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THE IMPERATIVE OF TRIPLE BOTTOM LINE ACCOUNTING AND THE PERFORMANCE OF LISTED MANUFACTURING COMPANIES IN NIGERIA

Odogu, Laime Isaac^{*1}

^{*1}Department Of Accountancy, Bayelsa State Polytechnic, Aleibiri Ekeremor Local Government Area,

Bayelsa State, Nigeria.

ABSTRACT

This study is to ascertain the imperative of triple bottom line accounting and the performance of listed manufacturing companies in Nigeria. The study adopts a cross-sectional and ex-post facto research design. We examined the interrelationship among variables using data obtained from Nigeria Stock Exchange on a cross section of listed manufacturing companies in specific periods of 2015 to 2019. The total of two hypothesis formulated, were analyzed using panel least square regression and multiple regression with the adoption of fixed effect or least square dummy variable (LSDV) model. From our findings, Triple Bottom Line Accounting jointly has significant influence on Financial Performance of Listed Manufacturing companies in Nigeria. It was established that Economic Cost (EC) and Environmental Cost (EVC) have a positive and significant effect on the variables of performance of listed manufacturing companies in Nigeria. Recommendations are made, that government, as the custodian and protector of the society, and the environment, should help put in place some guidelines, for manufacturers to contribute to their environment and the society at large. managers should adopt triple bottom line as a guide to report to stakeholder on the allocation of benefits not only to shareholders but to other stake holders.

Keyword: Triple Bottom Line, Fixed effect, Economic cost, Environmental cost.

1. INTRODUCTION

Many organizations are becoming increasingly interested in social and environmental sustainability programs which have the capacity to improve performance to a firm even in the long run. Triple Bottom Line Accounting refers to a method of measuring the economic, environmental and social equity impacts of an organization rather than the traditional practice of measuring just the financial bottom line. Elkington (1997) coined 'triple bottom line' as a new term to advance sustainability agenda. His definition of Triple Bottom Line used the terms profit, people, and the planet as the three lines. In this study, the economic, social and environmental lines refer to profit, people, and planet respectively. Sustainable development involves the pursuit of economic prosperity, environmental quality, and social equity. Companies aiming for sustainability need to perform, for not only a single financial bottom line, but for the triple bottom line. Triple Bottom Line is intended to go beyond previous construction of sustainable development and corporate social responsibility to encompass an approach that emphasizes economic prosperity, social development and environmental quality as an integrated method of doing business (Elkinton, 2004). This definition implies a shift away from the emphasis of organizations on short-term financial goals to long-term social, environmental and economic impacts and how businesses treat the communities from where they draws their inputs (Beredugo & Ekpo, 2019). Hence, its objectives should include the welfare of the society (Abbot & Monsen, 2019). Business therefore, owes a responsibility towards solving many social problems. Triple bottom line accounting is a broader frame work that incorporates three dimensions of performance which include economic, social and environmental accounting (Onyali, 2014). The same can be said of sustainability reporting which is regarded as the integration of economic, social and environmental reporting (Middle-Brooks, Miltenberger, Tweedy, Newman & Follman 2009 in Piper, Mang, Knox & Waddel, 2012). The triple bottom line accounting of social, economic and environmental reports considerably alters how organizations and stakeholders measure sustainable success.

Slaper and Hall (2019) argue that looking to Triple Bottom Line sustainability, the economic measures are moneyrelated figures in an organization, such as fund employed in generating income. The environmental measures are the potential influences of business environmental impacts on natural resources and their viability (Beredugo, 2014). This would incorporate the contamination impact of water and air quality, greenhouse gas emissions, material recycling rates, water consumption, energy consumption, pollutant gases and substances, waste management of hazards, landfill and material waste management. The social dimension measures incorporate education level in the local community, equity level, welfare, careers retention, charitable contributions, level of health care and well-being, rate of unemployment, quality of life, per capita, violent crimes, relative poverty, and social capital. In brief, the firm's stakeholders are the right parties to determine the appropriate set of Triple Bottom Line sustainability measures



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applicable to subjected business tasks and activities that would remain flexible and dynamic during changes in business circumstances.

Triple bottom line accounting deals with economic, social and environmental information in corporate annual reports. The challenge confronting the listed manufacturing companies while adopting the triple bottom line approaches as their corporate philosophy is the difficulty in stating key issues to be tackled in their triple bottom line reports, because it has not been stated as a statute in any acts guiding corporations in Nigeria. Consequently, the use of triple bottom line reporting has raised doubts as to the effect it has on the performance of companies in Nigeria (Aktaruddin, 2015). Triple Bottom Line encounters the challenges of how to make an index that is both comprehensive and meaningful and how to identify suitable data for the variables that compose the index. The Genuine Progress Indicator (GPI), for example, consists of variables that encompass economic, social and environmental factors. Those variables are converted into monetary units. Though academics agree on the definition of Triple Bottom Line the challenge and real trick is how to measure it, as the three domains do not have a common measurement unit (Slaper & Hall, 2019). The interest in reporting accounts in a triple bottom line has inspired this research to look at actionable knowledge that would amount to an efficient and robust remedy for performance of listed manufacturing firms in Nigeria for now and in the future.

1.1. Objectives of the Study

The main objective of the study is to ascertain the imperative of triple bottom line accounting and the performance of listed manufacturing companies in Nigeria. The specific objectives are as follows:

- To determine the effect of economic cost, social cost and environmental cost on net asset value per share of listed manufacturing companies in Nigeria.
- To examine the effect of economic cost, social cost and environmental cost on economic value added of listed manufacturing companies in Nigeria.

Two hypotheses were formulated to achieve the research objective of the various parameters.

The hypotheses are hereby stated in the null forms

Ho₁: There is no significant effect of economic cost, social cost environmental cost on value per share of listed manufacturing companies in Nigeria.

Ho₂: economic cost, social cost and environmental cost have no significant effect on economic value added of listed manufacturing companies in Nigeria.

