Research Paper

The Effect of Using Break-Even-Point in Planning, Controlling, and Decision Making in the Bangladeshi Start-upCompanies

[1.] Afsana Jahan Nipa, *Department of Mathematics, Sonargaon University*
[2.] H. M. Arifur Rahman, *Department of Mathematics, Jahangirnagar University*

Abstract
Thisresearchstudyaimedtofigureouttheeffectofusingbreakevenpointinplanning,controlling, and in the decision-making process, in the Bangladeshi Start-up Companies. Thisresearch study shed the light on the reality of the use of the breakeven point in the planning,controlling and decision-making in Start-up Companies in Bangladeshi. The study sample of thestudywasformedoutof54employeesintheaccountingdepartmentsintheBangladeshi Start-up Companies. The study found out that, the most of the Bangladeshi Start-up Companiesare using break-even point in the planning, controlling and decision-making, and there is a statistical significant relationship betweentheuseofthebreak-evenpointandsuccessfulplanning,controlanddecision-makingin the Bangladeshi Start-up Companies. The study hasrecommendedthat, companies should use breakeven pointas a main tool of decision-makingand planning oversight because of its impact, efficiency and accuracy in the rationalization andcontroldecisions.
Keywords: Break EvenPint, Decisionmaking, Planning, Controlling.

I.   Introduction

Financial Information has its vital role in running up today's business. If the three M's(Man,Money,andMaterial)arethemaintraditionaleconomicbusinessresources,theninformation is never less important than these resources. We can say information is the fourtheconomic business resource. Market analysis for example, is considered now as one of the mainmethods of having valuable information which can help management in planning, and effectivedecisionmaking.

Decision making underlies the commonly encountered twofold division of the managementprocess; planning and controlling. Planning means deciding on objectives and the means fortheir attainment, where controlling means implementation of plans and the use of feedback sothat objectivesareoptimallyattained.

Management accounting has many several uses in the field of planning, controlling, decisionmakingandcost-volumeprofitanalysis.Break-Even-Pointisoneofthemaintoolsofthecost- volume profit (CVP) analysis. Break-Even-Point is not an end target by itself, but it is one of theimportant tools used to measure the profitability of a firm. Break-Even-Point can be defined asthepointwheretotalrevenueequalstotalvariableandfixed expenses (Garrison,2012)

The relationship between revenue, cost, and net income is called the CVP analysis. This kind ofanalysisisimportanttobothinternalpartiesandexternalparties.Internalpartiesormanagement uses this type of analysis to plan for amount of profit required in a certain periodof time (Sales Target), or the quantity of production the firm should produce in the future.External parties, such as securities exchange commission requires management to include somefinancial analysis and discussion about its operations in its annual reports. Due to great importance of Break-Even-Point in decision making, the core our research studywill be about the use of Break-Even-Point in planning, controlling, and decision making in theBangladeshi Start-up Companies.

Study Problem

Many experienced managers use a break-even analysis or forecast as a primary screening toolfor new business ventures. They won't even write a complete business plan unless their break-even forecast shows that

their projected sales revenue exceeds their costs. The study problemarisesoutoftheideathattheBangladeshi Start-up CompaniesmaynotusetheCVPanalysisinitsplanningprocesswhich atendmayaffecttheobjectivesthese companiesare seeking.

Study Importance

Break-even is that point in business where a business turns from making a loss to making aprofit. The term is usually used to describe a startup firm that is looking to reach a point ofprofitability after an initial period of loses that are supported by investors.Breakeven pointanalysis is a very important tool, especially if we are preparing to figure out the volume of salesneededinorderto covertotal costs, andthenplanningtomakeprofits.

Theimportanceofthisstudyarisesoutofthefollowingpoints:
1-The industrial companies have a great importance to the economy, so it's vital2-touse CVPtechniquesinplanningandcontrolling.
3-TheresultsofthisresearchstudymaybeusefultotheindustrialcompaniesInawaythat itcanusethefindings to improvetheplanningandcontrollingprocess.

Study Objectives
This research study aims to highlight thesignificanceof theBreak-Even-Pointin thefollowingpoints:
1. Determiningtheoptimum levelofoutput.
2. Determiningthetargetcapacityofafirmtogetthebenefitofminimumperunitproduction cost.
3   Determining minimum cost for a given level of output.
4. Determiningsellingpriceforaproduct
5. Establishingthepointfromwherethefirmcanstart payingdividendtoshareholders.

