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Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. Ciblage De L'inflation En Regime De Change Fixe: Le Cas De La Zone Cemac. *1-12*
2. A Study on Supplier Finance Required in Maintaining Active Working Capital Level of Customers: An Example from IDLC Financing Company in Bangladesh. *13-35*
3. Les Determinants De La Rentabilite Bancaire : Une Analyse Sur Donnees De Panel Appliquee Au Cameroun. *37-51*
4. Management and Roles of Deposit Insurance Institution in Attracting Deposits for Jordanian Banking Sector (2000-2013). *53-58*
5. Investor Sentiment and its Role in Asset Pricing: An Empirical Study of the American Stock Market. *59-76*
6. Shari`ah Compliance in Islamic Banking—Why and How?. *77-84*
7. An Alternative Investigation of Weak Form Efficiency in Dhaka Stock Exchange Based on Technical Analysis. *85-92*

v. Fellows and Auxiliary Memberships
vi. Process of Submission of Research Paper
vii. Preferred Author Guidelines
viii. Index

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Ciblage De L'inflation En Régime De Change Fixe: Le Cas De La Zone CEMAC

By Mba Fokwa Arsène, Nji Ngouhouo Ibrahim & Kamajou François

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Abstract- This paper focuses on the determinants of inflation under different policy rules and fixed exchange rate regime. The purpose of this paper is to check the behaviour of inflation in fixed exchange rate regime for a flexible targeting period and a period of strict targeting. The data used are mainly from the World Bank, in «the book of world development indicators» contained in the CD -ROM (WDI 2013). Working for the periods 1977-1994, 1995-2012 and 1977-2012, the analysis was done with a dynamic panel that has the distinction of being among the independent variables, the endogenous variable lagged one or more periods. The endogenous variable is the rate of inflation. Estimates made from the Arellano and Bond (1991) method, it is clear that during the period of flexible inflation targeting, money supply, trade balance and the exchange rate are the main determinants of inflation. During the period of strategy of strict inflation targeting, the main determinants of inflation are the benefits of natural resources, the trade balance and the economic crisis.

Keywords: *inflation targeting, determinant of inflation, dynamic panel.*

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Ciblage De L'inflation En Régime De Change Fixe: Le Cas De La Zone CEMAC

Mba Fokwa Arsène [α], Nji Ngouhouo Ibrahim [σ] & Kamajou François [ρ]

Abstract- This paper focuses on the determinants of inflation under different policy rules and fixed exchange rate regime. The purpose of this paper is to check the behaviour of inflation in fixed exchange rate regime for a flexible targeting period and a period of strict targeting. The data used are mainly from the World Bank, in «the book of world development indicators» contained in the CD -ROM (WDI 2013). Working for the periods 1977-1994, 1995-2012 and 1977-2012, the analysis was done with a dynamic panel that has the distinction of being among the independent variables, the endogenous variable lagged one or more periods. The endogenous variable is the rate of inflation. Estimates made from the Arellano and Bond (1991) method, it is clear that during the period of flexible inflation targeting, money supply, trade balance and the exchange rate are the main determinants of inflation. During the period of strategy of strict inflation targeting, the main determinants of inflation are the benefits of natural resources, the trade balance and the economic crisis. The determinants of inflation have opposing effects of a match type to another and it is the combination of these effects for each variable that shows the different effects of the determinants of inflation over the period. The exchange rate increased the rate of inflation over the first sub-period and throughout the entire period. In times of strict inflation targeting, these negative effects were mitigated at the expense of economic growth.

Countries with fixed exchange rate regime should not adopt a strict policy of inflation targeting, but should alternate with growth objective by facilitating financing for investments.

Keywords: inflation targeting, determinant of inflation, dynamic panel.

Résumé- Cet article est centré sur les déterminants du taux d'inflation sous différentes règles de politique monétaire et en régime de change fixe. L'objectif du présent papier est de vérifier le comportement de l'inflation en régime de change fixe pendant une période de ciblage flexible et une période de ciblage strict. Les données utilisées proviennent principalement de la Banque Mondiale, dans «le livre des indicateurs mondiaux de développement» contenu dans le CD –ROM (WDI-2013). Travaillant pour les périodes 1977-1994, 1995-2012 et 1977-2012, l'analyse a été faite avec un panel dynamique qui a la particularité d'avoir parmi les variables indépendantes, la variable endogène retardée d'une ou de plusieurs périodes. La variable endogène est le taux d'inflation. Des estimations faites à partir de la méthode d'Arellano et Bond (1991), il ressort quependant la période de ciblage flexible de l'inflation, la masse monétaire, la balance commerciale et le taux de change sont les principaux déterminants de l'inflation. En stratégie de ciblage strict de l'inflation, les principaux déterminants de l'inflation sont les bénéfices tirés des ressources naturelles, la balance commerciale et la crise économique. Les déterminants de l'inflation ont des effets qui s'opposent d'un type de ciblage à l'autre et c'est la conjugaison de ces effets pour chaque variable qui donne les différents effets des déterminants de l'inflation sur toute la période. Le taux de change fait augmenter le taux d'inflation sur la première sous-période et sur toute la période entière. En période de ciblage stricte de l'inflation, ces effets négatifs ont été atténués au détriment de la croissance économique.

Les pays à régime de change fixe ne devraient pas adopter une stratégie stricte de ciblage d'inflation, mais devraient alterner avec objectif de croissance par facilitation du financement pour les investissements.

Mots clés: ciblage de l'inflation, déterminant de l'inflation, panel dynamique.

I. Introduction

Depuis les années 90, La conduite de la politique monétaire a connu des immenses changements passant d'un système de contrôle direct des taux d'intérêt et des agrégats monétaires à un système de régulation de la monnaie au moyen des taux d'intérêt directeurs. Cette évolution s'inscrit dans le cadre de l'objectif de stabilité des prix assigné à la politique monétaire pour assurer la bonne conduite de cette politique.

La lutte contre l'inflation est devenue indispensable pour les banques centrales à l'échelle mondiale. Cela découle d'un accord qu'une politique fondée sur des règles de conduite est plus fiable qu'une politique discrétionnaire et dépendante (Alesina, 1989; Alesina et Summers, 19993).

Il importe de noter que la discrétion et la non crédibilité de la politique monétaire engendrent le problème d'incohérence temporelle *time inconsistency problem* décrite par Kydland et Prescott (1977), R.Barro et D.Gordon (1983). La crédibilité de l'autorité monétaire est alors le corollaire de la cible d'inflation pour que les agents comprennent et font confiance à la stratégie de la banque centrale. Il en découle ainsi deux règles de politique monétaire à savoir les règles d'instruments [1] et

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[1] Ces règles qui peuvent être soit implicites, soit explicites, selon qu'elles sont définies avec ou sans les variables anticipées, font référence à la reconnaissance d'une forme fonctionnelle permettant de déterminer le niveau des instruments à un moment donné. Les principales règles d'instruments sont la règle de McCallum (1987) qui considère comme instrument l'agrégat monétaire de base et comme cible le PIB nominal. La règle de Henderson-McKibbin (1993) la règle

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les règles d'objectif[2]. Mais on se demande quelle règle adopter dans le cas d'une économie ouverte avec un régime de change fixe? Dans le cas où on opte pour une règle d'objectif, la règle doit-elle être stricte ou flexible? Les réponses à ces questions qui se posent ont été obtenues dans le cas des pays à taux de change flexibles (Bail, 1998; Svensson, 1997; Clarida et al., 2002)

Selon l'idée de Fischer, S. (2001), les régimes de taux de change fixes ou ancrés à d'autres monnaies ont été un facteur de toutes les grandes crises financières qui ont frappé les marchés des changes des pays émergents ces dernières années comme le Mexique à la fin de 1994, la Thaïlande, l'Indonésie et la Corée de Sud en 1997, la Russie et le Brésil en 1998, l'Argentine et la Turquie en 2000 et de nouveau la Turquie en 2001.

La politique monétaire d'un pays ou d'une zone devrait servir au développement de ce pays ou de cette zone.Selon Shari (2007), la stabilité *réelle* et non la stabilité des prix est ultimement l'objectif le plus important pour attirer les investisseurs et réaliser le développement durable. Ainsi, Une attention exagérément ou exclusivement portée à la stabilité des prix peut avoir une incidence négative sur la croissance.

Selon Chauvin(2012), à l'exception de la République Centrafricaine, la croissance et l'équilibre externe de toutes les économies de la CEMAC qui ont été marqués par la prépondérance des exportations de biens primaires, notamment de pétrole, traduisent bien la faible diversification de l'économie. Or, l'épuisement des recettes pétrolières pourrait révéler des vulnérabilités importantes en cas de non-diversification de la structure des exportations. Lorsque l'inflation est ciblée en régime de change fixe, la politique monétaire devient «stérile» et la politique économique paralysée car les autorités monétaires ne peuvent plus prendre des décisions de politique monétaire afin d'influencer le développement de l'activité réelle. L'objectif de ce papier est de vérifier le comportement de l'inflation en régime de change fixe pendant une période de ciblage flexible et une période de ciblage strict. Le reste de la rédaction sera dans l'ordre des sections suivantes : littérature, méthodologie, résultats et enfin conclusion.

II. Revue De La Littérature

a) *Revue De La Littérature Théorique*

Selon Carré (2011), le ciblage de l'inflation nait en 1989 en Nouvelle-Zélande. Plus de vingt ans après, ce régime de politique monétaire domine la littérature, a été adopté par plus de 25 pays et constitue la norme du Fonds Monétaire International. Pour la littérature standard, il est une créature de la « science » théorique, l'incohérence temporelle en particulier. L'histoire démontre qu'il s'inscrit aussi dans le cadre plus large des réformes gouvernementales s'inspirant plutôt de l'Ecole d'Harvard[3]. Plus encore, l'histoire révèle que ces théories jouent un rôle limité dans la création du ciblage de l'inflation apparaissant comme un « art » pragmatique quasiment sans fondation théorique. Cette nature d'innovation au regard de la théorie est une originalité dans l'histoire des régimes monétaires récents. Les théories à la base du ciblage d'inflation et les déterminants de l'inflation quant à eux datent de très longtemps.

Bodin (1568) rejette l'idée selon laquelle la hausse des prix serait seulement due à la dépréciation de l'unité de compte. Pour obtenir la même quantité de biens qu'au début du siècle, il faut livrer une quantité supérieure de métal. Non seulement cet auteur explique la hausse des prix par l'afflux d'un métal que reçoit d'abord l'Espagne, mais, il montre comment cette hausse se répercute en France. Le supplément de métal dont dispose l'Espagne lui permet d'importer des produits français, d'autant plus que le renchérissement des produits nationaux stimule les importations, et d'employer une importante main-d'œuvre française attirée par des salaires élevés. Le paiement des importations et le rapatriement des salaires des émigrés procurent un apport de métal à la France où les prix augmentent à leur tour.

Hume (1752), effectue une présentation mécanique des effets d'une variation du stock de monnaie sur les prix qui nous rapproche des formulations modernes de la théorie quantitative. Selon cet auteur, si en une nuit les quatre cinquièmes de la monnaie circulant en Grande-Bretagne disparaissent, les prix devraient baisser dans les mêmes proportions. Au contraire, si par miracle cette quantité de monnaie quintuplait dans la nuit, l'effet inverse se produirait.

Pour James (1970), l'inflation est un phénomène global et non pas strictement monétaire, global par ses causes, car étant un excès de la demande globale. Global pour ses conséquences, en ce sens qu'elle affecte l'économie dans son ensemble, modifie les prix, les structures des revenus et l'orientation de la production.

Les travaux sur le coefficient *pass-through*[4] (Goldberg et Knetter, 1996), distinguent généralement trois canaux par lesquels les variations du taux de

de Taylor (1993) caractérisé par le fait que l'instrument est le taux d'intérêt à court terme et comme cible le taux d'inflation.

[2] Quant aux règles d'objectif, leur fondement de base réside dans le respect d'un objectif fixé par les autorités monétaires. Une règle d'objectif vise à minimiser, dans une fonction de perte, l'écart entre le niveau anticipé de la variable cible et le niveau objectif de ladite variable. L'objectif ici peut-être soit un objectif final, soit un objectif intermédiaire.

[3] L'apparition du ciblage d'inflation s'inscrit en Nouvelle-Zélande dans le cadre de la réforme de l'Etat lancée par le gouvernement travailliste en 1984.

[4]Le pass-through est le phénomène par lequel la dépréciation d'une monnaie affecte les prix dans une économie.

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change affectent les prix domestiques. Dans le premier canal, les variations des taux de change affectent les prix locaux directement à travers les biens dans le panier du consommateur. Dans le deuxième canal, la transmission se fait à travers les prix des biens intermédiaires utilisés comme moyen de production. A travers ce dernier, le taux de change affecte le coût de production des entreprises. Alors, pour un niveau donné de concurrence, en supposant que le bien vendu est un bien dont la demande est assez rigide aux variations de prix, ces producteurs peuvent répercuter l'augmentation du prix des intrants sur les consommateurs. Dans le dernier canal, le taux de change affecte les prix des biens domestiques libellés en devise.

Selon Mantsie (2003), les causes de l'inflation sont multiples et, dans le cas de la CEMAC[5], toutes n'ont pas de raison d'être. L'analyse économique nous enseigne qu'il existe trois sources d'inflation. La première résulte d'un excès de la demande sur l'offre[6], la seconde d'un renchérissement des coûts des facteurs de production[7]et la troisième est la résultante des structures socio- économiques[8].

b) Revue De La Littérature Empirique

Couharde et al. (2011), en travaillant sur **«**Taux de change d'équilibre et processus d'ajustement du franc CFA» ont utilisé comme méthode la Cointégration en panel (DOLS[9]), MCE à transition lisse en panel sur la période 1985-2007. Ils ont eu pour principale conclusion une Hétérogénéité des mésalignements entre les pays, asymétrie dans l'effet des mésalignements.

Charalambos et Tsangarides (2006), en tavaillant sur «le régime du taux de change réel pour le franc CFA dans les zones CEMAC et UEMOA[10]» pour la période 1970 à 2005 ont utilisé un modèle VAR[11] avec cointégration de Johansen, ils ont eu comme principal résultat l'absence de mésalignements en 2005, un retour à l'équilibre 2 fois plus lent pour la CEMAC.

Gary et al. (1995), a analysé les facteurs majeurs influençant l'inflation au Nigéria en employant la cointégration et un modèle à correction d'erreur et des données portant sur la période de 1960 à 1993. Ils ont utilisé le revenu réel, la masse monétaire, la pluviométrie annuelle et le taux de change bilatéral Naira/dollar US. Ils ont trouvé que la croissance de la masse monétaire, induite par les politiques budgétaires expansionnistes, explique à un fort pourcentage le processus inflationniste au Nigéria. Les autres facteurs sont la dévaluation du naira et les conditions agro-climatiques.

Mosayed et Mohammad (2009) ont examiné les déterminants de l'inflation en Iran pour des données portant sur la période de 1971 à 2006. En utilisant un model Autorégressif à retard échelonné, ils ont conclu que le taux d'intérêt, le taux de change, le produit national brut la variation entre prix domestique et prix étranger, une variable qui capte les effets de la guerre d'Iran ou d'Irak sont les déterminants majeurs de l'inflation en Iran. Toutes ces variables contribuent positivement à l'augmentation des prix domestiques en Iran.

Abidemi et Malik (2010) ont analysé les relations simultanées entre l'inflation et ses principaux déterminants au Nigéria pour la période de 1970 à 2007. La méthodologie utilisée a été la cointégration de Johansen suive du modèle à correction d'erreur. Leur étude révèle que le produit intérieur brut, l'offre de monnaie, les importations, l'inflation retardée d'une période et le taux d'intérêt sont positivement reliés à l'inflation.

Furrukh et al (2011), ont recherché les déterminants de l'inflation au Pakistan, pour atteindre cet objectif, l'étude a porté sur les séries temporelles pour la période allant de 1972 à 2010. L'approche par la cointégration de Johansen et le modèle à correction d'erreur ont été utilisés pour les estimations.Les relations de causalité ont été observées à partir du test de causalité de Granger. Les données sur les variables macroéconomiques ont été obtenues à partir des publications statistique du Pakistan. Les résultats révèlent qu'à long terme, l'indice de prix à la consummation est positivement influencé par l'offre de monnaie, le produit intérieur brut, les importations et les dépenses gouvernementales. Par contre les recettes gouvernementales réduisent le niveau de prix au Pakistan dans l'emsemble.

Sahadudheen (2012), en travaillant sur les déterminants de l'inflation en Inde, a utilisé une de cointégration suivie de modèle vectoriel à correction d'erreur. Après avoir trouvé un ajustement de long terme des variables, il resort de son etude que le produit intérieur brut et l'offre de monnaie ont un effet positif sur l'inflation à long terme, alors que le taux d'intérêt et le taux de change ont un effet négatif.

Selon Gavrel (1991), lors du passage aux changes flexibles, l'Etat recouvre le contrôle de la création monétaire et peut ainsi desserrer sa contrainte de budget intertemporelle. Mais en raison de la spéculation qui provoque un «saut» des encaisses monétaires à la date de rupture et d'un effet type «courbe de Laffer», le recours au seigneuriage est limité ; il existe un taux de croissance «optimal» de la masse monétaire (au sens de solvabilité de l'Etat) au-delà duquel toute augmentation tend à dégrader la

[5] Communauté Economique et Monétaire d'Afrique Centrale.
[6] L'inflationparlademandes'identifieà unétatdel' économie danslequelle réajustementdel'équilibre, parsuited'une perturbationdueàun accroisse mentdes dépenses(par suite d'une injection supplémentaire deliquiditéparexemple)se fait par les prix stimulés à la hausse.
[7] l'augmentation desprixdes facteurs de production serépercutesurlep rixderevient total des biens quiparun espiralestimuleles prix à la hausse.
[8] larigiditédesstructureséconomiques expliqueraitl 'élévationdesprix dansla mesureoùl' offredemeureinélastique .faceàla demande.
[9] Double Moindre Carré
[10] Union Economique et Monétaire Ouest-Africaine.
[11] Vecteur Auto-Regessif.

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solvabilité de l'Etat. Ainsi deuxconséquences s'en déduisent :d'une part, allonger arbitrairement la phase de fixité du change en soutenant la dette publique par la perspective toujours repoussée d'une monétisation massive est exclu, d'autre part lorsque l'inflation mondiale est élevée (donc le taux de croissance initial de l'offre de monnaie domestique), alors même que les finances publiques sont dégradées, le passage aux changes flexibles s'accompagnera non d'une accélération mais d'une décélération de l'inflation domestique et donc d'une appréciation du change.

III. Methodologie

Les données utilisées dans cet article sont toutes de source secondaire, provenant de la publication annuelle de la Banque Mondiale, dans «le livre des indicateurs mondiaux de développement» contenu dans le CD –ROM (WDI-2013); de la BEAC (Rapports d'Activité de la BEAC); de l'INS. L'étude couvre la période allant de 1977 à 2012. Cette période est divisée en deux sous-périodes. La première sous-période est la période de ciblage flexible[12] de l'inflation. Elle part de 1977 à 1994 et est marquée par une expansion, une crise et un ensemble de réformes qui se sont succédées. La deuxième sous-période est la période de ciblage strict[13] de l'inflation. Elle va de 1995 à 2012 et est caractérisée par une reprise, une mise en œuvre des réformes et des difficultés pour un réel décollage. Ce choix se justifie par le souci d'intégrer les diverses évolutions qu'a connues la politique monétaire au sein de la CEMAC. Compte tenu des grands changements (utilisation exclusive des instruments indirectes de politique monétaire, dévaluation du taux de change, entrée en vigueur de la stratégie de ciblage d'inflation) dans la politique monétaire des Etats de la zone CEMAC en 1994, il est très important de faire les analyses sur deux sous-périodes et sur la période entière.

a) Présentation Du Modèle

Le modèle utilisé dans cet article est un modèle de régression à une équation indépendante, qui comporte plusieurs variables exogènes. Il sera présenté tour à tour la variable endogène et les variables exogènes.

i. *Variable endogène*

Le taux d'inflation (TINFL): Pour mesurer l'inflation, nous utilisons l'indice du prix à la consommation à l'instar de Claus (1997), lorsqu'il recherche la relation entre l'inflation et la croissance ; Blix (1995) lorsqu'il recherche la relation entre l'inflation observée et la croissance de la masse monétaire; Engone (2003), lorsqu'il recherche le niveau cible d'inflation dans la zone CEMAC. L'inflation renseigne sur lastabilité des prix. Elle a une influence indéterminée à l'avance sur l'activité économique car tout dépend de sa source et des anticipations des agents économiques.

ii. *Variables exogènes*

- Le taux de change (TCH): Pour mesurer le taux de change d'équilibre, nous avons utilisé le taux de change réel comme Dupuy (2013) lorsqu'il met en œuvre des mesures de «quantitaveeasing» (QE) ou détente quantitative afin d'améliorer les conditions de financement dans l'ensemble de l'économie.il mesure le niveau de compétitivité internationale du pays et peut par conséquent être déterminant, surtout pour les firmes exportatrices. En régime de change fixe et pour une mesure de dévaluation réussie, le taux de change doit baisser l'inflation.
- le taux de croissance (TPIBR): Pour nous renseigner sur la croissance, nous utilisons le PIB réel par tête comme Fischer (1993), Sarel (1996) et Mantsie (2003) lorsqu'ils déterminent un seuil à partir duquel l'inflation devient nocive pour l'économie.
- La balance courante (BC): Pour mesurer la balance courante, nous utilisons le solde de la balance commerciale à l'instar de Duasa (2007) lorsqu'il recherche les déterminants de la balance commerciale malaysienne.elle est mesurée par la balance commerciale dans ce travail. Selon que la balance commerciale soit excédentaire ou déficitaire, elle fait augmenter ou baisser l'inflation.
- L'emploi (EMPL): l'emploi a été mesuré avec le niveau de l'emploi comme l'a fait Pichette (1998) lorsqu'elle détermine si les réactions asymétriques sont observables au niveau du marché du travail au Canada.L'emploi est mesuré par le ratio emploi-population qui est la proportion de la population d'un pays qui a un emploi. L'emploi peut faire baisser ou augmenter l'inflation selon que coût du travail est bas ou élevé.
- les crédits à l'économie (CE): ils sont mesurés par le crédit intérieur net qui est la somme des crédits nets accordés au secteur public non financier et au secteur privé ainsi que d'autres comptes. Cette définition est des Statistiques financières internationales et autres fichiers de données du FMI. Lorsqu'on est dans le circuit de production, les crédits font baisser l'inflation.

[12] Ici Il est essentiel de distinguer la fonction de perte sociale, c'est-à-dire la fonction qui vise un ouplusieurs objectifs, de celle à un seul objectif cible. Ainsi, à l'instar de K. Rogoff (1985), on peut attribuer une fonction objective à la banque centrale, l'autorité qui formule et met en oeuvre lapolitique monétaire. La fonction ainsi attribuée est normalement choisie de façon à minimiser la fonction de perte sociale.

[13] La forme de ciblage strict est mise en exergue quand la banque centrale est appelée à réaliser la cible avec précision, indépendamment des implications pour d'autres objectifs. Etantdonné que le critère central retenu par les autorités monétaires est clairement un objectif d'inflation, la banque centrale s'efforce de minimiser une fonction dans laquelle l'inflation est la variable cible (fonction de perte de la banque centrale)

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- Le taux d'intérêt (TI): Le taux d'intérêt réel est le taux d'intérêt débiteur ajusté en fonction de l'inflation telle que mesurée par le déflateur du PIB. Cette définition est des Statistiques financières internationales et autres fichiers de données du FMI. Selon que le taux d'intérêt est fort ou faible, il freine ou booste l'inflation.
- La masse monétaire (M_2): La monnaie et quasi-monnaie désignent la somme des devises à l'extérieur des banques, des dépôts à vue autres que ceux du gouvernement central, et les dépôts à terme fixe, d'épargne et en devises étrangères des secteurs résidents autres que le gouvernement central. Cette définition de la masse monétaire est souvent qualifiée de M_2 ; elle correspond à celle des Statistiques financières internationales (SFI) du Fonds monétaire international (FMI). La masse monétaire entre dans le circuit des échanges et stimule l'inflation.
- Les investissements (INV): Les investissements privés financent les dépenses brutes du secteur privé (notamment les agences privées à but non lucratif) avec les ajouts à ses avoirs intérieurs fixes. Cette définition est celle des données sur les comptes nationaux de la Banque mondiale et fichiers de données sur les comptes nationaux de l'OCDE[14]. Par l'augmentation de l'offre des biens et service et la création de la valeur, les investissements font baisser l'inflation.
- Les bénéfices tirés des ressources naturelles(OIL): Le total des bénéfices tirés des ressources naturelles correspond à la somme des bénéfices tirés du pétrole, du gaz naturel, du charbon (anthracite et houille), des minéraux et des forêts. Cette définition provient de «La richesse changeante des nations : mesurer le développement durable dans le nouveau millénaire», publié par la Banque mondiale en 2011. Les bénéfices tirés des ressources naturelles s'ils ne sont pas en parie réinvestis sont source d'inflation.
- La crise (CRIEC): la crise est le ralentissement de l'activité économique, comme Paulo (2001), Cordemans et al. (2012), elle est mesurée par une variable «dummy» marquée par 1 pour les années de crise et par 0 pour les années d'absence de crise.
- La dévaluation (DEV): la dévaluation intègre ici la décision qui a fait changer le taux de change en le fixant à 100 Fcfa pour 1F français en 1994. Elle est mesurée par une variable «dummy» marquée par 1 pour les années à partir de la dévaluation et par 0 pour les années d'avant dévaluation. En l'absence d'une réelle production et des débouchés automatiques, la dévaluation ne peut être que nocive pour une économie.

b) Spécification Du Modèle

L'équation de l'inflation retenue dans le présent travail de recherche prend sa base chez Phillips (1958), nous-nous inspirons des travaux de Nubukpo (2002).

L'indice des prix à la consommation (IPC), écrit sous forme log-linéaire, est fonction du coût des biens domestiques (IPD) et celui des biens importés (IPM) exprimé en franc CFA.

$$\log IPC = \alpha \log IPD + (1-\alpha)\log IPM \quad (1)$$

$$\text{avec } o < \alpha < 1$$

Le prix domestique dépend des tensions existant sur le marché de la monnaie et celui des biens et services. Par conséquent, il sera fonction d'une part, de l'offre de monnaie (M^s) et de la demande (M^d) et, d'autre part, du gap de production.

$$\text{LogIPD} = \Omega_1(\log M^s - \log M^d) + \Omega_2(\log PIBR - \log PIB^\circ) \quad (2)$$

$$\text{avec} \Omega_1, \Omega_2 > 0$$

L'offre de monnaie dépend à son tour, des taux d'intérêt directeurs de la BEAC et du PIB réel, le taux d'intérêt directeur étant constitué du taux du marché monétaire (IM) et du taux de prise en pension (IPS).

$$M^s = G(IM, IPS, PIBR) \quad (3)$$

$$\text{Ou } M^s = -\beta_1 IM - \beta_2 IPS + \beta_3 \log PIBR \quad (4)$$

$$\text{avec } \beta_1, \beta_2, \beta_3 > 0$$

La demande de monnaie dépend du revenu réel des agents économiques,

$$M^d = F(PIBR) \quad (5)$$

$$\text{Ou} M^d = \beta_4 \log PIBR \qquad \text{avec} \beta_4 > 0 \quad (6)$$

En substituant les équations (4) et (6) dans (2), puis (2) dans (1), il vient que

$$\log IPC = \alpha\Omega_1(-\beta_1 IM - \beta_2 IPS + \beta_3 \log PIBR - \beta_4 \log PIBR) + \alpha\Omega_2 (\log PIBR - \log PIBR^\circ) + (1-\alpha)\log IPM \quad (7)$$

En supposant un modèle linéaire pour l'équation (7) et en remplaçant le taux d'intérêt directeur par le taux d'intérêt réel (TI) pour que l'inflation soit celle qui explique l'activité économique réelle, l'évolution du taux d'inflation suivra la fonction suivante :

$$IPC = H(TI, PIBR, PIBR^\circ, IPM) \quad (8)$$

Dans l'équation (8), la variable $PIBR^\circ$ qui est censée déterminer le PIB potentiel sera remplacée par l'ensemble des variables qui sont susceptibles d'expliquer le PIB potentiel à savoir : l'offre de crédits (CE), la masse monétaire (M_2), les investissements (INV), le total des bénéfices tirés des ressources naturelles, la valeur ajoutée de l'agriculture, la balance courante (BC) et l'emploi (EMPL). L'indice du prix des

[14] Organisation de Coopération et de Développement Economique.

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importations (IPM) a été remplacé par le taux de change pour tenir compte de l'influence et de la compétitivité des échanges sur l'inflation.

Le PIB réel est susceptible de traduire un effet demande au sein de l'équation. Le signe attendu de cette variable est non déterminé, dans la mesure où la valeur de son paramètre dépend des évolutions relatives de l'offre de monnaie, de la demande de monnaie et du choc d'offre. La part importée de l'inflation est également une variable explicative potentielle dans la mesure où une hausse des prix des produits importés se répercute sur les prix domestiques, du fait notamment d'un comportement de marge de la part des importateurs. L'indice des prix des produits importés, est remplacé par le taux de change (TCH) dollar /FCFA.

Finalement, l'équation d'inflation se mettra sous la forme:

$$IPC = H\ (TI, PIBR, M_2, INV, OIL, BC, EMPL, TCH, CE) \quad (9)$$

En tenant compte de la forte dynamique des variables monétaires ou des variables en relation avec des variables monétaires, le taux d'inflation sera expliqué par sa variable retardée IPC(r) où le retard r permet d'instrumenter le taux d'inflation. L'effet de la crise sur l'atteinte des objectifs de politiques économiques a été pris en compte par une variable «dummy». Par ailleurs, pour tenir compte des dimensions spatiale et temporelle de notre modèle, nous prenons respectivement les indices i et t. Ce qui nous conduit à la spécification ci-après, en prenant pour proxy de l'IPC le taux d'inflation noté TINFL et pour proxy de PIBR la croissance économique notée TPIBR, on a :

$$TINFL_{it} = \alpha_0 + \alpha_1 TINFL_{it-r} + \alpha_2 TI_{it} + \alpha_3 TPIBR_{it} + \alpha_4 M_{2it} + \alpha_5 INV_{it} + \alpha_6 OIL_{it} + \alpha_7 BC_{it} + \alpha_8 EMPL_{it} + \alpha_9 TCH_{it} + \alpha_{10} CE_{it} + \alpha_{11} CRIEC_{it} + \alpha_{12} DEV_{it} + \varepsilon_{1it} \quad (10)$$

Avec α_0 la constante, α_1 à α_{12} les coefficients des variables, ε_{1it} le terme d'erreur. $\varepsilon_{it} = U_i + V_t + W_{it}$ où U_i désigne un terme constant au cours de la période ne dépendant que de l'individu i, V_t un terme ne dépendant que de la période t, W_{it} un terme aléatoire croisé.