2. REVIEW OF RELATED LITERATURE

2.1. Concept of Triple Bottom Line Accounting

Triple bottom line is a sustainability-related construct that was coined by Elkington (1997). The origin of sustainability dates back to over 130 years ago from an idea known as spaceship earth (George, 2019). Evolving over the years, the construct gained significant popularity with the emergence of the term "sustainable development. The report defined sustainability as the development that meets the needs of the present generations without compromising the ability of the future generations to meet their own needs (Brundtland, 2019). Driven by sustainability, Triple Bottom Line provides a framework for measuring the performance of the business and the success of the organization using three lines: economic, social, and environmental (Goel, 2010). In essence, Triple Bottom Line expresses the expansion of the environmental agenda in a way that integrates the economic and social lines (Alhaddi, 2015). As a prelude to international specifications, there have been increased demands by investors, consumers and other stakeholders as to how companies address risk and opportunity relating to social and environmental issues in line with the commonality of expectations by citizens of other countries (Ekpo, Okon & Beredugo, 2019).

Elkington (1997) in his definition of Triple Bottom Line used the terms profit, people, and the planet as the three lines. In this study, the economic, social, and environmental lines refer to profit, people, and planet respectively. Consistency in terms of referring to the three lines simultaneously is built into the structure of Triple Bottom Line as the construct is explicitly based on the integration of the social, environmental, and economic lines. Triple Bottom Line literature reviewed showed inconsistent usage of the sustainability term. For example, some studies used sustainability to primarily refer to the environmental line (Yan, Chen & Chang, 2019). Others used the term to refer to the social line, while some used the term to refer to all three (Marcus & Fremeth, 2020). In regards to balance, Triple Bottom Line places an equal level of importance on each of the three lines (Alhaddi, 2015).

Elkington (2004) introduced the sustainability concept as triple bottom line. Triple Bottom Line Accounting captures the essence of sustainability by measuring the impact of an organization's activities on the world. This accounting practice goes beyond the traditional measure of profit, returns on investment and shareholders' value to include



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environmental and social dimension. Such reporting can be an important tool to support sustainability goals (Onyali, 2014). Although, Jackson, Boswell and Davis (2011) state that, there is no real consensus as to the exact dimension used for performance measurement. However, according to them, performance can be measured based on the impact of companies on the society as a whole both now and into the future. Social and environmental information disclosure is also commonly referred to as corporate social responsibility reporting (Abbot & Monsen, 2019). It can also be defined as an environmental management strategy to communicate with stakeholders, which makes it corporate, social and environmental reporting.

Onyali (2014) observed that companies have been called upon to fulfill the needs of a wide range of stakeholders who pay attention to a company's value. They are interested in understanding the approach and performance of a company in managing sustainability such as economic, environmental and social aspects, including the potential for value created from managing sustainability. Besides providing financial information for shareholders, a company needs to publish non-financial information as well (Alida, 2017). Sustainability reporting is a term which is widely used to explain the communication effect of companies' activities on social, environmental and economic performance. Sustainability reports are also referred to as "triple bottom line reports". Many large companies publish such kinds of reports, especially for companies that are socially and environmentally sensitive, such as those engaged in oil and gas, mining, chemical, automotives, computers and electronics (Bourne, Franco & Wilkes, 2013). Triple bottom line is a catch phrase that is increasingly being used as a heuristic to help conceptualize sustainability as well as provide a framework for reporting against sustainability parameters (Dutta, 2012). Triple bottom line reporting is the corporate communication with stakeholders that describes the company's approach to managing the economic, environmental and social dimension of its activities. A triple bottom line report is usually a stand-alone annual report through which an organization accounts for its impact on the broader environment, society and economy, as an advance on a traditional annual report which focuses solely on an organization's financial accountability.

Jackson, Boswell and Davis (2011) stated that the purpose of sustainability reporting is to provide information which holistically assesses organizational performance in a multi-stakeholder environment. In the social area, it is focused on contributing back to the society and community, providing growth and development opportunities for employees and improving relationships and practices for customers, suppliers, governments and communities. The notion of reporting against the three components (or bottom lines) of economic, environmental and social performance is directly tied to the concept and goal of sustainable development. McElroy (2019) stated that the implementation of a triple bottom line approach is premised on a strategic approach to economic, environmental and social considerations, the definition of values associated with economic, environmental and social matters, and identifying and measuring performance areas of importance to key stakeholders.

The study also revolves on stewardship theory that is based on the assumption that the interest of shareholders and the interest of management are aligned, therefore management is motivated to take decisions that would maximize performance and the total value of the company.

The theory believes that there is greater utility in cooperative than individualistic behaviour and hence whilst the actions of management would be maximizing shareholder wealth, it would at the same time be meeting their personal needs. The managers protect and maximize shareholders wealth through firm perfomance, because by so doing, their utility functions are maximized (Davis et al, 2017). To achieve this goal congruence, the stakeholders must put in place appropriate empowering reporting structures and mechanism, information and authority to facilitate the autonomy of management to take decisions that would maximize their utility as they achieve organisational goals rather than self-serving objectives.

Chapman and Milnne (2014) defined triple bottom line reporting as the measurement, management and reporting of economic, environmental and social performance indications in a single report. They added that triple bottom line reporting is therefore best seen as a process that includes managing, measuring and publicly reporting multidimensional performance and integrating it with management process. It goes beyond the traditional way of reporting and encourages businesses to give closer attention to the whole impact of their commercial activities over and above their financial performance (Dutta, 2012). Choi and Gary (2018) explained that Triple bottom line reporting is closely related to corporate social responsibility reporting and sustainability reporting. Social responsibility reporting refers to the measurement and communication of information about a company's effect on employee welfare, the local community, and the environment. Information on company welfare may involve working conditions, job security, equality opportunity, workforce diversity, and child labor. Environmental issues may include the impact of production process, products, and services on air, water, land, biodiversity, and human health. Social responsibility reporting is the communication about a company's responsibility for social and environmental aspects surrounding the business. This reflects that companies owe stakeholders an annual accounting of their social and environmental performance as



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the financial information they provide to shareholders. David, Ichoorman and Donaldson (2019) explained that Triple Bottom Line is an important issue in contemporary international debates. Central to Triple Bottom Line is a concern for sustainability, particularly for environmental sustainability, as this is crucial for long-term success and survival even in financial terms by which firms normally judge their success. Indeed many corporate reports, which used to be designated as environmental reports and subsequently as Corporate Social Responsibility reports have now been repackaged as sustainability reports or triple bottom line report. Triple Bottom Line is a concept whereby companies integrate social and environmental concerns in their business operations and in their operations with their stakeholders on a voluntary basis.