II.   Literature Review

The information that management accounting gather and analyze is used to support the actionsofmanagement.Allbusinessmanagersneedaccurateandtimelyinformationtosupportpricing, planning, operating, and many other types of decisions. Managers of manufacturing,merchandizing, government, and service organizations all depend on management accountinginformation. Multidivisional corporations need large amounts of information and more complexaccountingandreportingsystemsthandosmallbusiness.Butsmallandmediumsizebusinesses make use of certain types of financial information as well. The types of data neededtoinsureefficientoperatingconditionsdonotdependentirelyonanorganization'ssize.Management accounting information helps organization make better decisions. Such decisionsmake all organization become more cost-effective and help manufacturing, retail, and serviceorganizationsbecomemore profitable.

A company's break-even point is the amount of sales or revenues that it must generate in orderto equal its expenses. In other words, it is the point at which the companyneither makes a profit nor suffers a loss. Calculating the break-even point through break-evenanalysis can provide a powerful quantitative tool for managers. In its simplest form, break-evenanalysisprovidesinsightintowhetherornotrevenuefromaproductorservicehastheabilityto cover the relevant costs of production of that product or service. Managers can use thisinformation in making a wide range of business decisions, including setting prices, preparingcompetitivebids,andapplyingforloans.

From an economic perspective, breakeven point indicates the quantity of some good at whichthe decision maker would be indifferent. In other words, managers would be satisfied. At thisquantity, the costs and benefits are precisely balanced. Similarly, the managerial concept ofbreak-even analysis seeks to find the quantity of output that just covers all costs so that no lossis generated. Managers can determine the minimum quantity of sales at which the companywould avoid a loss in the production of a given good. If a product cannot cover its own costs, itinherently reduces the profitability of the firm. Break-Even-Point helps managers in analyzing:
Impactofnewproductlunch.
Impactofpurchasingnewcapitalequipment.
Shouldonemake,buyorleasecapitalequipment.
Revenueand costimplicationsofchangingtheprocess ofproduction.
Impactofchangesinpriceandcostonprofitofthefirm.

Profitability is the goal of every business owner. But before management can turn a profit, theyfirsthavetobreakeven.Spendingmoremoneythanbusinessisabsorbinginordertoproducea product or provide a service can quickly bleed a company of its capital. Even if business has

afinancialcushionlargeenoughtoallowittooperateintheredforaperiodoftime,managementshouldatleastbeawareofth eareasinwhichlossesareoccurringandhavein

place a plan for steering the company into the black. The break-even point is the number thatmust be reached before an investment starts to generate a positive return. To run the businesssuccessfully, it is crucial that management has identified the point at which revenues coverexpenditures on each of the products and services offered, as well as on overall operations.Because these break-even points shift as conditions change, break-even analysis should beperformed regularly, preferably on a quarterly basis. While there are a number of methods fordetermining a business's break-even point, one relatively simple approach is to calculate howlarge the company's contribution margin must be to cover its fixed costs. To get started, add upall the fixed costs the business has to cover regardless of sales volume, such as rent, salaries,debt payments, insurance, and similar overhead expenses. The next step is to calculate thecontribution margin on the products or services the firm sells. The contribution margin is afinancialmetricusedtodeterminethepercentageoffundsleftover fromrevenuesafteraccounting for the cost of purchasing or producing the goods sold. The contribution margin canbe calculated on a per-unit basis or by subtracting variable costs from the sales price. Thebreak-even point can then be calculated by dividing your fixed costs by contribution margin. Fora very simple example, assume we have added up expenses and determined that the monthlyfixedcostsamountto$50,000.Then, weassumethatbusinessconsistsofpurchasinganitem at

$3 per unit and selling them at $10 per unit, the contribution margin will be $7 per unit, or 70%.When a fixed cost is $50,000 is divided by contribution margin of 70%, the resulting figure isapproximately $71,429. This means we would have to sell 7,143 units in a given month to breakeven. If sales dip below 7,143 units per month, the business is losing money, while any salesabove this threshold representprofit.Whenmultiple productlines are involved,weightedaverage ofcontributionmarginshouldbeused.

