected to translate into constant upward review of monthly superannuation income payments and other benefits. Generally, member countries of the International Bank for Reconstruction and Development (World Bank) are expected to furnish the latter with data on annual pension fund assets and GDP to ease computation of the relative ratio of total pension fund assets to GDP. Data released by the World Bank (as cited in Geofred, 2018) showed compliance by most advanced and emerging economies across the globe. However, with the exception of Kenya, the World Bank has no data on African economies in relation to annual pension fund assets (PFAs). This is indicative of the fact that poor data and records management on total pension fund assets in Sub-Saharan Africa is not exclusive to Ghana; almost all African countries including the three leading economies – Nigeria, South Africa and Egypt – are “culprits.” Data on pension fund assets to GDP ratios for selected economies are presented in Table 1 and Appendix A.

Table 1 indicates available data for Kenya’s total pension fund assets at the World Bank spans from 2001 to 2016, which is consistent with available data for Finland and New Zealand (see Appendix A); and a year shy of available data for Australia, Brazil, Mexico, Sweden (see Appendix A), and the United Kingdom (2000 - 2016). Kenya’s average pension fund assets to GDP ratio over the sixteen-year period is about 11.65%. Table 1 reveals available data on pension fund assets to GDP ratios for France and Russia extend to fourteen (2003 - 2016) and fifteen years (2002 - 2016) respectively. Russia’s pension fund assets to GDP ratios witnessed steady increase from 2009 through 2013, plummeted in 2014, and increased steadily from 2015 to 2016. However, the preceding years, that is, 2002 through 2008, were characterised by fluctuations in the pension fund assets to GDP ratios. France experienced fluctuations in pension fund assets to GDP ratios from 2003 through 2005; and steady increase in subsequent years, except in 2011. The United States and Canada’s data on pensions extend from the period 1990 through 2016. These countries present the most extensive data on pension fund assets. However, Canada’s average pension fund assets to GDP ratio over the twenty-six-year period is about 64.98%; this is lower than the estimated 91.36% recorded by the United States during the same period.

Statistics in Table 1 indicate the United States and Australia recorded pension fund assets to GDP ratios in excess of 100% in some fiscal years. Consistently, the respective pension fund assets to GDP ratios recorded by the United States and Australia were in excess of 100% from 2006 through 2016; and from 2013 through 2016. The data reveal Australia first exceeded 100% threshold in 2007 (105.59%). Kenya recorded steady growth in pension fund assets to GDP ratios from 2001 through 2006; and experienced fluctuations thereafter (from 2007 through 2016). Data for the United Kingdom depict fluctuating pension fund assets to GDP ratios from 2000 through 2008; and steady growth in subsequent periods (2009 through 2016). Comparatively, Russia presents the least pension fund assets to GDP ratios in Table 1 and Appendix A.



Year	Australia	Canada	France	Japan	Kenya	Russia	UK	USA
2016	120.95	90.61	9.8	29.79	12.75	3.98	95.29	134.91
2015	120.92	84.22	8.89	30.18	13	3.47	98.8	131.09
2014	111.18	80.1	8.68	31.15	13.98	2.75	97.89	136.94
2013	102.63	75.64	9.3	29.81	14.68	2.81	98.11	135.77
2012	92.84	75.26	8.78	30.31	12.88	2.27	95.72	122.97
2011	91.87	68.95	8.41	28.49	12.37	1.98	88.68	116.18
2010	87.81	73.51	8.46	27.98	13.62	1.8	81.98	119.31
2009	84.84	73.22	7.97	28.6	10.96	1.76	73.99	111.73
2008	92.06	52.86	6.08	26.89	10.97	1.29	61.93	94.06
2007	105.59	71.52	5.69	28.21	12.26	1.67	73.89	121.6
2006	87.9	65.39	5.59	28.47	13.07	1.77	76.82	117.88
2005	74.74	66.47	0.01761	30.53	10.79	1.47	72.14	74.17
2004	67.52	65.84	1.21	24.95	9.91	0.597	62.37	73.33
2003	64.87	62.72	1.26	27.16	9.52	0.75	57.92	71.75
2002	66.38	54.95	N/A	25.19	8.41	0.432	52.91	59.99
2001	71.28	56.43	N/A	17.59	7.25	N/A	64.47	67.84
2000	61.7466	60.33	N/A	17.58	N/A	N/A	75.601	77.4956
1999	N/A	64.55	N/A	18.19	N/A	N/A	N/A	84.248
1998	N/A	59.81	N/A	15.78	N/A	N/A	N/A	79.8079
1997	N/A	56.69	N/A	N/A	N/A	N/A	N/A	75.056
1996	N/A	56.43	N/A	N/A	N/A	N/A	N/A	66.8297
1995	N/A	52.52	N/A	N/A	N/A	N/A	N/A	62.972
1994	N/A	47.17	N/A	N/A	N/A	N/A	N/A	56.1334
1993	N/A	49.65	N/A	N/A	N/A	N/A	N/A	45.8351
1992	N/A	43.25	N/A	N/A	N/A	N/A	N/A	45.8351
1991	N/A	41.9	N/A	N/A	N/A	N/A	N/A	45.8351
1990	N/A	39.54	N/A	N/A	N/A	N/A	N/A	45.8351