Tableau 1 : Récapitulatif des signes attendus

Variables explicatives	Mesures des variables	Variables expliquées
		TINFL
		Signes attendus
TCH	Taux de change réel	-
TPIBR	PIB par habitant	+/-
BC	Balance extérieure des biens et services	+/-
EMPL	Ratio emploi-population, personnes âgées de 15 ans et plus	+/-
CE	Crédit intérieur brut	-
TI	Taux d'intérêt réel	+/-
M_2	Monnaie et quasi-monnaie	+/-
INV	Formation brute du capital fixe	-
OIL	Total des bénéfices tirés des ressources naturelles	+/-
CRIEC	Variable dummy	+
DEV	Variable dummy	+

IV. Presentation Des Resultats

a) Test de stationnarité

Le test d'ImpPesaran et Shin (IPS) (2003) est utilisé pour déceler la présence éventuelle de racines unitaires. Ce test qui repose sur la moyenne des statistiques de Dckey-Fuller Augmenté est effectué avec constante, puis avec constante et trend. De ce fait, l'hypothèse alternative pour le test sur les variables est la stationnarité avec une constante non nulle puis la stationnarité avec une constante non nulle et présence de trend.

Du tableau du test de stationnarité ci-dessous, li ressort que toutes les séries retenues sont stationnaires à niveau car toutes les probabilités attachées à nos séries sont inférieures au seuil de signification de 1%. Nous passons ainsi aux estimations afin d'apprécier les différents effets entre nos variables.

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Tableau 2 : Test de racine unitaire des séries

SERIES	Tests de stationnarité d'IPS effectués à niveau avec constante						Tests de stationnarité d'IPS effectués à niveau avec constante et trend					
	1ère sous-période		2ème sous-période		Période entière		1ère sous-période		2ème sous-période		Période entière	
	t-stat	prob	t-stat	prob	t-stat	prob	t-stat	prob	t-stat	prob	t-stat	prob
TINFL	-5,2247	0	-9,6948	0	-10,874	0	-9,0387	0	-8,4508	0	-11,009	0
TPIBR	-7,7725	0	-5,6514	0	-11,76	0	-5,0672	0,0003	-8,8239	0	-11,753	0
EMPL	-2,0666	0,0086	-8,967	0	-8,9959	0	-7,832	0,0086	-4,0227	0,0107	-8,9605	0
BC	-9,2779	0	-11,494	0	-14,863	0	-10,622	0	-10,499	0	-14,829	0
TI	-2,4931	0,001	-10,238	0	-4,1435	0	-9,352	0,001	-2,8568	0,181	-4,1663	0,0059
M2	-8,5494	0	-7,7958	0	-10,012	0	-6,4134	0	-11,172	0	-10,063	0
CE	-8,0312	0	-13,33	0	-16,999	0	-12,063	0	-11,818	0	-16,972	0
OIL	-8,334	0	-8,8126	0	-12,257	0	-7,6799	0	-9,969	0	-12,237	0
TCH	-14,848	0,0001	-11,769	0	-13,518	0	-7,3803	0,0001	-8,4963	0	-13,49	0
INV	-6,9045	0	-11,251	0	-13,31	0	-9,761	0	-9,8359	0	-13,448	0
OUV	-10,801	0,0001	-10,918	0	-14,048	0	-9,2537	0,0001	-10,987	0	-14,885	0

b) Estimations

La méthode d'estimation retenue ici est celle d'Arellano et Bond (1991). Les modèles dynamiques se caractérisent par la présence d'une ou de plusieurs valeurs retardées de la variable endogène parmi les variables explicatives. Dans ces modèles, la présence de la variable dépendante retardéene permet pas d'utiliser les techniques économétriques standards. L'estimation des modèles dynamiques par les méthodes classiques (MCO et Within) donne des estimateurs biaisés et non convergents à cause de la corrélation entre la variable endogène retardée et le terme d'erreur. Pour contourner cette difficulté, plusieurs propositions ont été faites, la plus populaire étant celle fondée sur la méthode des moments généralisées développée par Arellano et Bond (1991). Sa popularité s'explique par plusieurs avantages et notamment la prise en compte d'effets fixes inobservables, de l'endogénéité des variables explicatives, ainsi que la possibilité de travailler avec des panels non cylindrés. Le tableau ci-dessous nous donne le résultat de nos estimations.

Lorsqu'ilexiste une plus forte corrélation entre variable monétaire et activité économique qu'entre inflation et activité économique, l'objectif visé doit être l'inflation, il est nécessaire que cet objectif soit intermédiaire.En annexe, lorsque chaque fois que pour les trois découpages périodiques on compare la corrélation entre inflation et croissance avec les corrélations tour à tour entre croissance et taux d'intérêt, croissance et masse monétaire puis croissance et crédits; on comprend bien que la zone CEMAC a eu des raisons de passer de la stratégie de ciblage flexible de l'inflation a une stratégie de ciblage strict. Mais l'échec de cette politique est dû à la non prise en compte de certains prérequis à savoir le régime de change flexible, la souveraineté monétaire et l'amélioration des échanges commerciaux qui passe par la transformation des matières premières et la diversification des partenaires commerciaux.

De toutes nos variables, on constate que le taux d'intérêt, les crédits, les investissements, l'emploi n'ont pas des coefficients significatifs à 10%. Le taux d'inflation retardé d'une période a un coefficient significatif à 1% pour la première sous-période et la période entière, ce coefficient est positif, donc le taux d'inflation passé s'il est élevé a tendance à faire grimper le taux d'inflation futur. Ceci se comprend bien lorsque les biens et services produits le sont à partir des facteurs de production dont les coûts sont très élevés.

Le taux d'intérêt réel a un coefficient négatif et non significatif à un seuil de 1% sur les deux sous-périodes et la période entière, ce signe est celui attendu. Lorsque le taux d'intérêt augmente, l'inflation diminue, ça devrait être le cas seulement à court terme, mais si ça l'est à long terme, c'est parce qu'en zone CEMAC le taux d'intérêt est plus utilisé dans une optique de cible d'inflation à moins de 3% que dans une optique d'encouragement des investissements.

La masse monétaire a un coefficient négatif et significatif au seuil de 10% pendant la première sous-période, dans ce cas où le signe attendu est indéterminé, une croissance de la masse monétaire entraine une diminution de l'inflation. Ceci est d'autant plus vrai qu'une partie de la masse monétaire qui augmente passe toujours dans les circuits de production. Ainsi l'offre de biens et service qui augmente réduit l'inflation liée à la demande. Donc en période de ciblage flexible, la masse monétaire a permis de réduire l'inflation.

Les bénéfices tirés de la production des ressources naturelles ont un effet négatif(le signe neutre était attendus) et significatif au seuil de 1% sur l'inflation pendant la deuxième sous-période. Une baisse des bénéfices tirés des ressources naturelles fait grimper le

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taux d'inflation. Ce qui traduit la baisse des prix des matières première et le désavantage compétitif que les pays de la zone CEMAC ont à exporter les matières premières et à importer les produits manufacturés. Donc en période de ciblage strict, les bénéfices tirés des ressources naturelles ont plutôt dégradé la stabilité des prix.

Sur la période toute entière, à un seuil de signification de 5%, une augmentation de 100% du taux de croissance fait croître le taux d'inflation de 7,814%, donc on peut dire que le taux de croissance n'est pas une véritable source d'inflation en zone CEMAC.

Le taux de change a un coefficient positif (signe inattendu) et significatif à un seuil de 1% sur la première sous-période et sur la période entière, une augmentation du taux de change sur la période fait augmenter l'inflation. En effet, l'objectif selon lequel le taux de change qui s'appréciait après une dévaluation ou une dépréciation de la monnaie devait rendre l'économie plus compétitive n'a toujours pas profité aux économies de la zone CEMAC à cause de leur incapacité à produire des biens manufacturés à forte valeur ajoutée et de qualité. Les effets négatifs de l'appréciation du taux de change qui a occasionné la dévaluation en 1994 se sont étendus sur toute la période d'étude. En période de ciblage stricte de l'inflation, ces effets négatifs ont été atténués au détriment de la croissance économique.

La question sur les mérites des régimes de change fixe ou flexible sur la capacité à promouvoir la croissance ou à stabiliser l'économie date de plusieurs années bien avant l'effondrement du système de Bretton Wood. Les premiers travaux sur les zones monétaires optimales qui ont vu le jour au début des années 60 (Mundell, 1961 ; McKinnon, 1963; Kenen, 1969) ont alors mis en évidence l'importance de la prise en considération des spécificités et des caractéristiques structurelles dans un pays donné ainsi que le degré d'asymétrie des chocs entre partenaires commerciaux. Le modèle traditionnel de Mundell-Fleming a ensuite souligné la dichotomie entre chocs nominaux et réels comme principal déterminant du choix du régime de change. Encore plus récemment, plusieurs auteurs comme Aghion et al (2004) ont insisté sur les implications de l'intégration financière et de la hausse considérable dans les mouvements de capitaux et sur le fait qu'elles sont un élément clé dans la détermination du choix du régime de change pour des économies de plus en plus insérées dans l'environnement financier international.

En outre, notons que l'incohérence temporelle comme source d'inefficacité et comme principal déterminant du biais inflationniste, et a mis en exergue le rôle de la crédibilité dans la détermination du choix du régime de change (Sfia, 2007). La fixité du taux de change est de ce fait considérée comme substitut de la crédibilité des autorités monétaires insuffisamment crédibles. Le choix d'un régime de change est donc perçu comme un arbitrage entre crédibilité des autorités monétaires par la fixité du taux de change et absorption des chocs par les fluctuations du taux de change.

Le choix d'un régime de change est alors déterminé par : la Théorie de la zone monétaire optimale ;la nature des chocs dans l'économie ; la trinité impossible (la trinité impossible ou encore de trinité économique contraint les autorités monétaires entre trois objectifs à savoir : fixer le taux de change pour stabiliser les prix, libre mobilité des capitaux et jouir d'une autonomie dans la conduite de la politique monétaire dans l'objectif d'assurer la stabilité macroéconomique) [15] ;le péché originel (désigne l'incapacité pour un pays en général et pour les économies émergentes en particulier à emprunter à l'extérieur dans leurs propres monnaies. Ce qui les conduit à accumuler des dettes en devises avec d'importants retombés sur les politiques macroéconomiques et la stabilité financière) ; l'effet de *Pass-through* (l'effet *pass-through* est défini comme le degré par lequel les fluctuations dans les taux de change sont transmises au niveau général des prix dans le pays et représentent un élément important dans le choix du régime de change pour les économies émergentes comme pour les économies les plus avancées).

La balance courante est négativement (on attendait un signe neutre) correlié à au taux d'inflation dans la première sous-période et positivent corrélé au taux d'inflation dans la deuxième sous-période. Ceci s'explique tout simplement par le fait que la balance courante n'est pas déficitaire à la première sous-période mais est déficitaire à la deuxième sous-période. Les pays de la zone CEMAC importent aujourd'hui plus qu'ils n'exportent, en le faisant ils importent aussi l'inflation extérieure. La dévaluation est positivement corrélée au taux d'inflation sur toute la période. La dévaluation n'ayant pas permis aux économies de la zone CEMAC d'être plus compétitive, a favorisé la hausse des prix. Donc lorsqu'on applique une stratégie de ciblage stricte de l'inflation, la balance courante a un effet inflationniste.

La crise économique a un coefficient positif (signe attendu) et significatif au seuil de 1% et à 5% respectivement pendant la deuxième sous-période et la période entière, la crise a donc contribué à l'augmentation du taux d'inflation sur notre période d'étude. Les entreprises existantes n'ont pas beaucoup subi le coup de la crise à cause du transfert des capitaux qui se dirigent aujourd'hui vers les pays qui ont des technologies innovantes d'une part, d'autre part à

[15] D'après Sfia (2007), à cause d'une globalisation accrue des marchés de capitaux, l'hypothèse de la trinité impossible implique aujourd'hui la disparition future des régimes du milieu, et donc par une dynamique vers les solutions en coin.

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cause de la faiblesse du tissu productif. En période de ciblage strict, la crise est plus inflationniste qu'en période de ciblage flexible.

Ce sont les consommateurs des biens et services qui ont toujours payé le prix de la crise car la production insuffisante des biens et services en interne, les revenus qui baissent et même la préférence et la dépendance pour les biens manufacturés importés ont contribué à amplifier l'inflation. La crise influence l'inflation en occasionnant la rareté qui rend la vie et les facteurs de production très chers. Ce modèle est globalement significatif à un seuil de 1% donc les résultats sont valides dans l'ensemble.

Tableau 5.3 : Estimation de l'équation de l'inflation

VARIABLES EXOGENES	VARIABLE DEPENDENTE		
	1ère sous-période	2ème sous-période	Période entière
	TINFL	TINFL	TINFL
TI	-0,00018	-0,00168	-0,0003757
TPIBR	0,06796	0,00093	0,0673329**
M2	-1,88647*	0,08533	-0,2670715
INV	0,013862	0,00843	0,0148161
OIL	0,017567	-0,02964***	-0,0153922
BC	-0,00058*	0,00073*	-0,0002716
EMPL	-0,73296	-0,73256	0,2434835
TCH	0,34738***	0,02332	0,2945912***
CE	-5,12265	-1,13951	-0,0768838
CRIEC	-1,34863	3,12288***	2,04315**
DEV	/	/	2,131423**
TINFL (-1)	0,36290***	-0,1191	0,3056695***
constante	1,6068	2,90095***	0,43218
observations	80	96	204
Test de Sargan (p-value)	0,057	0,265	0,244
Test d'autocorrélation de second ordre (p-value)	0,049	0,459	0,109

, ** et * sont les significativités respectivement à 10%, 5% et 1%. Les nombres qui croisent les variables sont les coefficients assujettis à chaque variable indépendante.*

En comparant la significativité du coefficient pour les variables qui ont au moins un coefficient significatif et l'ampleur (grandeur en nombre) du coefficient pour les variables qui n'ont aucun coefficient significatif, on peut dire qu'en stratégie de ciblage stricte de l'inflation, la croissance, les investissements et le taux de change ont tendance à réduire l'inflation. Cependant, le taux d'intérêt, la masse monétaire, les bénéfices tirés des ressources naturelles, la balance commerciale, l'emploi, les crédits, la crise économique ont tendance à réduire l'inflation pendant la stratégie de ciblage stricte. On observe exactement le contraire pendant la période de ciblage flexible de l'inflation.

V. Conclusion

Enfin, il est intéressant de rappeler que la politique monétaire doit servir au développement. Le taux d'inflation et le taux de change sont les deux grands prix[16] de la politique monétaire, dans un cadre de politique monétaire souveraine, les autorités monétaires devraient pouvoir agir sur au moins un de ces deux principaux prix afin d'influencer positivement l'activité économique. Pendant la période de ciblage flexible de l'inflation, la masse monétaire, la balance commerciale et le taux de change sont les principaux déterminants de l'inflation. En stratégie de ciblage strict de l'inflation, les principaux déterminants de l'inflation sont les bénéfices tirés des ressources naturelles, la balance commerciale et la crise économique. Les déterminants de l'inflation ont des effets qui s'opposent d'un type de ciblage à l'autre et c'est la conjugaison de ces effets pour chaque variable qui donne les différents effets des déterminants de l'inflation sur toute la période. Le taux de change fait augmenter le taux d'inflation sur la première sous-période et sur toute la période d'étude. Le manque de marge de manœuvre (le taux de change étant évaluer à parité fixe à l'euro, l'inflation étant ciblée à long terme) ne peut qu'enfoncer ou maintenir l'économie à un état embryonnaire. Selon Jahati (2007), les pays à régime de change fixe ne

[16]On devrait pouvoir agir sur l'un ou l'autre pour modifier l'activité économique.

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devraient pas adopter une stratégie stricte de ciblage d'inflation, mais devraient alterner avec objectif de croissance par facilitation du financement pour les investissements. Dans ce cas l'objectif final de la politique monétaire doit être la quantification du volume de monnaie nécessaire dans l'économie.

L'inflation et le taux de change doivent être des objectifs intermédiaires. S'il existe une plus forte corrélation entre monnaie et activité économique qu'entre inflation et activité économique, l'objectif intermédiaire visé doit être l'inflation. Dans le cas contraire, l'objectif intermédiaire visé doit être le taux de change. Si c'est le taux d'inflation qui est visé, on peut opter pour une stratégie de ciblage d'inflation à court ou à moyen terme selon les opportunités économiques présentes. Si le taux de change qui est visé comme objectif intermédiaires, il faut pouvoir choisir le régime de change comme suit : préférer un régime de change flexible dans le cas où la population et la demande locale des biens et services sont très importante ; opter pour un régime de change fixe ou intermédiaire au cas où la population et la demande locale des biens et services sont faibles.

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Annexes : Tests de corrélation

Période entière

```
. correlate tinfl ti tpibr m2 inv oil bc empl tch ce
(obs=216)
```

	tinfl	ti	tpibr	m2	inv	oil	bc
tinfl	1.0000						
ti	-0.0007	1.0000					
tpibr	-0.0695	-0.0331	1.0000				
m2	0.1756	-0.0354	0.1260	1.0000			
inv	0.1807	-0.0625	0.2878	0.1642	1.0000		
oil	-0.0277	-0.0063	0.2538	0.0191	-0.1544	1.0000	
bc	-0.0298	0.0126	0.0376	0.0682	0.0343	0.0213	1.0000
empl	-0.0074	0.0227	-0.1350	0.4729	-0.0761	-0.0445	-0.0359
tch	0.5899	0.0285	-0.3846	0.2242	0.0121	0.0504	0.0814
ce	-0.0366	0.0210	-0.2455	0.3094	-0.0201	-0.0363	-0.0148

	empl	tch	ce
empl	1.0000		
tch	-0.0355	1.0000	
ce	0.2882	0.0181	1.0000

Première sous-période

```
. correlate tinfl ti tpibr m2 inv oil bc empl tch ce
(obs=108)
```

	tinfl	ti	tpibr	m2	inv	oil	bc
tinfl	1.0000						
ti	0.0124	1.0000					
tpibr	-0.1858	-0.0473	1.0000				
m2	0.3498	-0.1056	-0.0163	1.0000			
inv	0.1737	-0.0838	0.2188	0.3212	1.0000		
oil	0.0903	0.0018	0.2151	0.1070	-0.1945	1.0000	
bc	-0.0542	0.0211	0.0511	0.1358	0.0776	0.0126	1.0000
empl	0.0743	0.0429	-0.1494	-0.0618	-0.0205	-0.0109	-0.0258
tch	0.7031	0.0479	-0.4821	0.5127	0.0860	0.0625	0.0812
ce	0.1311	0.0191	0.0774	0.2427	0.0712	-0.0904	0.0534

	empl	tch	ce
empl	1.0000		
tch	0.0915	1.0000	
ce	-0.3389	0.1166	1.0000

deuxième sous-période

```
. correlate tinfl ti tpibr m2 inv oil bc empl tch ce
(obs=108)
```

	tinfl	ti	tpibr	m2	inv	oil	bc
tinfl	1.0000						
ti	-0.1535	1.0000					
tpibr	0.0985	-0.1238	1.0000				
m2	-0.0624	-0.0035	0.1062	1.0000			
inv	0.2271	-0.0861	0.3105	-0.0311	1.0000		
oil	-0.3122	-0.0182	0.3254	-0.0123	-0.0969	1.0000	
bc	0.1317	-0.0112	0.0853	0.0584	-0.0363	0.0348	1.0000
empl	-0.1589	-0.0994	-0.2699	0.6153	-0.2159	-0.0394	-0.0123
tch	-0.1093	-0.0003	-0.2762	0.0407	-0.0989	-0.0049	-0.0132
ce	-0.1190	0.0485	-0.3653	0.3568	-0.0588	-0.0397	-0.0249

	empl	tch	ce
empl	1.0000		
tch	-0.0552	1.0000	
ce	0.3135	0.1182	1.0000

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A Study on Supplier Finance Required in Maintaining Active Working Capital Level of Customers: An Example from IDLC Financing Company in Bangladesh

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Abstract- Factoring is a simple form of Commercial Finance in which a Small Business which can't qualify for more conventional financing sells its accounts receivable (invoices), representing money due from its business/governmental customers for the sale of its goods and services to a "Factor" or Factoring company at a discount from face value so that it does not have to wait the normal 30-90 days for its invoices to be paid. In short, Factoring helps a Small Business Speed Up its Cash Flow, thereby enabling it to more readily pay its current obligations and grow. Some people defined factoring as the purchasing of accounts receivable, in the form of invoices, at a discount from their face value. The term 'Factor' has its origin from the Latin word 'facere' meaning to make or do (to get things done). The dictionary defines a Factor as an agent, particularly a mercantile agent. Factoring has a long and fascinating history, which traces back through several centuries. In the early stages, Factors were itinerant merchants who were entrusted with merchandise belonging to others.

Keywords: *supplier financing, factoring, supplier loan, customer performance, effective guarantor, active working capital management.*

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Keywords: supplier financing, factoring, supplier loan, customer performance, effective guarantor, active working capital management.

I. Introduction

The growth of factoring, in a fairly recognizable form, took place in the fifteenth and sixteenth centuries, with the advent of the period of exploration and colonization by Great Britain. When the mother countries started shipping goods in ever increasing quantities to the settlements under their control in foreign lands, the Factors arranged for the sale and distribution of these goods and became the local representatives of the manufacturers and merchants from the mother country. Initially, they maintained extensive storage facilities to the merchandise received by them from abroad and made arrangements for the cartage of such merchandise to customers throughout their respective territories; the Factor's principal function then was to sell such merchandise on the best terms. The Factors did not own the merchandise but were responsible for its safekeeping, as well as for the proceeds they received upon its sale. In course of time, the Factors prospered and grew in economic strength. To the earlier services rendered to their foreign principals, they added the practice of making advance payments to their principals against the security of the merchandise in their possession. The Factors also obtained information relating to local customers and assumed the risk of losses (in case they were unable to collect the amounts owing from such customers). Thus, the Factor substituted itself as a debtor of high credit standing for any individual customers of uncertain credit worthiness.

During the later years of the nineteenth century and the early years of the present century, the storage, selling and general merchandising functions performed by the Factors were gradually replaced by financing, credit and collection functions which were found to be of greater value by their various clients.

Around the turn of the last century, factoring was also extended to domestic sales and at the same time the role of Factors in international trade became less important. Those Factors who offered financial services came to be known as 'del credere' Factors. Their services involved advancing money on the security of accounts receivable, collecting the debts, and assuming the credit risk. As the actors shed the role of merchandise agents and took on 'del credere' responsibilities, the relationship between the Factors and the parties with whom they dealt also changed in as much as it was no longer one of principal and agent but one of an independent financial organization offering services to manufacturing concerns which were known as 'clients'.

Factors in the U.S.A. have traditionally operated in textile industry and have gradually extended to apparel industry, as also some consumer goods industries. The Factors there rely on their in-depth knowledge of the practices and position of the concerned industries and have been slow to move into new fields. They have also built up, over a period, comprehensive information about credit worthiness, up-

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to-date financial position, record of dealings, etc., of thousands of sellers/buyers in these industries, which forms the basis for approval of credit limits of various parties. Services rendered by a Factor are tailored to suit the clients' requirements. To some of the clients, the Factors provide only such services as management of sales ledgers, collection of debts and protection against bad debts, without providing any finance.

In the absence of any uniform codified law, the term factoring has been defined in various countries in different ways depending on the discretion of legal framework as well as trade usage and convention of the individual country. Many efforts have been made to arrive at a consensus regarding uniform meaning and defining a well laid scope for such a type of service contract.

However, the first attempt was made in the USA to define the tam 'factoring' in a more organized and systematic manner. The definition given by the US laws is as follows:

A continuing arrangement between a factoring concern and the seller of goods or services on open account, pursuant to which the factor performs the following services with respect to the accounts receivable arising from sates of such goods or services:

- Purchases all accounts receivable for immediate cash;
- Maintains the sales ledgers and performs the other book-keeping duties relating to such accounts receivable;
- Collects the accounts receivable;
- Assumes the tosses, which may arise from any customer s financial inability to pay (Credit loss)
- Provides further funds on a seasonal and term basis, which are either unsecured or secured,
- Assists in advisory services, marketing surveys, management and production counseling, and data processing services.

Westlake (1975, P-1) defined, "Factoring is a device of transforming a nonproductive, inactive asset (i.e. book debts) into a productive asset (i.e. cash) by selling book debts (receivables) to a company that specializes in book debt collection and administration".

Kalyanasundaram Committee (1988), in the report submitted to the RBI defines Factoring as the outright purchase of credit approved accounts receivable with the factor assuming bad debt losses"

A more descriptive definition of factoring is that it is a financing tool that provides the business with immediate working capital, without creating debt or forcing to give up equity in the company.

In another way, Factoring is a process of invoice discounting by which an external Financing/Leasing/Capital market agency purchases all trade debts, offers additional resources to the corporate account and, in turn, takes upon the recovery of trade dues.

Factoring is said to be a continuing legal relationship between a financial institution (the Factor) and a business concern (the client) selling goods or providing services to trade customers (the customers) on open account basis whereby the Factor purchases the client's book debts (account receivables) either with or without recourse to the client and in relation thereto controls the credit extended to customers and administers the sales ledgers.

Factoring a sort of suppliers' credit is understood by the services an agent renders to its principals by managing the letters sales ledger realizing the book debts of bills receivables against a pre-determined commission known as commercial charges. For example, the manufacturer or trader sells the goods directly or through agent and advices the details of the sale to the factor to realize the credits. Thus, the factors responsibility is contractual with the privates of contract with the seller. Depending upon the terms of the contract, the factor may assume risk for nonpayment by the customer also. The need for factor services is felt in view of expending sales by the manufacturer supplier so as to manage the sales realization by minimizing risk for non-realization and without waiting for realization of book debts, thus reducing dependence upon bank credit for working capital requirements.

II. Statement of the Problem

How customer's performance influence the supplier finance loan through effective guarantor's to keep their working capital active.

III. Purpose of the Study

- To find out the impact of positive customer performance on active working capital.
- To determine the customer performance level to keep active the working capital.
- To find out the role of effective guarantor in order to minimize credit risk.

IV. Literature Review

a) Supplier Finance Loan

Supplier finance loan is also known as accounts receivable financing or factoring might be an option for suppliers — depending on their industry and the nature of their business.

Accounts receivable financing involves borrowing against your receivables or selling your receivables to a company that will pay you an amount equivalent to the invoice amount due you, less a discount. The amount of the discount varies depending on the size of the transaction, the extent of risk that the financing company (sometimes called a "factor") has to

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take to collect the amount due, and other matters. You'd get more for an invoice payable by a blue chip company that's due soon versus one that's, say, 90 days past due from a weaker payor.

Factoring your accounts receivables means that you actually sell them, as opposed to pledging them as collateral, to a factoring company. The factoring company gives you an advance payment for accounts you would have to wait on for payment. The advance payment is usually 70-90% of the total value of the receivables. After charging a small fee to the company, usually 2-3%, the remaining balance is paid after the full balance is paid to the factor.

Factoring is a relatively expensive source of financing, but the cost is lowered because the factoring company takes on all risk of default by the customer. Factoring is important in the retail industry in the U.S. In fact, the garment industry accounts for about 80% of all U.S. factoring, although many small businesses in a huge variety of industries use this form of financing when they need short-term working capital loans.

Sometimes, using accounts receivable financing is all that stands between your small business and bankruptcy, particularly during a recession or other types of tough times for your business. Don't hesitate to use it for your working capital needs if you need to. It is not acceptable financing, however, for longer term business financing needs.

Need cash? Consider selling your accounts receivable. While approaching a lender is the most common way to raise capital, it's not always the best or most viable solution for a small business. If a bank loan isn't an option for your business, factoring can help.

Factoring is the purchase of a business' accounts receivable. Large corporations have long used this method to increase cash and reduce the management of receivables, but it is now becoming a popular option for small businesses, as well, said (Dave Kurrasch), vice president and general manager of Small Business Payments Company, which develops financial solutions for small businesses. (AccountsReceivableFinancing.com).

Factoring is an alternative to asset-based lending and provides businesses with capital when they need it. It is particularly appealing for businesses that need cash, but have limited sources of credit, he said. "Factoring is a fantastic method to convert inventory or work product into cash to pay vendors, payrolls, taxes or other obligations. (Businessnewsdaily.com) Moreover, because factoring rids small businesses of receivables, it allows them to reduce or completely eliminate collections. "Managing the working capital conversion cycle is crucial for businesses that produce receivables with long collection terms," (Kurrasch) added. "Factoring is a real option for shortening or eliminating collection times."

Factoring has been around at least 500 years, says (Dan Casey). He notes that it involves the:

"… Process of selling your rights to collect an invoice. The factor/invoice buyer pays a high percentage of the invoice face value day one. Upon collection, the factor funds the balance of the invoice value less their fees for service. "So with these types of services, you can either borrow against the money you expect to come in soon, or sell the invoice itself at a discount. The net effect in either case is that you get a lot of money a lot sooner.

(Robert Zadek), attorney with (Buchalter Nemer), focuses his practice on factoring. "There's no downside, per se. Like any other product or service you buy in the world, you try to get the best service and best product for the lowest cost," (Zadek) said.

Factoring offers small businesses an alternative to taking out a bank loan, he said.

"If the bank would lend to you, you wouldn't be in factoring. But there are many businesses that don't go to a bank, even if they can. Getting money from a factor is so easy, as long as you're honest with a factor. You don't live in fear of losing your money. There are plenty of factors that can work with you. You're not locked in like you are with a bank," (Zadek) said.

b) Benefits of Accounts Receivable Financing

The primary benefit to these financing services is to help small businesses get cash quickly.