2.1.1 How Triple Bottom Line Can Be Measured

Slaper and Hall (2011) posit that though academics agree on the definition of Triple Bottom Line the challenge and real trick is how to measure it, as the three domains, do not have a common measurement unit. Some scholars advocate using an index to eliminate the issue of incompatible units, providing an accepted universal way to evaluate the Triple Bottom Line. The other option is to measure each sustainability dimension alone. However, the shortcoming of this option would be probably user's metric fatigue because of the multiplying of metrics that are used to measure each sustainability dimension. One can understand that there is no commonly accepted agreement or universal standard method to calculate or evaluate Triple Bottom Line as a whole or in separate sustainability domains. However, this particular challenge forms a positive aspect as it provides users the flexibility to adapt the appropriate measuring index or metric adequate to different business entities or different geographic boundaries. In this case, the adapted measuring methods set by stakeholders and experts would be compatible with related data collection.

Economic Cost.

Slaper and Hall (2017) argue that looking to Triple Bottom Line sustainability measures, the economic measures are straight forward money-related and financing figures, it is the combination of any goods that have a value attached to them by any one individual. Economic cost is used mainly by economists as means to compare the prudence of one course of action with that of another. The factors to be taken into consideration are money, time, and other resources. It includes the gains and losses precluded by taking a course of action as well as those of the course taken. Economic cost differs from accounting cost because it includes opportunity cost, (sometimes accounting cost is referred to as explicit cost and opportunity or economic cost as implicit cost). The firm's primary objective in producing output is to maximize profits. The production of output, however, involves certain costs that reduce the profits a firm can make. The relationship between costs and profits is therefore critical to the firm's determination of how much output to produce. Explicit and Implicit Cost: A firm's explicit costs comprise all explicit payments to the factors of production the firm uses. Wages paid to workers, payments to suppliers of raw materials, and fees paid to bankers and lawyers are all included among the firm's explicit costs. A firm's implicit costs consist of the opportunity costs of using the firm's own resources without receiving any explicit compensation for those resources. For example, a firm that uses its own building for production purposes forgoes the income that it might receive from renting the building out. As another example, consider the owner of a firm who works along with his employees but does not draw a salary; the owner forgoes the opportunity to earn a wage working for someone else. These implicit costs are not regarded as costs in an accounting sense, but they are a part of the firm's costs of doing business, nonetheless. When economists discuss costs, they have in mind both explicit and implicit costs (Kimberlee, 2019).

Environmental Cost

Environmental measures incorporate measuring the potential influences of business environmental impacts on natural resources and their viability. Environmental variables should represent measurements of natural resources and reflect potential influences on their viability. This would incorporate the contamination impact of water and air quality, greenhouse gas emissions, material recycling rates, water consumption, energy consumption, pollutant gases and substances, waste management of hazards, landfill, and material waste management. Environmental costs of business is an enterprise action in order to fulfill environmental protection responsibilities, the implementation of national environmental protection laws, regulations and policies, and operations in order to prevent adverse impact on the natural environment and take appropriate measures to achieve environmental objectives. Environmental sustainability involves making decisions and taking action that are in the interests of protecting the natural world, with particular emphasis on preserving the capability of the environment (Jing &Songing, 2016). Environmental sustainability is about making responsible decision that will reduce the business' negative impact on the environment. It is not simply about reducing the amount of waste produced or using less energy, but is concerned with developing processes that will lead to businesses becoming completely sustainable in the future. Currently, environmental sustainability is a



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topical issue that receives plenty of attention from the media and from different governmental departments. This is a result of the amount of research going into assessing the impact that human activity can have on the environment. Although the long term implications of this serious issue are not yet fully understood, it is generally agreed that the risk is high enough to merit an immediate response (Jing &Songing, 2016).

Social Cost

The social sustainability measure incorporates an education level in the local community, equity level, welfare, careers retention, charitable contributions, level of health care and well-being, rate of unemployment, quality of life, per capita violent crimes, relative poverty, and social capital. Social cost in neoclassical economics is the sum of the private costs resulting from a transaction and the costs imposed on the consumers as a consequence of being exposed to the transaction for which they are not compensated or charged. In other words, it is the sum of personal and external costs. Private costs refer to direct costs to the producer for producing the good or service. Social cost includes these private costs and the additional costs (or external costs) associated with the production of the good for which are not accounted for by the free market (Gruber, 2012). Mathematically, social cost is the sum of private cost and the external costs. The alternative to the above neoclassical definition is provided by the heterodox economics theory of social costs by K. William Kapp in (Berger, 2017). Social costs are here defined as the socialized portion of the total costs of production, i.e., the costs which businesses shift to society in their attempts to increase their profits (Gruber, 2012). Social Cost is the cost related to the working of the firm but is not explicitly borne by the firm instead it is the cost to the society due to the production of a commodity. The social cost is used in the social cost-benefit analysis of the overall impact of the operations of the business on the society as a whole and does not normally figure in the business decisions. The social cost includes both the private cost and the external cost. The external costs are those costs which are directly related to the production and consumption of the commodity, but are not directly paid by the producer. These are the costs borne by the society and therefore is called social cost, (Berger, 2017). The firm's stakeholders are the right party to determine the appropriate set of Triple Bottom Line sustainability measures applicable to subjected business tasks and activities that would remain flexible and dynamic during changes in business circumstances. The firm's stakeholders and experts can develop and establish an adaptive genuine progress indicator (GPI) for the firm/entity with business related variables that incorporate social, economic and environmental perspectives converted to monetary units and ultimately presented as a monetary value.

Hubbard (2019) explained that measuring organizational triple bottom line is difficult as it is not a simple or straight forward formula/ and this process becomes more difficult as its terms and conditions for measuring keep changing while doing this measuring. It shows that measuring organizations triple bottom line has become a difficult exercise because the concepts and aspects of sustainability have intensely widened the measurement scope and options, with no consensus on a standard or a commonly agreed reporting framework. Hubbard (2009) suggests making sustainable performance measurement as much practical and simple as possible through a conceptual framework of a stakeholder-based sustainable balanced scorecard and a single-measure organizational sustainability performance index. Epstein and Wisner (2021) noted that responsible managers of leading companies realize the importance of payoffs of reporting, measuring and managing social and environmental performance. This would profit organizations substantially through cost savings via improving operational efficiencies and enhance potential revenue via boosting corporate performance and reputation. Chapman and Milne (2014) explain that there is a steady increase in the number of New Zealand companies generating Triple Bottom Line reports; however, the lack of mandatory standards or reporting legal requirements in those reports is clear.