Table 1: Pension Fund Assets Data for Selected Economies - 1990 to 2016

Source: The World Bank (as cited in Geofred, 2018)

#### 4.4. Pension Fund Assets to GDP Data for Selected Economies

Data in Figure 1 and Appendix B depict the pension fund assets to GDP for fourteen (14) economies selected from the database of the World Bank (as cited in Geofred, 2018). These include Australia, Brazil, Canada, Finland, France, Japan, Kenya, Mexico, New Zealand, Norway, Russia, Sweden, United Kingdom (UK), and the United States of America (USA). Data in the figure and appendix are for the fiscal year 2016. One observes the United States recorded the highest pension fund assets to GDP (134.91%) ratio in 2016. This investment dominance affirms the understanding, appreciation and development of pensions in the country as early as 1636; and the country's role as the leading economy in the world. During the same year, the respective pension fund assets to GDP ratios for Australia and the United Kingdom were 120.95% and 95.29%; these constituted the second and third highest values for the year (2016). The country with the least pension fund assets to GDP ratio in 2016 was the Russian Federation (3.98%). The ratio (12.75%) recorded by Kenya in 2016 was better than the respective ratios for France (9.8%), Norway (10.66%), and Brazil (12.68%). The respective pension fund assets to GDP ratios for Canada (90.61%) and Sweden (80.08%) were the fourth and fifth highest recorded in 2016. The respective ratios recorded by Finland (59.34%) and New Zealand (24.83%) during the year under review were equally encouraging. However, given the differences in size of each of the 14 economies listed in Figure 1 and Appendix B, it may not be economically useful to rely on comparisons of their pension fund assets to GDP ratios to conclude on the economic significance of total pension fund assets in each country. Perhaps, this phenomenon could best be addressed using data in Table 2, Figure 2, and Appendix C.

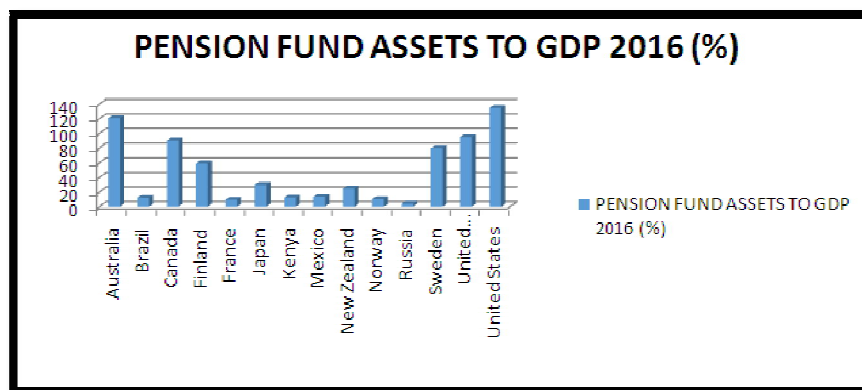


Figure 1: Pension Fund Assets to GDP Values for Selected Economies - 2016

Statistics in Table 2 present information on GDP and pension fund assets values for the economies listed. Data in the second column in Table 2 depict the respective GDP values (at current prices) for 2016 for each of the 14 economies included in the analysis. The computed values for total pension fund assets for each economy for the fiscal year 2016 are presented in the fourth column in Table 2. Data in the table indicate a country's GDP value multiplied with the pension fund assets to GDP ratio (which is expressed in percentage terms) determines the country's total pension fund assets value for the period. As stated in the preceding section, it may not be economically useful to rely on comparisons of pension fund assets to GDP ratios to conclude on the economic significance of total pension fund assets in each country. Rather, we could compare the real values of pension fund assets for the implied economies. To illustrate, the pension fund assets to GDP ratio for Russia in 2016 was 3.98% (0.0398) while her GDP during the same period was about \$1.283 trillion. This translates into pension fund assets value of about \$51.052 billion, which was more than the respective pension fund assets values for Kenya (about \$8.822 billion), Norway (about \$39.585 billion), and New Zealand (about \$46.644 billion). Similarly, France recorded pension fund assets to GDP ratio of 9.8% (0.098) in 2016. During the same year, the country's reported GDP was about \$2.471 trillion. This translates into total pension fund assets value of about \$242.186 billion which is more than the respective GDP values for Kenya (about \$69.189 billion) and Finland (about \$239.010 billion) in 2016. France's pension fund assets value (about \$242.186 billion) is the seventh highest in Table 2, Figure 2, and Appendix C.

Country	GDP VALUE FOR 2016 X	PFA's TO GDP 2016 (%) =	TOTAL PENSION FUND ASSETS - 2016
Australia	\$ 1,210,028,388,411.7	120.95 = 1.2095	\$ 1,463,529,335,783.95115
Brazil	1,796,275,437,087.99	12.68 = 0.1268	227,767,725,422.757135
Canada	1,526,705,529,135.32	90.61 = 0.9061	1,383,347,879,949.513452
Finland	239,009,517,793.721	59.34 = 0.5934	141,828,247,858.7940414
France	2,471,285,607,081.72	9.8 = 0.098	242,185,989,494.00856
Japan	4,926,667,087,367.51	29.79 = 0.2979	1,467,654,125,326.781229
Kenya	69,188,755,510.9427	12.75 = 0.1275	8,821,566,327.64519425
Mexico	1,077,827,944,342.35	14.09 = 0.1409	151,865,957,357.837115
New Zealand	187,854,022,728.459	24.83 = 0.2483	46,644,153,843.4763697
Norway	371,344,761,904.762	10.66 = 0.1066	39,585,351,619.0476292
Russia	1,282,723,881,083.71	3.98 = 0.0398	51,052,410,467.131658
Sweden	512,205,240,408.433	80.08 = 0.8008	410,173,956,519.0731464
United Kingdom	2,659,238,931,670.25	95.29 = 0.9529	2,533,988,777,988.581225
United States	18,707,188,235,000	134.91 = 1.3491	25,237,867,647,838.5