BEP=FixedCost
ContributionMargin
Where:ContributionMargin=SalesPrice/Unit–VariableCost/Unit

There are many other factors that affect the financial health of the business over time, such asprojected changes in market conditions. A break-even analysis should, therefore, be seen as abasic tool that can provide a snapshot of where a business stands at a givenpoint in time,which should be used in conjunction with other financial measures. A break-even analysis can,however, provide us with important preliminary information about the status of the business. Iftheresultsoftheanalysisrevealthatsalesarenotsufficient to cover expenses, or that contribution margin is smaller than it should be, there maybe action we can take to lower the break-even point. Starting by investigating ways to reducethe cost of purchasing or producing the products or services we sell, or whether there anothersupplier who would sell us the same or a similar item for $2.75, instead of $3? If we make theproduct ourselves, are there options for manufacturing it less expensively?Orwhether thereare steps we can take to trim overhead expenses without harming our operations. Finally,should we consider raising prices? Implementing small changes in one or more of these areascould enable the firm to reset business's break-even point, and move the company in thedirectionofgreaterprofitability.

The quality andaccuracy ofthe financial information gatheredabout marketchanges andvariables analysis of a project, will definitely lead to a sound and accurate investment decision.Pre-market analysis is a necessary and priority step before any application of breakeven pointrules or even the visibility study in the first place, and that is due to many environmental effects.

Finally, management is expected to use resources wisely, operate profitably, pay debts, andabidebylawsandregulations.Theseexpectationsmotivatemanagerstoestablishtheobjectives, goals, and strategic plans of the organization and to guide and control operating,investing, and financing activities to reach those goals. The management process differs fromorganization to organization, but traditionally management operates in four stages:

5.1Planning:
Planningmeanssettingperformanceexpectationsandgoalsforgroupsandindividualstochannel their efforts toward achieving organizational objectives. It also includes the measuresthatwillbeusedtodeterminewhetherexpectationsandgoalsarebeingmet.Involvingemployees in the planning process help them understand the goals of the organization, whatneedstobe done,whyitneedstobedone,andhowwell it shouldbedone.

Executing:
Planningalonedoesnotguaranteesatisfactoryoperatingresults.Managementmustimplement the strategic and operating plans by executing activities, or tasks, in a way thatmaximizes the use of available resources. Smooth operations require hiring and training ofpersonnel, identifying operating activities, that minimize waste and improve the quality of theproductsorservices.

Monitoring:
Monitoringmeansconsistentlymeasuring performanceandproviding ongoingfeedback toemployees and work groups on their progress toward reaching their goals. Ongoing monitoringprovides the opportunity to check how employees are doing and to identify and resolve anyproblemsearly.

Developing:
Developing means increasing the capacity to perform through training, giving assignments thatintroducenewskillsorhigherlevelofresponsibility,improvingworkprocesses,orothermethods.Developmenteffortscanencourageandstrengthengoodperformanceandhelpemployeeskeepupwithchanges intheworkplace.

Rating:
Ratingmeansevaluatingemployeeorgroupperformanceagainsttheelementsandstandardsin an employee's performance plan, summarizing that performance, and assigning a rating ofrecord.

Rewarding:
Rewarding means providing incentives to and recognition of employees, individually and asmembersofgroups,fortheirperformanceandacknowledgingtheircontributionstotheagency's mission. There are many ways to acknowledge good performance, from a sincere"Thank You!" for a specific job well done to granting the highest level, agency-specific honorsandestablishing formalcashincentiveand recognition awardprograms.

III.   Method

The primary data needed for the study objectives were collected through a survey conductedamong Different industrial Jordanian companies. A questionnaire has been designed for thispurpose, and it was distributed randomly to the employees taking part in actions and activitieson carrying out business in their companies in February 2014, and to different managementlevels. The number of questionnaires analyzed were (48) valid questionnaires. Resolution datawere analyzed usingthestatisticalprogramSSPS.
Quantitativedatawerecollectedusingaself-administeredquestionnaire,inwhichtheemployeeswereaskedtostatethelikelihood(ona5-pointscale:[5]stronglyagree;[4]agree;
[3] neutral; [2] disagree; [1] strongly disagree),70 copies of the questionnaire were delivered byhand on therespondents,54copieswerereturned(percentageof77%   );outofthese54copies   48copies(69%) werevalidforanalysis.