It's particularly useful for businesses that get paid large invoices by clients that may pay slowly for one reason or another (such as large corporate clients, or when part of a large multi-phase government contract). Yet, in the interim that small business still has a payroll to meet — putting the business in a cash flow bind. Accounts receivable financing can also help free up working capital. Because so many businesses have funds tied up in inventory, getting paid for invoices quickly is paramount. Getting financing takes that worry out of the equation for small businesses. Factoring, where you actually sell the invoice outright and the factor takes over collection, can take away the headache of chasing down payments from clients. That alone can save a small business time and money in the form of internal staff resources dedicated to follow-up and collection.

c) Customer Performance

More and more businesses are relying upon suppliers to innovate faster, cheaper, and better than the suppliers of its competitors. But, most firms do not routinely evaluate the need to overhaul relationships or intervene to correct performance problems (Ernst and Bamford 2005). Even fewer firms have an adequate understanding of these reciprocating relationships between the buyer and the supplier. Thus, coordinating with trading partners, negotiating terms, monitoring performance, and switching partners is costly (Liker and

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Choi 2004, Hagel and Brown 2005). Alternatively, identifying resilient performance for each dyad member can provide new performance prescriptions for each member during the supplier evaluation process. When firms make sourcing decisions, they should take into account both supplier performance and buyer performance in the relationship as a behaving system by considering exchange cost criteria, technology-based information sharing criteria, order fulfillment and quality criteria, and demand planning criteria. Each of these criteria is directly observable and relates to the performance contribution of both the buyer and the supplier. Buyer and supplier performance examination is of consequence because these relationships enable entry into new markets, provide for deeper penetration into current markets for both suppliers and buyers, and reduce the risk of supplier failure. The present study extends traditional models and approaches to supplier evaluation into the dyadic domain. Our context is post performance supplier evaluation. Using DEA with assurance region formulations, we include and then investigate the effects of buyer performance on supplier performance. To do this, the hybrid DEA approach used focuses on the buyer evaluation team's preference weights for a set of supplier performance factors. These preferences are rooted in the priorities set by different functional areas and are brought to the team evaluation by individuals representing these functional areas. The DEA methodology has a rich 30-year history in the supplier evaluation literature that will be discussed later. However, work that addresses supplier evaluation using performance factors representing both the buyer's behaviour and the supplier's behaviour has yet to materialise. It is within this new paradigm shift that several research issues emerge and, in turn, propositions are formed and analysed.

The analytical foundation addresses the appropriateness of using a DEA approach and its suitability in the dyadic domain. This study contributes to past DEA studies by extending the traditional model formulations to include factors of buyer performance. Buyer performance can and does affect supplier performance, which cannot be adequately evaluated without that inclusion (Frazier and Summers 1984). The measurement of supplier performance has two dimensions: historical supplier performance and the perception of that performance. The buyer forms a perception of historical supplier performance based on its own performance attributes, its selection of supplier performance attributes to measure and track, and on the preference weights that it places on these attributes. A hybrid DEA model is specified and used to assess the impact on supplier evaluation resulting from the degree of conformity/disparity among weights or priorities that a diverse evaluation team might apply. An evaluation team, based on its composition, might represent either a wide ranging or a narrow set of viewpoints on supplier performance attributes. This can often arise due to each evaluator's place and responsibility in the procurement organisational hierarchy. As a result, differences in preferences and importance weights placed on supplier performance attributes can vary significantly from member to member (Sarkis 2000). Alternatively, team members with similar backgrounds and responsibilities in the buying organisation might be expected to reflect consistent preferences and assign weights with less variability. The benefit of assigning either consistent or diverse preference weights on the supplier performance attributes is not the focus here. Rather, we explore the impact that the level of variability in preference weights has on the perception of supplier performance, how supplier performance scores are affected, and how the model weighted the supplier performance factors. Thus, our propositions are presented next.

Recent works emphasised that the buyer–supplier dyad is an important key to managing the supply chain. For example, (Chen and Paulraj (2004) highlighted the importance of dyads and concluded that both supplier performance and buyer performance contribute to overall relationship success. Focusing on both buyer and supplier exemplifies the long-term relational view of inter-organizational competitive advantage (Dyer and Singh 1998); and buying firms are advised to take strategic initiatives that nurture relationships to yield long-run mutual benefits (Hahn et al. 1990, Gadde and Hakansson 1994). On the one hand, it is often assumed that good suppliers are agile enough to adapt to the buyer's changes; good suppliers become candidates for additional business because of the supplier's perceived focused commitment. On the other hand, this same agility can drive a supplier away from a volatile buyer, creating the need for the buyer to consider just how good a customer it has been to its suppliers. The dyadic lens emphasises the specific one-to-one performance relationship that the buyer establishes with each of its many suppliers and can provide a starting point for decision makers to develop valuable insights into requisite levels of focused commitment from both partners (Swink and Zsidisin 2006). Therefore, focused commitment should be operationalised from a dyadic perspective of supplier performance.

d) Effective Guarantor

Personal guarantees remain a grey area for most SMEs mainstream lenders remain cautious about whom they issue funds to, expressing specific reluctance towards seemingly 'high risk' clients wanting to obtain funding for SMEs, the requirement for directors to personally guarantee loan repayments is on the rise.
A recent survey, conducted by personal asset lender borrow, found that directors of SMEs are now just as likely to turn to secured loans for funding as they are an extended overdraft facility or unsecured bank loan. Even

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more so, when applying for secured credit, one in ten business owners over the past year used their personal property as security on a loan in order to raise capital for their business and continue trading throughout 2011.

A personal guarantee operates as additional pledge of collateral in conjunction with the initial security for the commercial loan. Should the loan go into arrears, the director(s) will make themselves personally liable to repay the debt which may mean their own high valued assets or even their home is at risk if the company defaults.

So, under what circumstances may they be required?

(Jonathan Newman, Senior Partner at Brightstone Law LLP and Chairman of the AOBP), spoke of the growing need for a personal guarantee. He said: "Lenders take more comfort in issuing commercial loans to businesses if directors personally guarantee the loan. There are many instances where a borrowing company is a single purpose vehicle with no filed accounts or trading history so a personal guarantee is widely considered to be essential in these cases.

"For borrowers, there are significant advantages in sitting behind the corporate veil because it protects their individual assets; however, the covenant is more attractive to lenders if directors are willing to stake their own personal assets on the deal."

The types of assets provided as a guarantee are often unspecified, as (Jonathan) further explained: "Technically a personal guarantee isn't a charge on the Director's home – although it can end up that way once pursued, and can also attach to any high value personal property."

As a result of this vague definition, here lies a significant grey area for the guarantor. If a lender does begin foreclosure proceedings on personal assets and they do not cover the shortfall of the loan's initial security, in some circumstances this could mean that the guarantor's home is at risk of repossession.

Furthermore, the FSA offer very little protection to the guarantor in such instances. Stated within the FSA's online information for smaller firms (Mortgage Conduct of Business rules and related matters: Scope of regulation), the Authority provides the following guidelines for firms obtaining commercial funding: "…where an individual customer provides a personal guarantee to a bank covering the liabilities of a limited company, this will not be a regulated mortgage contract. This is true even where the individual's guarantee liability is secured by a first charge over his residential property. This is because we think the bank is not providing credit to an individual. (It may be providing credit to the company, but this doesn't satisfy the definition of a regulated mortgage contract)."

And so, the scope of FSA regulatory protection does not extend to those who provide their homes as collateral for a commercial loan. As an unregulated transaction, there is potential for business owners to be hasty in guaranteeing a loan in order to continue trading in tough economic climates – notably, there is no requirement for a 'cooling off period' as with regulated loans. It is therefore vital that the guarantor is fully aware of their contractual obligations to repay the loan on behalf of the firm.

(Jonathan) highlighted the importance of the guarantor in understanding the gravity of such commitments: "The impact of personal guarantee is very strong for any director as enforcement may lead to bankruptcy, which is a very serious prospect for an individual with widespread commercial interests undertaking sophisticated borrowing. Often guarantors have more to lose than the debt on the single property transaction. Such persons cannot entertain bankruptcy as this will have a dramatic impact on their wider business dealings, not to mention reputational risk."

Yet, this may be considered a worst case scenario as lenders will turn to the principal loan security first and will typically look to the guarantee as a last resort. Lessening the adverse associations, we also spoke to (Hinesh Varsani, Partner at Bellevue Mortlakes Chartered Surveyors), who maintained that personal guarantees are very much commonplace and generally limited to 20 per cent of the debt, reflecting the tensions within the current lending market.

(Hinesh) explained: "Personal guarantees are nearly always unsupported and we are unaware of lenders asking for a charge over a director's own home in order to support the guarantee."

The guarantor is thus given a degree of freedom in choosing which of their assets may be used to cover the shortfall of the loan security. Moreover, the guarantee will only be acted upon as a last resort, which may only be a small percentage of the entire loan facility. Providing a personal guarantee will give lenders an increased confidence and only in a small number of cases will this guarantee be detrimental to personal finances. Responsible lenders will express due diligence by adequately assessing the individuals personal liability and the ability to repay fully, without this being a significant obstacle should the foreclosure process begin.

A personal guarantee, as a supporting assurance to lenders, can often be a huge advantage for small business looking to obtain finance; however, personal guarantees should only be provided subject to extensive and independent legal advice ensuring the individual is fully aware of the implications.

e) Active Working Capital

Working capital structure refers to the elements of WC and it shows which of the possible components is responsible for investment in WC. Working capital structure is encapsulated in the concept of working capital management (WCM), which refers to the

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financing, investment and control of the net current assets within the policy guidelines. WC can be regarded as the lifeblood of the business and its effective provision can do much to ensure the success of the business, while its inefficient management or neglect can lead to the downfall of the enterprise.

In many countries, empirical studies have indicated that small business managers experience problems in raising capital for the development of their businesses. Different studies (e.g., Bolton, 1971; Wilson, 1979; Holmes & Kent, 1991; Winborg, 2000) have frequently referred to the concept of a financial gap to explain why many small businesses face this type of problem. Access to finance has been identified as a key element for SMEs to succeed in their drive to build productive capacity, to compete, to create jobs and to contribute to poverty alleviation in developing countries. Despite their dominant numbers and their importance in job creation, SMEs have traditionally faced difficulty in obtaining formal credit or equity.

Working capital is a significant and important issue during financial decision making because it is a part of the investment in total assets that requires an appropriate financing investment (Bhunia, 2010). Generally, working capital (WC) is financed by a combination of long-term and short-term funds. Long-term sources of funds consist of capital (equity from owners) and long-term debt, which only provide for a relatively small portion of the WC requirement (finance theory dictates that only the permanent portion of WC should be supported by long-term financing (Gitman, 2000)). This portion is the net WC; that is, the excess of the current assets over the current liabilities. On the other hand, the short-term sources of WCF consist of trade credit, short-term loans, bank overdrafts, tax provisions and other current liabilities that can be used to finance temporary WC needs. Sometimes, a WC deficit exists if the current liabilities exceed the current assets. In such a situation, short-term funds are used to also finance part of the non-current assets and the firm is said to be adopting an aggressive WC policy (Bhattacharya, 2001). No doubt, the easy accessibility of finance is an important factor when selecting the source of financing, but its impact on the risks and returns cannot be ignored (Gitman, 2000). Thus, the working capital management policies are guidelines that are helpful to direct businesses; the policies aim to manage the current assets, generally cash and cash equivalents, inventories and debtors, and to manage the short-term financing so that the cash flows and returns are acceptable (Kumar, 2010).

The financing preferences of firms are often explained using Myers' (1984) pecking order theory. Although this theory was developed for large, quoted companies, it is equally applicable to small firms. Firms tend to use cash credit as a first choice for financing their WC needs. However, the excessive reliance on the banking system for WCF exerts some pressure on the banks, and a significant portion of their available resources are first channeled to the large firms (Narasimhan & Vijayalakshmi, 1999). Narasimhan and Vijayalakshmi also noted that the long-term sources of funds for WC appear to be dominant in many industries and that cash credit is the next major source for financing WC. Another important dominant source for funding the WC requirement is trade credit. Trade credit is usually called a spontaneous source of finance and is normally available as part of the trade terms. Olomi (2008) reported that medium-sized textile firms with limited access to the long-term capital markets tend to rely more heavily on owner financing, trade credit and short-term bank loans to finance their operations.

Working capital is the total of the amounts invested in current assets of the company. Generally, it is assumed that the current liabilities must be met by current assets. Because, maturity date of current assets coincides with maturity date of current liabilities (maximum maturity date is one year). Lack of coincidence between maturity date of current assets and current liabilities leads to liquidity problems of the firms. of course, some of companies may try to secure a part of their current assets through shareholders' rights which is called fixed working capital. Current assets including cash stock, short term investment, claims stock of raw materials and goods, and also current liabilities means accounts and trade bills payable, pre receipts and short term bank credits (Pike and bill, 2006: 337). The working capital management from financial managers' point of view is a simple and clear concept ensuring the firm ability to grasp differences between assets and short-term debts (Yaghob nejad, 2010: 118). Therefore, working capital management is one of the most important problems that firms' managers may face it. Working capital management plays an important role for the firms' maintenance and growth. Working capital management refers to financing methods, investment and control of working capital. In other words, working capital management is practical part of financing which includes all current accounts of firm. Working capital management relates to adequacy of current assets and risk resulting from current liabilities (Pike and Bill 2006: 338). Working capital management is of particular important due to its impact on risk, returns and shareholders' wealth. Companies by using various strategies related to working capital management can affect the amount of firm's liquidity. These strategies determine their risk level and returns (Nikoomaram etal, 2004: 8). In other words, firms by using efficient working capital management can facilitate access to different objectives.

Working capital management is an issue in which finance research is scarce. One possible reason behind this fact might relate to the relative ease with which efficient financial markets correct deviations from

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optimal working capital policies. However, in less efficient financial markets, pervasive among emerging economies, working capital management is critical for both firms ' performance and survival. The difference in the market's ability for providing immediate assistance to firms might explain the differential consequences on firms' profitability and financial distress. This article explains the fundamentals of working capital management, the importance of its interaction with financial markets, and how this interaction might explain working capital patterns around the world.

f) Relationship between Supplier Finance Loan and Active Working Capital

Factoring and commercial financing make the most sense for companies needing an infusion of working capital to produce a steady increase in sales and profit. However, factoring and commercial financing can also give companies that are losing money time to achieve a turnaround. An asset financer can ride a downhill course longer than an unsecured lender and is less reluctant to intervene in such situations; of course, the financer must have confidence in the management and the recovery plan. This assumption of additional risk is, in my opinion, of significant value to the economy because without it many companies, now revitalized, would never brave had a second chance.

A basic rule in selecting a factoring and commercial finance source is the same as for selecting an unsecured financing source: know your lender. Since many of the nation's most respected financial institutions are now engaged in secured financing, taking such an approach is not difficult. And banks without their own secured lending departments or affiliates are likely to be able to recommend sources. The larger factoring and commercial finance companies that remain independent of banks usually have strong national reputations. In dealing with smaller independents, many of which serve regional markets, the borrower will find that most of them will provide references and welcome the opportunity to show how they operate. In negotiating the loan, obtaining the services of an attorney familiar with commercial finance contracts is advisable. A number of conditions are usually involved that are very different from those associated with a promissory note. These special conditions include how the prime rate is to be determined (since interest typically is stated as a percentage above prime), the method of interest charges and collection credits, and the termination clause, which is necessarily different for a revolving loan than ft) are a term loan. Inflation is encouraging more businesses than ever before to seek commercial financing. In the past ten years, many businesses have doubled their sales because of inflation alone and have had no corresponding increase in their working capital or borrowing base. In addition, commercial finance bas emerged as a key source of funds for acquisitions and buy-outs. It has helped fill the gap created by a weak market for new equity issues. Most of today's acquisitions are for cash, not stock. Secured financing packages can enable the buyer to borrow on the target company's assets to provide key leverage for meeting the purchase price. Also, the revolving portion of such loans can serve as a substitute for capital, making possible a higher return on investment. Thus it seems clear that the need for specialized lenders is increasing. They can look at more than just the financial statements to help smaller companies uncover ways of obtaining working capital.

There is one key component to all business, and that is liquidity, or cash flow. Businesses need cash to operate as well as to generate additional business. Not all businesses have revolving lines of credit from banks to tap if needed. In fact, companies can have a significant amount of accounts receivables from customers, but fall short in the interim on cash liquidity. One very effective solution for companies in a situation like this is factoring. Factoring is a financial transaction whereby a business sells its accounts receivable (i.e., invoices) to a third party (called a factor) at a discount in exchange for immediate money with which to finance continued business. Factoring differs from a bank loan in three main ways. First, the emphasis is on the value of the receivables (essentially a financial asset), not the form's creditworthiness. Secondly, factoring is not a loan; it is the purchase of a financial asset (the receivables). Finally, a bank loan involves two parties whereas factoring involves three. "When a business person conducts an analysis on whether to raise equity or monetize their debt, they have to weigh what is more costly, and whether they want to give up part of their company, and that's where we see factoring as being very fitting," said James Connor, cofounder & CEO of Acrecent Financial Corp. Acrecent is a privately held financial services company engaged in the financing and leasing of commercial equipment and factoring of commercial accounts receivable in Puerto Rico and the Caribbean. The company was established in July 2(X)3 by Connor and Raúl Cacho, two highly experienced executives from the commercial leasing and lending industries. "Most companies have accounts receivables on their balance sheet, but many, particularly small and midsize companies have no access, or limited access, to working capital facilities or banks, meaning revolving lines of credit. That's where factoring helps a lot because you can monetize receivables," Connor said. "We have customers, who have millions of dollars in receivables, and for reasons other than Business, for example, someone who may have had poor credit and the banks don't want to lend to him or her, the only option is factoring," Connor said. "In a situation like that, the financial condition of a company is seldom important; what's really important is the quality of the receivables. In most cases, if a company has a poor

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financial situation, the owner is not financially strong, or may have a weakened credit history, factoring works."

g) Relationship between Customer Performance and Active Working Capital

Suppliers who have customers with better capital market information quality to make better capacity and inventory management decisions, which in turn will manifest in better performance. Specifically, following Patatoukas (2012), supplier's performance is measured using the DuPont profitability framework wherein the return on assets is decomposed into asset turnover and profit margin ratios. Overall, we hypothesize that the customers' capital market information quality is positively associated with the suppliers' return on assets and its components— asset turnover and profit margin ratios. We consider a sample of publicly listed supplier firms in the United States that provide the names of their major customers. The sample consists of 20,411 supplier firm-year observations spanning from 1994 to 2008, and represents 4818 firms.

Consistent with the hypothesis, we find that suppliers' operating performance as measured by return on assets, asset turnover, property, plant and equipment turnover, inventory turnover, profit margin, and gross margin are all positively associated with customers' capital market information quality score, after controlling for supplier and customer characteristics that have been shown to be associated with suppliers' operating performance in prior studies (e.g., see Patatoukas 2012). We find that this positive relation between suppliers' operating performance and customers' capital market information quality is more pronounced for suppliers that are likely to benefit more from customers' improved information quality.

Specifically, the results are stronger for suppliers with high sales volatility, zero-order backlog, customers that are less dependent on them, and shorter business relation with the customers. In addition, we find that suppliers' operating performance is positively associated with the information content of their customers' information events, including management forecasts, analyst forecasts, and earnings announcements and the sensitivity of the suppliers' market reaction to the customers' information events. Finally, to provide confidence on the direction of the information flow from customers to suppliers, we find that the accuracy of the suppliers' management forecast issued after their customers' management forecast is positively related to the accuracy and occurrence of the customers' management forecast. Collectively, these results demonstrate that the customers' capital market information quality has spillover effects in the input market.

Whether you're a distributor or screen printer, adequate cash flow is the heartbeat of your business. Without it, the life-blood of an organization ceases circulating, and fatal cardiac arrest can ensue. Unfortunately, your required cash stream may, at some point, dilute to a trickle, or simply not be robust enough to help fuel the growth you desire. Sure, options exist: Bank loans, borrowing from family and securing private equity are all examples. Still, these traditional avenues may sometimes be inaccessible. Even if they are available, they may not provide the necessary green as quickly as your company needs it. Fortunately, there is an alternative. It is called invoice factoring, and its advantages include getting cash into your coffers expediently. Put simply, invoice factoring involves your business selling accounts receivables to a factoring company for cash. "With factoring, your receivables become real assets," says Mike Bartels, vice president of Riviera Finance, a factoring provider. In an invoice-factoring transaction, a factoring company pays you an advance of, typically, 75% to 80% of the value of the receivables. Then, the firm buying your invoices seeks to collect the full payment on the receivables from your customers. Once payment is obtained, the factoring company pays you the remaining percentage of the receivables you sold them, minus a fee that generally falls\ between 2% and 4% – and, as may be the case, interest on the cash advance. Proponents of factoring note that this financing option can typically get working capital to companies quicker than bank loans. "We generally can help within a handful of days, usually within the week," says Robert Cable, a Georgia-based principal with Liquid Capital, a factoring company. Beyond providing fast cash, factoring has other advantages that appeal to business owners. "It's off the balance sheet," says Cable. "There is no debt incurred." Factoring can potentially work for a range of companies. They include plucky start-ups that need cash to grow, successful established firms that have surpassed their bank line but need more capital to fuel greater revenue rises, and companies with a less-than-stellar financial history that may not be able to secure financing from a bank. Within the imprinted apparel industry, factoring can have applications. Perhaps you're a small distributorship with a few big clients on payment terms; the cash from those clients isn't immediately forthcoming and you need money quickly. Factoring may be a viable option. Still, you don't have to be in duress to factor. Perhaps you are a screen printer who wants to free up cash to invest in a new automatic press. Factoring can possibly help. "Sometimes," says Bartels, "you just need the cash flow factoring provides to grow your business." Nonetheless, factoring experts point out that it's pivotal to understand the difference between recourse factoring and non-recourse factoring. In the latter, the factoring company assumes the risk; if your customer doesn't pay, the factoring firm eats the loss. In recourse factoring, you are responsible for buying back invoices that aren't paid by your customers after a pre-determined period of time. So, while rates

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may be lower in recourse factoring, there is less of a risk with non-recourse. – (Christopher Ruvo)

If the factoring customer pays all the charges and interests on right time and keep a healthy communication with the financial institute then the working capital will be active by getting further factoring facilities.

h) Relationship between Effective Guarantor and Active Working Capital

It is a prudent credit manager that attempts to obtain personal guarantees from the principals of an incorporated entity to which credit is being extended. In today's volatile marketplace, the existence of a personal guarantee may provide the only viable basis of collecting outstanding receivables from a corporate obligor experiencing financial difficulty. However, in the final analysis, the effectiveness of a personal guarantee is directly dependent upon the financial capability of the guarantor.

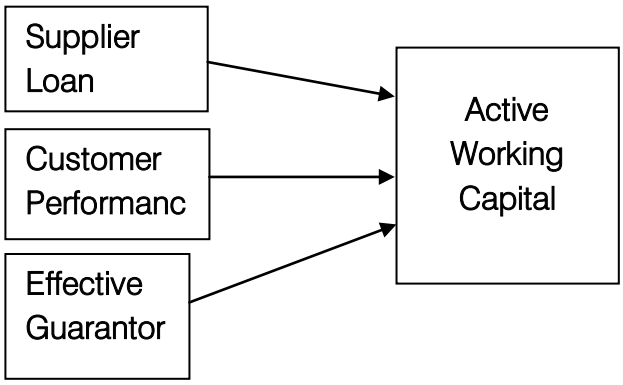
Guarantees can be classified as being both guarantees of payment or collection, and the distinction is important to recognize. A guarantee of payment is a far more effective tool, as it allows a creditor to proceed directly against the guarantor without the necessity of taking any action against the primary obligor. Conversely, in the case of a guarantee of collection, a creditor must first proceed directly against the primary obligor — and only if the debt cannot be collected after the exercise of due diligence can collection commence against the guarantor. Most jurisdictions have defined due diligence as the commencement of legal proceedings against the corporate guarantor — and the result being the obtainment of an uncollectible money judgment. Therefore, when drafting a personal guarantee, a creditor should specify that the guarantee is one of payment.

A personal guarantee creates a greater potential source of recovery for the collection of outstanding receivables. The guarantee, as an effective tool of collection, can be maximized when proper attention in drafting, execution and monitoring is exercised. The credit manager who is able to obtain personal guarantees from the principals of his incorporated customers has established a greater security and financial advantage in the protection and minimization of future debt liability.

Firms require short-term assets or liabilities in order to facilitate production and sales. Those working capital requirements are often incorporated in macroeconomic models designed to study the impact of monetary or facial shocks.1 they are important for the propagation of those shocks since they abet the marginal cost of funds faced by some set of agents in the economy. If firms require working capital in order to acquire variable inputs, a change in the cost of funds faced by firms translates into immediate changes in macroeconomic activity. 2 This article investigates the cyclical properties of the three main components of working capital— inventories (raw materials, work- in-process, and finished goods), cash and short-term investments, and trade credit— aggregated across all firms and with special attention to their correlations across time with output. The key objective is to obtain stylized facts. While theory informs what kind of facts are worth examining, the uncovering of stylized facts also serves as an input for the development of new theories.

The discussion above provides a couple of examples of existing theoretical models that motivate the exploration that follows, but the results stand on their own as useful If the guarantors are strong enough to play an important role in the agreement of borrowing, then it's become quite easy to get the factoring facility and keep the working capital active.

V. The Conceptual Framework



VI. Questions

Q1: Does Supplier Loan make any impact on Active Working Capital.

Q2: Does Customer Performance play an important role in Active Working Capital.

Q3: Why Effective Guarantor is so important for Active Working Capital.

VII. Hypothesis

Hypothesis-1:

Ho1: There is no relationship between supplier loan and active working capital.

Ha1: There is a relationship between supplier loan and active working capital.

Hypothesis -2:

Ho2: There is no relationship between customer performance and active working capital.

Ha2: There is a relationship between customer performance and active working capital.

Hypothesis -3:

Ho3: There is no relationship between effective guarantor and active working capital.

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Ha3: There is a relationship between effective guarantor and active working capital.

VIII. The Research Design

Research can be designed in eight (8) categories. These are described below:

a) The Method of Data Collection

In Monitoring, researcher observes the activity of the participants. It is a one way method. But my data collection is 'Communication' where I asked many questions to my participants and they choose the best statement form their own. As a researcher, I have limited control over the participants to change their opinion; which is one of the most important characteristics for the data collection method of communication.

b) Researcher Control of variables

In Experiment, researcher can control the variables. But in Ex Post Facto Design, they can't. They can report only what ever happened. I also can manipulate the variables. In my research, the dependent variable likes Active Working Capital can be changed by me. So my research could be stated as Experiment.

c) Degree of Research Question Crystallization

Between Exploratory Studies and Formal Study, my research design could be categorized as Formal Study. This is because the purpose of my research is not to develop any hypothesis or question for the further future research. The goal of my research is to test the answer the research questions.

d) The Purpose of Study

The purpose of the study could be categorized as Descriptive. I am researching on the supplier finance loan users by dividing them into few demographic sections to determine who more motivated based on some specific criterion.

e) Participants' Perceptual Awareness

In my research participants are aware of my presence. Before conducting survey, I have explained my identity and the purpose of the research. Among the three perceptions, most appropriate is 'Participants perceive no deviation from everyday routine'.

f) The Time Dimension

Time dimension could be categorized as Cross-Sectional Studies and Longitudinal Studies. Cross-Sectional Studies are carried out once and represented a snapshot of one point in time which is very much similar for my research. I will carry out my survey once. That's why the time dimension should be Cross-Sectional Studies for my research.

g) The Topical Scope

Case Study place more emphasis on a full contextual analysis of fewer events or conditions and their interrelations. But the topical scope for our research is statistical study because it is designed for breadth rather than depth. I attempt to capture a population's characteristics by making inferences from a sample's characteristics.

h) The Research Environment

Among Field Setting, Laboratory Research and Stimulation, my research environment was specified as Field Settings. This is because; I will conduct the survey within an original environment where more existing customers are available.

i) Sampling

Sampling refers to the act of selecting a specific number of entries from a large set of data for further analysis. Business research often generates vast quantities of data, especially in market-focused research such as demographics.

i. *Sample unit*

The first and foremost question I have been asked that whom should I to survey. To work on this category, I have to know about the demographic information. I have done some categorization based on which I have decided my sample unit. I will do my survey on supplier finance loan's importance using existing customers.

Age: My target customers might be in the age group of 20-70 or above, they will be existing customers of IDLC Supplier Finance Loan.

Income: My target customers would be young, middle aged or aged people. Therefore their estimated income will be 30,000 to 100,000 tk. or above.

Gender: My target sample unit is male or female consumers that mean young, middle aged or aged corporate peoples.

Location: The respondents are only from Dhaka city.

Sample Size: To conduct this research, I chose a number of existing IDLC Supplier finance Customers to whom I did questionnaire survey. As I didn't have that much budget, resource and time, I could effectively do my study with fifty (50) customers.

Procedure: Sample procedure is a very important issue of sampling and data collection. By sample procedure, I decided my sample unit and size and how I should choose them. In this case, I have applied the probability sample procedure. Here, I used my Simple Random sample so that every existing customer has a known and equal chance of selection.

j) Instruments

A questionnaire was designed for data collection for each of the 4 variables. There are 16 questions excluding demographic in total for measuring all the variables. Each variable is measured by 4 questions.

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A 5 point likert scale was used in the questionnaire and was distributed to the customers of a Financial Company called IDLC Bangladesh..
In *"Appendix B"* a sample question is been given.

IX. Data Collection

There are two types of data collection:

- ✓ *Primary Data:* Primary data is collected firsthand through experiments, surveys, questionnaires, focus groups, interviews and taking measurements.
- ✓ *Secondary Data:* Secondary data is readily available and is available to the public through publications, journals and newspapers.

In the context of Bangladeshi people, as researchers I used primary data to examine the research problem and verify hypothesis. The questionnaire was distributed among 50 respondents from IDLC Supplier Finance loan's existing customers. Before giving the questionnaire, the purpose of the study and questions were explained to the respondents so they can easily fill the questionnaire with relevant responses.

X. Data Analysis

a) Descriptive Analysis

Descriptive analysis done to explain the samples of the research. After the collection of data through a survey conducted on employees, the response was inputted in SPSS to perform Descriptive Analyze.

Appendix Table-1: Under Descriptive Analysis, individual criteria of participants have been analyzed to bring about the result in order of their percentages. The survey has been conducted on 50 existing clients of IDLC Supplier Finance, who are enjoying factoring facility for more than one year. The survey results show that, 46clients were male where only 4clients were female. If the result is converted to percentage than 92% of the participants were male and 8% were females.