Table 2: Computation of Pension Fund Assets Values for Selected Economies

Computed total pension fund assets values in Table 2, Figure 2 and Appendix C indicate the United States recorded the highest pension fund assets value (about \$25.238 trillion) in 2016. Indeed, the total pension fund assets value (about \$25.238 trillion) for the United States was more than the GDP value (about \$18.707 trillion) recorded in 2016. Australia recorded the fourth highest pension fund assets value (about \$1.464 trillion) in 2016. This was in excess of the GDP value (about \$1.210 trillion) recorded in the same year. The United Kingdom and Japan recorded the respective second (about \$2.534 trillion) and third (about 1.468 trillion) highest pension fund assets values in 2016. The respective GDPs for these economies during the period were about \$2.660 trillion and \$4.927 trillion. The respective pension fund assets to GDP ratios for the United Kingdom and Japan were 95.29% and 29.79%. Comparatively, Japan had the largest economy in 2016. However, the economy recorded the lowest ratio (29.79%) and the least actual pension fund assets value (1.468 trillion) during the period. This may be attributed to differences in understanding, appreciation, and active participation in various pension schemes in the two economies.

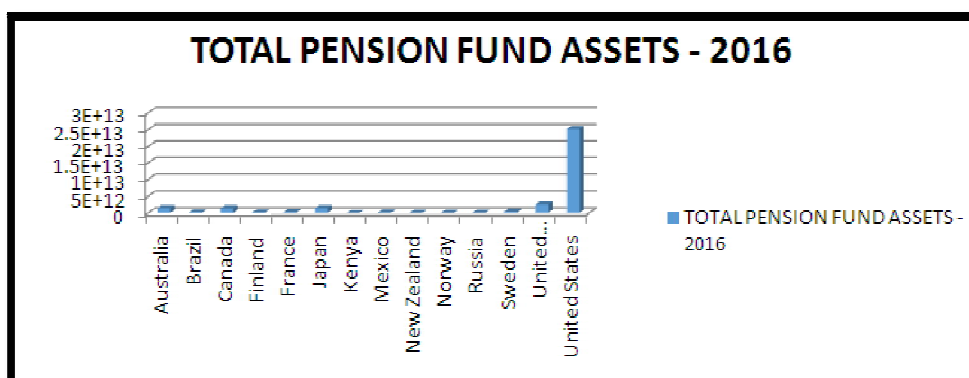


Figure 2: Pension Fund Assets Values for Selected Economies

The total pension fund assets value recorded by Canada in 2016 was about \$1.383 trillion; this was the fifth highest value for the year. We observe 12 of the 14 economies recorded total pension fund assets values below their respective GDP values while 2 economies (United States and Australia) recorded values in excess of their respective GDP values during the period. The level of development witnessed by the financial markets in the United States coupled with attention for the elderly or aged affirms the significant pension fund assets values recorded over the years. The impressive ratios recorded by Australia in recent years are indicative of the rapid growth in the country's financial markets; and the intensity of financial literacy programmes and campaigns. The least pension fund assets value (about \$8.822 billion) was recorded by Kenya. However, this figure fairly equates the country's total GDP value (about \$69.189 billion) in 2016. Kenya presents reliable data on pension fund assets for sixteen consecutive years; this is unheralded by any other African economy. Overall, the pension fund assets values are an ample demonstration of the extent to which the pension concept has gained financial "roots" in some jurisdictions; and receive strong attention to assure improved living standards and prolonged life span for retirees.

#### 4.5. Descriptive Statistics

Table 3 presents a statistical description of the pension fund assets values for each of the fourteen economies included in the analysis. The skewness of the distribution in Table 3 is 3.654 while the sample variance is 4.386. Data in Table 3 depict respective standard error and Kurtosis values of 1.770 and 13.521. The standard error value in Table 3 tells us the extent to which the coefficients are significantly different from zero. It is worth reiterating a significant number of the pension fund assets values presented by the fourteen economies showed steady increases over the period. The minimum value in the figure is 8821566328, representing Kenya's pension fund assets value for 2016 (\$8.822 billion) while the maximum value (2.52379) is representative of the total pension fund assets value for the United States for 2016 (\$25.238 trillion). The range explains the difference between the maximum and minimum values for the distribution. Value for the range (2.5229) in Table 3 explains the substantial difference between the respective pension fund assets values for the United States (\$25.238 trillion) and Kenya (\$8.822 billion).