Slaper (2019) state that economic variables ought to be variables that deal with the bottom line and the flow of money. It could look at income or expenditures, taxes, business climate factors, employment, and business diversity factors. Environmental variables should represent measurements of natural resources and reflect potential influences to its viability. It could incorporate air and water quality, energy consumption, natural resources, solid and toxic waste, and land use/land cover. Ideally, having long-range trends available for each of the environmental variables would help organizations identify the impacts a project or policy would have on the area. Social variables refer to social dimensions of a community or region and could include measurements of education, equity and access to social resources, health and well-being, quality of life, and social capital.

2.1.1.1 The Social Contract Concept.

The social contract concept of Corporate Social Reporting (CSR) has been well acknowledged in past work (Matthews, 2017). Deegan (2012) agreed that social contract concept is responsible for corporate social reporting (CSR). Deegan, Rankin and Tobin (2012) opined that social contract is central to social change and reforms. Deegan (2013) associates the social contract expectation with the legitimacy theory where "the social contract between the



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organization and those affected by the organization's operations". An ecosystem is largely determined by the natural environment as opposed to the activities of man. There is a dynamic interrelationship between the natural environment and man. Environmental Right Actions contribution to the issue of environmental sustainability emphasize that man has a critical responsibility to face the challenge of depletion of the environment. Eco-efficiency suggests that organizations can produce more useful products while simultaneously reducing negative environmental impacts, resource consumption and costs.

Eco-efficiency further suggests that focus on the consequences of negative environmental impact, attention should be on attacking the causes. This concept suggests at least three important messages: firstly, improving ecological and economic performance which should be seen as complementary. Secondly, that improving environmental performance should not be viewed as charity and goodwill but a matter of competitive necessity (Dellot & Touche, 2014). Deegan (2013) opines that, social costs (i.e environmental costs) which are not matched with related revenue are incurred not for the good of the individual company but for the society. A third suggestion that eco-efficiency should be seen as supportive of sustainable development. Enaboro (2019) states that eco-efficiency which has been emphasized as environmental management system (EMS) is the application of accounting design to attain financial and economic savings in resource usage. It is also the reduction of wastes, energy and emission that will necessarily lead to reductions in corporate adverse impact on the environment. Enaboro (2019) further proffered definition for sustainable development that meets the needs of the present without compromising the ability of future generation to meet their own needs." They opine that although absolute sustainability may not be attained, progress towards its achievement has some merit.

Eco-efficiency, which is an implication of improving environmental performance, will secure several advantages such as increasing customers demand for cleaner products, those produced without degrading the environment. Also, employee prefers to work for environmentally friendly organization. Other benefits are that environmentally responsible firms tend to capture external benefits such as lower cost of capacity and lower insurance rates; efficient environmental performance in an organization will secure good health to humanity; the consciousness to pursue environmental cleanliness will serve as a drive for improved technology and a policy of clean environment and the implementation of the policy are capable of reducing environmental costs and making for a competitive advantage.

2.2 Emergence of Social and Environmental Accounting

While social and environmental accounting has commanded growing attention and acceptance, its development can be seen as a result of stakeholder pressures as well as academic advocacy. Arguably, in the early 1970's and 1980's advocates of social and environmental accounting research were seen in terms of having the potential to create real change in existing accounting structures and practices (Deegan, 2013). Deegan (2012) noted that these early advocates were explicitly or implicitly criticizing the current structure of the discipline, historical financial accounting reports for shareholders and creditors. Early research focused on documenting social and environmental disclosures via content analysis (Owen, 2018). Throughout the 1990s, social and environmental accounting increasingly gained prominence and developed substantially. During this time, a number of theories such as stakeholder theory, political economy theory, and legitimacy were interestingly employed with the aim of explaining rather than simply social and environmental accounting and reporting practices (Owen, 2018). The 1990s also witnessed a growth in research attention on the 'internalization of external environmental costs, via full costs accounting methods, and more particularly, in the reintroduction of the social eco-justice issues, in addition to those of eco-efficiency' (Owen, 2018). Supportive of the view that social and environmental accounting has gained more prominence among researches in recent years, Parker (2015) states that a community of social and environmental accounting scholars has truly arrived and is producing a wide range of significant research that will hopefully lay the foundations for future policy and practice.

A growing number of recent studies appear to have made significant contributions to the social and environmental accounting literature with suggestions for well-designed further research. In recent times, agreement among major researchers can also be seen in their calls for 'engagement based study' (Owen, 2018; Parker, 2015). Alongside this social and environmental accounting research national and international institutional groups, including governments, industry bodies, the accounting profession, and international bodies such as the Global Reporting Initiative, the Institute for Social and Ethical Accountability, the World Business Council for Sustainable Development, and the Council on Economic Priorities have increasingly been involved in developing social and environmental accounting standards and related disclosures for organizations. Deegan (2012) notes that government, industry bodies and the accounting profession have shown a marked increase in the amount of attention being devoted to social and environmental accounting issues, particularly in the area of external reporting.



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Professional accounting bodies showed an early interest in social accounting, the best example of which was The Corporate Report issued in 1975 by the Accounting Standards Steering Committee of the Institute of Chartered Accountants in England and Wales. This innovative release, which discussed and emphasized "right" to information, did not, however, lead to a lot of other effort or change by the accounting profession and the issue seemed to disappear from the agenda of professional accounting bodies until it was to re-emerge in the 1990s. A number of organizations, such as the Global Reporting initiative, the Institute for Social and Ethical Accountability, World Business Council for Sustainable Development, and the Council on Economic Priorities, have recently released guidance documents that are being embraced internationally.