Appendix Table-2: The data in Table 2 shows that, 20% of the customer belonged to the age group 31-40 years. 8%of the participants were of age in the range of51-60 years. The rest and biggest size of the participants were from the age group of 41-50 years which is 72% of the whole.

Appendix Table-3: Very large portion of the participants participated in this survey falls under the income group of 41,000 to 50,000 tk. which is 74%. Only 2%participants out of 50 clients have an income of 61,000 to 70,000 tk. Another 20% participant's earn 30,000 to 40,000 tk. monthly. Rest 4% earns 51,000 to 60,000 tk.

Appendix Table-4: Most of the participants were from the business status of proprietorship and Pvt. Ltd. Company which is approximately 42% and 40% out of 50 participants. The rest 18% was from partnership concern.

Appendix Table-5: The data in Table 5 shows that, 42% percentage of the participants were Proprietor of different proprietorship business. 24% of the participants were managing director, 14 % were director and only 2% were chairman of Pvt. Ltd. Companies. The rest 18% were partners of different partnership business.

Appendix Table-6: In the Cross Tabulation section shows the frequency of male/female in the age groups mentioned above. In the age group 31-40 years, there are 6 males but 4 females. 36 males and no females belong to the age group 41-50 years and only 4 male and no female are in the age group of 51-60 years.

Appendix Table-7: In the Cross Tabulation section shows the frequency of male/female in the income groups mentioned above. In the income group 30,000-40,000, there are 6 males but 4 females. 37 males and no females belong to the income group 41,000-50,000 tk. 2 male and no female are from income group of 51,000-60,000 tk. Only 1 male was from income group of 61,000-70,000 tk.

Appendix Table-8: In the Cross Tabulation section shows the frequency of male/female in the business status mentioned above. In Proprietorship concern, there are 21 males but no females. 18 males and 2 females belong to Pvt. Ltd. Company. And only 7 male and 2 female are from Partnership concern.

Appendix Table-9: In the Cross Tabulation section shows the frequency of male/female in the possession mentioned above. In proprietorship concern, there are 21 males but no females were as Proprietor. 1 male and no female as Chairman, 12 male and no female as Managing Director and 5 males and 2 females as Director were from Pvt. Ltd. Company. Only 7 male and 2 female were as Partners from different partnership concern.

Appendix Table-10: In the Cross Tabulation section shows the frequency of age in the income groups mentioned above. 4In the income group 30,000-40,000 tk. there are 8 persons who fall under the age of 31-40 years, 2 persons under 41-50 years. In the income group 41,000-50,000 tk. there are 2 persons who falls under the age of 31-40 years, 32 persons under 41-50 years, 3 persons under 51-60 years. In the income group 51,000-60,000 tk. there are 2 persons under 41-50 years. In the income group 61,000-70,000 tk. only 1 person under 51-60 years.

Appendix Table-11: In the Cross Tabulation section shows the frequency of age in the business status mentioned above. From proprietorship concern 4, Pvt. Ltd. Company 4and partnership concern2 persons who falls under the age of 31-40 years.16 persons from proprietorship concern, 14 person from Pvt. Ltd.

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Company and 6 from partnership concern falls under the age of 41-50 years. In proprietorship concern 1 person, Pvt. Ltd. Company2 persons and partnership concern1 person who falls under the age of 51-60 years. Appendix Table-12: In the Cross Tabulation section shows the frequency of age in the possession mentioned above. From proprietorship concern 4 proprietors, Pvt. Ltd. Company 2 managing directors and 2 directors and from partnership concern2 partners who falls under the age of 31-40 years.16 proprietors from proprietorship concern; 1 chairman, 9 managing directors and 4 directors from Pvt. Ltd. Company and from partnership concern6 partners falls under the age of 41-50 years. From proprietorship concern 1 proprietor, Pvt. Ltd. Company 1 managing director and 1 director and from partnership concern1 partner who falls under the age of 51-60 years.

Appendix Table-13: In the Cross Tabulation section shows the frequency of income per month in the business status groups mentioned above. In the income group 30,000-40,000, there are 6Proprietorship Concern, 2 Pvt. Ltd. Company and 2 Partnership Concern. 15 Proprietorship Concern, 15 Pvt. Ltd. Company and 7 Partnership Concern from the income group 41,000-50,000 tk. In the income group of 51,000-60,000 tk. there are only 2 Pvt. Ltd. Company and no Proprietorships or Partnership Concern. Only 1 Pvt. Ltd. Company from income group of 61,000-70,000 tk.

Appendix Table-14: In the Cross Tabulation section shows the frequency of income per month in the possession groups mentioned above. In the income group 30,000-40,000, there are 6Proprietors, 2 Directors and 2 Partners. 15 Proprietors, 1 Chairman, 9 Managing Directors, 5 Directors and 7 Partner from the income group 41,000-50,000 tk. In the income group of 51,000-60,000 tk. there are only 2 managing directors and no Proprietor or Partner. Only 1 Managing Director from the income group of 61,000-70,000 tk.

Appendix Table-15: In the Cross Tabulation section shows the frequency of Business Status in the Possession groups mentioned above. There are 21Proprietors from Proprietorship Concern.1 Chairman, 12 Managing Directors and7Directors from Pvt. Ltd. From Partnership Concern there are 9 partners.

b) Reliability Analysis

The Reliability testing is done through the Cronbach's Alpha; greater value of Cronbach's Alpha indicates more reliability on the items that used in a range of 0 to 1. For this research SPSS version 17 was being used as the statistical data analysis tool as it offers greater flexibility in data analysis and visualization.

Nunnally (1970) suggested that there are at least four methods of estimating reliability coefficient. One of them is internal consistency. The assumption of internal consistency is that a good scale is comprised of items that are homogenous. Hence, methods concerning internal consistency measure inter-item correlation. A scale is considered to have high internal consistency when its items are highly inter correlated for this suggests that the items are all measuring the same thing (DeVelis, 1991). The most highly recommended measure of internal consistency provided by coefficient alpha (α) or Cronbach's alpha (1951) as it provides a good reliability estimate in most situations. The value of α range from 0 to 1. The higher the proximity of the value of α to 1, the better the reliability. If the value is low, either there are too few items or there is very little commonality among the items (Churchill, 1979). For the early stages of any research, Nunnally (1978) suggested that the reliability of 0.50-0.60 is sufficient, although a coefficient of 0.70 or above is desirable.

Calculated Cronbach's Alpha is given below for all the variables with the help of SPSS-17:

In this study, the coefficient alphas for the different constructs were computed using the reliability procedure in SPSS. The Cronbach's Alpha of a variable determaine the internal consistency among the items used to measure the variables.

The reliability coefficient of the variable supplier loan has resulted in a Cronbach Alpha 0.751 (given in **Appendix Table-16** under reliability analysis), which is very high and very desirable. So, supplier loan is defined 75.1% by the 4 questions under it.

The reliability coefficient of the variable customer performance has resulted in a Cronbach Alpha 0.872 (given in **Appendix Table-17** under reliability analysis), which is very high and very desirable. So, customer performance is defined 87.2% by the 4 questions under it.

The reliability coefficient of the variable effective guarantor has resulted in a Cronbach Alpha 0.636 (given in **Appendix Table-18** under reliability analysis), which is well enough to accept the result.

The reliability coefficient of the variable active working capital has resulted in a Cronbach Alpha 0.778 (given in **Appendix Table-19** under reliability analysis), the value is sufficient. So, active working capital is defined 77.8% by the 4 questions under it.

XI. Hypothesis Testing

a) Spearman's Correlation

In **Appendix Table-20**, $P=0.625$ and $\alpha=0.01<0.05$

It is clear from the table that, the value of rho is not equal to zero and the value of alpha is less than 0.05. In this condition, alternative hypothesis (Ha) should be accepted. That mean, there is a relationship between Active Working Capital and Supplier Loan. Two stars (**) specifies that the relationship between the variables is 99% true.

In **Appendix Table-21**, $P=0.790$ and $\alpha=.001<.05$

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It is clear from the table that, the value of rho is not equal to zero but the value of alpha is greater than 0.05. In this condition, alternative hypothesis (Ha) should be accepted. That mean, there is a relationship between Active Working Capital and Customer Performance. The star (**) specifies that the relationship between the variables is 99% true.

In **Appendix Table-22**, P=0.696 and α=.001<.05

It is clear from the table that, the value of rho is not equal to zero and the value of alpha is less than 0.05. In this condition, alternative hypothesis (Ha) should be accepted. That mean, there is a relationship Correlation between Active Working Capital and Effective Guarantor. Two stars (**) specifies that the relationship between the variables is 99% true.

b) Pearson's Correlation

In **Appendix Table-23**, r=0.689 and Probability, P=.001<.05

The value of P is less than 0.05. In this condition, null hypothesis (H0) should be rejected. That mean, there is a relationship between Active Working Capital and Supplier Loan. Two stars (**) specifies 99%strong relationship between the variables.

In **Appendix Table-24**, r =0.764 and Probability, P=.001<.05

The value of P is less than 0.05. In this condition, null hypothesis (H0) should be rejected. That mean, there is a relationship between Active Working Capital and Customer Performance. Two stars (**) specifies 99%strong relationship between the two variables.

In **AppendixTable-25**, r=0.673 and Probability, P=.001<.05

The value of P is less than 0.05. In this condition, null hypothesis (H0) should be rejected. That mean, there is a relationship between Active Working Capital and Effective Guarantor. Two stars (**) specifies 99%strong relationship between the variables.

b) Regression analysis

Appendix Table-26 shows that R Square value =0.675 so dependent variable (Active Working Capital) can be explained 67.5% by independent variable (Supplier Loan, Customer Performance and Effective Guarantor).

XII. Limitations of the Report

The main problem faced in preparing the report was the inadequacy and lack of availability of required data. This report is an overall view of Factoring Operations of IDLC Finance Limited SME Division and its Importance from customer's perspective. There were some limitations for preparing this report. These barriers, which hinder my work, are as follows:

- Difficulty in accessing latest data of internal operations.
- Non-availability of some preceding and latest data.
- Some information was withheld to retain the confidentiality of the institution.
- I was placed to this department for only 3 months of time and working like a regular employee hindered the opportunity to put the better effort for the study.
- The personnel of the institution are usually busy with their daily activities and routine tasks; therefore interacting with them during their office hours was difficult sometimes. Although most if the officers were very helpful and friendly but as because they have been busy with their works, they could not give much time to light up my knowledge about the institution's activities.
- Lack of paper books, journals and articles sometimes created limitations for me to understand different terms and conditions.
- The policies and manuals of IDLC Finance Limited are of confidential in nature and thus it is difficult to collect the necessary literature and documents within this short time.

With all of this limitation I tried my best to make this report as best as possible. So readers are requested to consider these limitations while reading and justifying any part of my study.

XIII. Significance of the Study

My study focuses on exactly how to keep working capital active through supplier finance loan, customer performance and effective guarantor. As I did this research, a lot of learning occurs regarding factoring, learning that does not happen during traditional coursework. Through this study business organization will have an idea about the impact of factoring on their working capital. Moreover they will also have knowledge about the relationship between financial institutes and business organizations. Additionally they will know about the applicability of factoring, bill discounting, receivable financing and supplier financing in Bangladesh as a short term loan to keep the working capital active.

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Appendixes a

Appendix Table-1
Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	46	92.0	92.0	92.0
	Female	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

Appendix Table-2
Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	31-40	10	20.0	20.0	20.0
	41-50	36	72.0	72.0	92.0
	51-60	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

Appendix Table-3
Income Per Month

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30,000-40,000	10	20.0	20.0	20.0
	41,000-50,000	37	74.0	74.0	94.0
	51,000-60,000	2	4.0	4.0	98.0
	61,000-70,000	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

Appendix Table-4
Business Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Proprietorship	21	42.0	42.0	42.0
	Pvt. Ltd. Company	20	40.0	40.0	82.0
	Partnership	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

Appendix Table-5
Possession

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Proprietor	21	42.0	42.0	42.0
	Chairman	1	2.0	2.0	44.0
	Managing Director	12	24.0	24.0	68.0
	Director	7	14.0	14.0	82.0
	Partner	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

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Appendix Table-6

Gender * Age Crosstabulation

Count

		Age			Total
		31-40	41-50	51-60	
Gender	Male	6	36	4	46
	Female	4	0	0	4
Total		10	36	4	50

Appendix Table-7

Gender * Income Per Month Crosstabulation

Count

		Income Per Month				Total
		30,000-40,000	41,000-50,000	51,000-60,000	61,000-70,000	
Gender	Male	6	37	2	1	46
	Female	4	0	0	0	4
Total		10	37	2	1	50

Appendix Table-8

Gender * Business Status Crosstabulation

Count

		Business Status			Total
		Proprietorship	Pvt. Ltd. Company	Partnership	
Gender	Male	21	18	7	46
	Female	0	2	2	4
Total		21	20	9	50

Appendix Table-9

Gender * Possession Crosstabulation

Count

		Possession					Total
		Proprietor	Chairman	Managing Director	Director	Partner	
Gender	Male	21	1	12	5	7	46
	Female	0	0	0	2	2	4
Total		21	1	12	7	9	50

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Appendix Table-10

Age * Income Per Month Crosstabulation

Count

		Income Per Month				Total
		30,000-40,000	41,000-50,000	51,000-60,000	61,000-70,000	
Age	31-40	8	2	0	0	10
	41-50	2	32	2	0	36
	51-60	0	3	0	1	4
Total		10	37	2	1	50

Appendix Table-11

Age * Business Status Crosstabulation

Count

		Business Status			Total
		Proprietorship	Pvt. Ltd. Company	Partnership	
Age	31-40	4	4	2	10
	41-50	16	14	6	36
	51-60	1	2	1	4
Total		21	20	9	50

Appendix Table-12

Age * Possession Crosstabulation

Count

		Possession					Total
		Proprietor	Chairman	Managing Director	Director	Partner	
Age	31-40	4	0	2	2	2	10
	41-50	16	1	9	4	6	36
	51-60	1	0	1	1	1	4
Total		21	1	12	7	9	50

Appendix Table-13

Income Per Month * Business Status Crosstabulation

Count

		Business Status			Total
		Proprietorship	Pvt. Ltd. Company	Partnership	
Income Per Month	30,000-40,000	6	2	2	10
	41,000-50,000	15	15	7	37
	51,000-60,000	0	2	0	2
	61,000-70,000	0	1	0	1
Total		21	20	9	50

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Appendix Table-14

Income Per Month * Possession Crosstabulation

Count

		Possession					Total
		Proprietor	Chairman	Managing Director	Director	Partner	
Income Per Month	30,000-40,000	6	0	0	2	2	10
	41,000-50,000	15	1	9	5	7	37
	51,000-60,000	0	0	2	0	0	2
	61,000-70,000	0	0	1	0	0	1
Total		21	1	12	7	9	50

Appendix Table-15

Business Status * Possession Crosstabulation

Count

		Possession					
		Proprietor	Chairman	Managing Director	Director	Partner	Total
Business Status	Proprietorship	21	0	0	0	0	21
	Pvt. Ltd. Company	0	1	12	7	0	20
	Partnership	0	0	0	0	9	9
Total		21	1	12	7	9	50

Reliability

Table 16 : Reliability of Supplier LoanReliability Statistics

Cronbach's Alpha	N of Items
.751	4

Table 17 : Reliability of Customer Performance Reliability Statistics

Cronbach's Alpha	N of Items
.872	4

Table 18 : Reliability of Effective Guarantor Reliability Statistics

Cronbach's Alpha	N of Items
.636	4

Table 19 : Reliability of Active Working Capital Reliability Statistics

Cronbach's Alpha	N of Items
.778	4

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Spearman Correlation

Table 20 : Correlation between Active Working Capital and Supplier Loan.

Correlations

			Active Working Capital	Supplier Loan
Spearman's rho	Active Working Capital	Correlation Coefficient	1.000	.625**
		Sig. (2-tailed)	.	.000
		N	50	50
	Supplier Loan	Correlation Coefficient	.625**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 21 : Correlation between Active Working Capital and Customer Performance.

Correlations

			Active Working Capital	Customer Performance
Spearman's rho	Active Working Capital	Correlation Coefficient	1.000	.790**
		Sig. (2-tailed)	.	.000
		N	50	50
	Customer Performance	Correlation Coefficient	.790**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 22 : Correlation between Active Working Capital and Effective Guarantor.

Correlations

			Active Working Capital	Effective Guarantor
Spearman's rho	Active Working Capital	Correlation Coefficient	1.000	.696**
		Sig. (2-tailed)	.	.000
		N	50	50
	Effective Guarantor	Correlation Coefficient	.696**	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

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Table 23 : Correlation between Active Working Capital and Supplier Loan

Correlations

		Supplier Loan	Active Working Capital
Supplier Loan	Pearson Correlation	1	.689**
	Sig. (2-tailed)		.000
	N	50	50
Active Working Capital	Pearson Correlation	.689**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 24 : Correlation between Active Working Capital and Customer Performance

Correlations

		Active Working Capital	Customer Performance
Active Working Capital	Pearson Correlation	1	.764**
	Sig. (2-tailed)		.000
	N	50	50
Customer Performance	Pearson Correlation	.764**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 25 : Correlation between Active Working Capital and Effective Guarantor

Correlations

		Active Working Capital	Effective Guarantor
Active Working Capital	Pearson Correlation	1	.673**
	Sig. (2-tailed)		.000
	N	50	50
Effective Guarantor	Pearson Correlation	.673**	1
	Sig. (2-tailed)	.000	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

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Table 26 : Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Effective Guarantor, Supplier Loan, Customer Performance[a]	.	Enter

a. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822[a]	.675	.654	.26405

a. Predictors: (Constant), Effective Guarantor, Supplier Loan, Customer Performance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.663	3	2.221	31.852	.000[a]
	Residual	3.207	46	.070		
	Total	9.870	49			

a. Predictors: (Constant), Effective Guarantor, Supplier Loan, Customer Performance

b. Dependent Variable: Active Working Capital

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.322	.275		1.174	.246
	Supplier Loan	.323	.101	.342	3.189	.003
	Customer Performance	.364	.131	.401	2.777	.008
	Effective Guarantor	.260	.172	.197	1.509	.138

a. Dependent Variable: Active Working Capital

Appendix B

Personal Information

1) **Name:**_____.

2) **Gender:** Male ☐ Female ☐

3) **Age:** 20-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61-70 ☐ Over 70 ☐

4) **Income per Month TK:** 30,000-40,000 ☐ 41,000-50,000 ☐ 51,000-60,000 ☐
61,000-70,000 ☐ 71,000-80,000 ☐ 1,000-90,000 ☐ 91,000-100,000 ☐
Over 100,000 ☐

5) **Business Status:** Proprietorship ☐ Pvt. Ltd. Company ☐ Partnership ☐

6) **Possession**: Proprietor ☐ Chairman ☐ Managing Director ☐ Director ☐ Partner ☐

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1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Supplier Loan

1. Supplier Finance Loan is very important for a supplier to keep the working capital active.
   1 2 3 4 5

2. The Supplier Finance Loan amount provided by IDLC is enough for a supplier.
   1 2 3 4 5

3. IDLC charges a fair interest and service rate against the loan.
   1 2 3 4 5

4. IDLC gives their customers enough time to pay all their dues.
   1 2 3 4 5

Customer Performance

5. Strong customer performance is important to maintain a healthy relationship with IDLC.
   1 2 3 4 5

6. Customers have to provide all the needed documents asked by IDLC Finance for factoring service.
   1 2 3 4 5

7. Customers must pay all the dues against the Supplier Finance Loan in case of buyers default.
   1 2 3 4 5

8. Customers should maintain well communication with IDLC Finance to maintain a positive relationship.
   1 2 3 4 5

Effective Guarantor

9. Strong guarantors help to get the Supplier Finance Loan easily.
   1 2 3 4 5

10. Effective Guarantors plays an important role to keep a healthy relationship with IDLC.
    1 2 3 4 5

11. Customer should chose guarantors who will be able to perform all terms and conditions given by IDLC Finance.
    1 2 3 4 5

12. Guarantors must pay all the dues against the Supplier Finance Loan in case of both the buyer and supplier default.
    1 2 3 4 5

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Active Working Capital

13. Are you happy with the amount of Supplier Finance Loan IDLC provide against the application?

1 2 3 4 5

14. Are you interested in doing farther business with IDLC Finance to keep your working capital active?

1 2 3 4 5

15. Fair performance towards IDLC Finance against the loan is very important to keep the working capital active.

1 2 3 4 5

16. Strong and fair performance of the guarantors helps to keep the working capital active.

1 2 3 4 5

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Les Déterminants De La Rentabilité Bancaire: Une Analyse Sur Données De Panel Appliquée Au Cameroun

By Tangakou Soh Robert, Madjou Tatsing Priscille Diane & Mba Fokwa Arsene

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Abstract- Following the bankruptcy experienced by the banking system in the CEMAC sub-region in general and Cameroon in particular the banking system in the 80's, the banks were facing a significant deterioration in their profitability. Thus, it has been important to understand the determinants of profitability. It is in this context, that throughout this work we study the determinants of profitability Cameroonian banks. Determinants selected in accordance with economic theory and empirical studies also with profitability variables include macroeconomic and macro-financial in nature. The econometric approach lies in an analysis of panel data based on a sample of 10 (ten) Cameroonian banks over the period from 2001 to 2010. The key findings emerged from this empirical study show that in terms of return on assets, the size of the bank, liquidity, growth and inflation are positively correlated to it. Capital adequacy, monetary policy and prudential regulation are negatively correlated to it. Terms of return on equity, capital adequacy and prudential regulation positively correlated and the size of the bank, liquidity, economic growth, monetary policy and inflation negatively correlated over the period reference.

Keywords: *determinants; bank profitability; banking system.*

GJMBR - C Classification : *JEL Code : G19*



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Les Déterminants De La Rentabilité Bancaire: Une Analyse Sur Données De Panel Appliquée Au Cameroun

Tangakou Soh Robert [α], Madjou Tatsing Priscille Diane [σ] & Mba Fokwa Arsene [ρ]

Résumé- Suite à la faillite qu'a connu le système bancaire de la sous-région CEMAC en général et du système bancaire camerounais en particulier dans les années 80, les banques se sont trouvées face à une importante dégradation de leur rentabilité. Ainsi, il s'est avéré important d'appréhender les déterminants de leur rentabilité. C'est dans cette optique, que ce papier a pour objectifd'étudier les déterminants de la rentabilité des banques camerounaises. Les déterminants de la rentabilité sélectionnés en conformité avec la théorie économique et également avec les études empiriques comportent des variables de nature macro-économiques et macro-financières. L'approche économétrique utilisée réside dans une analyse de données de Panel en se basant sur un échantillon de 10 (dix) banques camerounaises sur la période allant de 2001 à 2010. Les constats essentiels dégagés de cette étude empirique montrent que s'agissant de la rentabilité des actifs, la taille de la banque, le niveau de liquidité, la croissance et l'inflation lui sont positivement corrélés. L'adéquation du capital, la politique monétaire et la règlementation prudentielle négativement corrélés. Pour ce qui est de la rentabilité des fonds propres, l'adéquation du capital et la règlementation prudentielle positivement corrélés et la taille de la banque, le niveau de liquidité, la croissance économique, la politique monétaire et l'inflation négativement corrélés sur la période de référence.

Mots clés: déterminants, rentabilité bancaire, système bancaire.

Abstract- Following the bankruptcy experienced by the banking system in the CEMAC sub-region in general and Cameroon in particular the banking system in the 80's, the banks were facing a significant deterioration in their profitability. Thus, it has been important to understand the determinants of profitability. It is in this context, that throughout this work we study the determinants of profitability Cameroonian banks. Determinants selected in accordance with economic theory and empirical studies also with profitability variables include macroeconomic and macro-financial in nature. The econometric approach lies in an analysis of panel data based on a sample of 10 (ten) Cameroonian banks over the period from 2001 to 2010. The key findings emerged from this empirical study show that in terms of return on assets, the size of the bank, liquidity, growth and inflation are positively correlated to it. Capital adequacy, monetary policy and prudential regulation are negatively correlated to it. Terms of return on equity, capital adequacy and prudential regulation positively correlated and the size of the bank, liquidity, economic growth, monetary policy and inflation negatively correlated over the period reference.

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Keywords: determinants; bank profitability; banking system.

I. Introduction

Face à la crise financière qu'ont traversée les pays de la CEMAC[1] les autorités monétaires ont opté pour une politique de libéralisation à la fin des années 80. La libéralisation financière a été amorcée en 1990 avec une politique monétaire reposant sur des fondements élaborés dans un cadre institutionnel précis, avec une mise en œuvre guidée par une programmation monétaire. La BEAC[2] a significativement modifié sa politique des taux d'intérêt, ceux-ci ayant relativement augmenté par rapport à la période d'avant crise. Nous avons également vu naître un marché monétaire en juillet 1993, celui-ci ayant effectivement démarré le 1er juillet 1994 avec deux compartiments à savoir le marché interbancaire et le marché monnaie banque centrale.

Dans le système bancaire, l'activité traditionnelle (intermédiation bancaire) consiste à collecter les fonds (dépôts) auprès des agents excédentaires pour les mettre à la disposition de ceux qui sont dans le besoin (prêt). Cette conception classique de la banque a été fragilisée par les nombreuses crises financières qu'elle a traversées. De ce fait ces crises ont conduit à un décloisonnement qui à son tour a conduit à une déspécialisation des activités bancaires et a fait perdre à la banque une partie de ses positions privilégiées.

Quignon (2002), montre que les nouveaux changements dans l'environnement ont eu un effet négatif et ont causé des difficultés aux institutions financières et particulièrement aux banques. Pour faire face à ces changements, des nouvelles technologies ont vu le jour.

Le développement technologique a détruit les barrières existantes entre les différents niveaux de l'économie, d'où l'installation du phénomène de « désintermédiation » via lequel les entreprises se

[1] La CEMAC (Communauté Economique et Monétaire de l'Afrique Centrale) est composée de six pays à savoir le Cameroun, le Gabon, le Congo, la Centrafrique, le Tchad, la guinée Equatoriale.
[2] La BEAC (Banque des Etats de l'Afrique Centrale).

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financent à partir du marché et non auprès des banques. De ce fait les banques ont été obligées de devoir modifier leurs fonctions premières afin de s'adapter aux nouvelles normes de leur environnement. Les banques se sont lancées dans des activités génératrices de revenus et qui sont le plus souvent risquées à savoir la pratique d'arbitrage de taux sur le marché monétaire, la gestion des portefeuilles de titres pour son compte propre et pour le compte de ses clients afin de survivre face à la concurrence.

Après la restructuration des banques au début des années 1990 et la concurrence à laquelle elles font désormais face, de nouveaux indicateurs de performance s'imposent. Dans le cadre des études économiques et financières, certains auteurs tels qu'AryTanimoune (2003), Brahim Mansouri et Saïd Afroukh (2009), se sont intéressés à l'analyse des déterminants de la rentabilité financière dans les pays aussi bien développés que dans les pays sous-développés. Concernant le cas du Cameroun une étude profonde et sérieuse n'a pas encore été pratiquement envisagée. La faillite des banques à la fin des années quatre-vingt peut s'expliquer par le fait que les banques ne savaient pas avec exactitude les déterminants de leur rentabilité. L'objectif de ce papier est de rechercher les déterminants de la rentabilité des banques au Cameroun.

II. Revue De La Littérature

a) *Revue De La Littérature Théorique*

Selon Bourke (1989), Huizinga (1999), Molyneux (1992), les déterminants de la rentabilité bancaire sont de nature interne et externe.

La littérature suggère des facteurs susceptibles d'influencer la rentabilité des banques. Les principaux restent les facteurs de régulation (Jordan, 1992), la taille de la banque et les économies (Beston et Al, 1992 ; Short, 1979), la concurrence (Tschoegl, 1982) la part de marché (Short, 1979) qi sont des facteurs internes. Les taux d'intérêt comme indicateur de faiblesse de capital (Short, 1979), la participation de l'Etat (Short, 1979), l'inflation et la demande de monnaie (Burke, 1989) sont des facteurs externes.

Cependant, des auteurs tels que Fourgon et al (2002) expliquent la rentabilité des banques par d'autres variables liées à l'organisation interne de celles-ci et à la manière avec laquelle elles sont gouvernées.

Caprio et al (2003) recommandent qu'un contrôle plus strict des dirigeants afin de réduire les coûts de l'agence soit spécialement nécessaire dans le secteur bancaire. Koehn et Santomero (1980) ont signalé que la réglementation augmente les besoins en fonds ce qui est de nature à accroître le ratio de capitalisation et à diminuer le risque. Ainsi, il y a possibilité d'association positive entre le ratio de capitalisation et la rentabilité bancaire. Le travail élaboré par Berger (1995) sur les banques américaines et les résultats empiriques de Demirgüç-Kunt et Huizinga(1999) confirment l'existence d'une relation positive entre le ratio de capitalisation et la profitabilité bancaire et les marges d'intérêt nettes.

Selon Guru et al (2002), le comportement de la banque vis-à-vis du risque peut être analysé par l'examen des capitaux et des réserves que la banque a choisi de détenir et de sa politique de gestion de liquidité. En ce sens, les banques ayant des ratios de capitalisation élevés pourraient être considérées relativement plus sures dans le cas d'une perte ou d'une liquidation. Toutefois, les ratios de capitalisation élevés sont supposés être des indicateurs d'un niveau de levier bas, d'un risque plus faible et d'une rentabilité faible.

Du côté du passif, le financement de la banque est assuré par des dépôts à vue, des dépôts d'épargne, et des dépôts à terme. En moyenne, ce type de financement peut entraîner des faibles charges d'intérêt, mais il est coûteux puisque les dépôts nécessitent un nombre élevé de succursales et d'autres dépenses.

Ho et Saunders (1981), ont établi un modèle de base, reconnu sous le nom d'un modèle théorique d'une firme (afirm-theoritical model), qui représente une banque averse au risque et fait face à des risques liés à l'incertitude de financement ou de l'octroi de crédits. Le but de ce modèle est de donner une structure simple pour caractériser les facteurs de risque qui influencent la détermination des marges d'intérêt nettes. Les extensions de ce modèle, effectuées par Allen (1988), Zarruk (1989), Zarruk et Madura (1992), Angbazo (1996) et Wong (1997) s'installent dans l'affiliation des travaux de Ho et Saunders (1981) pour inclure d'une part, le risque de défaut ou de crédit et son interaction avec le risque de taux d'intérêt ; et d'autre part des facteurs tels que le risque de dépôt, la taille, la spécialisation. Allen (1988) a reproduit le modèle de Ho et Saunders (1981) pour inclure les dépôts et les emprunts hétérogènes et a énoncé que les marges d'intérêt pures ont été réduites suite à la diversification des produits.

b) *Revue de la Littérature empirique*

Nous distinguons les déterminants tant internes qu'externes.