Descriptive Statistics For Pension Fund Assets Values - 2016	
Mean	2.38617E+12
Standard Error	1.77001E+12
Median	2.34977E+11
Mode	#N/A
Standard Deviation	6.62278E+12
Sample Variance	4.38612E+25
Kurtosis	13.52050609
Skewness	3.654401644
Range	2.5229E+13
Minimum	8821566328
Maximum	2.52379E+13
Sum	3.34063E+13
Count	14

Table 3: Descriptive Pension Fund Assets Values for Selected Economies

#### 4.6. Results

Statistics in column 4 in Table 4 depict the computed PFAs ratios for Ghana from 2012 through 2017. Consistent with the World Bank standard, these ratios are expressed in percentage terms. We observe steady increase in Ghana's

pension fund assets to GDP ratios from 2013 through 2016. A significant portion of pension fund assets is invested in the domestic and external financial markets. Therefore, real returns on invested pension funds are impacted by the performance of the economy; real returns increase when the economy peaks in terms of activities, and real returns decrease when the economy witnesses an unfavourable performance and shocks. It was the desire of the researchers to use data spanning over ten-year period for the analysis in this section. However, access to reliable data on pension fund assets for Ghana was a challenge. This is evidenced in the absence of reliable data for Ghana at the World Bank. In 2018, Ghana rebased her economy using 2013 as the base year. As a result, GDP values in column 2 in Table 4 reflect the rebased values. However, the GDP value for 2012 in the figure is not rebased; it was not affected by the rebased computations. The respective total pension fund assets values for 2012 and 2013 were derived from the sum of total *temporary pension fund account* (TPFA) and social security investment portfolio values for those periods. Similarly, the respective pension fund assets values for 2014 and 2015 were obtained by adding values for TPFA, assets under management (AUM) of corporate trustees, and social security investment portfolios. The PFAs value for 2016 in Table 4 equals the social security investment portfolio for the year multiplied by two. The PFAs value for 2016 was multiplied by two under the presumption that all things being equal, the PFAs, including Tiers 2 and 3 contributions would be higher than the value recorded in the previous year owing to increased publicity, education, and enrolment. Based on the foregoing assumption, the PFAs value for 2017 in the figure equals social security investment portfolios for 2009 and 2011 multiplied by three. Further, the respective PFAs values for 2016 and 2017 were presumed to be progressively higher than those recorded in the preceding years due to significant increase in the number of licensed or registered pension service providers or both. Ghana's GDP values for the years 2012 through 2017 are presented in column 2, Table 4. The values show steady growth in Ghana's GDP over the period. Rebased of the Ghanaian economy in 2013 increased the GDP value for 2017 by over 25% compared with the non-rebased value (GH¢206 billion) reported earlier for the same period.

YEAR	GDP IN BILLIONS (GH¢)	TOTAL PFAs (GH¢)	PFAs TO GDP RATIO (%)
2012*	67,942,000,000	4,824,412,125.84	7.10078
2013	123,650,000,000	6,084,262,016.88	4.92055
2014	155,433,000,000	9,526,828,054.82	6.12922
2015	180,399,000,000	12,627,748,464.24	6.9999
2016**	215,077,000,000	15,793,220,000.00	7.34305
2017***	256,671,000,000	17,345,700,000	6.75795

Table 4: Computed Pension Fund Assets to GDP Ratios for Ghana

\*GDP value for 2012 not rebased

\*\*The total PFAs value for 2016 equals SSNIT investment portfolio for that year multiplied by 2 = 7,896,610,000 x 2 = 15,793,220,000

\*\*\*The total PFAs value for 2017 equals SSNIT investment portfolio for 2009 and 2011 multiplied by 3 = 5,751,900,000 x 3 = 17,345,700,000

#### 4.6.1. Test of Hypothesis

The alternative hypothesis formulated for this research in section 3.4.1 sought to test whether or not pension fund assets have strong influence on Ghana's total GDP. Values in columns 2 and 3 in Table 4 formed the basis for the analysis in this section. A regression analysis was conducted to test the relationship between the independent variable and the outcome or dependent variable; and to test the fitness of the regression model for the research. Output from the statistical analysis on the research hypothesis is presented in the following section.

##### 4.6.1.1. Model Summary

Summary constitutes an integral part of a regression model. Tables 3 through 5 present the regression analysis outputs. An overall description of the regression model is presented in Table 3. Values for R, R<sup>2</sup>, and adjusted R<sup>2</sup> are displayed in Table 3. Value for the multiple correlation coefficients between the independent variable (pension fund assets) and the dependent variable (Ghana's total GDP) is presented in the R row. The R<sup>2</sup> value in Table 3 reveals the extent to which variability in the dependent variable is accounted for by the independent variable. The R<sup>2</sup> value implies pension fund assets account for about 94.93% (0.949258 x 100% = 94.93%) of the variation in Ghana's total GDP. The results suggest only about 5.07% (100% - 94.93% = 5.07%) of the outcome is explained by external random factors. The number of values observed in the analysis is 6 as shown in Table 3.