2.3 The Performance of Firms

Saeed (2017) stated that performance is a word that originates from the old French word 'Parfournir' whose meaning is to bring through, to carry out, to do or to bring forth. Performance is an act of performing, implementing, achieving, and fulfilling of given tasks that need to be measured against defined sets of precision-money, fullness and timing. In finance, it refers to the measurement of the company's policies, activities and operational results in financial terms. It is used to check a company's success, compliance and financial position. These results are reflected in the firm's return on investment, assets, equity, capital employed and profitability. Performance is an extent to which a company's financial health over a period of time is measured. In other words, it is a financial action used in order to generate higher sales, profitability and worth of a business entity for its shareholders through managing its current and non-current assets, financing, equity, revenues and expenses. Its main purpose is to provide complete to the point information to shareholders and stakeholders to encourage them in making decisions. It can be used to evaluate similar companies from the same industry or to compare industries in aggregation. Managing risk and increasing profitability of a firm and making good decisions. In order to take timely decision, accurate information and proper analyses of performance are necessary.

One of the best ways of evaluating a sector's performance is by the use of ratio analysis like Tobins Q ratio, earning per share, market value per share, net asset value per share and economic value added (Saeed. 2017, Habib & Bahar 2014). It shows the relation between one quantity or performance indicator over another, expressed mathematically to summarize a huge database. Performance principally reflects business sectors outcomes and results that shows overall financial health of the sector over a specific period of time. It indicates how well an entity is utilizing its resources to maximize the shareholders wealth and profitability. However, a complete evaluation of a firm's performance takes into account other different kind of measures. Net Asset Value Per Share: The value of a single share of a mutual fund calculated by subtracting the fund's total liabilities from its total assets and dividing the result by the outstanding share also known as Average Price. Aakar (2016) aguered that the term refers to the total value of a fund investment divided by its number of share outstanding more commonly referred to as Net Asset Value when liabilities are subtracted. Economic Value Added: It is the economic profit of a business organization expressed as the surplus in created value over the expected return of the shareholders. Marcus (2017) states that Economic Value Added can be determined as being the difference between the net profit of the business organization and the cost of the opportunity capital used by the business organization. Economic Value Added is a measure of economic profit. Stern (2016) states that Economic Value Added is calculated as the difference between the Net Operating Profit After Tax (NOPAT) and the opportunity cost of invested Capital. This opportunity cost is determined by multiplying the Weighted Average Cost of debt and equity Capital (WACC) and the amount of Capital employed. The formula for EVA: EVA = NOPAT -WACC (Stern, 2016).

2.4 Empirical Review

This section examines various studies that are dealt with at international and national levels with respect to Triple Bottom line Accounting and its closely related topics such as Environmental and sustainable development, corporate social responsibility and economic perspectives of firms. Schaltegger and Burritt (2020), in a book, Contemporary Environmental Accounting presents the models' results concerning the ranking of the different land-use options and discuss the implications for agro-environmental policies and rural development plans. The authors draw attention to three points, based on a case study that occurs on environmental planning for an ecological valuable agricultural landscape. First, whenever ecologically sensitive areas "ecological sites" are used for agricultural production, it is necessary to take account of the fact that farmers tend to adapt to environmental requirements by production responses outside the ecological site itself. Second, in order to identify the socially most "desirable" land-use responses it is necessary to supplement the above-mentioned environmental objectives by socio-economic ones. Third, when choosing an appropriate model for such multi-criteria decision analysis, the question of substitutability between criteria is of utmost importance.



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Hamid (2022), in a paper titled Theoretical Framework for Environmental Accounting explores how dominant environmental discourses can influence and shape carbon disclosure regulation. Carbon-related disclosures have increased significantly in the last five years, and many of these disclosures remain voluntary. His paper considers both the construction of self-regulated carbon disclosure practices and the role that this kind of carbon information may have in climate change-related decision making. He focused on the Carbon Disclosure Project (CDP) and the use of the Greenhouse Gas (GHG) Protocol as a reporting model within it.

Deegan (2012) in his work titled The Legitimizing Effect of Social and Environmental Disclosures claims that organisations should provide 'accounts' of not only their financial performance, but also of their social and environmental performance. Moreover, he dismisses the traditional financial reporting frameworks suggestions. He also highlights the apparent absurdity of using market-based mechanisms, such as cap and trade systems for pollutants to solve social and environmental problems that were effectively caused by 'the market'.

Bala and Yusuf, (2013) in a presentation titled Corporate Environmental Reporting" were concerned with social accounting when pollution gives rise to a consumption externality. The purpose of the paper is to reconcile the willingness to pay technique as a means of collecting information, put forward in earlier studies, with the growth theoretical approach to social accounting. This is accomplished by designing approximations of Pigouvian emission taxes on the basis of currently available willingness to pay information. The paper analyses the welfare effects of these taxes as well as to what extent they can be used to measure (approximately) the value of depletion of environmental capital in the national accounts.

Chapman and Milne (2014) in their work The Triple Bottom Line: How New Zealand Companies Measured stated that Triple Bottom Line involves the measurement and reporting of economic environment and social performance indicators in a single report. Over the past few years an increase number of New Zealand companies have produced such report, due mostly to the promotional effort of the New Zealand Business Council for Sustainability Development (NZBCSD). A lack of legal requirement or mandatory reporting standard, however, means the uptake of such reporting is not widespread beyond council members based on the UNEP\Sustainability benchmarking tools, their article report the result of an analysis of 30 NZBCSD members 200 triple bottom line reporting results from analysis showing that while the member of companies undertaking Triple Bottom Line Reporting is increasing, the standard of reporting generally remains poor. Only two reports generated over half of the total possible score according to the benchmarking tool. Commonly disclosed issues relates to management policies and systems, with evidence of some efficiency metrics (mostly energy and waste) being commonly used, employee and local communities are those stakeholders most frequently addressed in these reports. The article concluded with a section on how future triple bottom line report can be improved upon.

Yakhou and Dorweiler (2014) in a paper titled Environmental Accounting: An Essential Component of Business Strategy investigated the level of Environmental Management Accounting (EMA) implementation in companies within environmentally sensitive industries, as well as gaining insights into pressures for implementation. Implementation was driven by a motivation to reduce costs rather than environmental conservation. Apart from that, companies' reactions to environmental issues stem from pressures from customers who demand environmentally sensitive workplaces, procedures and processes in the companies with which they are in business.