Parmi les déterminants internes de la banque nous pouvons citer: le rôle de la gouvernance (contrôle de gestion, contrôle interne et les audits), le niveau de liquidité, la taille de la banque, l'adéquation du capital, la qualité du portefeuille.

D'après Ghazi Louizi[3], les mécanismes internes de gouvernance des banques: «jouent un rôle prépondérant pour combler ces insuffisances et

[3] Ghazi LOUIZI, « les mécanismes internes de la gouvernance bancaire : importance et interactions ; application aux banques tunisiennes », p 4

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agissent selon le contexte spécifique de la banque ». La rentabilité de la banque est déterminée en fonction du travail fourni par le conseil d'administration. Le conseil d'administration délègue des auditeurs afin de vérifier les opérations bancaires s'effectuent dans la régularité. Ainsi de ce fait si le conseil d'administration fait bien son travail nous verrons la rentabilité des banques s'améliorer.

Des auteurs obtiennent des résultats plus conformes à ce que l'on pourrait penser, tels Berger et Bouwman (2009), qui expliquent en détail l'impact positif de la liquidité sur la valeur des banques. Certes, ils n'ont pas étudié l'impact sur la performance, ce qui explique peut-être ces résultats à l'opposé de la littérature existante, mais leur raisonnement mérite d'être précisé ici. Ces auteurs avancent l'argument qu'une banque avec un ratio élevé de prêts sur ses actifs pourrait être moins bien armée en cas de survenance d'événements de crise imprévus. En outre, cette banque risque davantage de connaître des pertes importantes si une vente d'urgence (et donc bradée) des actifs est nécessaire pour combler les besoins de liquidité. La crise financière actuelle, qui est notamment une crise de liquidité, est un exemple ô combien parlant qui va dans le sens des deux auteurs.

Comme indiqué, les autres auteurs qui se sont penchés sur l'impact de la liquidité sur la rentabilité des banques (et non sur la valeur) du ratio prêts sur actifs découvrent une relation positive. Nous pouvons ainsi citer Miller (1997) ou Abreu et Mendes (2002), ces derniers ayant examiné le cas des banques portugaises, espagnoles, françaises et allemandes.

Short (1979), Smirlock (1985), Bikker et al. (2002) et Pasiouras et al. (2007) trouvent qu'une taille importante de la banque permet de réduire les coûts en raison des économies d'échelle que cela entraine. Les banques de taille importante peuvent en outre lever du capital à moindre coût.

Stiroh et al. (2006) montrent les effets négatifs de la taille et soulignent que plus une banque est grande, plus elle est difficile à gérer. En outre, les auteurs rappellent que la taille peut résulter d'une stratégie de croissance agressive, obtenue au détriment des marges et de la performance. Dans la même veine, Kasman (2010), trouve un impact statistiquement significatif et négatif de la taille sur la marge nette sur les intérêts (Net interestmargin) en regardant un panel de 431 institutions bancaires dans 39 pays.

De Jonghe (2010) conclut que les petites banques sont davantage capable de résister à des conditions économiques difficiles, tandis que Barros et al. (2007) affirment que les petites banques ont plus de chance d'obtenir de bonnes performances et moins de chances d'obtenir des performances mauvaises. Inversement, les grandes banques ont moins de chance d'obtenir de bonnes performances et plus de chance d'obtenir de mauvais résultats. De nombreux autres auteurs, tels Berger et al (1987) répondent à l'argument sur les économies d'échelle et rétorquent que peu de coûts peuvent être réduits simplement par l'augmentation de la taille. Enfin, les auteurs du troisième groupe ne relèvent pas d'impact statistiquement significatif de la taille sur les performances des banques. Il en est ainsi de Goddard et al (2004), Micco et al (2007) et Athanasoglou et al (2008).

D'après Markorwitz (1952), chaque investisseur devrait améliorer sa rentabilité tout en réduisant le risque. Et de ce fait tout investisseur devrait diversifier son portefeuille car un bon investisseur ne devrait pas mettre tous ses œufs dans un même panier.

En plus des facteurs internes, on distingue des facteurs externes qui influencent la rentabilité des banques. Nous pouvons notamment citer la croissance économique, l'inflation, la réglementation prudentielle, la concurrence et la politique monétaire.

Le terme « croissance économique » désigne l'augmentation du volume de la production des biens et services d'une année sur l'autre (Bastiat, 1850).

Plusieurs auteurs confirment à l'unanimité l'existence d'une relation positive entre la croissance économique et la croissance des profits bancaires (Mansouri et Afroukh, 2008). A leurs avis, la richesse nationale a un impact sur toute l'activité économique du pays. Elle affecte positivement l'évolution du secteur bancaire et incite les banques à innover et rénover leurs techniques et technologies de gestion. La croissance économique du pays a d'importantes incidences positives à long terme, sur la performance des secteurs d'activités, y compris le secteur bancaire. Ainsi au Maroc d'après l'étude de Mansouri et Afroukh (2008), à court terme, une croissance du PIB réel par tête de 1% induirait une amélioration de la profitabilité bancaire de 0,077 point de pourcentage des actifs à court terme, soit l'équivalent de 0,85 point de pourcentage des actifs à long terme.

Le premier auteur à se pencher sur la question de l'inflation fut Revel (1979). Il montra que l'impact sur la performance dépend en fait du rythme de la croissance des dépenses opérationnelles : si ces dépenses augmentent plus vite que l'inflation, il trouve un impact négatif sur la performance. Si au contraire le rythme de la croissance de ces dépenses est moindre, il trouve un impact positif.

En se basant du modèle élaboré par Revel (1979), Perry (1992) affine l'analyse en introduisant la notion d'anticipation : si l'inflation est totalement anticipée alors elle peut être répercutée sur les prix ex-ante, et cela améliore la performance. Si au contraire elle n'est pas anticipée, les coûts vont augmenter plus rapidement que les prix et l'impact de la performance sera négatif.

De nombreux autres auteurs se sont intéressés à l'inflation et ont trouvé un impact positif et

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statistiquement significatif. Il en est ainsi de Bourke (1989), Molyneux et Thornton (1992), Demirgüç-Kunt et Huizinga (1999), Athanasoglou et al (2008) ;Pasiouoras et Kosmidou (2007).

Deux études aboutissent toutefois à un résultat opposé : celles d'Afanasieff et al (2002) et celle de Ben Naceur et Kandil (2009). Elles concluent que l'inflation influe négativement sur les marges d'intérêts. Ben Naceur et Kandil proposent l'explication suivante : l'activité principale des banques (surtout commerciales) est l'octroi de crédit. Le marché repose donc sur une offre de crédit (fournie par les banques), et une demande (celle des particuliers et des entreprises). L'inflation réduirait la demande de crédit, parce qu'elle augmente l'incertitude sur l'avenir. Or il a été prouvé que les particuliers et les entreprises, si leur degré d'aversion au risque varie, sont très généralement averses à l'incertitude (ambiguïté-aversion). Cette chute de la demande entraînerait une baisse des crédits et donc une baisse de la rentabilité.

Nous ne sommes pas convaincus par cette argumentation, car le crédit est plutôt recherché en temps d'inflation, car il est alors plus facile de le rembourser. Si effectivement l'inflation a un impact négatif sur la performance (ce qui n'est pas garanti au regard des études divergentes sur ce sujet), nous pensons davantage avec Abreu et Mendes (2003) que cela est dû à un ajustement des revenus plus lent que celui des coûts. Nous rejoignons alors l'idée développée par Pery (1992) : tout est question d'anticipation.

A travers le droit qu'ont les déposants d'exiger lorsqu'ils le souhaitent et sans préavis le retrait des fonds qu'ils ont déposé auparavant, les banques sont soumises au risque de retrait qui non seulement peut les rendre vulnérables mais également les mener à la faillite car la fuite des dépôts est la forme la plus redoutable de risque de système que peuvent subir les banques (Diamond, 1983).

Or la faillite d'une banque, dont les conséquences sur le système financier peuvent être néfastes compte tenu des effets de domino et de contagion, peut entrainer des externalités négatives sur la sphère réelle et déstabiliser toute l'activité économique. Conformément à Thakor (1996) il en résulte non seulement une augmentation du chômage, mais aussi cette faillite entraine du fait de la perte des informations accumulées par les intermédiaires financiers sur les déposants et les emprunteurs, un coût social important lié à la rupture des relations de crédit, ce qui est de nature à provoquer un renchérissement du coût de l'intermédiation.

Les technologies de l'information constituent également un moyen de réduction des coûts de transaction de l'activité bancaire (Muldur, 1993). L'innovation financière avec l'avènement des Nouvelles Technologies de l'Information et de la Communication a permis l'évolution des différents taux d'intérêt et des prix, la présence des Distributeurs Automatiques de Billets (DAB) qui évitent d'avoir les longues files d'attente devant les guichets et d'accéder aux fonds 24h/24, ces DAB sont présents pratiquement dans toutes les villes du Cameroun, le facteur proximité étant un atout qui permet aux banques de fidéliser leur clientèle.

En définitive, nous constatons que la concurrence est atout majeur pour les banques car elle permet aux banques de proposer des services et produits de meilleure qualité.

Selon Ragan(2005), la politique monétaire est définie comme étant l'ensemble des décisions qu'un gouvernement prend habituellement par l'entremise de sa banque centrale, relative à la quantité de monnaie en circulation dans une économie. La politique monétaire est une composante de la politique économique générale, et telle que, ses objectifs visés sont en principe ceux de la politique économique : il s'agit de l'inflation modérée, la croissance économique, du plein emploi et de l'équilibre extérieur. La mobilisation des instruments de politique monétaires pour atteindre ces objectifs modifie aussi la rentabilité bancaire.

III. Methodologie

Les données que nous allons utiliser dans la suite de notre travail sont des données relatives aux dix banques qui étaient présentes dans le système bancaire camerounais en 2010. Les données couvrent la période allant de 2001 à 2010. Nous avons veillé de manière particulière à la continuité temporelle des données par banques. De plus les informations concernant les caractéristiques principales sont collectées à partir des rapports d'activités annuelles rédigés par la COBAC, organisme de contrôle, de surveillance et de supervision des banques, des établissements de crédit et des établissements de micro finance dans la sous-région.

a) Les variables

Nous travaillons avec un modèle de régression à deux équations indépendantes, qui comportent chacune une variable endogène et plusieurs variables exogènes. Nous présenterons tour à tour les variables dépendantes et les variables indépendantes.

i. *Variable endogène*

Les variables dépendantes retenues expliquant la rentabilité des banques camerounaises sont celles de la rentabilité bancaire. Il s'agit de deux variables quantitatives. La première variable est exprimée par le taux de résultat net à l'actif total, il s'agit du ROA (Return on asset). Quant à la seconde variable, c'est le rendement des fonds propres exprimé par le rapport du résultat net sur les fonds propres, il s'agit du ROE (Return on equity).

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a. *Variables exogènes*

Nous allons distinguer deux types de variables à savoir d'une part les variables internes à la banque et d'autres parts les variables externes à la banque.

Les variables internes à la banque

- La taille de la banque(TSB)

Cette variable est utilisée dans plusieurs études telles que MaketOng (1999), Godard (2001) puis par Fernandez et Arrondo (2002). Elle a également été utilisée par Kwan (2003) qui a trouvé que la taille de la banque a un effet positif et significatif sur sa profitabilité suggérant l'existence d'économies d'échelles. Il confirme ce résultat en distinguant entre les banques cotées et les banques non cotées. D'autres auteurs tels que Boyd et Runk (1993), Pinteris (2002) enfin Adams et Mehran (2003) trouvent également que la performance est associée positivement à la taille de la banque. En se basant sur ces résultats, nous supposons que dans cette étude la taille de la banque devrait influencer positivement la rentabilité des banques. Une banque peut élargir sa part de marché si ces produits sont différenciés de ceux de ses concurrents. Nous nous attendons à une relation positive et significative entre cette variable et la rentabilité des banques camerounaises.

- L'adéquation du capital(ADC)

Au fil des ans nous avons vu le capital social des banques augmenter passant de 5 milliards en juin 2010 à 7,5 milliards en juin 2012 et enfin à 10 milliards en juin 2014. Nous voyons en cette augmentation progressive du capital social des banques dans la sous-région CEMAC un moyen très efficace d'éviter la faillite bancaire. De plus cette augmentation du capital va permettre aux banques d'octroyer d'avantage des crédits aux agents économiques en difficulté, ces crédits vont permettre aux banques d'améliorer leurs marges bénéficiaires si ils sont sains et correctement remboursés. Ainsi nous nous attendons à une relation positive et significative entre l'adéquation du capital e la rentabilité des banques camerounaises.

- *Le niveau de liquidité (NDL)*

Dans l'environnement économique camerounais, nous constatons que les banques sont relativement sur-liquides. Les banques étant considérées comme des intermédiaires financiers. Ils jouent le rôle d'intermédiaire entre les emprunteurs et les prêteurs. Plus les dépôts sont transformés en prêts, plus les marges d'intérêt et les profits s'élèvent. Conformément aux apports théoriques, la politique de crédit procure aux banques camerounaises plus de marges d'intérêt. Le ratio de liquidité, calculé en rapportant les emplois (crédits) à moins d'un mois aux ressources (dépôts) à moins d'un mois, reste toujours supérieur à 100 % voire à 140 %, ce qui montre que les banques camerounaises ont pu faire face aux demandes de remboursement des déposants. En conséquence, la maîtrise de la politique de dépôts devrait normalement aider la banque à augmenter ses profits telle était la conclusion des auteurs à l'instar de Moulneux et Thorton (1992) et Ben Naceur (2003). Abreu et Mendes (2002) ont estimé que la profitabilité et le ratio des emplois mesuré par le rapport crédits / dépôts entretiennent une relation positive, confirmant ainsi la complémentarité entre les politiques de crédits et les dépôts bancaires.

Naturellement le niveau de liquidité n'aura un effet positif sur la rentabilité des établissements de crédit que si celle-ci est judicieusement utilisée notamment par des emplois sains tant sn crédits qu'en placement sur le marché interbancaire ou financier.

Les variables externes à la banque

- La croissance économique (CRE)

La croissance économique, du fait de son effet stimulant sur la richesse nationale est supposée être favorable à l'amélioration de la rentabilité bancaire. La croissance économique en s'intensifiant, permet de canaliser des ressources financières en provenance des ménages et des entreprises et développe les transactions avec les institutions bancaires. La croissance économique du pays a d'importantes incidences positives à long terme, sur les secteurs d'activités, y compris le secteur bancaire. La richesse accumulée grâce à la croissance économique incite à consommer, à épargner et à investir davantage ce qui implique une augmentation des profits et des marges bancaires. Plusieurs auteurs tels que Bashir (2000), Rouabah (2006) et Beckmann (2007) ont confirmé à l'unanimité l'existence d'une relation positive entre la croissance économique et la croissance des profits bancaires. A leur avis, la richesse nationale profite à toute l'activité économique du pays, affecte positivement l'évolution du secteur bancaire et incite les structures bancaires à innover et à rénover leurs techniques et technologies de gestion.

En phase de croissance, nous pensons que les anticipations des entrepreneurs pour la demande sont positives et les incitent à investir ; ce qui les amène à solliciter des concours bancaires pour mettre en place les nouveaux matériels de production et accroissent ainsi les encours de crédit bancaire. Ainsi les marges d'intérêts s'accroissent en même temps que le produit net bancaire. Il en découle un effet positif de la croissance sur la rentabilité des banques.

- *L'inflation (INF)*

L'inflation en tant que variable macroéconomique semble affecter positivement le rendement des actifs des banques. L'inflation est associée à l'extension et à la surévaluation des charges bancaires, mais ces charges sont souvent allégées grâce aux crédits octroyés. D'après Demirgüç-Kunt et

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Huizinga (1999) une augmentation du taux d'inflation pourrait avoir une répercussion positive sur la marge nette d'intérêts et donc sur la rentabilité des banques. Nous pouvons penser que la relation entre l'inflation et les établissements de crédits camerounais pourrait être positive.

➢ *La politique monétaire (POM)*

La politique monétaire est l'ensemble de décisions que prend un gouvernement sous l'entremise de sa banque centrale, relativement à la quantité de monnaie en circulation dans l'économie. La masse monétaire est l'objectif quantitatif le plus surveillé. Nous avons également les taux d'intérêt comme instruments essentiels de la politique monétaire. Nous pouvons mesurer l'impact indirect de la politique financière à partir du taux d'escompte réel. D'après AryTanimoune (2003) dans le cadre de la libération financière, le signe attendu du taux d'escompte réel est négatif car en supposant toutes choses égales par ailleurs, la baisse du taux d'escompte devrait permettre à la banque de réduire le coût moyen des capitaux empruntés sur le marché monétaire, ce qui semble affecter positivement mais de manière non significative les marges bancaires du point de vue de la politique de taux d'intérêt menée par les autorités monétaires de la zone UEMOA.

➢ *La réglementation prudentielle (RGP)*

Suite à la faillite des établissements de crédit dans les années 80, nous avons vu naître la COBAC en 1990 organisme chargé de contrôler, superviser et réglementer les banques dans la sous-région Afrique Centrale. Cette institution a décidé d'instituer les réserves obligatoires aux banques en 2001. Ces réserves sont calculées sur les dépôts des banques en fonction des coefficients fixés pour chacun des pays par la commission bancaire. Actuellement ils se chiffrent au Cameroun à 9,25% pour les dépôts rémunérés et 11,75% pour les dépôts non rémunérés. Les fonds ainsi prélevés sont gardés gelés à la banque centrale et chaque banque présente dans la CEMAC se trouve obligée de s'accommoder à la réglementation. Dans la mesure où ces sommes coûtent tout au moins des frais de collecte et ne peuvent être utilisées pour accorder des crédits, nous pouvons en déduire que la réglementation pourrait avoir un impact négatif sur la rentabilité des banques. Par ailleurs, l'objectif de la règlementation étant d'avoir un système bancaire solide elle devrait pouvoir entrainer des effets positifs sur la rentabilité globale.

b) Spécification du modèle

La démarche économétrique que nous avons épousée est celle des techniques d'analyse des données de PANEL combinant les effets temporels et individuels, ce qui permet d'augmenter le nombre d'observations. Les données statistiques que nous allons utiliser sont des données aux dix banques qui étaient présentent dans le système bancaire camerounais durant la période allant de 2001 à 2010 soit dix années.

Dans le cadre de notre travail, nous utiliseront les données individuelles (10 banques) et des données temporelles (10 années) en les combinant nous aurons ($10 \times 10 = 100$) un total de 100 observations.

Conformément aux développements précédents dans la littérature théorique et empirique la rentabilité bancaire est mesurée à l'aide de deux outils traditionnels à savoir le ROE et le ROA.

Pour l'estimation de la fonction de la rentabilité des banques au Cameroun, nous adoptons la même démarche et les mêmes spécifications économétriques que Samy Ben Naceur (2003). Ce choix s'explique par la quasi-ressemblance des deux économies en matière de prédominance économique du secteur bancaire.

Le modèle utilisé pour estimer le degré d'influencer des déterminants sélectionnés sur la rentabilité bancaire au Cameroun peut s'exprimer sous la forme suivante :

$$\boldsymbol{Per_{it} = f(CB_{it} + M_t + SF_t)}$$

$$\begin{Bmatrix} \forall\ \boldsymbol{i} \in [\mathbf{1}, \quad \mathbf{10}] \\ \forall\ \boldsymbol{t} \in [\mathbf{1}, \mathbf{10}] \end{Bmatrix}$$

Où:

Per_{it} mesure la performance alternative pour la banque i durant la période t (ROA_t ou ROE_t)

CB_{it} représente la matrice des variables déterminant les caractéristiques internes des banques pour la banque i et pour la période t (TSB_{it}, ADC_{it}, NDL_{it})

M_t est considérée comme la matrice des variables représentant le contexte macro-économique commun à toutes les entreprises bancaires (CRE_t, INF_t)

SF_t est la matrice des indicateurs qui mesurent la structure macro-financière commune à toutes les banques en période t (POM_t, RGP_t).

En procédant ainsi, nous estimons la fonction de rentabilité bancaire en deux étapes à savoir en premier lieu nous estimons la rentabilité bancaire exprimée par le ratio de rentabilité des actifs (ROA) et en second lieu la rentabilité bancaire sera une fois de plus exprimée par le ratio de rentabilité des actionnaires (ROE).

Les spécifications linéaires peuvent être alors formulées comme suit :

S'agissant du ROA on a,

$$\boldsymbol{ROA_{it} = c_i + \alpha_{1t} TSB_{it} + \alpha_{2t} ADC_{it} + \alpha_{3t} ADC_{it} + \alpha_{4t} CRE_{it} + \alpha_{5t} INF_{it} + \alpha_{6t} POM_{it} + \alpha_{7t} RGP_{it} + \varepsilon_{it}}$$

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S'agissant du ROE on a,

$$ROE_{it} = c_i + \alpha_{1t}TSB_{it} + \alpha_{2t}ADC_{it} + \alpha_{3t}NDL_{it} + \alpha_{4t}CRE_{it} + \alpha_{5t}INF_{it} + \alpha_{6t}POM_{it} + \alpha_{it}RGP_{it} + \varepsilon_{it}$$

ε_{it}est le terme d'erreur ou aléa, représentant les informations qui auraient été négligées pendant la collecte des données. Sa forme de base est donnée par :

$$\varepsilon_{it} = U_i + V_t + W_{it}$$

Où U_i désigne un terme constant au cours de la période ne dépendant que de l'individu i, V_t un terme ne dépendant que de la période t, W_{it} un terme aléatoire croisé.

Tableau 1 : Récapitulatif des signes attendus

Variables explicatives	Mesures des variables	Variables expliquées	
		ROA	ROE
		Signes attendus	
TSB	Total des crédits	+	+
ADC	Capitaux propres	+/-	+/-
NDL	Total des dépôts	+/-	+/-
CRE	PIB	+	+
INF	Inflation	+/-	+/-
POM	Masse monétaire	+/-	+/-
RGP	Réserves obligatoires	+/-	+/-

IV. Presentation Des Resultats

Dans cette section, nous allons de prime abord vérifier la stationnarité de nos variables (vérifier si les séries évoluent à un taux constant) et d'autres parts nous allons vérifier si le modèle est à effet fixe ou un modèle à effet aléatoire et ceci se fera à travers le test de Hausman.

a) Résultats du test de racine unitaire

Le test de racine unitaire ou encore le test de stationnarité permet de vérifier la stationnarité des variables. Nous avons fait recours au test de Phillips-Perron en données de panel afin vérifier la stationnarité des deux (02) variables dépendantes et des sept (07) variables indépendantes que nous avons choisi dans le cadre de notre travail.

Dans le cadre de la stationnarité, nous allons émettre deux hypothèses à savoir :

H0 : Absence de stationnarité
H1 : Présence de stationnarité

Si la probabilité est inférieure (<) seuil de signification (5 %), accepter H1.

Si la probabilité est supérieure (>) seuil de signification (5 %), rejeter H1.

La synthèse de ces résultats est représentée dans le tableau 2 ci-dessous.

Tableau 2 : Tableau de stationnarité

Variables	Probabilité	Décision sur la stationnarité
ROA	0,0000	OUI
ROE	0,0000	OUI
TSB	0,0000	OUI
ADC	0,0000	OUI
NDL	0,0000	OUI
CRE	0,0000	OUI
INF	0,0000	OUI
POM	0,0000	OUI
RGP	0,0001	OUI

Source : Tests effectués par l'auteur

b) Résultats du test de Hausman

Ce test permet de discriminer entre le modèle à effet fixe et le modèle à effet aléatoire.

Nous posons deux hypothèses à savoir :

H0 : modèle à effet fixe
H1 : modèle à effet aléatoire

Afin de conclure si le modèle est à effet fixe ou à effet aléatoire, nous allons comparer la probabilité au seuil de significativité (si la probabilité est supérieure au

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seuil de significativité alors le modèle est à effet aléatoire, dans le cas contraire il est à effet fixe).

Nous avons Probabilité < seuil de significativité c'est-à-dire 1 < 0,05, d'où nous pouvons conclure que le modèle est à effet aléatoire (confère annexe I).

c) Estimations

Suite aux différents tests effectués plus haut, nous avons constaté un modèle à variables individuellement et globalement stationnaires, un modèle à effet aléatoire. Ainsi, nous allons ressortir les déterminants sur la rentabilité des banques camerounaises.

i. *Les déterminants de la rentabilité des banques camerounaises en tant que ROA*

Tableau 3 : Régression du ROA sur les déterminants internes et externes de la rentabilité bancaire des banques camerounaises.

```
. xtreg roa tsb adc ndl cre inf pom rgp, re

Random-effects GLS regression                   Number of obs      =       100
Group variable: i                               Number of groups   =        10

R-sq:  within  = 0.0000                         Obs per group: min =        10
       between = 0.0000                                        avg =      10.0
       overall = 0.7119                                        max =        10

                                                Wald chi2(7)       =    227.34
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
tsb	.0128177	.0044455	2.88	0.004	.0041046	.0215308
adc	-.0000897	.0000328	-2.74	0.006	-.0001539	-.0000255
ndl	-4.18e-06	6.63e-06	-0.63	0.528	-.0000172	8.81e-06
cre	.7987456	.2658611	3.00	0.003	.2776674	1.319824
inf	.5104517	.0881293	5.79	0.000	.3377214	.683182
pom	-2.798779	10.09816	-0.28	0.782	-22.5908	16.99324
rgp	-.0000144	.0000201	-0.72	0.472	-.0000537	.0000249
_cons	76.22288	251.6931	0.30	0.762	-417.0865	569.5322
sigma_u	0					
sigma_e	1.3398056					
rho	0	(fraction of variance due to u_i)				

Source : Estimation de l'auteur

Afin de vérifier la significativité des différentes variables, nous allons comparer la probabilité de chaque variable au seuil de signification (5%), si la probabilité est supérieure au seuil, la variable est significative et dans le cas contraire elle ne l'est pas. En ce qui concerne l'effet positif ou l'effet négatif de la variable, nous étudions le signe qui est devant le coefficient (représenté dans le tableau par coef).

D'après le tableau ci-dessus, nous pouvons constater que :

- La taille de la banque (TSB) a une influence positive et significative avec la rentabilité des établissements de crédits camerounais au seuil de 5%. Ce signe positif concorde avec nos attentes. Ce résultat va dans le même que les résultats trouvés par certains auteurs tels que Fernandez et Arrondo (2002),

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Adams et Mehran (2003) et Kwan (2003) qui trouvent que la taille de la banque a un effet positif sur sa profitabilité tout en suggérant les économies d'échelle.

- L'adéquation du capital (ADC) et la rentabilité des actifs évoluent dans le sens contraire. Autrement dit l'adéquation du capital a une incidence négative et significative avec la rentabilité des actifs. Nous nous attendons à un signe soit négatif, soit positif. Nous avons plutôt un signe négatif, ce qui signifie que la disponibilité d'importantes ressources propres se traduiraient plutôt par des emplois pas toujours opportuns (octroi exagéré des crédits ou investissements lourds trop importants de la part des établissements de crédit) ; ce qui affecterait négativement la rentabilité des actifs.
- Concernant le niveau de liquidité (NDL), nous constatons que la relation qui existe entre celle-ci et la rentabilité des actifs est négative et non significative. Nous sommes prononcés plus haut du côté de la neutralité du signe c'est-à-dire qu'il peut être soit positif, soit négatif. Cette négativité du signe peut s'expliquer par le fait que les banques disposent d'importantes ressources oisives car le marché interbancaire est peu dynamique (la plupart des banques sont sur-liquides) et les opportunités de placements sur le marché monétaire sont réduites (les appels d'offres négatifs de la BEAC offrent des taux d'intérêt très bas autour de 0,35% l'an), malgré le fait qu'elles utilisent désormais une partie de leur liquidité pour faire des placements boursiers (obligations du trésor) sur le DSX dont l'objectif majeur est de rentabiliser d'avantage. Elles se retrouvent finalement en train de rémunérer des ressources dont elles ne peuvent pas forcément rentabiliser les emplois de manière efficace.
- La croissance économique (CRE) nous montre que la croissance du secteur réel de l'économie camerounaise a un impact positif et significatif sur la rentabilité des établissements de crédit camerounais. Ce résultat ne nous surprend pas car lorsqu'une économie est performante, la demande de crédit s'accentue que ce soit du côté des investisseurs que du côté des consommateurs et ainsi les mages sur intérêts augmentent et l'amélioration de la rentabilité bancaire s'en suit également. Nos résultats concordent avec les résultats trouvés par Mansouri et Afroukh (2008) qui admettent l'existence d'une relation positive entre la croissance économiques et la croissance des profits bancaires. Les résultats de Demirgüç-Kunt vont dans le même sens que ceux trouvés plus hauts.
- L'inflation (INF) quant à elle, nous montre l'existence d'une relation positive et significative entre celle-ci et la rentabilité globale des établissements de crédit camerounais. Cette relativité positive ne nous surprend pas car elle corrobore les conclusions de Demirgüç-Kunt (1999) pour qui une augmentation de l'inflation doit avoir une répercussion positive sur la marge nette d'intérêts et donc sur la performance bancaire.
- La politique monétaire (POM) influence de manière négative et non significative la rentabilité des établissements de crédit. Le signe que nous avons trouvé ne nous surprend pas car nous avons opté pour une neutralité de signe. Dans le cadre de notre travail, nous avons lié politique monétaire et la masse monétaire. Nous constatons que la diminution de la quantité de monnaie en circulation due à une politique monétaire restrictive mise en œuvre pour éradiquer l'inflation diminue la quantité de crédit distribué ; ce qui affecte négativement la rentabilité des établissements de crédit camerounais.
- Concernant la réglementation prudentielle (RGP), la relation existant entre celle-ci et la rentabilité des établissements de crédit camerounais est à la fois négative et non significative. Le résultat trouvé ne nous surprend pas car nous avons opté pour une neutralité de signe. La réglementation prudentielle dans notre travail s'applique a travers les réserves obligatoires. La fixation d'un coefficient de réserves obligatoires élevé se traduit par la diminution de l'encours des dépôts pouvant servir à accorder des crédits. Ce qui décourage les nouveaux investisseurs dans le secteur bancaire et affecte négativement la marge d'intérêts d'où un effet négatif sur la rentabilité bancaire.

Après avoir étudié le cas du ROA, nous allons maintenant étudier l'effet des déterminants internes et externes lorsque la rentabilité des établissements de crédit camerounais est mesurée par le ROE.

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ii. *Les déterminants de la rentabilité des banques camerounaises en tant que ROE*

Tableau 4 : Régression du ROE sur les déterminants de la rentabilité des banques camerounaises

```
. xtreg roe tsb adc ndl cre inf pom rgp, re

Random-effects GLS regression                   Number of obs      =       100
Group variable: i                               Number of groups   =        10

R-sq:  within  = 0.0000                         Obs per group: min =        10
       between = 0.0000                                        avg =      10.0
       overall = 0.8032                                        max =        10

                                                Wald chi2(7)       =    375.57
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

roe	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
tsb	-.0035345	.0010067	-3.51	0.000	-.0055075	-.0015615
adc	3.87e-06	7.42e-06	0.52	0.602	-.0000107	.0000184
ndl	1.96e-06	1.50e-06	1.30	0.192	-9.86e-07	4.90e-06
cre	-.1633163	.0602022	-2.71	0.007	-.2813104	-.0453221
inf	-.096794	.0199562	-4.85	0.000	-.1359075	-.0576806
pom	-.9216885	2.286649	-0.40	0.687	-5.403439	3.560062
rgp	.0000109	4.54e-06	2.40	0.017	1.98e-06	.0000198
_cons	24.77517	56.99395	0.43	0.664	-86.93091	136.4812
sigma_u	0					
sigma_e	.3033886					
rho	0	(fraction of variance due to u_i)				

Source : Estimation de l'auteur

A partir du tableau 12 ci-dessus, nous pouvons énumérer les commentaires suivants :

- Concernant la taille de la banque (TSB) nous pouvons dire que la relation existant entre celle-ci et la rentabilité des établissements de crédit est négative et significative. Nous sommes surpris par ce résultat car l'accroissement de la taille de la banque améliore la rentabilité bancaire. Néanmoins ce résultat corrobore avec ceux trouvés par Saïd et Afroukh (2003) qui stipulent que la taille du secteur bancaire marocain n'est pas favorable à l'augmentation des profits bancaires tout en suggérant qu'en général les économies d'échelle ne sont pas favorables à l'augmentation de la profitabilité bancaire.
- L'adéquation du capital (ADC) présente une relation positive et non significative avec la rentabilité des banques camerounaises. Nous avons opté pour une neutralité du signe. Nous pouvons expliquer cette positivité par le fait que les banques qui disposent d'importantes ressources peuvent accorder des prêts à leurs clients et effectuer des placements rentables d'où l'amélioration de la rentabilité des fonds propres.
- La relation liant le niveau de liquidité (NDL) à la rentabilité des établissements de crédit camerounais est positive et non significative. Cette positivité du signe n'est pas étrange car nous nous sommes prononcés du côté de la neutralité de signe. Nous expliquons cette relation positive par le fait que les banques utilisent leur liquidité pour faire des placements ou encore pour effectuer des prises de participations dans les entreprises, ainsi elles voient leur rentabilité s'améliorer.
- La croissance économique (CRE) du pays présente d'importantes incidences négatives et à long terme sur la performance des secteurs d'activités, y compris le secteur bancaire. Nous avons prédit un signe positif car nous avons pensé qu'une augmentation de la croissance économique aurait un impact positif sur le revenu national et par conséquent sur l'activité bancaire. Il semble que les banques camerounaises n'ont pas profité de la

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restructuration de l'économie par des politiques de réformes structurelles du secteur et de l'introduction des nouvelles techniques et technologies en vue d'améliorer le niveau de bancarisation qui est encore à un niveau relativement faible. Ce résultat va dans le même sens que ceux trouvés par Demirguç- Huizinga (1999) qui stipulent que la croissance économique a un impact négatif sur la profitabilité des banques.