OtherDataiscollectedfromsecondarysources.Secondarydataiscollectedfromarticlespublished   bythe   well-knownperiodicals,books,anddissertations.

Statistical Analysis:

TheStatisticalPackageforSocialSciencesSSPSwasappliedinanalyzingthedatareceived;StatisticalAnalysistools includethefollowings:
DescriptiveStatistics,mainlyfrequenciesandpercentages,wereusedtoanalyzesamplecharacteristicsaccordingtojob,educationallevel,professionalcertificates,andexperience.
Correlation,Inter-correlation,andPathCoefficientwereusedtoanalyzeanddescribestudyvariablesfroma   statistical point.
ReliabilityTestusingCronbach'sAlphawasusedtotestthereliabilityofthe scale.

ResearchDesign(Exhibit-1)

DEPENDANTVARIABLES   INDEPENDENTVARIABLES
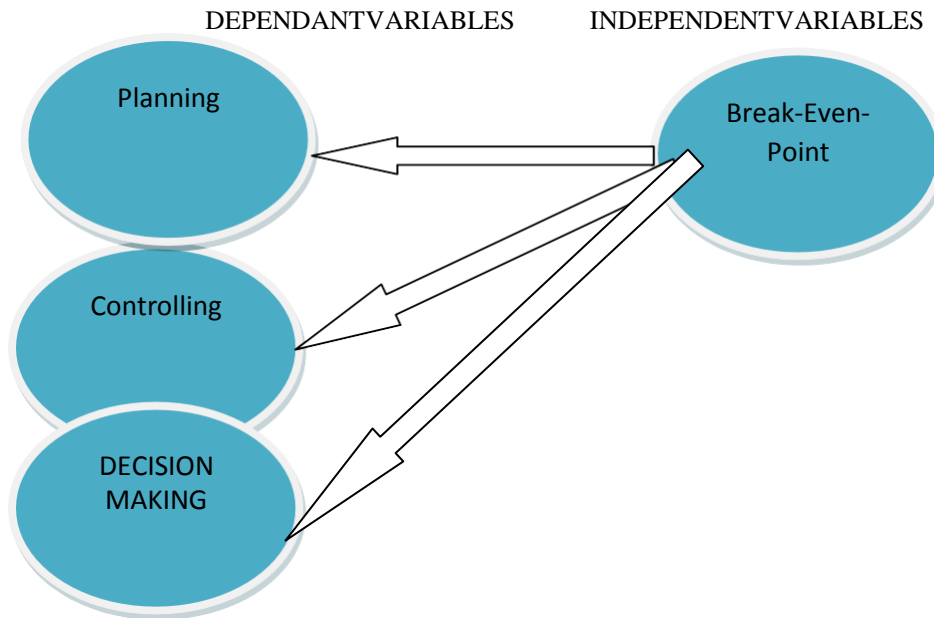
ResearchdesignisformedoutofThreemaindependentelementsandoneindependentelement   which   constitute   the   research design. The Model in Exibit-1 shows the effect of Break-Even-Pointonplanning,controlling, and decisionmaking.

StudyHypothesis
H01:TheJordaniancompaniesdonotuseBreak-Even-Pointinplanning,controlling,anddecisionmaking.
Thismainhypothesisiscanbedivided intothefollowingsub-hypotheses
1:ThereisnosignificantstatisticalrelationshipbetweenBreak-Even-PointandplanningintheBangladeshi   Start-up Companies.
2: There is no significant statistical relationship between Break-Even-Point and controlling in theBangladeshi Start-up Companies.
3:ThereisnosignificantstatisticalrelationshipbetweenBreak-Even-Pointanddecisionmakingin   theBangladeshi Start-up Companies

DataAnalysisandFindings6.4.1:Reliabilitytest:
Cronbach's alpha was usedto test the internal reliability of the measurementinstrument. Inthis study 0.60 or higher is considered acceptance. The Cronbach's Alpha (α) is87.3%, thus establishing the reliability of the survey questionnaire. As the values of alpha arehigher than 60%, this indicates that for each measurement of a variable, the items are highlycorrelated andhencehighly consistent.