Regression Statistics	
Multiple R	0.974298839
R Square	0.949258228
Adjusted R Square	0.936572785
Standard Error	16840298674
Observations	6

Table 5: Summary Output

One of the measures that determine the generalisability of the regression model is the adjusted  $R^2$ . Generally, an ideal adjusted  $R^2$  value is closer to zero or the  $R^2$  value. The adjusted  $R^2$  value (0.936572785) in Table 5 is not significantly different from the observed value of  $R^2$  (0.949258228), implying the cross-validity of this regression model is good; the model may accurately predict the same dependent variable from the given independent variable in a different group of participants (Field, 2009, p. 221). The  $R^2$  significance was computed using an F-ratio. The ideal F-ratio formula for measuring  $R^2$  significance is:

$$F = \frac{(N - k - 1) R^2}{k(1 - R^2)}$$

Where:

$R^2$  = Unadjusted value

N = Number of cases or participants in the study

k = Number of independent variables in the regression model

Value for the F-ratio was determined as follows:

$$F = \frac{(6 - 1 - 1) 0.949258228}{1(1 - 0.949258228)}$$

$$= \frac{3.797032912}{0.050741772}$$

$$= 74.8305146$$

Our computations revealed the change in the amount of variance that can be explained gives rise to an F-ratio of 74.8305146, which is equivalent to the F-value (74.8305147) in Table 4. This F-ratio shows a significant value ( $p = 0.000$ ,  $p < 0.01$ ).

#### 4.6.1.2. ANOVA

The ANOVA helps to determine whether or not regression analysis provides better and significant prediction of the outcome than the mean. Data in Table 4 show degrees of freedom (between) of 1 ( $2 - 1 = 1$ ); degrees of freedom (within) of 4 ( $6 - 2 = 4$ ); total degrees of freedom (df) of 5 ( $6 - 1 = 6$ ), and an F-value of 74.8305147.

	df	SS	MS	F	Significance F
Regression	1	2.12216E+22	2.122E+22	74.8305147	0.000982336
Residual	4	1.13438E+21	2.836E+20		
Total	5	2.2356E+22			

Table 6: ANOVA

Data in Table 6 depict the model sum of squares (SSM) value, represented by *Regression*; the residual sum of squares (SSR) value, represented by *Residual*; the total sum of squares (SST) value, represented by *Total*; and the degrees of freedom (df) for each group of squares. The degree of freedom for the SSM is 1, comprising the one independent variable (pension fund assets). The sum of squares divided by the degrees of freedom gives us the mean squares (MS). That is,  $2.12216E+22 \div 1 = 2.12216E+22$ .

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	25748678816	17666857571	1.4574566	0.21872619	-23302381409	7.48E+10
X Variable 1	12.75909715	1.474961139	8.6504633	0.00098234	8.663948516	16.8542458

Table 7: Model Parameters

#### 4.6.1.3. Model Parameters

A normal probability plot of the relationship between pension fund assets and Ghana's total GDP is presented in Figure 3. The figure depicts a steady rise in comparative values over the period. Table 5 presents results on the parameters of the regression model. Data in Table 5 show the coefficients, standard error, test statistic, significance, and confidence intervals for the coefficients. The coefficients in Table 5 explain the contribution of the independent variable (PFAs) to the regression model. Generally, a positive coefficient connotes a positive relationship between the independent variable and the dependent variable; a negative value symbolises a negative relationship between the two variables. Results in Table 5 show a positive coefficient value (12.759). This means there is a positive relationship between pension fund assets and Ghana's total GDP; the results suggest pension fund assets have a significant influence on Ghana's total GDP.

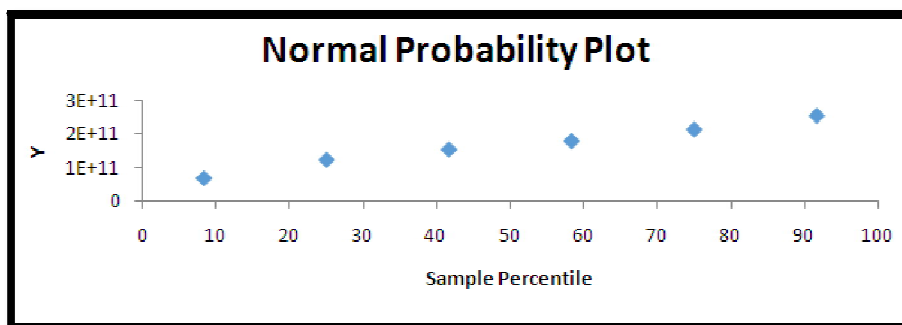


Figure 3: Normal Probability Plot

The magnitude of the t-test in Table 5 tells us the independent variable (PFAs) has a strong impact on the dependent variable (Ghana’s total GDP). A standard error is identified with the coefficients in the table. The standard error shows the extent to which the coefficients would vary in different research samples (Field, 2009). The respective Upper 95% values for the *Intercept* and *X Variable 1* in Table 5 are 74799739041.6818 and 16.8542457867549.

4.6.1.4. Test of Assumptions

Statistical tests were conducted to determine the linearity of the relationship between the independent variable (pension fund assets) and the dependent variable (Ghana’s GDP); and to measure the variance in residual values. The statistical outputs are presented in Figure 4 and Table 6. The scatter plots in Figure 4 are on a straight line. This affirms the relationship between the independent variable and dependent variable is linear; it implies the model fits the analysis.