- S'agissant de la variable taux d'inflation (INF), nous constatons que la variable est négative et significative. Le signe obtenu nous surprend car nous attendions un effet positif. Mais en réalité lorsque le taux d'inflation augmente la rentabilité des banques s'accroit. Nous expliquons ce résultat par le fait que la hausse du taux d'inflation induit une politique monétaire restrictive avec des taux d'intérêts plus élevés; ce qui entraine l'accroissement des marges sur intérêts des crédits bancaires et par conséquent améliore leur rentabilité.
- La politique monétaire (POM) quant à elle nous montre l'existence d'une relation négative et non significative entre celle-ci et la rentabilité des banques camerounaises. Ce signe ne nous surprend pas car & nous avons porté notre choix sur la neutralité de signe. Nous pouvons expliquer ceci par le fait qu'une réduction de la quantité de monnaie en circulation pénalise les banques et ainsi n'améliore pas leur rentabilité.
- La relation existant entre la rentabilité des établissements de crédit camerounais et la réglementation prudentielle (RGP) est à la fois positive et significative. La neutralité de signe a été notre choix. Le signe positif peut s'expliquer par le fait que l'augmentation progressive des réserves obligatoires de la part de la COBAC réduit les chances d'une banque de se retrouver en situation de faillite et de ce fait améliore également leur rentabilité.

d) Test de validation des estimations

i. Le test d'hétéroscédasticité

Le test d'hétéroscédasticité de Breusch- Pagan nous indique si nous allons valider les variables ou non et de plus il permet d'affirmer ou d'infirmer la crédibilité de la régression.

Nous allons émettre deux hypothèses à savoir :

H0 : Absence d'hétéroscédasticité
H1 : Présence d'hétéroscédasticité

Pour conclure, si la probabilité est supérieure (<) au seuil de significativité on accepte H0. Dans notre cas, nous avons (1) < (0,05) d'où nous pouvons conclure que le modèle est homoscédastique (Confère annexe 2).

ii. *Le test d'autocorrélation de Wald*

Le test de Waldpermet de vérifier l'autocorrélation d'ordre 1. Il teste l'absence d'autocorrélation à l'hypothèse nulle contre une hypothèse alternative qui suppose une autocorrélation d'ordre 1.

Nous allons émettre deux hypothèses à savoir :

H0 : Absence d'autocorrélation
H1 : Présence d'autocorrélation

En prenant en compte le facteur d'autocorrélation de premier ordre AR(1), on se rend compte que le modèle devient moins bon à cause du coefficient de détermination (R2) qui diminue et également à cause du nombre de variables significatives. Par ailleurs, en comparant les statistiques calculées de Wald, 227,34>39,57 ; 375,57>70,64 respectivement pour le ROA et le ROE, on se rend bien compte que la prise en compte du facteur d'autocorrélation détériore les estimations. Ainsi, nous pouvons dire que les résidus sont non autocorrélés (Confère annexe 3).

En définitive, s'agissant du ROA, nous constatons que la taille de la banque, la croissance économique et l'inflation ont un effet positif et significatif ; ce qui signifie que ceux-ci améliorent la rentabilité des banques camerounaises contrairement au niveau de liquidité, à l'adéquation du capital, à la politique monétaire et à la réglementation prudentielle qui influencent négativement la rentabilité des actifs.

L'adéquation du capital, la politique monétaire, la règlementation prudentielle et le niveau de liquidité ont un effet positif et non significatif sur la rentabilité des fonds propres ; par contre la taille de la banque, la croissance et l'inflation influencent négativement et significativement la rentabilité des fonds propres. Les coefficients de détermination within et bethweennuls montrent qu'il n'existe pas d'effet fixe ou aléatoire significatif mais plutôt un effet croisé significatif.

V. Conclusion

Tout au long de ce papier nous avons essayé de répondre à la problématique suivante : **« Comment la rentabilité des banques camerounaises se construit-elle face à ses principaux déterminants ».** L'objectif global est de déterminer les déterminants de la rentabilité des banques camerounaises.

En utilisant un Panel de dix banques camerounaises observées sur la période allant de 2001 à 2010. Nous avons vérifié l'effet des facteurs internes et externes à l'environnement bancaire sur la rentabilité bancaire. La variable interne qui influence le ROA est la taille de la banque, s'agissant des déterminants externes nous avons la croissance économique et l'inflation qui influencent positivement le ROE. Concernant le ROE nous avons comme déterminants

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internes, le niveau de liquidité et l'adéquation du capital. La réglementation prudentielle est une variable externe à la banque, toutes ces variables influencent positivement et significativement la rentabilité des fonds propres.

Nos résultats corroborent avec les conclusions d'AryTanimoune (2003) qui révèlent que les établissements de crédit ont en général amélioré leur performance. En effet, nous avons constaté un retour à la solidité financière avec des résultats de plus en plus importants. Cette solidité s'est traduite par une marge bancaire positive et croissante ces dernières années dans le système bancaire camerounais. Les banques ont enregistré une baisse significative des créances douteuses ce qui a amélioré une fois de plus leur rentabilité. Nos résultats affirment que les déterminants de la rentabilité lorsqu'ils sont bien utilisés, ils améliorent la rentabilité bancaire. L'évolution des fonds propres et des ressources a été accompagnée par une baisse du risque de crédit et une augmentation de la marge d'intérêt ainsi que de la rentabilité des actifs.

En ce qui concerne la deuxième préoccupation, il en ressort que les déterminants de la rentabilité bancaire lorsqu'ils apparaissent efficaces dans l'amélioration de la rentabilité des actifs sont en même temps inefficaces dans l'amélioration de la rentabilité des fonds propres des établissements de crédit camerounais et vice-versa ; c'est le cas des (07) sept variables utilisées pour notre étude. En effet si depuis 2004, l'évolution financière et bancaire semble plus stable, la situation de la quasi-totalité des banques ne laisse transparaitre aucun risque immédiat de fragilité, il faut cependant craindre les dérapages, les créances douteuses étant toujours un élément à ne pas négliger même dans un climat de surliquidité. Afin que les erreurs du passé ne surviennent plus dans le futur, l'amélioration du fonctionnement des banques et le maintien d'un secteur bancaire apte au financement de l'économie passent par un niveau de rentabilité satisfaisant et également par le respect rigoureux et strict de normes édictées par la COBAC.

Il ressort de cette étude que malgré la réglementation qui régit dans notre système bancaire afin de l'assainir, la plupart des banques camerounaises éprouvent encore de nombreuses difficultés à transformer leurs ressources en crédits sains. La maîtrise des frais généraux notamment des charges inhérentes à l'assistance technique étrangère par une meilleure formation des cadres nationaux et leur intégration dans les structures décisionnelles hiérarchiques devraient permettre de dégager une meilleure rentabilité.

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Annexes

Annexe 1 : test d'Hausman

-pour l'équation du ROA

	Coefficients (b) eq1	(B) .	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
tsb	.0128177	.0128177	4.62e-12	.0014639
adc	-.0000897	-.0000897	-2.92e-14	.0000108
ndl	-4.18e-06	-4.18e-06	-8.59e-15	2.18e-06
cre	.7987456	.7987456	8.40e-11	.0875461
inf	.5104517	.5104517	7.14e-11	.0290204
pom	-2.798779	-2.798779	1.50e-08	3.32525
rgp	-.0000144	-.0000144	-2.17e-14	6.60e-06

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 0.00
Prob>chi2 = 1.0000

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-pour l'équation du ROE

	Coefficients (b) eq2	(B) .	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
tsb	-.0035345	-.0035345	1.34e-12	.0003315
adc	3.87e-06	3.87e-06	-8.44e-15	2.44e-06
ndl	1.96e-06	1.96e-06	-2.49e-15	4.94e-07
cre	-.1633163	-.1633163	2.42e-11	.0198241
inf	-.096794	-.096794	2.07e-11	.0065714
pom	-.9216885	-.9216885	4.35e-09	.7529771
rgp	.0000109	.0000109	-6.29e-15	1.50e-06

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 0.00
Prob>chi2 = 1.0000

Annexe 2 : test d'hétéroscédasticité

-pour l'équation du ROA

Breusch and Pagan Lagrangian multiplier test for random effects

roa[i,t] = Xb + u[i] + e[i,t]

Estimated results:

	Var	sd = sqrt(Var)
roa	5.223838	2.285572
e	1.795079	1.339806
u	0	0

Test: Var(u) = 0

chibar2(01) = 0.00
Prob > chibar2 = 1.0000

-pour l'équation du ROE

Breusch and Pagan Lagrangian multiplier test for random effects

roe[i,t] = Xb + u[i] + e[i,t]

Estimated results:

	Var	sd = sqrt(Var)
roe	.3921899	.6262507
e	.0920446	.3033886
u	0	0

Test: Var(u) = 0

chibar2(01) = 0.00
Prob > chibar2 = 1.0000

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Annexe 3 : test d'autocorrélation

-pour l'équation du ROA

```
RE GLS regression with AR(1) disturbances       Number of obs      =       100
Group variable: i                               Number of groups   =        10

R-sq:  within  = 0.5265                         Obs per group: min =        10
       between =      .                                       avg =      10.0
       overall = 0.5265                                       max =        10

                                                Wald chi2(8)       =     39.57
corr(u_i, Xb)      = 0 (assumed)                Prob > chi2        =    0.0000
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
tsb	-.0027983	.0058401	-0.48	0.632	-.0142447	.0086481
adc	-.000031	.0000275	-1.13	0.259	-.0000848	.0000228
ndl	4.89e-07	7.06e-06	0.07	0.945	-.0000134	.0000143
cre	.1837443	.2350408	0.78	0.434	-.2769271	.6444158
inf	.2589493	.0754255	3.43	0.001	.1111181	.4067805
pom	.2663438	8.672308	0.03	0.975	-16.73107	17.26375
rgp	-3.95e-06	.0000182	-0.22	0.828	-.0000397	.0000317
_cons	.893453	216.3787	0.00	0.997	-423.201	424.9879
rho_ar	-.73968672	(estimated autocorrelation coefficient)				
sigma_u	0					
sigma_e	1.4464624					
rho_fov	0	(fraction of variance due to u_i)				
theta	0					

-pour l'équation du ROE

```
. xtregar roe tsb adc ndl cre inf pom rgp, re rhotype(dw)

RE GLS regression with AR(1) disturbances       Number of obs      =       100
Group variable: i                               Number of groups   =        10

R-sq:  within  = 0.6737                         Obs per group: min =        10
       between =      .                                       avg =      10.0
       overall = 0.6737                                       max =        10