SampleCharacteristics
The respondents were 72.9% male and 27.1% female; most of them werebetween the age of25 years and 45 years. Most respondents had average experience more than 5 years. 4.2% ofthe respondents were having high school certificates, 22.9% were having Diploma certificates,andfinally72.9%werehaving bachelordegree. Demographicdataisshown inTableNo.(1).

Table No. (1)/Demographics Data for the Study

Variable	Group	Frequencies	%
Sex	Male	35	72.9
	Female	13	27.1
Total		48	100%
Age	Lessthan25 years	13	27.1
	From26 years—35years	15	31.2
	Morethan36 years	20	41.7
Total		48	100%
ProfessionalCertificate	HighSchoolCertificate	2	4.2

	DiplomaDegree	11	22.9
	bachelorDegree	35	72.9
Total		48	100%
Job Title	Accountant	23	47.9
	Accountingofficer	16	33.3
	HeadofAccountingDept.	9	18.8
Total		48	100%
Experiences	Lessthan5years	9	18.8
	From 6years–10years	36	75
	Morethan11years–15 years	3	6.3
Total		48	100%

SSPS Results:

Table(2) showstheMean,Standarddeviationofthequestionnaireresults:

No.	Table(2): AttributesStandards	A. Means	S. Deviation	sig
1	ThefirmperformsBEPanalysisintheplanningprocessforHumanResourcesacquisition	4.208	0.771	High
2	ThefirmperformsBEPanalysistoevaluateAuditingperformance	4.104	0.660	High
3	The firm performs BEP analysis in order toshowtheeffectofBEPformulaonthecalculationresults	4.042	0.771	High
4	ThefirmperformsBEPanalysisintheplanningprocessforexpenditures	4.042	0.771	High
5	ThefirmperformsBEPanalysisintheplanningprocessforproduction	4.000	0.851	High
6	ThefirmperformsBEPanalysisinordertoshowtheeffectofchangesatVariableCost	3.958	0.849	High
7	ThefirmperformsBEPanalysisinordertochosebetweenalternatives	3.938	0.998	High
8	ThefirmperformsBEPanalysisinordertomake long-terminvestmentdecisions	3.917	0.794	High
9	ThefirmperformsBEPanalysisplanningprocessingeneral	3.896	1.036	High
10	ThefirmperformsBEPanalysistoshowtheeffect of BEPonpricefluctuations	3.875	0.640	High
11	ThefirmperformsBEPanalysistoshowthe effectofBEPonfixedcost	3.813	0.816	High
	ThefirmperformsBEPanalysistoanalyzetheaccountingoutcomes	3.792	0.922	High
	The firm performs BEP analysis in order tocontrolandeliminatesaccountsmanipulation	3.771	0.778	High
	ThefirmperformsBEPanalysisinordertotake short-termdecisions	3.750	1.082	High
	ThefirmperformsBEPanalysisinordertoanalyzemarket trends	3.188	0.571	Moderate
	Total	3.859	0.834	High

Table (2) results show that the Mean of most of the answers is high (higher than 3.5) on Likertscale. The last question shows a moderate result of 3.188. The overall results indicate that theBangladeshi Start-up Companiesuseand performtheBEPanalysisin its functions.

HypothesisTesting&Results:
Table (3) illustrates sample test results, (One Sample t-test) to examine the main hypothesis,and it's Sub Hypothesis, to test the effect of using BEP on planning, controlling, and decisionmaking

Table (3): Hypothesis	ArithmeticMeans	Calculated t	Tabular t	Sig	Result
H01: The Jordanian companies donotuseBreak-Even-Pointinplanning, controlling, and decisionmaking	3.781	3.244	1.98	0.002	Reject
Sub:1Thereisnosignificantstatisticalrelationshipbetween Break-Even-Pointandplanninginthe Jordanian	3.788	2.82	1.98	0.043	Reject

Industrial companies.					
Sub:2Thereisnosignificantstatisticalrelationshipbetween Break-Even-PointandcontrollingintheJordanianIndustrial companies.	4.291	8.032	1.98	0.000	Reject
Sub:3 There is no significant statistical relationship between Break-Even-Pointanddecisionmaking in the Bangladeshi Start-up Companies	3.833	2.883	1.98	0.006	Reject

It is noticed from Table (3) that the value of (t) calculated, concerning (H01) hypothesis equals(3.244), and the level of significance is (0.002), which is higher than tabulated (t) which equals(1.98), as the value of (t) calculated is higher than tabulated (t), we reject H0 hypothesis, whichmeans that, The Jordanian companies are using Break-Even-Point in planning, controlling, anddecisionmaking.