Hassel, Nilson and Nuquist (2015), in a paper titled, "The value relevance of environmental performance" identified four key methodological challenges in developing ecosystem accounts: the definition of ecosystem services in the context of accounting, allocation to institutional sectors; the treatment of degradation and rehabilitation, and valuing ecosystem services consistent with principles. They analyzed the different perspectives taken on these challenges and present a number of proposals to deal with the challenges in developing ecosystem accounts. These proposals comprise several novel aspects, including (i) presenting an accounting approach that recognizes that most ecosystems are strongly influenced by people and that ecosystem services as either contribution of a private land owner or as generated by a sector 'Ecosystems' depending on the type of ecosystem service. They also present a consistent approach for recording degradation, and for applying monetary valuation approaches in the context of accounting. They also try capturing all environmental change, and the national accounts are far more useful economically than environmentally. They argue that green accounting can only ensure income (sometimes called weak) sustainability, which should be considered as a step leading ultimately to an ecological (or stronger) sustainability.

3. METHODOLOGY

This study adopts a cross-sectional and ex-post facto research design. The paper examined the inter-relationship among variables using data obtained from Nigeria Stock Exchange on a cross section of listed manufacturing companies in



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specific periods of 2015 to 2019. Panel Least Square regression and Multiple regression method is adopted to establish the relationship between the independent variable: Triple Bottom Line Accounting, and the dependent variable, The Performance of Listed Manufacturing companies in Nigeria. In order to ascertain the truth and consistency of our result, the result obtained is subjected to statistical test using the parametric statistical procedures. In this regard, the parametric statistical test is adopted in testing our hypotheses at a significant level of 0.05. A significant level of 0.05 shows that; there are five chances in a hundred that a true null hypothesis would be rejected. This test is said to be significant if the hypothesis is null (H_0), disregarded at 0.05 significant level, while the hypotheses in alternate (H_1) accepted. Therefore, the parametric test that is used, is Panel Least Square regression.

Thus, our functional model of TBL (independent variable) and FP (dependent variable) is represented as:

NAVPS = f(EC, SC, EVC) - - - - (1)

EVA = f(EC, SC, EVC) - - - - (2)

Thus, in applying the multiple regression formula we have:

In this model as stated above, we evaluate the effect of Triple bottom line Accounting as expressed in the three different dimensions (EC) (SC) and (EVC) on (NAVPS) and (EVA). However, it is expected that financial performance will be better implemented if Triple bottom line Accounting is efficient. Thus, the higher the Triple bottom line reports, the higher the financial performance. This would result in a significantly higher coefficient for (EC), (SC) and (EVC) in the multiple regression. Therefore, the modified version of the econometric model of (Adeusi, 2013) was adopted and it expressed the relationship functionally in our study as:

$$\begin{split} NAVPS_{\mu} &= a + \beta_{1}EC_{it} + \beta_{2}SC_{it} + \beta_{3}EVC_{it} + \mu_{t} \qquad - - - - - (14) \\ EVA_{\mu} &= a + \beta_{1}EC_{it} + \beta_{2}SC_{it} + \beta_{3}EVC_{it} + \qquad - - - - - (15) \\ Thus: \end{split}$$

apriori expectation β_1 , β_2 , β_3 , > 0

Howbeit, given the interrelationship between the three independent and five dependent variables, financial performance of a given manufacturing firm (NAVPS and EVA), would depend on (EC), (SC) and (EVC) plus some confounding variable μ_t .

Where:

NAVPS _{it}	=	Net Asset Value Per Share
EVA _{it}	=	Economic Value Added
a	=	the intercept
$\beta_1 EC$	=	Economic Cost
$\beta_1 SC_{it}$	=	Social Cost
$\beta_1 EVC_{it} =$	Environ	mental Cost
μ_t	=	Composite error term

4. DATA PRESENTATION

Descriptive Analysis for all Listed Manufacturing Firms

The descriptive analyses of the variables in this work were conducted for all the Listed Manufacturing companies in this study. The performance of listed manufacturing companies in Nigeria formed a panel studies data; and the descriptive analyses of each of the series were taking to assess the measure of variability obtainable in the series before further estimations will be carried out.

Result of Descriptive Analysis								
	TQR	SC	NAVPS	MVPS	EVC	EVA	EPS	EC
Mean	26.8800 0	1877056.	13.80595	45.28110	44168720	1.42E+08	21.99284	2.67E+08
	27.0000							
Median	0	53276.00	4.230000	1.005000	409125.0	1777310.	1.310000	5005855.

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Maximum	52.0000 0	1.01E+08	152.0000	1555.990	1.49E+09	7.27E+09	570.0000	1.44E+10
Minimum	11.0000 0	0.000000	0.000000	0.000000	0.000000	0.000000	-24.19000	0.000000
Std. Dev.	7.64709 0	9829133.	21.05846	176.6695	1.67E+08	8.32E+08	78.78201	1.58E+09
Skewness	0.37387 3	7.368692	2.573683	6.286386	5.723371	6.556241	5.428705	7.251795
Kurtosis	3.05094 3	63.63298	12.65714	44.81117	40.15443	46.39650	33.78455	55.80583
	4.68099							
Jarque-Bera	2 0.09628	32446.24	997.9638	15885.40	12595.67	17126.62	8879.766	24990.08
Probability	0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	5376.00							
Sum	0 11637 1	3.75E+08	2761.190	9056.220	8.83E+09	2.84E+10	4398.567	5.35E+10
Sum Sq. Dev.	2	1.92E+16	88248.27	6211208.	5.53E+18	1.38E+20	1235115.	4.99E+20
Observations	200	200	200	200	200	200	200	200

Source: Researcher's Eviews Computations 2022

The eight variables in this work were all selected to have coverage of almost all the important indicators of listed manufacturing companies in Nigeria. The selected variables include Earning Per Shares (EPS), Market Value Per Share [MVPS], Tobin Q Ratio [TQR], Net Asset Value Per Share [NAVPS] and Economic Value Added [EVA], which is the dependent variable while the independents variables are: Economic Cost (EC), Social Cost (SC) and Environmental Cost (EVC). The combination of these indicators in this research is believed by the researcher to be able to generate the true picture of listed manufacturing companies in Nigeria.