                                                Wald chi2(8)       =     70.64
corr(u_i, Xb)      = 0 (assumed)                Prob > chi2        =    0.0000
```

roe	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
tsb	-.0002542	.0013565	-0.19	0.851	-.0029129	.0024046
adc	-8.50e-06	6.41e-06	-1.33	0.185	-.0000211	4.07e-06
ndl	1.24e-06	1.64e-06	0.75	0.451	-1.98e-06	4.46e-06
cre	-.0400966	.0549421	-0.73	0.466	-.1477812	.067588
inf	-.0448322	.0176277	-2.54	0.011	-.0793819	-.0102824
pom	-1.885658	2.024386	-0.93	0.352	-5.853381	2.082066
rgp	8.33e-06	4.25e-06	1.96	0.050	-5.05e-09	.0000167
_cons	48.54091	50.50874	0.96	0.337	-50.45441	147.5362
rho_ar	-.72289875	(estimated autocorrelation coefficient)				
sigma_u	0					
sigma_e	.33668496					
rho_fov	0	(fraction of variance due to u_i)				
theta	0					

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Management and Roles of Deposit Insurance Institution in Attracting Deposits for Jordanian Banking Sector (2000-2013)

By Dr. Ghazi Abdul Majeed Alrguibat

Al al-Bayt University, Jordan

Introduction- Deposit Insurance Corporation aims to protect depositors at banks to guarantee their deposits under provisions of the Deposit Insurance Corporation Act 2000, in order to encourage savings and promote confidence in the banking system in the Hashemite Kingdom of Jordan. Therefor established in the Kingdom institution called Deposit Insurance Corporation that enjoys a legal personality with financial and administrative independence, and it has this capacity to carry out all legal actions including entering into contracts, borrow, possess movable and immovable property necessary to achieve its objectives and be the center of the institution in Oman, also may be open branches and offices across the Kingdom. (deposit Insurance Corporation Act No. 33/2000).

The system is known deposit guarantee that the system works to provide the possibility of compensation categories of depositors owners of certain types of deposits by less or too much of their deposits that are exposed to danger as a result of the faltering bank deposited these deposits has ceased payment accordingly. (Indian, 1992, p 83).

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MANAGEMENTANDROLESOFDEPOSITINSURANCEINSTITUTIONINATTRACTINGDEPOSITSFORJORDANIANBANKINGSECTOR2000-2013

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I. Introduction

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The basic concept of the deposit insurance system in the countries that apply this system aims to protect small depositors in local currency for the state from risk of bank failure or stoppage of payment through the contribution of banks participating in system of the deposit insurance fund which fed under fees or subscriptions abide by these banks to repay or through the report of franchise rights to depositors on the bank's liquidation proceeds in event of bankruptcy within certain amounts of their deposits as the border paramount. In most cases, these systems are based on the capping of deposits per customer at the bank in order to uninsured and confirmation that the primary purpose of the system and protect small depositors. And discourses deposit insurance guarantee deposits in institutions seeks to achieve two goals (Indian, 1992, p 185):

– Increased confidence in financial institutions, and the financial system as a whole, thus to stabilize these institutions where the banking system in most countries, the role of president in the brokerage. As a result of the fact that bank deposits, short-term, it is difficult to convert against which to critique in a short time it is necessary to help banks facing a liquidity crisis financial, that is the objective of the deposit insurance from viewpoint of the monetary authorities is to achieve stability of financial institutions as ensure greater confidence in the system financial and thereby reduce or avoid the economic crises that caused by the insolvency of banks.
– Increased competition among financial institutions to attract deposits and provide banking services better, as well as guaranteed equality in competition between banks at various sizes. In the absence of this system the large banks are the safest for small banks, and foreign banks in some developing countries may be considered safer than local banks, in the presence of insurance system for deposits less relatively differences between groups of different banks, especially in terms of the risks to the small depositor.

The functions of the Board of Directors Deposit Insurance Corporation (the Deposit Insurance Corporation Act No. 33/2000):

1. Put policy for the Deposit Insurance Corporation.
2. Approval of the general plan to invest the funds of the Deposit Insurance Corporation.
3. Put the organizational structure of the administrative system for the institution and the description of its functions , define its functions and responsibilities.
4. Approval of the regulatory, financial and administrative work required by the Deposit Insurance Corporation.
5. Approving the annual budget estimates for the Deposit Insurance Corporation.
6. Approve the annual reports and final accounts for the Deposit Insurance Corporation.
7. To approve the borrowing institution.
8. Overseeing the liquidation procedures accordance with the provisions of the Bank Act.
9. Appoint a certified auditor to audit the accounts of the Deposit Insurance Corporation.

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II. The Evolution of Deposits in the Banking System Jordanian

Through (2006-2000) steady growth in volume of deposits in the banking system represented in Jordanian banks and branches of foreign banks operating in the Kingdom, the annual growth rate (11.8%) for the years (2006 to 2000), bringing total deposits in the banking system at the end of the year (2006) to amount 14.5918 billion dinars, which deposits in Jordanian Dinars be worth 8 9427. million dinars and the equivalent of 5.1648 billion dinars in foreign currencies, the average deposit in Jordanian Dinars 3492 and foreign currency equivalent to 15,387 dinars. (Annual report to the Deposit Insurance Corporation 0.2006).

And the total deposits in the banking system, the Jordanian dinar and foreign currencies reached amounted to 15.9881 billion dinars at the end of the year (2007), an increase of 1.3962 billion dinars for the year (2006) represented 9.6% that note the annual growth rate of these deposits for the last five years amounted to 12.6%. The shape of the total deposits in Jordanian dinars amounted to 10.6181 billion dinars, or 66.4 per cent of the total deposits in the banking system. Comparing the percentages its level in 2006)) notes that the proportion of deposits in dinars was at 64.6% compared with 35.4% for foreign currency deposits, which reflects the confidence evident in Jordanian Dinars currency savings compared with foreign currencies. (Annual report to the Deposit Insurance Corporation, 2007).

Moreover, the total deposits in the banking system, the Jordanian dinar and foreign currencies amounted to 18.1026 billion dinars at the end of the year (2008), an increase of 2.1148 billion dinars for the year 2007)) and the rate of 13.2% note that the annual growth rate of these deposits for the last five years amounted to 12.7% on average . The shape of the total deposits in Jordanian dinars amounted to 13.3484 billion dinars, or 73.7 per cent of the total deposits in the banking system. Comparing the percentages its level in 2007)) notes that the proportion of deposits in dinars was at 66.3% compared with 33.6% of deposits in foreign currency, which clearly reflects the increasing confidence in Jordanian Dinars currency savings compared with foreign currencies. (Annual report to the Deposit Insurance Corporation, 2008).

While the total deposits in the banking system, the Jordanian dinar and foreign currencies amounted to 20.2984 billion dinars at the end of the year (2009), an increase of $ 2194 million dinars for the year (2008) that represented 12.1% that note the annual growth rate of these deposits for the last five years amounted to 11.5%. The shape of the total deposits in Jordanian dinars amounted to 1.15865 million dinars, or 78.2 per cent of the total deposits in the banking system. Comparing the percentages its level in 2008) notes that the proportion of deposits in dinars was at 73.7% compared with 26.3% for foreign currency deposits, which indicates the continuation of the growing confidence in Jordanian Dinars currency savings compared with foreign currencies. (Annual report to the Deposit Insurance Corporation, 2009).

And reached the total deposits in the banking system, the Jordanian dinar and foreign currencies amounted to $ 225.7.7 million dinars at the end of the year (2010), an increase of 2.2093 billion dinars for the year 2009) percentage (10.9%) noted that the annual growth rate of these deposits for the last five years amounted to 11.4 % on average. The shape of the total deposits in Jordanian dinars amounted to 17.6201 billion dinars, or 78.3% of total deposits with the banking system. Comparing the percentages its level in 2009) notes that the proportion of deposits in dinars was at 78.2% compared with 21.8% for foreign currency deposits, which indicates the continuation of confidence in Jordanian Dinars currency savings compared with foreign currencies. (Annual report to the Deposit Insurance Corporation, 2010).

The total deposits in the banking system, the Jordanian dinar and foreign currencies amounted to 24.3887 billion dinars at the end of 2011, compared to 22.5077 billion dinars at the end of 2010, an increase of 1.881 billion dinars, and the rate of 8.4% note that the annual growth rate of these deposits for the last five years amounted to 11.1% on average. The shape of the total deposits in Jordanian dinars amounted to 19.1277 billion dinars, or 78.4 per cent of the total deposits in the banking system, while the total deposits in foreign currencies amounted to 5.261 billion dinars or accounted for 21.6% of total deposits in the banking system at the end of 2011). Comparing these percentages its level at the end of 2010, notes that the proportion of deposits in dinars was at 78.3% comparing with 21.7% of deposits in foreign currencies, which enhances the continued confidence in Jordanian Dinars currency savings compared with foreign currencies. (Deposit Insurance Corporation, 2011).

The total deposits in Jordanian Dinars with the banking system amounted to 19.1277 billion dinars at the end of the year (2011 (compared to 17.6201 billion dinars at the end of the year (2010), an increase of 1.5076 billion dinars, and the rate of 8.6% and were distributed among these deposits between retail deposits at $ 12.6545 billion dinars accounting for 66.2% of total deposits in dinars with the banking system, deposits and companies amounting to 5.842 billion dinars at a rate of 30.5% and deposits the government for $ 631.2 million dinars at a rate of 3.3% and formed deposits in Jordanian Dinars and owned by individuals accounted for 6.2% of total deposits

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Jordanian Dinars with the banking system at the end of the year 2011)). (Deposit Insurance Corporation, 2011)
It also increased the total deposits with the banking system, Jordanian Dinars and foreign currencies amounted to 24.9696 billion dinars at the end of 2012) compared to 24.3887 billion dinars at the end of 2011), an increase of 580.9 million dinars, and the rate of 2.4% note that the annual growth rate for this deposits for the last five years amounted to 8.4% on average. The shape of the total deposits in Jordanian dinars amounted to 17.711 billion dinars, or 70.9% of total deposits with the banking system, while the total foreign currency deposits amounted to 7.2586 billion dinars, or a rate of 29.1% of the total deposits in the banking system at the end of 2012). which formed deposits in Jordanian Dinars accounted for 70.9% of total deposits in the banking system at the end of the year, 2012). (Deposit Insurance Corporation, 2012)

III. Deposit Insurance Corporation in Jordan

Established Deposit Insurance Corporation on September 17 of the year 2000 under Law No. 33 of 2000 as a public institution financially and administratively independent aims to protect depositors in banks to guarantee their deposits have, so the event of a decision to liquidate the right of any bank by the Central Bank of Jordan, a maximum of 50,000 JD . the institution enjoy under its broad powers to enable it to carry out its functions as a guarantor of deposits and liquidator of banks, in addition to the regulatory powers granted them by law , the inspection teams in conjunction with the Central Bank to see final accounts and results of operations of existing banks with the central bank.

The Foundation funds mainly through annual subscription fees collected from its member banks and investment activities, the institution may be able to borrow to pay its obligations legally. The Foundation seeks constantly to develop its infrastructure and its human resources to be able to carry out its functions efficiently and effectively to achieve its mission and objectives of institutional especially regarding the protection of small depositors and maintain the rights of older depositors and educate citizens about the role of the institution in the protection of their deposits and savings banks. The Foundation is the sole guarantor and the liquidator estoppel any bank decides to liquidate the Central Bank. (Deposit Insurance Corporation, 2011)

Most striking features of the deposit guarantee system in Jordan (Deposit Insurance Corporation, 2012)

a) Membership

Membership is mandatory for all Jordanian banks and branches of foreign banks that operating in the Kingdom with the exception of the branches of Jordanian banks operating outside the Kingdom, and optional for Islamic banks licensed to operate in the Kingdom.

1. Roof Warranty: immediate compensation maximum 50,000) JD).
2. Scope of coverage:

b) Insured Deposits

Organization includes all deposits in Jordanian dinars belonging to institutions and individuals resident and non-resident banks Members including:

a) Current accounts and demand.
b) Savings deposits.
c) Deposits and subject to the notice.
d) Certificates of deposit issued by banks member.

c) Unsecured Deposits

– Government deposits.
– Interbank deposits.
– Performance of monetary limits of the facilities granted against.

d) Currency Secured

Organization includes the amounts deposited in the currency of the Jordanian dinar.

IV. Fee

Consequent Bank Lists annual subscription fee by two and a half thousand of the total deposits subject to the provisions of the law. As may be modified by the proportion of subscription fee and change the rules of calculated decision of the Ministers Council upon the recommendation of the board of directors of the institution after the classification of banks and foundations according to the classification applied by the central bank. The idea of deposit insurance in that each commercial bank to pay a certain percentage of the total deposits, which has to a particular destination established by the Central Bank or participate in its management, in case you find the bank in response deposits to their owners take the response of deposits within the limits of the insured amounts (Abdul Hamid, 2002, p 79), and the guarantee of bank deposits is based on the philosophy of integration between two presidents what the banking system, thus depositors who will receive fewer benefits on their deposits for the disposal of risk and power, thus the national economy whole, where all citizens in benefits resulting from real resources to be allocated to the management of security systems. (Tayeb, 2003). Shaheen and GIMP (2013) noted that the stability of the banking and financial system is essential to the flow of economic activity and protect it from the economic and social consequences, given the important role of the banking system in the modern economy. Where is the deposit insurance

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system of the topics that are gaining importance heavily on the banking arena given the financial crises that taking place in many countries, which led to the faltering of many banks, where the purpose of deposit insurance is to achieve stability of financial institutions as ensure greater confidence in the financial system, thus to reduce the aggravation of the economic problems caused by the insolvency of banks. The establishment of a deposit insurance system has a positive impact on the degree of confidence in the banking system, as it works to reduce the negative impact of the circumstances and prevailing economic conditions, which promotes a means of early warning and cautionary instructions. The establishment of a deposit insurance system increases the degree of stability of deposits and attract more savings, and contributes to the reduction of risks to depositors in critical conditions, and increases the demand for deposit money, as well as its role in reassuring depositors, and the development of awareness of savings. Another aspect related to designing systems guarantee deposits (Blinder, 2001, p1):

1. Deposit guarantee system should prevent the occurrence of the bankruptcy of many banks.
2. Deposit guarantee system should reduce as much as possible of the economic distortions in the state.
3. Deposit guarantee system should not receive either financial support or taxes from the banking system that the premiums paid subscriptions that belong only.
4. Deposit guarantee system must be reduced to the maximum extent of risk for taxpayers.
5. Deposit guarantee system must be thrown the weight of the burden of depositors monitor and control their banks. that the deposit guarantee system may lead to increase the ability of banks to get deposits at lower cost. This was expressed by Alan Greenspan, "Federal Reserve Chairman American saying," The institutions covered system of deposit insurance receive government support in the form of government guarantees allow it to attract deposits at the benefits of less than the necessary level in the absence of deposit insurance and allow them also to assume higher levels of risk without fear of loss of funding sources across the deposit. And formulate other, deposit insurance contributes to the misallocation of resources by breaking the relationship between the level of risk and return for a class competitors in the market "(Greenspan, 2003, p.2). And see Ansari (1992) it must be to the Deposit Insurance Corporation supervisory role of the institutions that fall under its banner must be buying financial assets from banks and financial institutions approved in order to facilitate mergers and must have a clear role in the process of ending the banks if it continues where it is in violation that allow failure institutions to continue its operations while it is working tragically practically insured deposits of the institution. This supervisory role requires that the institution be in a position to issue instructions concerning lending , control , inspection continuous and comprehensive, as well as processes to identify banks that do not comply with the levels of capital and deposits required. And build a system so that it is straight premiums certain percentage of the total deposits reduced from one bank to another, this system contains a set of indicators and criteria that are used to differentiate between the quality of each bank .These indicators reflect the following:

- Fit with a straight-management efficiency.
- Fit with a straight errors encountered by each institution.
- Has identified these indicators and criteria, including the following:
- Adequacy of the bank's capital.
- The volume of bank deposits.
- Ratio of bad debt to total portfolio.
- The proportion of overdue debt payments for a certain period and not three months.
- Cooperate and not violate the rules of the bank and the Central Bank.
- The size of the bank (large, medium, small).
- The proportion of deposits insured and non-insured in each bank.

These indicators give points for each bank as evaluated by management Security Corporation. Whenever the bank well in maintaining these standards got higher points and whenever the bank is well earned points less. This system makes it fairer insurance premium, so that reduces the likelihood of bearing the brunt of the burden Foundation. This is determined by the insurance premium for each bank based on total points total for each previous indicators obtained by the Bank. Thereby determining premiums for large banks that get weak points and premiums for banks less good insurance, no matter what the size of the bank, where the premium will reflect the degree of risk for each bank according to the actual achievements compared to previous standards.

Although the features of such a system will pay the banks and encourage them to develop their performance to reduce insurance premiums on deposits, also to attract depositors, fearing escape the banks in the best performance. This will be a reality as far as the system is available from the publication of information about the real position of each bank. what we call that is available and accessible in the Deposit Insurance Corporation;, it is necessary to have the insurance premium variable depending on the work , the

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risk portfolio of loans and investments insured institutions. In spite of the financial conditions difficult witnessed by the Kingdom of Jordan in the year 2011), showed the key financial indicators for member banks for year 2012, of the 22 bank out of 26 bank workers in the Kingdom, which constitute the assets of 87% of the total assets of the Jordanian banking sector, improvement evident in the performance indicators compared with those indicators for the year 2011, thanks to the actions and decisions taken by the central bank in 2012, which led in turn to maintain monetary stability in the Kingdom, as well as system FAQ regulatory and robust procedural adopted by the central bank according to international best practices, which enabled banks to strengthen and improve their financial positions, in particular, reinforced the strength and stability of the banking system in general.

V. Capital and Private Deposits in Banks

The term expresses the capital adequacy of the capacity and efficiency of commercial banks, guide and control the risks faced, in order to be scaled , control and make decisions that are consistent with the strategy , policy and to strengthen its competitiveness. The benefit of capital adequacy in the pricing of banking services is to maximize the returns banks' operations, in addition to the development of policies due to process is necessary for the prevention of various types of risks, which arise as a result of technological development and the increasing complexities and mail in banking operations and intense competition.

The importance of capital and deposits is the important functions carried out by the foremost of banks to absorb losses resulting from the operation and strengthen confidence , the regulatory authorities in the bank's ability to cope with problems, as it signifies the bank's capital and its deposits on the degree of solvency enjoyed in bank, that given the importance of capital adequacy and deposit for institutions guarantee deposits to put many of the standards to be measured, as well as to ensure the adequacy capital to each of the deposits, assets, and risk assets, as they intervene in determining the increasing to reserves or retained earnings, and impose sometimes increase capital and deposits by increasing the new cash from shareholders to provide loan support. (HSL 0.2009) Jordan's banking system has witnessed remarkable progression during the past six decades, represents the evolution of the device is limited in size and resources of its institutions and quality, to a sophisticated device and processions to the latest global financial institutions. Jordan's sector apply the standard of capital adequacy; the aim strengthening the capacity of Jordanian banks and help them to continue working effectively to meet the global developments coming, the creation of financial institutions capable of confrontation and , in front of any potential risks and overcome them safely, as well as to encourage mergers banking boosted the financial positions of banks. (Good and Shahatit 0.2011, S358-366)

Banks play a major role in the economies of all countries in the global economy, a role increasingly important in small countries like Jordan and their monetary authorities have a responsibility to large in maintaining monetary and financial stability, even individuals can exercise their economic activity, the search for opportunities rewarding them for production and development, it is necessary to provide an atmosphere of financial , banking stability to avoid the crises of confidence that leads to the demand for the withdrawal of deposits from banks, then that offer sufficient guarantees to build confidence in the banking system is the cornerstone of reassuring depositors, and that the existence of a specialized institution to guarantee deposits beyond the depositary bank itself increases the confidence of depositors relieves to deposit holders. The existence of an independent institution to guarantee deposits increases the cooperation between the central bank and banks operating under his supervision because it increases the willingness of the central bank to exercise the role of the financier. (Cranium 0.2005).

VI. Conclusion

The establishment of a system of deposit insurance works as an early warning before the occurrence of financial crises in banks, and increases the stability of the deposits and attract savings , capital and deposits with banks . The stability of deposits in the banking system, each bank to pay a certain percentage of the total deposits, which has the Deposit Insurance Corporation in the Central Bank deposits in response to these owners assume the deposits in response to the amounts insured In addition to confidence in financial institutions , the financial system as a whole, and thus achieve stability, and increased competition among financial institutions (banks) to attract deposits and provide banking services better.

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Investor Sentiment and its Role in Asset Pricing: An Empirical Study of the American Stock Market

By Brahim Salem

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Abstract- Our paper tries to examine the relationship between investor sentiment and its effect on assets pricing. To this end, we proceeded in two ways. First, we conducted econometric tests to identify the investor sentiment measure that best reflects variations not explained by fundamentals. As part of this empirical study, we used two measures of investor sentiment based on sample surveys. The tests show that the investor sentiment index of SENTAAII is the most appropriate proxy that explains variations unexplained by fundamentals in the American market. Second, inspired by the work of DSSW (1990), we tested the impact of "noise trader" risk, both on excess returns and on their volatilities. To this end, we used a TGARCH-M model which, like Lee, Jiang and Indro (2004), to examine the relationship between market volatility, excess returns and investor sentiment. Our results on the American market show, first, that change in investor sentiment has a significant effect on excess returns. On the other hand, change in investor sentiment has a significant effect on the conditional volatility of the American stock market which causes an increase (decrease) in excess returns.

Keywords: behavioral finance; noise traders; price pressure effect; freidman effect; hold more effect; create space effect.

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I. Introduction

Neoclassical financial theory is based on investor rationality hypothesis and retains rationality as a phenomenon which influences their expectations and their investment decisions. However, behavioral finance confirms that emotions are predominant, mainly in the process of non-substantive rationality. In addition to cold, complete and decontextualized reasoning of economic theory, individuals are able to make judgments and decisions based on mental images to which they associate positive or negative feelings.

Finucane Alhakai, Slovic and Johnson (2000) describe this type of rapid reasoning as an "affect heuristic". Thus, behavioral finance rejects the purely theoretical vision of homo economicus that reacts in a cold and isolated manner. In financial markets, investors exhibit emotional behaviors. Investors' decisions are based on mood, which is in general an emotional state. Nevertheless, these decisions do not consider the underlying determinants of assets values that are subject of the exchange. These moods are likely to bias their judgments and, in some cases, control their actions. They influence their financial decisions by biasing their forecasts. Authors such as Shleifer and Summers (1999), Fisher and Statman (2000), Brown and Cliff (2005) tried to explain prices evolution and their volatilities in terms of affective factors. In other words, investor sentiment plays an important role in financial markets.

Before analyzing the impact of investor sentiment on stock prices evolution, it is necessary to define investor sentiment.

The latter is defined as the investors' expectations which are not justified by the fundamentals of the value of assets subject of the exchange. This feeling reports to a set of emotional states (pride, satisfaction, joy, shame, fear, etc ...) that call for stereotyped responses. These states are behavioral phenomena that play an important role in pricing financial assets (Mangot, 2005). Defining investor sentiment reports to describing mood (optimistic or pessimistic), independently of economic reasons. In case they are optimistic, investors show an upward trend (the price is above its fundamental value), otherwise, when they are pessimistic, investors drive prices below their fundamental value (downward trend). This behavioral phenomenon can be explained by the fact that investor sentiment plays an important role in financial decisions and consequently in assets pricing. Moreover, opting for this behavioral frame of analysis allows us to account for the different anomalies reported on efficiency theory, namely excess volatility of stock prices compared to the fundamental values. Behavioral phenomena cast on efficiency a strong counter argument. Using this analytical framework, the purpose of this paper is to study the impact of change in "noises traders" sentiment on both future financial assets returns and their corresponding volatilities.

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II. Role of Investor Sentiment in Capital Asset Pricing: Theoretical Foundations and Empirical Analysis

a) *Theoretical Foundations*

i. *Investor Sentiment and financial assets returns*

MacGregor, Slovic, Dreman and Berry (2000) found from experience that financial decisions of individual investors directly depend on the affective assessments they make of industries. Affective assessments of industries measured by associations of spontaneous words and semantic differentiation collected from imposed scales (good / bad, useful / useless, boring / exciting, etc ...) and financial evaluation estimations (expected returns, motivation to participate in a possible introduction into the stock market) are positively and significantly correlated.

Similarly, among professionals, the emotional dimension may intervene in financial estimates when substantive reasoning is difficult. According to Ganzah (2001), financial analysts base their judgments of risks and securities returns they are not familiar with on a global attitude. When securities are very well perceived, they consider that their returns will be high and their risk will be low. When securities are badly perceived, they expect low returns and high risk. However, for familiar securities, perceived risk and returns tend to be positively correlated, consistent with the neoclassical financial theory, and thus they seem to result less from a global approach. Finucane, Alhakai, Slovic and Johnson (2000) show that in financial markets, individuals are able to make judgments and decisions based on mental images to which they associate positive or negative feelings. According to these authors, the affect heuristic implies that shares of companies that have a positive image are likely to be bought than those of companies perceived negatively. The overall positive feelings felt by investors have them both minimize the risk associated with the investment and increase the expected returns. Thus, company image plays a powerful role in the weighting of information that should be involved in the substantive judgment of its value. For the newly introduced companies and those with no significant prior image, company image and its emotional perception are perhaps the main criteria on which investors base their financial decisions.

Studying the role of emotions in decision-making dates back to the work of the neurologist Damasio (1994). This neurologist linked individuals' decision-making process to emotions. He has shown in a study of patients suffering brain pathologies that an emotional deficit affects the ability to make decisions. He argues that his patients were unable to feel emotions because of damage to the frontal lobe, but their knowledge, attention, memory, language, and their ability to solve abstract problems were not affected. Faced with simple problems, these individuals experienced great difficulties in making decisions and were unable to make plans for the future or choose an action. Affection had left them able to analyze the situations they faced but unable to find the solution because of lack of emotional selection criteria and to draw conclusions by figuring out an action. The scientific study of emotions dates back to Darwin and his work "the expression of the Emotions in Man and the animal" published in (1872). Darwin first described emotion as something essential to the survival of the species. Usefulness of emotions will be then taken by almost all other scientific conceptions of the phenomenon. Emotions are considered ancestral biological reflexes that allowed species to adapt themselves and survive in their environment. They are, at least for the most primitive of them, common to all men who live in the same environment and are subject to the same constraints.

Many other authors, such as Izard or Plutchnik, offer, starting from an evolutionary point of view, a description of emotion from a universal basis. It would be emotions that every man whatever his culture and environment of the moment comes to feel, express towards and recognize in other men in different situations. These primary emotions are distinguished from more built and more sophisticated emotions that would need more cognitive elaboration. Reviewing many intellectual studies of facial expressions, Eckman was able to identify six basic emotions used by all men: joy, sadness, anger, fear, surprise and disgust.

Weiner and Graham (1989) link emotions, primary or sophisticated, to life events that take an emotional value depending on their causes, their consequences and their agents. They describe a social taxonomy of emotions, depending on the elements being integrated in their evaluation and the resulting interactional trends.

Delong, Shleifer, Summers and Waldman (1990b), Lee, Shleifer and Thaler (1991), Brown and Cliff (2003, 2005, 2006), Glushkov (2006), Ho and Huang (2008) link investors' irrational behavior in financial markets to emotional states. Accordingly, anomalies reported on efficiency hypothesis, observed in these markets, likely result from emotions.

Concrete markets are clearly not perfect markets. Indeed, a basic realism recommends considering that there are "noise traders". It is for this reason that Delong, Shleifer, Summers and Waldmann (1990b) distinguished between rational investors or "smart money" and irrational investors, also called "noise traders." The former base their expectations on the determinants of the fundamental value of the traded assets. While the latter are investors who are not fully rational and their demand for risky financial assets is affected by their beliefs or emotions, which are

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obviously not fully justified by economic fundamentals. In this sense, the theoretical rationale for "noise traders" states that if "noise traders" are optimistic they push asset prices beyond their fundamental values. However, when they are pessimistic, the gap between price and the fundamental value of the security in question is negative, i.e. they push prices above the fundamental value.

In a more recent literature, several contributions of great interest have sought to test this theoretical position. They consist, essentially, in justifying assigning to behavioral variables (investor sentiment) measurable proxies, in this case, a number of economic, financial or psychological variables that can be associated with them. In this sense, Brown and Cliff (2004) define different substitutes (proxies) as measures of emotions characterizing investors' mood. Indeed, these moods are in general emotional states that likely influence financial decisions by biasing expectations. Good mood would, for example, underestimate risks and increase expected returns. It therefore encourages investors to buy and to opt for riskier securities.

According to Brown and Cliff (2004), there are three different proxies for measuring investor sentiment, which are:

- The first is based on proxies (substitutes) that measure sentiment calculated on the basis of economic and financial variables.
- The second category of proxies measures investor sentiment using explicit measures, based on sample surveys.
- The third category of proxies measures investor sentiment using feelings and collective action.

In this paper, we are particularly interested in the second category of proxies measuring investor sentiment.

ii. *Explicit measures of investor sentiment*

Explicit measures of investor sentiment are based on opinion surveys.

These surveys are carried out by specialized institutions that publish a weekly index reflecting the average, optimistic or pessimistic, opinion of the surveyed individuals. These individuals may be individual and institutional investors. The opinion of these will be compiled into indices. To study the impact of these indices on the future profitability of the American S & P500, Fisher and Statman (2000) used various direct measures of sentiment. To do this, they used a method of classifying investors into three groups:

- The first group consists of individual investors;
- The second group consists of publishers of financial records;
- The third consists of experts and financial analysts;

Empirical studies of the impact of investor sentiment on asset returns used sentiment indices calculated from the following sources:

- A sentiment index based on data from the American Association of Individual Investors (AAII). The association calculates and publishes a sentiment index created on the basis of the opinions of its members. The index so calculated is defined as the percentage of optimistic or pessimistic investors out of the total investors who expressed an opinion. Considered a proxy for the direct measurement of investor sentiment, this index is used to analyze the impact of mood of individual investors on the profitability of the S & P500 index.
- A sentiment index based on data from the service company of American investments; "Investor Intelligence (II)":

This company calculates and publishes a sentiment index reflecting the views of more than one hundred and forty investment advisers in the American financial markets. They transmit their optimistic or pessimistic opinions via email or mail. The sentiment index is defined as the number of optimistic views respectively pessimistic of the total number of letters received from consultants.

- A sentiment index based on data from Market Vanes "Mvan": the approach to calculate this index used by this agency is expressed as follows:

Once "Mvan" receives the opinions of individual and institutional investors via e-mail or mail, every opinion on the trend of the overall sentiment in the stock market is weighted on a scale of 0-8 where 0 and 8 represent respectively a perfect pessimistic or an optimistic sentiment.

Measured from opinion surveys, investor sentiment summarizes the expectations of individual investors from stock markets. The American Association of Individual Investors (AAII) issues, weekly, the results of questionnaires asking investors if they are bullish, bearish or neutral. These indicators generally have no usable information to predict future market returns, but provide insights into how individual investors make their judgments on market developments. Regression of market returns on monthly changes in investor sentiment showed a zero or a slightly negative correlation. Regression of investor changes in asset allocation on this indicator is positive, but only slightly.

However, investor sentiment strongly correlates with its past market returns. Fisher and Statman (2000) find for example that performance of large capitalization in the month preceding the survey accounts for 10% of the variation in investor sentiment. Fisher and Statman (2003) also show that investor sentiment changes along with consumer trust, as measured by the United State Conference Board and the University of Michigan.

The positive relationship between changes in investor sentiment and consumer trust, including questions on the expectations of the macroeconomic situation, given the anticipatory nature of financial markets. If information suggests future improvement or

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deterioration of the economy, this should not change market outlook, since it is supposed to, according to efficiency hypothesis, immediately transform this information onto prices. The authors consider this result as a support for the idea that investors confuse the prospects of the companies and the prospects of securities. Shefrin and Statman (1995), in fact, show that people tend to consider that the securities of "good" companies are "good" securities in total contradiction with efficiency theory and with empirical results that point to the outperformance of valued stocks, i.e. those of companies with poor prospects for growth. Sturm (2003) reported, meanwhile, that the environment of recent markets conditions investor response to sudden price changes. When a stock suddenly drops following an information, the fall in the day of the event results in abnormal average positive returns in the following days. Positive returns are stronger in bull markets than in bear markets, suggesting that investors are watching the "mood" of the market to determine how a sharp decline is an attractive opportunity to buy.

These results support the hypothesis of emotional reasoning of individual investors. Past positive signals about the markets or the economy create an overall positive emotion that makes investors consider positively the future, bias their expectations which subsequently affects their investment decisions. Again, institutional investors largely seem to be immune against the intrusion of the cognitive affect as their feelings about the market show no significant correlation with consumer trust or short-term past returns.

Against this synthesis of the literature on the impact of investor sentiment on future returns of financial assets, we can conclude that they do not correlate with changes in investor sentiment. Most empirical studies that examined the impact of investor sentiment on future profitability did not lead to significant results. However, investor sentiment strongly correlates with past market returns. This state of mind biases their expectations and influences their investment decisions.

b) The Empirical Analysis

We will test in the context of this empirical investigation the impact of investor sentiment on future stock returns. With reference to the studies of Black (1986), De Long et al (1990), Shleifer and Vishny (1998) and Brown and Cliff (2005)), the aim is to test the importance of mood in investors' decisions and consequently in the returns-generating process. We can confirm that some decisions are taken on the basis of a rapid reasoning that integrates a global emotional evolution of opportunities. The feeling experienced by an investor towards a stock or a company reflects his/her perception of performance and associated risks.