Table (3), also shows that, the value of (t) calculated, concerning first sub hypothesis equals(2.82), and the level of significance is (0.043), which is higher than tabulated (t) which equals(1.98 means that, There is a significant statistical relationship between Break-Even-Point andplanningintheBangladeshi Start-up Companies.

Table (3), also shows that, the value of (t) calculated, concerning second sub hypothesis equals(8.032), and the level of significance is (0.000), which is higher than tabulated (t) which equals(1.98), as the value of (t) calculated is higher than tabulated (t), we reject H0 hypothesis, whichmeansthat,ThereisasignificantstatisticalrelationshipbetweenBreak-Even-PointandcontrollingintheBangladeshi Start-up Companies.

Table (3), also shows that, the value of (t) calculated, concerning third sub hypothesis equals(2.883), and the level of significance is (0.006), which is higher than tabulated (t) which equals(1.98), as the value of (t) calculated is higher than tabulated (t), we reject H0 hypothesis, whichmeans that, There is a significant statistical relationship between Break-Even-Point and decisionmakingintheBangladeshi Start-up Companies.

Conclusions&Recommendations6.5.1 Conclusions

The Bangladeshi Start-up Companies are using Break-Even-Point in planning, controlling, anddecision making. The companies are also performing BEP analysis in the planning process forHuman Resources acquisition, also in the planning process for expenditures, Production, and inevaluating auditing performance. The Bangladeshi Start-up Companies are performing Break-Even-Pointanalysisindecidingbetweenalternatives,tomakelong-termandshort-termdecisions. The outcomes also show that, these companies use the BEP analysis in controllingaccountsand eliminatingmanipulation.

Recommendations

Accordingtothestudyconclusionstheresearchersrecommendthefollowing:

TheBangladeshi Start-up CompaniesshouldalsoperformmarketanalysisinadditiontoBEP   analysis,soastohave additionalinformationuseful indecisionmaking.

ThecompaniesshouldextendtheknowledgeofBEPoutcomesanditsusestoemployeesina   widerrangeinordertohave maximumbenefitoutofit.

Togeneralizetheoutcomesofthestudytoalltypesofcompanies.

Werecommendmakingsimilarresearchonthistopiccoveringserviceandmerchandisingsectors.

References

[1].   Garrison,Ray;Noreen,Eric;Brewer,Peter.(2011)."ManagerialAccounting"14[th]Ed.McGraw-HillIrwin,
[2].   Hammid,Abdulmutaleb.(2000)."Thevisibilitystudyforinvestmentdecision Making"AlexandariaUniversity.
[3].   Horngren,CharelsT.Datar,SrikantM.Rajan,MadhavV.(2014)."CostAccounting"14[th]Ed.PearsonEducationLimited.
[4].   Linwoodinvestment.(2014)."Break-Even-Point"Accessed25Feb2014.Available:www.Linwoodinvestment.com
[5].   Manishranalkar. (2014). "Break-Even-Point"   Accessed 25 Feb 2014.
[6].   Moyer, McGuigan, Kretlow. (2005), "Contemporary Financial Management", 10th, TenthEdition.SouthWestern Publishers,
[7].   Needles,BelverdE,Powers,Marian;Mills,SherryK.;&Anderson,HenryR.(1999)."PrinciplesofAccounting" 7th ed.HoughtonMifflin.
[8].   Slideshare. (2014).   "Break-Even-Point" Accessed 27   Feb   2014.   Available:www.slideshare.net
[9].   Uma,Sekrran.(2003).*ResearchMethodforBusiness:ASkillBuildingApproach*.7thEdition,JohnWileyandSons,New York.
[10].   Wikipediaorg.(2014).(*DefinitionofBREAK-EVEN-POINT*)*Accessed20Feb2014.Available:http://*www.Wikipedia.org.