The result of the descriptive analysis as shown on table 4.36 indicates that EC has a high level of spread. This is in consideration of the maximum value of 1.44E+10 as against the minimum value of 0.000000 as well as the median score of 5005855. This shows that EC of the manufacturing firms has a wide level of variability within the study time frame of 2015 to 2019. It also suggests that EC may have improved over time or fluctuated significantly. EC is also found to have some data points lying away from the mean score of 2.67E+08 pointing to the fact that EC has more data points that are close to the minimum score than those closer to the maximum score. The central value of 5005855 i.e. the median is far from the maximum value and being a value at the middle, it implies that more than half of the data points on EC are less than or equal to 5005855; hence we can say that the performance of listed manufacturing firms within the five years period covered by the study is on the low side considering the maximum score of 1.44E+10. The standard deviation of the variable also supports this finding as its value of 1.58E+09 implies a minimal deviation of the observations from their mean.

The EPS which is one of the dependent variable, has a lesser level of spread as its values range from the minimum value of -24.19000 to maximum of 570.0000. This suggests that the variations in the consumer goods in this study are not widely spread as can be deduced by its median score of 1.31000 and mean score of 21.999284 approximately. It indicates that these listed manufacturing companies have little variation in their behavioral pattern as regarding EPS. The standard deviation of 28.78201 obtained for the series also suggests that the observations are not closely clustered around the mean.

EVC is another variable in manufacturing firms from the standpoint of frequencies, according to the result obtained on the above table 4.36, EVC ranged from the minimum value of 0.000000 times to maximum of 1.49E+09 in a year across the listed manufacturing firms in Nigeria. However, these extreme values will not be enough to make a logical conclusion without recourse to the mid-values as depicted by the mean and median values which are 409125.0



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respectively. The mean as a measure of central tendency herein suggests that average consumer goods among our panel has 44168720 in a year. The median value of 409125.0 also indicates the observations are well spread around their mean suggesting that the variables in this study have varying degree of EVC frequencies which are not tilted to any one side of the two extremities.

SC is another variable in the listed manufacturing firms, from the descriptive analysis result obtained, the minimum value of 0.000000 suggests that in a year, at least one of the listed manufacturing firms in the study panel has a SC of 0.000000. But the maximum value of 1.01E+08. The observations for SC appears to be well dispersed judging from its median score of 53276.00.

The TQR, which is one of the dependent variables, has a lesser level of spread as its values range from the minimum value of 11.000000 to maximum of 52.000000. This suggests that the variations in the listed manufacturing firms in this study are not widely spread as can be deduced by its median score of 27.0000 and mean score of 26.88000 approximately. It indicates that these listed manufacturing firms have little variation in their behavioral pattern as regarding TQR. The standard deviation of 7.647090 obtained for the series also suggests that the observations are not closely clustered around the mean.

The NAVPS which is one of the dependent variable, has a lesser level of spread as its values range from the minimum value of 0.000000 to maximum of 152.0000. This suggests that the variations listed manufacturing firms in this study are not widely spread as can be deduced by its median score of 4.230000 and mean score of 13.80595 approximately. It indicates that these listed manufacturing firms have little variation in their behavioral pattern as regarding NAVPS. The standard deviation of 21.05846 obtained for the series also suggests that the observations are not closely clustered around the mean.

The MVPS which is one of the dependent variable, has a lesser level of spread as its values range from the minimum value of 0.000000 to maximum of 1555.990. This suggests that the variations in the listed manufacturing firms in this study are not widely spread as can be deduced by its median score of 1.005000 and mean score of 45.28110 approximately. It indicates that these listed manufacturing firms have little variation in their behavioral pattern as regarding MVPS. The standard deviation of 176.6695 obtained for the series also suggests that the observations are not closely clustered around the mean.

The EVA, which is one of the dependent variables, has its values ranging from the minimum value of 0.000000 to maximum of 7.27E+09. This suggests that the variations in the consumer goods in this study are not widely spread as can be deduced by its median score of 1777310 and mean score of 1.42E+08 approximately. It indicates that these listed manufacturing firms have little variation in their behavioral pattern as regarding EVA. The standard deviation of 8.32E+08 obtained for the series also suggests that the observations are not closely clustered around the mean.

Summarily from the results of the descriptive analysis, the data obtained and described above showed a manageable level of spread though they all have a Jarque-Bera probability values of less than 5%, hence the researcher deemed it fit to be utilized for the purpose of analyzing the objectives raised in the initial section of this work.

Test of Hypotheses

The two hypotheses formulated in this research work were analyzed using panel regression with the adoption of fixed effect or least square dummy variable (LSDV) model.

Hypothesis 1

Ho₁: There is no significant effect of Economic Cost, Social Cost and Environmental Cost on

Net Asset Value Per share of listed manufacturing companies in Nigeria.

Panel Multiple Regression on the effect of Triple Bottom Line Accounting Indicators on Net Asset Value Per share of listed manufacturing companies in Nigeria

Dependent Variable: NAVPS Method: Panel Least Squares Date: 04/11/22 Time: 13:57 Sample: 2015 2019 Periods included: 5 Cross-sections included: 40 Total panel (balanced) observations: 200



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Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	11.93560	1.468630 8.127025		0.0000
SC	-1.46E-07	2.19E-07 -0.668669		0.5045
EVC	4.62E-08	8.39E-09 5.514357		0.0000
EC	3.84E-10	1.36E-09	0.282562	0.7778
R-squared	0.137304	Mean depende	nt var	13.80595
Adjusted R-squared	0.124100	S.D. dependent var		21.05846
S.E. of regression	19.70851	Akaike info criterion		8.819776
Sum squared resid	76131.40	Schwarz criterion		8.885742
Log likelihood	-877.9776	Hannan-Quinn criter.		8.846471
F-statistic	10.39828	Durbin-Watson stat		0.248559
Prob(F-statistic)	0.000002			

Source: Researcher's Eviews Computations 2022

The result of the panel multiple regressions using the fixed effect model, forms our reference result for testing hypothesis one in this work. According to the regression result in the table above the beta coefficient of Net Asset Value Per Share yields a positive value which suggest that EC of the companies attracts a direct response from the performance of Listed Manufacturing companies in Nigeria. The implication is that positive variations will be associated with corresponding positive reaction from the Performance of Manufacturing companies in Nigeria at a statistically significant non-significant. Hence the study concludes that EC has a non-significant and positive influence on the Performance of Listed Manufacturing companies in Nigeria.