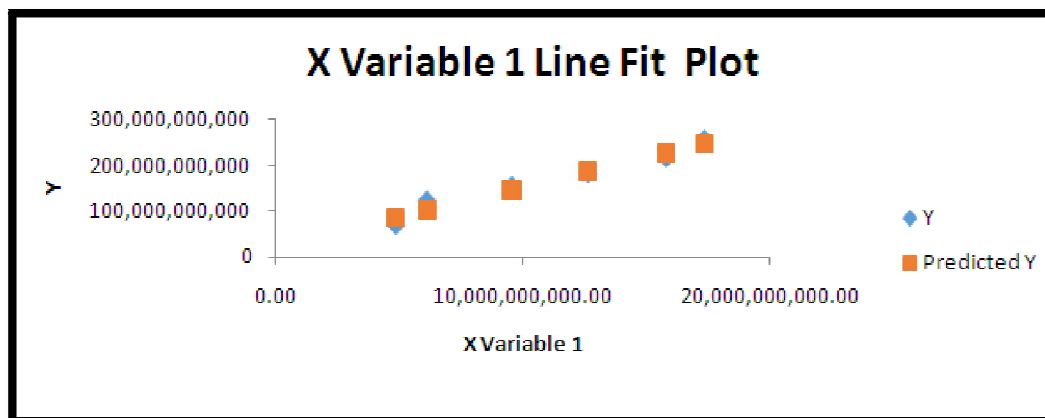


Figure 4: Linear Relationship between X and Y Variables

The *residual* values in Table 6 allow us to test the *homoscedasticity* of the model. That is, whether or not the residual values at each level of the independent variable depict constant variance. Residuals in Table 6 show constant variance values; this implies the assumption of homoscedasticity is met. Data in Table 4 indicate relationship between the X and Y variables were measured at the interval level and beyond while variability of the dependent variable (GDP) was not constrained. The foregoing analysis indicates most of the assumptions have been met; this renders the regression model fit and appropriate for the research.

Predicted Y	Residuals	Standard Residuals
87303821828	-19361821828	-1.285438893
1.03378E+11	20271631016	1.34584148
1.47302E+11	8130596488	0.539793468
1.86867E+11	-6468348274	-0.429436162
2.27256E+11	-12178907129	-0.808562388
2.47064E+11	9606849726	0.637802495

Table 8: Predicted Y Values and Residual Values for Variable X

4.6.1.5. Report on P -Value and Confidence Interval

Table 5 depicts *P* value of 0.00098234 and positive coefficient value of 12.75909715. These values are significant at Alpha level  $\alpha = 0.05$ . The table further shows a confidence interval of 8.663948516 and 16.8542458. The Alpha level, a priori, for this study is  $\alpha = 0.05$ . This implies there is a 5 per cent probability that we would be wrong; there is a 5 per cent likelihood the population mean would not fall within the interval (Bowerman, O’Connell, and Orris, 2004; Frankfort-Nachmias and Nachmias, 2008). However, we are 95% certain that our conclusions would be right. Again, the Microsoft Excel output in Table 4 shows degrees of freedom (between) of 1 ( $2 - 1 = 1$ ); degrees of freedom (within) of 4 ( $6 - 2 = 4$ ); total degrees of freedom (df) of 5 ( $6 - 1 = 5$ ), and an F-ratio of 74.8305147. These values could be interpreted as:



$F(1, 4) = 74.8305147, p < 0.01, \text{two-tailed.}$

#### 4.6.1.6. Interpretation and Rejection of Null Hypothesis

The foregoing results indicate pension fund assets have a strong influence on Ghana's total GDP. Therefore, we reject the null hypothesis ( $H_0: \mu_1 = \mu_2$ ), and accept the alternative hypothesis ( $H_1: \mu_1 \neq \mu_2$ ) which states pension fund assets have a strong influence on Ghana's total GDP.

### 5. Recommendations

The decisions of governments throughout the world, including Ghana, to facilitate the adaptation and implementation of various pension schemes in their respective jurisdictions are to ensure the provision of adequate retirement income security for employees. The decisions are intended to ensure improvements in living standards and life expectancy of workers at retirement to serve as an incentive for current and future workforce. However, realisation of the foregoing feat is nucleated around considerable number of factors, including efficiency in the investment of pension fund assets. In view of this, the ensuing recommendations are proffered.

- Consistent with the findings from the research of Peng and Wang (2019), SSNIT, trustees, pension fund managers, and custodians of pension fund assets are entreated to consider strongly, alternative investments as strategic and viable source of increasing returns on pension investments to help increase the superannuation incomes and other benefits of contributors during retirement. Nominal returns and real returns on investments play pivotal roles in the measurement and determination of value for total pension fund assets; and in the realisation of the afore-mentioned objective. Favourable financial market conditions could impact positively on the investment portfolios of pension funds. Since volatilities are inevitable in the financial markets, it behoves the Trustee and other pension fund managers to constantly monitor and explore the local and international financial markets for the best financial investment "deals" to assure higher real returns on pension funds investments. Investment decisions of pension fund managers must be prudent; and be guided by the "principles of security, profitability and liquidity" (OECD, n.d., p. 2).
- The Regulator, Board of Trustees and other fund managers must review their existing investment framework and capabilities to conform to contemporary global standards to assure flexibility and rapid response to changes in global investment opportunities and challenges. Stated differently, managers of pension fund assets must adapt strategic investment measures to minimise investment risks while maximising returns on invested funds; the financial ingenuity of fund managers must manifest in their ultimate investment decisions. Necessary steps must be taken to reduce operating and investment costs to increase investment funds available for retirees. This would help improve the lives of millions of individuals whose financial and retirement well-being depend on the strategic investment decisions of the Trustee and other fund managers. Effective corporate governance and risk management are essential attributes that require the utmost attention of all pension fund managers.
- Addressing challenges related to superannuation payment and benefits is critical to the retention of strong and reliable work force; and attraction of contributions from the dominant informal sector of the economy. In line with Bloom et al., we recommend reduction in contribution rates and increase in benefit rates; these adjustments would be mitigated with an increase in the present retirement age by a year or two. The expected proportionate increase in contributions would outweigh or offset any extended superannuation income arising from prolonged life expectancy at retirement. The Trustee could also consider redistribution of income within or across cohorts as an alternative measure to mitigate pension challenges. The financial "fruits" of pension funds investments should not only reflect in the day-to-day operations and life styles of Trustees but also in the living standards and conditions of contributors at retirement. The call by the current CEO of SSNIT for the inclusion of allowances in the computation of monthly pension contributions deserves strong consideration by the Regulator. The inclusion of at least two allowances in the computation process would serve the intended purpose; it would invariably increase the real contributions of workers to the scheme to enhance their chances of enjoying higher or appreciable superannuation income and other benefits at retirement.
- Financial benefits derived from pension funds investments should reflect more in the lives of retirees than the fund managers. This would increase public and workers' confidence in the various pension schemes operable in the country; and contribute meaningfully to the schemes. All else held constant, increased superannuation incomes and benefits payments would render pension schemes attractive to businesses in the informal sector of the Ghanaian economy.
- Ghanaians should be encouraged to appreciate and enroll in academic and formal education programmes to broaden their knowledge; and enhance their chances of promotion in the workplace during their active labour periods. This would increase their chances of retiring at a fairly high income level to assure "decent" superannuation income at retirement. Attention should also be focused on technical and vocational education and training across the country. Funds allocated to the Council for Technical and Vocational Education and Training (COTVET) through the Ministry of Education must be increased considerably to ease implementation of planned programmes and activities by COTVET. The free Senior High School (Free SHS) education concept rolled out by the President Akufo-Addo-led administration is an effective step towards the realisation of the noble objective of improving the formal education levels of the active labour force in Ghana. Efforts to revise and improve the current education system in Ghana would assure training and churning out of highly-skilled human capital to enhance the economic fortunes of the country while assuring better living standards at retirement. Improved

education systems would contribute meaningfully to enhance workers' level of education and professional competences, essential requirement for building resilient and robust economy.

- Extant research reveals the socio-economic benefits of intensive financial literacy campaign in an economy cannot be overemphasized. To this end, pension service providers across the country should organise more symposia, seminars, radio and television programmes to educate the general public, especially the working population in the informal sector on the immediate and future benefits associated with the decision to enroll in pension scheme or schemes. The informal sector constitutes about 80% of the business population. Therefore, any initiative targeted at this population would not be an economic exercise in futility; it is likely to be productive and useful: enrollment in pension schemes and contribution rates would increase to ease the financial burdens on the active labour force and government at retirement.
- Careful and strategic implementation of long-term pension funds investment mandates could prove financially rewarding to pension fund managers and retirees; and assure significant improvement in longevity risk. To this end, the Board of Trustees and other pension fund managers are encouraged to pool resources to ensure sustainability of their long-term pension funds investment mandates while putting the necessary internal measures in place to enhance their understanding of stranded asset risks to minimise the negative impact of the latter on long-term investment fortunes. Extant research reveals generally, the Board of Trustees and pension fund managers' considerations for investment policies and processes do not include stranded asset risk analysis. Stranded asset risk is defined to include the potential effect of factors such as climate change on the pricing of assets in the domestic and international financial markets (Ambachtsheer & Bauer, 2013). To effectively manage and minimise the effects of stranded asset risks, the Board of Trustees and other pension fund managers in Ghana could partner Board of Trustees and pension fund managers in other jurisdictions with similar institutional investment objectives and interests to enhance the understanding and penetration of the broader international financial markets by the former. This initiative would enhance organisational reputation and risk management efforts of the Trustees and other pension fund managers.
- Section 24 and its ensuing sub-sections of Act 766 enjoin the NPRA Board to submit a copy of the Authority's annual report to the sector Minister after audits by the Auditor-General. The sector Minister in turn, is expected to submit a copy of same to Parliament for deliberations. The research findings revealed the foregoing processes delay timely release of NPRA's annual reports. For instance, as at July 2019, annual reports in NPRA's database were limited to the year 2015; annual reports on 2016 through 2018 were not available. Similarly, Section 51 and its related sub-sections of Act 766 direct SSNIT to follow the due processes outlined in Section 23 for the NPRA, to submit its annual reports. However, annual reports in SSNIT's database as at July 2019 were limited to 2016. These processes and their attendant delays may account for the availability of limited reliable data on pension fund assets for Ghana. Pursuant to provisions in Act 766, it is imperative for the NPRA and SSNIT to update records in their respective databases to ease access by researchers, other stakeholders, and the general public. The Parliament of Ghana is implored to expedite the approval process without compromising due diligence and quality of work. An expedition of the approval process to assure timely release of information on pensions would affirm Ghana's commitment to providing adequate retirement income security for workers; and to enhance her chances of presenting credible and reliable data on pension fund assets to the World Bank.
- Section 7, sub-section (g) of Act 766 affirms the NPRA's powers to "regulate and monitor the implementation of the Basic National Social Security Scheme" in Ghana. In light of the foregoing, we recommend an implementation of the principle of integrated reporting. That is, the NPRA must ensure the inclusion of a summary of the annual value for the basic social security investment portfolio in its annual report. This would ease access to summarised financial data on tiers one through three pension schemes from NPRA's annual report by stakeholders; and ensure conformity to international standards in integrated reporting on operational activities and financial details. Further, the Board of Trustees and other pension fund managers must strive to improve on their interactions with contributors and other key stakeholders to assure sustainable relations and operations.
- On 1<sup>st</sup> May, 2019, the current President of Ghana, Nana Addo Dankwa Akufo-Addo, made a profound statement about pensions. He noted the life of an individual is divided into three significant cycles. The first cycle covers the initial twenty (20) years in the life of the individual. This is the period during which the individual acquires academic and vocational education and training to prepare effectively for the job market. The second cycle covers the next forty (40) years. During this period, the educated or trained individual or both, is expected to put the acquired knowledge, skill, and dexterity into practice by working to contribute his or her quota to the growth and development of the economy while earning a living; and contributing meaningfully towards retirement. The third cycle relates to the period of retirement, that is, age 61 and above. It is where the efforts of the individual in the first and second life cycles, especially in the latter are envisaged to be rewarded to assure longevity and extended life expectancy at retirement. The foregoing implies pension constitutes an integral part of an employee's life and should therefore be accorded the necessary attention it duly deserves in every jurisdiction across the globe. This is a clarion call on governments across the globe to consistently put measures in place to assure security for retirees' superannuation income and benefits while workers in the formal and informal sectors make conscious efforts to contribute meaningfully to the various schemes.