SC also has a positive and significant effect on the Performance of Listed Manufacturing Firms in Nigeria. The implication is that the Performance of Listed Manufacturing companie in Nigeria responds to changes in the SC in the same direction. Hence we conclude in line with the outcome of the beta coefficient (0.000) and probability of the t-statistics (8.127025) on table 4.41 of listed manufacturing companies in this study has a significant and positive influence on the Performance. EVC have positive and non-significant effect on the Performance. This outcome implies that the EVC yields non-significant and positive effect on the Performance of listed manufacturing companies in Nigeria137304.

The residual statistics of the multiple regression models on table 4.41 also supports the beta coefficients of the individual variables thereby strengthening the implications of the results. The r-squared of 0. suggests that our regression model which regress Triple Bottom Line Accounting indicators on the Performance of Listed Manufacturing companies in Nigeria is well-fitted. The multiple co-efficient of determination S.E. of Regression is 19.70851, indicates that the variation in Net Asset Value Per share of listed manufacturing companies in Nigeria is attributable to changes in Economic Cost, Social Cost and Environmental Cost. This is because the r-squared outcome shows the ability of the selected explanatory variables to predict the changes that occur in the Performance of manufacturing companies in Nigeria.

Hypothesis 2

Ho2: There is no significant effect of Economic Cost, Social Cost and

Environmental Cost, on Economic Value Added of listed manufacturing companies in Nigeria.

Panel Multiple Regression of Triple Bottom Line Accounting Indicators on Economic Value Added of listed manufacturing compnies in Nigeria

Dependent Variable: EVA Method: Panel Least Squares Date: 04/11/22 Time: 14:00 Sample: 2015 2019 Periods included: 5



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Total panel (balanced) observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	-11742813	19724400 -0.595345		0.5523
EVC	0.039876	0.112629	0.354051	0.7237
EC	0.237738	0.018241 13.03311		0.0000
SC	47.18454	2.940177	16.04820	0.0000
R-squared	0.900191	Mean dependent var		1.42E+08
Adjusted R-squared	0.898664	S.D. dependent var		8.32E+08
S.E. of regression	2.65E+08	Akaike info criterion		41.64585
Sum squared resid	1.37E+19	Schwarz criterion		41.71182
Log likelihood	-4160.585	Hannan-Quinn criter.		41.67254
F-statistic	0.589253	Durbin-Watson stat		1.027129
Prob(F-statistic)	0.000000			

Source: Researcher's Eviews Computations 2022

The table above is the result of the panel multiple regressions using the fixed effect model and forms our reference result for testing hypothesis two in this work. According to the results obtained from the multiple regressions, EVC shows a positive and significant effect on the performance of selected companies in the study. This is because the beta coefficient for EVA has a positive outcome. In consideration of the beta coefficient which is 0.5523, can be deduced that unit effectiveness in the EVC will lead to 5.0 reactions from the Economic Value Added of listed manufacturing companies in Nigeria in our study. Hence on the basis of the results, regression result on table 4.42 to explain the association of Triple Bottom Line Accounting structures and the Performance of Listed Manufacturing companies in Nigeria. According to the regression result, the beta coefficient of EVA yields a positive value which suggests that EC of the firms attracts a direct response from the Performance of listed manufacturing companies in Nigeria. The implication is that positive variations will be associated with corresponding positive reaction from the Performance of Listed Manufacturing companies in Nigeria at a statistically significant level. Hence the study concludes that EC has a non-significant and positive influence on the Performance of listed manufacturing companies in Nigeria. SC also has a positive and non-significant effect on the Performance of listed manufacturing companies in Nigeria. The implication is that the Performance of listed manufacturing companies in Nigeria responds to changes in the SC in the same direction. EVC have positive and significant effect on the Performance. This outcome implies that the EVC yields significant and positive effect on the Performance listed manufacturing companies in Nigeria.

The residual statistics of the multiple regression models on the table above also supports the beta coefficients of the individual variables thereby strengthening the implications of the results. The r-squared of 0.900191 suggests that our regression model which regress Triple Bottom Line Accounting indicators on the Performance of Listed Manufacturing companies in Nigeria is well-fitted. This is because the r-squared outcome shows the ability of the selected explanatory variables to predict more than half of the changes that occur in the Performance of listed manufacturing companies in Nigeria.

5. CONCLUSION

From the findings of this study, the total of two hypothesis formulated in the introduction of this research were analyzed using panel least square regression and multiple regression with the adoption of fixed effect or least square dummy variable (LSDV) model. The choice of this model is based on the fact that fixed effect or LSDV model allows for heterogeneity or individuality among the cross sections which are the individual listed manufacturing companies in Nigerian stock exchange. However, our selection of fixed effect regression over random effect was further buttressed by the results of the Hausman test. Based on this, we accept that the various indicators of Triple Bottom Line Accounting, in this research work, jointly have significant influence on the Performance of Listed Manufacturing companies in Nigeria since the residual statistics indicate that the regression model is properly fitted.



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Having gone through the preceding parts, it is clear that Triple Bottom Line Accounting jointly has significant influence on Financial Performance of Listed Manufacturing companies in Nigeria. It was established that Economic Cost (EC) and Environmental Cost (EVC) have a positive and significant effect on the variables of performance of listed manufacturing companies in Nigeria while Social Cost has positive and non-significant effect on the variable of performance of manufacturing companies in Nigeria. Hence, the following recommendations are made: The government, as the custodian and protector of the society, and the environment, should help put in place some guidelines, for manufacturers to contribute to their environment and the society at large. Investors have this competitive nature that measures their performance and how to remain in business for a longer time; therefore, responsiveness to the environment and the society at large will help them in their investment decisions. Business management and managers should adopt triple bottom line as a guide to report to stakeholder on the allocation of benefits not only to shareholders but to other stake holders. Triple bottom line should be adopted by researchers in accounting, for theoretical and practical contributions to explain sustainability accounting in the area of economic, social and environmental information in respect to performance of manufacturing companies. It will, therefore, definitely enhance the quality of literature in the field of accounting. Furthermore, researchers in this field will benefit since this can serve as a bench mark for future research on reporting of economic, social and environmental information and its effects on performance of manufacturing companies.

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