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## Appendix

YEAR	Brazil	Finland	Mexico	New Zealand	Norway	Sweden
2016	12.68	59.34	14.09	24.83	10.66	80.08
2015	12.03	58.25	13.91	23.32	10.07	75.2
2014	12.19	59.67	13.75	21.49	9.25	75.4
2013	12.78	56.81	12.72	18.8	8.47	68.08
2012	14.07	53.69	12.18	17.11	7.77	66.61
2011	13.64	50.53	10.76	14.59	7.56	60.69
2010	14.45	87.7	10.43	14.17	7.98	53.38
2009	15.3	82.29	9.52	12.4	7.75	52.4
2008	14.14	67.94	7.65	10.25	6.21	54.6
2007	16.63	76.11	7.29	12.38	7.2	53.42
2006	15.49	75.3	6.87	13.07	7.01	51.88
2005	13.66	65.67	6.22	12.71	6.96	8.54
2004	13.11	59.45	5.5	13.09	6.85	6.91
2003	12.57	51.86	5.22	13.29	6.24	7.08
2002	11.24	47.74	4.44	15.28	5.42	7.01
2001	11.59	47.91	3.64	17.41	5.22	7.62
2000	10.77	N/A	2.55	N/A	6.51	3.91597
1999	N/A	N/A	N/A	N/A	6.84	N/A
1998	N/A	N/A	N/A	N/A	6.84	N/A
1997	N/A	N/A	N/A	N/A	6.54	N/A
1996	N/A	N/A	N/A	N/A	6.21	N/A
1995	N/A	N/A	N/A	N/A	6.09	N/A
1994	N/A	N/A	N/A	N/A	N/A	N/A
1993	N/A	N/A	N/A	N/A	N/A	N/A
1992	N/A	N/A	N/A	N/A	N/A	N/A
1991	N/A	N/A	N/A	N/A	N/A	N/A
1990	N/A	N/A	N/A	N/A	N/A	N/A

Table 9: Pension Fund Assets Data for Selected Economies -1990 to 2016  
Source: The World Bank (as cited in Geofred, 2018)

Country	PENSION FUND ASSETS TO GDP 2016 (%)
Australia	120.95
Brazil	12.68
Canada	90.61
Finland	59.34
France	9.8
Japan	29.79
Kenya	12.75
Mexico	14.09
New Zealand	24.83
Norway	10.66
Russia	3.98
Sweden	80.08
United Kingdom	95.29a
United States	134.91

Table 3: Pension Fund Assets to GDP for Selected Economies - 2016

Country	TOTAL PENSION FUND ASSETS - 2016
Australia	\$ 1,463,529,335,783.95115
Brazil	227,767,725,422.757135
Canada	1,383,347,879,949.513452
Finland	141,828,247,858.7940414
France	242,185,989,494.00856
Japan	1,467,654,125,326.781229
Kenya	8,821,566,327.64519425
Mexico	151,865,957,357.837115
New Zealand	46,644,153,843.4763697
Norway	39,585,351,619.0476292
Russia	51,052,410,467.131658
Sweden	410,173,956,519.0731464
United Kingdom	2,533,988,777,988.581225
United States	25,237,867,647,838.5

Table 11; Pension Fund Assets Values for Selected Economiesmhjyu