If the sentiment is positive, investors tend to overestimate performance and underestimate risk and will tend to buy the security.

If the sentiment is negative, the investor tends to underestimate performance and overestimate risk and will tend to sell the security.

Before analyzing the impact of investor sentiment on financial assets returns, we will highlight the evolution of the direct proxies measuring investor sentiment on the American market, using different data sources. The latter are considered explicit measures of investor sentiment based on sample surveys. They allowed us to calculate substitutes (proxies) of the most representative of investor sentiments, because these opinions were inspired directly from the surveyed investors.

i. *The Empirical Methodology*

Unlike some studies that suggest ad-hoc hypotheses about the use of direct proxies measuring investor sentiment and its impact on asset returns, we will conduct empirical tests to identify the appropriate proxy reflecting investor sentiment in financial markets. According to Bandopadhyapa (2006), the aim of these empirical tests is to determine which proxy among the proxies used is the one that best reflects changes unrelated to the basic price. Our methodological approach is twofold:

- The first is to regress the S & P500 stock index on its lagged value. This latter is assumed to integrate all economic information explaining fluctuations of this index.
- The second is to regress the residuals from the first regression, which are supposed to reflect all information unjustified by fundamentals, on each of the proxies considered in order to select the proxy that best reflects changes in market price not justified by fundamentals.

a. Data sources and proxies used

To study the impact of investor sentiment on the American stock market, we selected opinions (optimistic, pessimistic, neutral), reflecting the overall investor sentiment as recommended by the financial community.

We will use the sentiment proxy of the Bull-Bear deviation type, like Brown and Cliff (2005), which is expressed as follows:

$$\text{Ecart Bull} - \text{Bear} = \frac{\text{Bull} - \text{Bear}}{\text{Bull} + \text{Bear} + \text{Neutre}} \quad (1.1)$$

This sentiment proxy is calculated on the basis of different sources of the used opinions in this study:

- Opinions compiled into a proxy whose source is Investor Intelligence (II). This institution has been collecting opinions since 1964 of more than 140 consultants on market trend. Opinions are divided into three categories (optimistic, pessimistic, neutral),

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- Opinions are collected from a sample survey conducted by UBS and Gallup. These two agencies have been conducting since 1964 sample surveys of 1,000 investors with revenues greater than $ 1,000. This survey is conducted during the first two weeks of each month and opinions are released on the last Monday of the month,
- Opinions extracted from a poll conducted by the American Association of Individual Investors (AAII) on its members. Measured from opinion surveys, investor sentiment summarizes individual investors' expectations of the stock markets. The American Association of Individual Investors (AAII) has been publishing since 1988 the results of questionnaires asking investors if they are bullish, bearish, or neutral in the mid-term.
- Opinions extracted from a poll conducted by Market Vane. This agency includes only very pronounced opinions of individual and institutional investors by weighting each opinion on a scale called (B) from 0 to 8 where 0 and 8 represent respectively a perfect optimistic or a pessimistic sentiment.

To carry out our empirical study, our database measuring sentiment of American investors covers the period from 1879 to 2013[1].

b. Selection of econometric proxies for investor sentiment

To select among the proxies that directly measures investor sentiment, the one that best represents changes in investor sentiment, we will proceed in two stages:

The first is to regress the S & P500 stock index on its lagged value. The latter is assumed to integrate all economic information explaining changes in investor sentiment. The first regression is expressed as follows:

$$\text{Regression (1)} : indice_t = \gamma_0 + \gamma_1 indice_{t-1} + Résidu_t \quad (1.2)$$

- The second is to regress the residuals from the first regression, which are supposed to reflect all information not justified by fundamentals, on each of the considered proxies in order to select the best sentiment proxy that best explains fluctuations of investor sentiment, i.e. residuals.

This second regression is as follows:

$$\text{Regression (2): Residu}_t = \beta_0 + \beta_i \text{proxy}_t + \varepsilon_t \quad (1.3)$$

Where;

$Residu_t$ is the residual of the first regression at time (t)

$Proxy_t$ is the considered sentiment proxy at time (t)

The results of the significance of the parameters of the first regression on the most used American stock index, namely S & P500, over the 2001- 2013 period are summarized in the following table:

Table 1 : Results of tests of significance of the parameters of the first regression on the S & P 500 Index.

$$indice_t = \gamma_0 + \gamma_1 indice_{t-1} + \text{Re}\, sidu_t$$

Dependent Variable: SP500_
Method: Least Squares
Date: 05/29/14 Time: 00:08
Sample (adjusted): 2001M03 2013M12
Included observations: 154 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002247	0.003576	0.628269	0.5308
SP500_(-1)	0.190828	0.078401	2.433986	0.0161

R-squared	0.037513	Mean dependent var	0.002592
Adjusted R-squared	0.031181	S.D. dependent var	0.045048
S.E. of regression	0.044340	Akaike info criterion	-3.380970
Sum squared resid	0.298834	Schwarz criterion	-3.341529
Log likelihood	262.3347	Hannan-Quinn criter.	-3.364949
F-statistic	5.924288	Durbin-Watson stat	1.995246
Prob(F-statistic)	0.016093		

The results indicate that much of the fluctuation of the American S & P500 is explained by its lagged values, hence the high significance of the coefficient γ_1. These results corroborate those of Bandopadhyaya (2006).

[1] Extracted opinions from syrveys conducted by UBS and Gallup are eliminated from our database because they do cover only a short period (since 1994) by contrast to other data that exist since 1989

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Our second step is to select one of the two proxies measured by the surveys the one that best explains investor sentiment, i.e., the second regression. These two proxies are calculated using monthly frequencies. They are rated AAII and II.

The results of this second regression are summarized in the table below:

Table 2 : Results of the regression of residuals on SENTII

$$\text{Residu}_t = \beta_0 + \beta_1 SENTII + \varepsilon_t$$

Dependent Variable: RES_SP500
Method: Least Squares
Date: 05/29/14 Time: 00:15
Sample (adjusted): 2001M03 2013M02
Included observations: 144 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011740	0.006366	-1.844285	0.0672
SENT_II	0.000551	0.000265	2.079891	0.0393

R-squared	0.029564	Mean dependent var	-0.000979
Adjusted R-squared	0.022730	S.D. dependent var	0.045017
S.E. of regression	0.044503	Akaike info criterion	-3.372744
Sum squared resid	0.281229	Schwarz criterion	-3.331497
Log likelihood	244.8376	Hannan-Quinn criter.	-3.355984
F-statistic	4.325947	Durbin-Watson stat	2.101589
Prob(F-statistic)	0.039333		

Table 3 : Results of the regression of residuals on SENTAAII

$$\text{Residu}_t = \beta_0 + \beta_1 SENTAAII + \varepsilon_t$$

Dependent Variable: RES_SP500
Method: Least Squares
Date: 05/29/14 Time: 00:15
Sample (adjusted): 2001M03 2013M02
Included observations: 144 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005823	0.003962	-1.469570	0.1439
SENT_AAII	0.000702	0.000226	3.107842	0.0023

R-squared	0.063687	Mean dependent var	-0.000979
Adjusted R-squared	0.057093	S.D. dependent var	0.045017
S.E. of regression	0.043713	Akaike info criterion	-3.408540
Sum squared resid	0.271340	Schwarz criterion	-3.367293
Log likelihood	247.4149	Hannan-Quinn criter.	-3.391780
F-statistic	9.658682	Durbin-Watson stat	2.116367
Prob(F-statistic)	0.002277		

The tables (above) indicate that the sentiment proxy AAII is the most appropriate proxy that explains the variations that are not explained by fundamentals, in our case investor sentiment.

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III. The Impact of Change in "Noises Traders" Sentiment on Both Future Returns of Financial Assets and their Corresponding Volatilities

Concrete markets are clearly not perfect markets. Certainly there are "noises traders", investors who react to advice from interested dealers or prophecies of "gurus", and even apply "recipes" (popular models) with no economic basis. However, there are also "reasonably rational" investors who have both a pretty good idea of the nature of the fundamentals and how these latter impact changes in prices, and who also react not always consistently with incoming new information. DeBondt and Thaler (1985) show that most investors react to good news too optimistically and to bad news too pessimistically. Adjustment takes place more or less quickly depending on the degree of market efficiency. To put it in statistics jargon, this way of presenting these tendency constitutes the "weak form" of the efficiency hypothesis. The interaction between these two types of investors may explain the difference between price and its fundamental value, the subject of our paper. Such interaction would argue that asset prices are determined by a confrontation between rational investors and "noises traders." (De Long, Shleifer, Summers and Waldman, 1990).

To test this simple approach is to consider the pioneering models that face rational investors with noises traders".

a) "Noise trader" risk in the model of Delong et al (1990)

The authors examine two periods (1 and 2) and two assets: a risk-free asset and a risky asset. They assume that the risk-free asset provides an interest rate noted (r), while the risky asset generates the same dividend per unit of held assets and its total offer is assumed to be equal to unity for each period. In period 2, investors are supposed to consume all their wealth.

Delong et al (1990) propose a utility function:

$$\mu = -e^{-(2\gamma)^w} \tag{2.1}$$

This utility is an increasing function of wealth w but it negatively correlates with investor risk aversion, which is defined by the parameter γ. Rational investors are fully aware of the probability distribution of the price of the risky asset in $(t+1)$ while being in (t).

The model of Delong et al (1990) also considers two types of investors:

- Rational investors, denoted i, which are in $1-\mu$.
- Noises traders, denoted n, which are in μ with $0 < \mu < 1$.

The expected utility of a rational investor, i, is expressed by the following equation:

$$E(U) = c_0 + \lambda_t^i (r + P_{t+1} - (1+r)P_t] - y(\lambda_t^i)^2 ({}_t\sigma_{t+1}^2) \tag{2.2}$$

Ignorance of noises traders of the probability distribution of the price of the risky asset results in a random variable that follows a normal identically and independently distributed law.

$$\rho_t \rightarrow N(\rho^*, \sigma_\rho^2)$$

with

ρ^* Average noises traders' optimistic or pessimistic sentiment, according to the negative or positive sign of this term.

σ_ρ^2 A term that measures changes in individuals sentiments.

"Noises traders' maximize their expected utility from the following relationship:

$$E(U) = c_0 + \lambda_t^n \left[r + {}_t P_{t+1} - (1+r)P_t \right] - y(\lambda_t^n)^2 ({}_t\sigma_{t+1}^2 + \lambda_t^n(\rho_t)) \tag{2.3}$$

Noises traders' expected utility is obtained by adding a term $(\lambda_t^n(\rho_t))$ to rational investors. According to Delong et al (1990), the additional term $(\lambda_t^n(\rho_t))$ reflects noises traders' mispricing of the expected return following the detention of a λ_t^n unit of risky assets.

Maximizing the past two expected utilities allows us to determine demand for risky assets of the two categories of investors.

The demand for risky assets of a rational investor i is given by:

$$\lambda_t^i = \frac{r + {}_t P_{t+1} - (1+r)P_t}{2y(\sigma_{P_{t+1}}^2)} \tag{2.4}$$

While the demand for risky assets of noises traders is equal to:

$$\text{At } \lambda_t^n = \frac{r + {}_t P_{t+1} - (1+r)P_t + \rho_t}{2y(\sigma_{P_{t+1}}^2)} \tag{2.5}$$

Demands for risky assets by both rational investors' and noises traders allow us to note that these demands are, first, proportional to the expected returns and, second, inversely proportional to the estimated

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variances, i.e. if they are risk averse, the two categories of investors limit their requests for risky assets.

b) Equilibrium price in the presence of "noises traders"

Equilibrium is achieved when the total demand for the risky asset is equal to its total supply.

Formally, equilibrium is given by the following relationship:

$$\mu(\lambda_t^n) + (1-\mu)\lambda_t^i = 1 \qquad (2.6)$$

Substituting λ_t^i and λ_t^n by their expressions, we get the expression of the equilibrium price:

$$P_t = 1 + \frac{\mu(\rho_t - \rho^*)}{1+r} + \frac{\mu\rho^*}{r} - \frac{2y}{r}({}_t\sigma^2_{P_{t+1}}) \qquad (2.9)$$

The authors point out that the gap between ρ_t *and* ρ^* is a key element in the equilibrium price of the risky asset. Indeed, the only variable term in this last expression of equilibrium price is ρ^*, which measures the sentiment that summarizes the expectations of "noises traders" of the price of the risky asset.

As long as equilibrium is stable over the period, then we have:

$$\sigma^2_{P_t} = \sigma^2_{p_{t+1}} = {}_t\sigma^2_{P_{t+1}}$$

This assumption allows us to determine an expression of equilibrium price which is only a function of exogenous factors and a measure of sentiment that summarizes their expectations of the price of the risky asset:

$$p_t = 1 + \frac{\mu(\rho_t - \rho^*)}{1+r} + \frac{\mu\rho^*}{r} - \frac{(2y)\mu^2\sigma_p{}^2}{r(1+r)^2} \qquad (2.10)$$

DSSW (1990) interpret this expression of equilibrium prices as follows:

- The first term of the equation indicates that in the absence of "noises traders", the price of the risky asset converges to its fundamental value which is assumed to be 1. Obviously if all investors are rational, efficiency prevails since each is able to price securities correctly, nobody deviates from the good price[3].
- The second term highlights the impact of change in noise traders sentiment on the equilibrium of the risky asset or its fundamental value. The more "noises traders" are optimistic, the more they will tend to buy the risky asset. This excessive optimism is thus reflected in an increase in demand for risky assets that tends to increase the difference between market price and equilibrium or fundamental value.

$$P_t = \frac{1}{1+r}\left[r + {}_tP_{t+1} - 2y_t(\sigma^2_{Pt+1}) + \mu\rho_t\right] \qquad (2.7)$$

The authors speculate that the variable P_t is a stationary process that follows the same law from one period to another and equilibrium is stable[2]. In this analytical framework, we have:

$${}_tP_{t+1} = P_{t+1} = P_t \qquad (2.8)$$

Thus, equilibrium price of the risky asset is a function only of the exogenous factors:

- The third term shows the systematic price movements of the fundamental value of the security in question, as demand for risky assets is affected by their beliefs or emotions. These latter are obviously not fully justified by economic fundamentals; if they are optimistic, they push prices up bringing the price of the asset beyond the fundamental value of the asset. However, if they are pessimistic the opposite is true.
- The fourth term is considered by DSSW as their own contribution to their model. Indeed, the latter term measures uncertainty about changes in noises traders' sentiment, making assets riskier. When investors are risk averse, they limit their demand for risky assets, resulting, consequently, in a decrease in their price.

Thus, under the action of irrational investors, the price can sustainably deviate from its fundamental value without rational investors (rational arbitrators) being able to fully bring price to its fundamental value because of price risk. In this context, a rational investor called "Smart money" means an investor who not only knows the fundamentals, but also takes into account how the various groups of investors in the market react to price changes and influence them.

However, uncertainty about changes in noises traders' sentiment adds an additional risk to the fundamental risk of the risky assets and consequently it increases its risk. Henceforth, when investors are risk averse, a decrease in demand for a risky asset follows, which tends to increase the deviation between market price and the fundamental value of the security in question.

Thus, the presence of noises traders adds an additional risk called "noise trader risk". The latter is considered endogenous with respect to the fundamental risk which is exogenous and results from a change in economic fundamentals (dividends, expected benefits

[3] Indeed, this result is deduced from the fact that neoclassical finance considers that there is a unique relevant estimation of the fundamental value taking into account available information. For more details see Orléan (2005).

[2] see DSSW page 711

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etc ...). The endogenous nature of "noise trader risk" results from the fact that noises traders' demand for risky financial assets is affected by their beliefs or emotions, which are obviously not fully justified by economic fundamentals.

The most important feature of the DSSW model is the existence of unpredictability of the feeling of "noise traders" defined as the demand for risky assets not justified by fundamentals. As arbitrators can in no way predict noises traders' reaction. The disruptive nature of these feelings adds an additional risk to the assets they exchange; a "noise trader risk" or "a sentiment risk". Indeed, noises traders' expectations of asset returns are subject to the influence of their feelings: they overestimate expected returns (compared to rational investors) in some periods and underestimate them in others. Assuming that assets are risky and that all investors are risk averse, prices can diverge from their fundamental values, which explains excess volatility of prices compared to the intrinsic value of assets.

c) Price Volatility in the presence of "noises traders"

According to equilibrium price equation in the presence of "noises traders' expressed by the relationship (2.10) price variance is expressed as follows:

$$\text{var}(P_t) = \text{var}\left[1 + \frac{\mu(\rho_t - \rho^*)}{1+r} + \frac{\mu\rho^*}{r} - \frac{2y}{r}\ {}_t(\sigma^2_{P_{t+1}})\right] = Var\left[\frac{\mu(\rho_t - \rho^*)}{1+r}\right] = \left(\frac{\mu}{1+r}\right)^2 Var(\rho_t) \quad (2.11)$$

$$Var(P_t) = \frac{\mu^2 \rho_P^2}{(1+r)^2}$$

The latter relationship allows us to deduce that market price volatility is a function of change in "noises traders" sentiment. Thus, the higher the variability of their sentiment is, the higher the volatility of market price is.

d) Stock returns in the presence of "noises traders"

DSSW also indicate that "noises traders" can obtain higher returns than those obtained by rational investors. DSSW calculate this difference in returns as follows:

$$\Delta R_{n-i} = (\lambda_t^n - \lambda_t^i)\left[r + {}_tP_{t+1} - P_t(1+r)\right] \quad (2.12)$$

With

$$(\lambda_t^n - \lambda_t^i) = \frac{\rho_t}{2\mu\ {}_t\sigma^2_{P_{t+1}}} = \frac{(1+r)^2\rho_t}{2y\mu^2\sigma_P^2} \quad (2.13)$$

$$\left[r + {}_tP_{t+1} - P_t(1+r)\right] = 2y\sigma^2_{P_{t+1}} - \mu\rho_t = \frac{2y\mu^2\sigma_P^2}{(1+r)} - \mu\rho_t \quad (2.14)$$

Substituting the last two expressions in the first, we have:

$$({}_t\Delta R_{n-i}) = \rho_t - \frac{(1+r)^2(\rho_t)^2}{2y\mu\sigma_P^2} \quad (2.15)$$

The expected value of this expression is given by:

$$E(\Delta R_{n-i}) = \rho^* - \frac{(1+r)^2(\rho^*)^2 + (1+r)^2\sigma_P^2}{2y\mu\sigma_P^2} \quad (2.16)$$

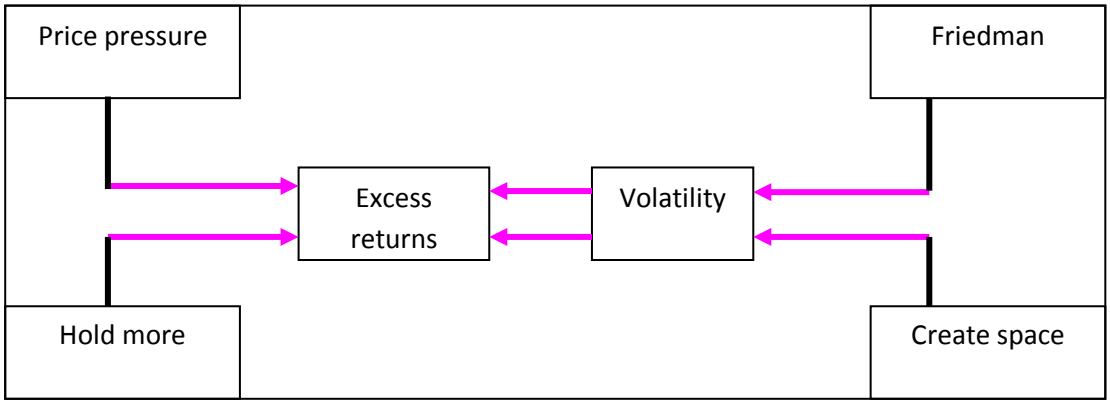
DSSW distinguish between four behavioral effects that may affect the difference in returns between "noises traders" and rational investors.

- The "Hold more" effect is expressed by the first term of equation (2.16). This effect assumes that as "noises traders" are more optimistic, difference in returns increases.
- "Price pressure" effect is expressed by the first term of the numerator. This effect highlights that as "noises traders" are more optimistic, the more their demand for risky assets increases and therefore it tends to increase their prices. Relative high prices imply, first, estimated low returns and second a low difference in returns.
- The "Friedman" effect: This effect reflects the unpredictability of "noises traders" sentiment, defined as the demand for risky assets not justified by fundamentals. The more noises traders' perception of changes of prices increases, the more the variability of their sentiment increases. Here, we

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call for the classic argument, proposed by Friedman (1953). which assumes that irrational investors who buy overvalued securities and sell undervalued securities are necessarily led to disappear in the market since they lose money. Thus, the "Freidman" effect plays a negative role in excess returns; the more the variability of noises traders' sentiment increases, the more their returns decrease.

- The "create space" effect: this effect is measured by the denominator of the second term of the excess returns equation. If the variability of noises traders' sentiment increases, the risk resulting from the difference between the price and its fundamental value increases. The implications of this latter assumption are fundamental because risky arbitration is limited arbitration, hence taking into account investors' risk aversion. It follows then that rational arbitrators cannot eliminate pricing errors and therefore market efficiency is lost. This effect is important as long as the number of "noises traders" and the variability of their sentiment increases in the market.



Source: modified Lee, Jiang, and Indroo (2002) "Stock market volatility, excess return and investor sentiment" Journal of Banking and Finance, vol 26, page 2284.

Figure 1 : illustrates the impact of the four effects on volatility and asset returns.

Figure 1 : The impact of the four effects on volatility and returns of financial assets

It is clear from this figure that the "Hold more" and "Price pressure" effects directly influence expected returns, while the other two effects, namely the "Freidman" effect and "create space" effects, indirectly influence financial assets returns through their influences on noise trades' misperception of the distribution of risky assets price because of their uncertainty. The disruptive nature of noise traders sentiment plays a greater role in assets pricing than knowledge of the distribution of financial asset prices. As arbitrators can in no way predict noises traders' response, this disruptive nature of that sentiment adda an additional risk to the assets they trade (sentiment risk). Indeed, noises traders' expectations of asset returns are subject to their feelings. They overestimate expected returns (compared to rational investor) in some periods and underestimate them in others. If we consider that the exchanged assets are risky and that all investors are risk averse, prices can deviate from the fundamental value of assets. The more sentiment risk is, the more the difference between the price and its intrinsic value is.

This theoretical analysis attests for an excess volatility of stock prices relative to fundamental values. From the two cases, namely investors are not fully rational and arbitration is risky and therefore limited (Shleifer and Summer (1990 P: 19-20)), it follows then that the market ceases to be efficient. Under the action of irrational investors, price can substantially deviate from its fundamental value, without rational arbitrators being able to fully bring the stock price to its fundamental value because of price risk. Moreover, the Noise Trader Approach (NTA) also shows that the Friedman argument (1953) does not hold. DeLong, Shleifer, Summers and Waldman (1990) indicate that noise traders can produce superior returns than those obtained by rational investors. Indeed, the DSSW model (1990), which has been discussed above, provides four effects to explain volatility and financial assets return. On the one hand, the "Hold more" and "Price pressure" effects that reflect the transient impact (short term) of "noise traders" on the difference in returns between them and rational arbitrators mainly results from unpredictability of "noise traders" sentiment. On the other hand, the "Freindman" and "create space" effects highlight the permanent impact (long-term) of "noise traders" on returns, caused by the impact of sentiment risk on returns volatility.

The NTA focuses on market configurations in which noise traders or irrational investors are simultaneously followed by a large number of investors (correlation hypothesis), to the extent that their impact

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on actual price is real and does not vanish mechanically, unlike under uncorrelated errors configuration.

The "Hold more" effect highlighted by the DSSW model assumes that if "noise traders" are optimistic in average, their demand for risky assets increases. This demand strategy increases market risk and may result in higher returns than those obtained by rational investors. However, as "noise traders" are becoming optimistic, their demand for risky assets tends to increase producing an exuberant increase in prices relative to fundamental values. Consequently, noise traders' over-reaction stimulates a pressure effect on prices, the "price pressure" effect, making assets return to their intrinsic values. The "price pressure" effect plays a negative role on returns, i.e. whatever the feeling of "noise traders", it always tends to deviate the price from its fundamental value. We will try to study the impact of these effects on excess returns of financial assets and volatility in the presence of "noise traders."

DSSW (1990) show that the effect of a change in "noises traders' sentiment on risky assets' excess returns depends on the extent of the" price pressure effect compared to the "hold more" effect. Indeed, if "noise traders" are too optimistic, their demand for risky assets increases and therefore they push prices up by making them deviate from their fundamental values. An increase in demand for risky assets from "noise traders' increases volatility of stock prices in the market, which increases consequently returns of these risky assets.

Adjustment takes place more or less rapidly depending on efficiency degree through the "price pressure" effect. This latter reduces returns of risky assets by reducing the gap between stock prices and their fundamental values. Therefore, this effect has a negative effect on excess returns. However, if "noise traders" are too pessimistic, their demand for risky assets decreases and therefore they push prices downward resulting in a gap between the current and the fundamental value of assets. This lower price generates a "Friedman" effect resulting in a decrease in excess returns. The bigger the impact of the "Friedman" effect is, the lower returns are. Thus, the Friedman effect plays a negative impact on excess returns.

Contrary to the "Friedman" effect, the "create space" effect has a positive effect on excess returns. Indeed, the "NTA" focuses on market configurations in which irrational behaviors are simultaneously hedged by a large number of investors (correlation hypothesis), to the extent that their impact on pricing is real and does not vanish mechanically unlike under uncorrelated errors configuration. This approach strongly disputes the neoclassical claim that makes of arbitration an economic power able to block price deviations caused by the presence of "noise traders". Moreover, the approach notes that current arbitration, as it is actually practiced on a concrete market, is fundamentally different from theoretical arbitration considered by neoclassical theory according to which arbitration is risky and therefore limited as investors are risk averse. This approach thus shows that the "Friedman" effect or Friedman's argument does not hold. It is the "create space" effect that prevails over the "Friedman" effect and therefore irrational investors can generate greater returns than those obtained by rational investors (DSSW: 1990).

e) Impact of "noises traders" on asset prices evolution

In this section, our interest is to test the impact of "noises traders" sentiment on excess returns and their volatilities using the model of Lee Jiang and Indro (2002). Changes in asset prices are the result of the interaction of the four different effects, namely, on the one hand, the "Hold more" and "Price pressure" effects, reflecting investor sentiment effect (optimistic or pessimistic), have a direct impact on excess returns. On the other hand, the "Friedman" and "create space" effects reflect change in investor sentiment caused by uncertainty about the distribution of changes of financial assets prices. This variability in "noises trader" sentiment affects market conditional volatility and therefore leads to abnormal returns, which in turn affect excess returns.

We test the four effects of "noise traders" on the American market. The test will focus on the S & P500 index over the period 2001-2013, expressed in monthly frequencies.

Excess returns are calculated by a three-month Treasury bond also expressed in monthly frequencies. The data were collected from the Datastream database.

In this empirical study, we chose Mvan sentiment index, unlike Lee, Jiang and Indro (2002) who used in an ad-hoc way the sentiment index of Investor Intelligence (II). Our choice is motivated by the results we obtained (see: 1.2.1.2).

i. *Empirical methodology of the test of the four effects of noise traders*

In modern finance, one of the ideas that is widely used to estimate volatility of stock returns is to provide a measure of attached risk. However, this measure is loosely interpreted as long-term volatility, as it seems to be determined by a variety of economic fundamentals of a particular security and is always assumed to be constant throughout the study period. Various studies have shown that return series of financial assets exhibit some heteroscedasticity, which means they are assigned a random value whose variance varies over time. Specifically, as noted by Mandelbort (1963): "... large changes tend to be followed by large changes whatever the sign and small changes tend to be followed by small changes ..." (Mandelbrot 1963, p: 418). Moreover, several authors have highlighted non-normality and thus the leptokurtic character of unconditional return distributions. These latter have indeed thicker tails and sharper peaks than

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the normal distribution (see for example Fama, 1965). Indeed, these properties of returns distributions have important implications on the evolution of financial assets. The model of time-varying volatility originally introduced by Engle (1982) and then generalized by Bollerslev (1986) was developed to describe returns distributions and thus provide a means to forecast historical volatility of returns.

In standard GARCH models, positive and negative shocks of the same magnitude are assumed to have a systematic effect on conditional volatility. However, various studies have indicated that most financial series are asymmetric, in the sense that negative changes in asset prices are followed by more marked increases in volatility than positive changes of the same magnitude. Many extensions have been made to univariate GARCH processes. We limit ourselves here to present a major extension, namely the threshold GARCH-M model (TGARCH-M) developed by Engle, Lilien and Robbins (1987). This model allows us, on the one hand, to measure the effect of change in time of market conditional volatility of excess returns and, on the other hand, to capture the extreme of conditional volatility of the American market.

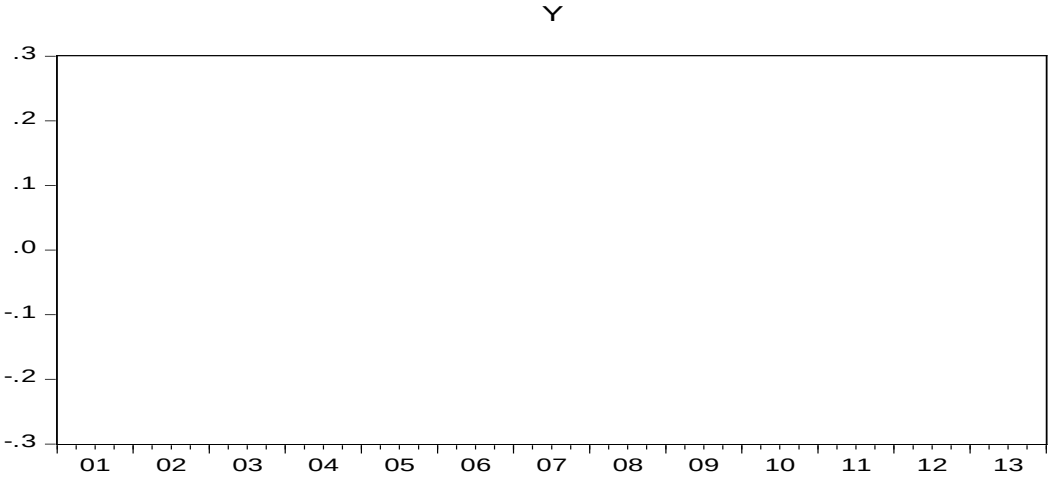
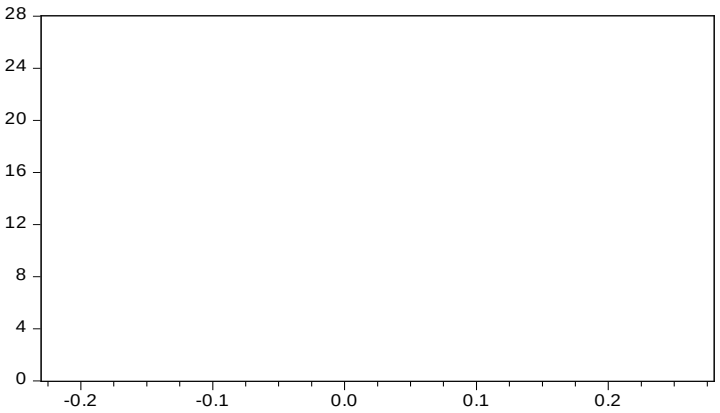


Fig.1 shows changes in returns of the SP500 index over the period 2001-2013. It indicates that returns are highly volatile. We also note that there are volatility clusters. Therefore, volatility changes over time. This observation suggests that we can adopt an ARCH process, especially TGARCH.

Figure 2 : Changes in returns of the SP500 index over the period 2001-2013

Table 4 : Descriptive statistics of returns of the SP500 index



Series: Y	
Sample 2001M01 2013M12	
Observations 155	
Mean	-0.002604
Median	-0.007854
Maximum	0.260201
Minimum	-0.218689
Std. Dev.	0.075935
Skewness	0.340067
Kurtosis	4.476299
Jarque-Bera	17.06318
Probability	0.000197

From the histogram of the returns series, skewness coefficient is different from zero, indicating a presence of asymmetry. The skewness coefficient is positive, reflecting a distribution spread out to the right, i.e. volatilities react to a positive shock than to a negative shock. The Jarque Bera test shows that returns of the SP500 index does not follow a normal distribution, which is a characteristic of financial series. This leads us to estimate a nonlinear model of the ARCH family, especially TGARCH.

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Table 5 : Test ARCH

F-statistic	35.87808	Prob. F(1,152)	0.0000
Obs*R-squared	29.40856	Prob. Chi-Square(1)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/04/14 Time: 18:14
Sample (adjusted): 2001M03 2013M12
Included observations: 154 afteradjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003064	0.000845	3.628553	0.0004
RESID^2(-1)	0.415989	0.069449	5.989831	0.0000

R-squared	0.190965	Meandependent var	0.005463
Adjusted R-squared	0.185642	S.D. dependent var	0.010225
S.E. of regression	0.009227	Akaike info criterion	-6.520459
Sumsquaredresid	0.012941	Schwarz criterion	-6.481018
Log likelihood	504.0753	Hannan-Quinn criter.	-6.504438
F-statistic	35.87808	Durbin-Watson stat	2.129433
Prob(F-statistic)	0.000000		

With the results of the ARCH test, we can reject the null hypothesis of homoscedasticity in favor of the alternative hypothesis of conditional heteroscedasticity (the probability associated with the TR^2 statistic is zero).

To take account of the ARCH effect, we present conditional variance equation along with the mean equation

Consider the following model:

The model is as follows:

$$\begin{cases} R_{i,t} - r_{f,t} = \alpha_0 + \alpha_1 \sigma_{i,t}^2 + \varepsilon_{i,t} \\ \sigma_{i,t}^2 = \omega_0 + \omega_1 \varepsilon_{i,t-1}^2 + \lambda d_{t-1} \varepsilon_{i,t-1}^2 + \omega_2 \sigma_{i,t-1}^2 \end{cases} \quad (2.17)$$

Asymmetry is modeled by the second equation of the model,

$$\text{With } d_{t-1} = \begin{cases} 1 & si \varepsilon_{i,t-1} < 0 \\ 0 & si \quad non \end{cases}$$

A negative shock $\varepsilon_{i,t} < 0$ has an impact $(\alpha_1 + \lambda)$ on σ_t, while a positive shock influences σ_t, through α_1 only. If the estimation of λ is statistically significant, we conclude that a leverage effect exists. Then, if, a negative or a positive shock impacts asymmetrically conditional volatility. Indeed, Christie (1982), Black (1976) and Shwert (1989) show that a decrease in asset prices generates more volatility than an increase of the same magnitude. To this end, we assume that λ s would be positive indicating asymmetry in conditional volatility of the American market. In other words, positive changes in asset prices are followed by more marked increases in volatility than negative changes of the same magnitude.

The TGARCH-M model is estimated by the likelihood method in the same way as a standard GARCH model.

The estimation results of the M-TGARCH model are summarized in the table above.

Table 6 : Estimation results of the TGARCH-M model for the American market

Dependent Variable: SP500_
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 06/30/14 Time: 00:20
Sample (adjusted): 2001M02 2013M12
Included observations: 155 after adjustments
Convergence achieved after 39 iterations
Presample variance: backcast (parameter = 0.7)

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GARCH = C(3) + C(4)*RESID(-1) ^ 2 + C(5)*RESID(-1) ^ 2*(RESID(-1)<0) + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
GARCH	-5.319721	3.330981	-1.597043	0.1103
C	0.012159	0.005199	2.338497	0.0194
Variance Equation				
C	0.000179	0.000104	1.717435	0.0859
RESID(-1) ^ 2	-0.141513	0.079195	-1.786906	0.0740
RESID(-1) ^ 2*(RESID(-1)<0)	0.511684	0.179635	2.848468	0.0044
GARCH(-1)	0.765827	0.104616	7.320385	0.0000
R-squared	0.031603	Mean dependent var		0.001951
Adjusted R-squared	0.025274	S.D. dependent var		0.045606
S.E. of regression	0.045026	Akaike info criterion		-3.623343
Sum squared resid	0.310180	Schwarz criterion		-3.505533
Log likelihood	286.8091	Hannan-Quinn criter.		-3.575491
Durbin-Watson stat	1.829267			

It follows from the above table that a TGARCH-M effect, indicates, on the one hand, a statistically significant impact of conditional variance on excess returns. The parameter α_1 that measures risk premium is statistically significant: The higher conditional volatility of the American market is, the higher excess returns of the S & P500 are. On the other hand, the parameter λ indicates that asymmetry is positive and statistically significant. This parameter is positive, indicating that a positive shock increases more volatility than a negative shock of the same magnitude. Then, we conclude that a leverage effect exists. To understand this phenomenon, Black (1976) indicates that a decline in stock prices compared to bonds of an indebted company leads to an increase in leverage, i.e. indebtedness asymmetrically influences conditional volatility of stock markets.

In line with Black (1976), Nelson (1991) shows that a new market information also asymmetrically influences market conditional volatility. Glosten and Runkle (1993)) indicate that misinformation has more momentum in the market as good news.

ii. *Test of the four effects of "noise trader" on excess returns and conditional volatility of the American market*

To test the four effects of "noise traders" on excess returns and conditional volatility of the American market, we introduce lagged changes in investor sentiment in both the excess returns model to measure the "Hold more" and the "Price pressure" effects and in the conditional variance model to test the "Friedman" and "create space" effects. Like Lee, Jiung and Indro (2002), we use two measures of sentiment risk to test changes in investor sentiment both at the level of excess returns of financial assets of the American market and their conditional volatilities.

The impact of change in irrational investors sentiment $(\Delta S_t = S_t - S_{t-1})$ on excess returns and conditional volatility of financial assets will be estimated by a (TGARCH-M (1)) as a first model. While the impact of change in investor sentiment $\Delta S_t = (S_t - S_{t-1}) / S_{t-1}$ in percentage also on excess returns and conditional volatility will be estimated by a second irrational model; "noises traders" (TGARCH-M (2)). Then, the TGARCH-M model in the presence of "noise traders" is expressed as follows:

$$\begin{cases} R_{i,t} - r_{f,t} = \alpha_0 + \alpha_1 \sigma_{i,t}^2 + \alpha_2 \Delta S_{i,t} + \varepsilon_{i,t} \\ \sigma_{i,t}^2 = \omega_0 + \omega_1 \varepsilon_{i,t-1}^2 + \lambda d_{t-1} \varepsilon_{i,t-1}^2 + \omega_2 \sigma_{i,t-1}^2 + \omega_3 D_{t-1} (\Delta S_{t-1})^2 + \omega_4 (1 - D_{t-1}) (\Delta S_{t-1})^2 \end{cases} \quad (2.18)$$

with

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$$D_{t-1} = \begin{cases} 1 & si \quad \Delta S_{t-1} > 0 \\ 0 & si \quad non \end{cases}$$

$\Delta S_t = S_t - S_{t-1} = VSAAII =$ absolute variance : change in « noises traders » sentiment model (1)

$\Delta S_t = \frac{S_t - S_{t-1}}{S_{t-1}}$ $\Delta S_t = \frac{S_t - S_{t-1}}{S_{t-1}} = TRSAAII =$ relative variance : change in « noises traders » sentiment model (2)

Statistical significance of α_2 reflects the impact of the "Hold more" and the "Price pressure" effects on excess returns, while the statistical significance of the parameter α_1 reflects the indirect impact of the "Friedman" and the "create space" effects. Moreover, like Lee study, Indro and Jiang (2002) we have introduced two dummy variables D and (1-D) in the conditional variance model in order to capture an asymmetry in the latter, as a result of a change in irrational investors sentiment. The statistical significance of the parameters ω_3 and ω_4 in the conditional variance process reflects the effect of change in "noises traders" sentiment on the conditional volatility of the American market and describes the interaction between the "Friedman" and the "create space" effects. Thus, the resulting effect on excess returns can be positive or negative depending on which of the two effects prevails. To this end, abnormal or excess returns will be even higher (lower) when the "create space" effect is more (less) than the "Friedman" Effect. Given the uncertainty of noises traders, conditional volatility varies with the change in their sentiment (optimistic or pessimistic) and many studies, particularly that of Kahneman and Tversky (1982), pointed out that individual behavior towards risk frequently deviates from rationality. The results of the impact of sentiment risk on both excess returns of financial assets in the American market and on their conditional volatilities are summarized in the table below.

Table 7 : Results of the four interaction effects both on excess returns of financial assets in the American market and on their volatilities

Relative Variance

Dependent Variable: Y
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 09/06/14 Time: 01:10
Sample (adjusted): 2001M06 2013M03
Included observations: 142 afteradjustments
Convergence achievedafter 38 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*RESID(-1)^2*(RESID(-1)<0) + C(7)*GARCH(-1) + C(8)*DDS(-1) + C(9)*DDS1(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
GARCH	-11.76425	3.434040	-3.425775	0.0006
C	0.053960	0.012690	4.252075	0.0000
TRSAAII	-0.001241	0.000550	-2.257126	0.0240
Variance Equation				
C	0.003416	0.000976	3.501072	0.0005
RESID(-1)^2	0.455470	0.198160	2.298492	0.0215
RESID(-1)^2*(RESID(-1)<0)	-0.658225	0.197928	-3.325573	0.0009
GARCH(-1)	0.117264	0.214196	0.547462	0.5841
DDS(-1)	-4.88E-08	7.88E-07	-0.061952	0.9506
DDS1(-1)	-4.04E-06	1.14E-05	-0.355331	0.7223

R-squared	0.212934	Meandependent var	-0.002129
Adjusted R-squared	0.201610	S.D. dependent var	0.069661
S.E. of regression	0.062244	Akaike info criterion	-2.616619

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Sumsquaredresid	0.538530	Schwarz criterion	-2.429278
Log likelihood	194.7800	Hannan-Quinn criter.	-2.540491
Durbin-Watson stat	2.008990		

It is clear from this table that the parameters α_1 and α_2 are statistically significant at the 1%, therefore relative variance of investor sentiment seems to explain excess returns of the S & P 500 index. However, the parameters ω_3 *and* ω_4 are not statistically significant, suggesting therefore that change in investor sentiment (noises traders) does not affect conditional volatility of the American financial market.

Table 8 : Results of the four interaction effects both on excess returns of financial assets in the American market and on their volatilities

Absolute variance
Dependent Variable: Y
Method: ML - ARCH (Marquardt) - Normal distribution
Date: 09/06/14 Time: 01:18
Sample (adjusted): 2001M03 2013M03
Included observations: 145 afteradjustments
Convergence achievedafter 37 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(4) + C(5)*RESID(-1)^2 + C(6)*RESID(-1)^2*(RESID(-1)<0) + C(7)*GARCH(-1) + C(8)*VVS(-1) + C(9)*VVS1(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
GARCH	-6.982040	2.048395	-3.408543	0.0007
C	0.036720	0.008622	4.258710	0.0000
VSAAII	0.000309	0.000383	0.806777	0.4198
Variance Equation				
C	0.003225	0.000920	3.504718	0.0005
RESID(-1)^2	0.293085	0.148169	1.978045	0.0479
RESID(-1)^2*(RESID(-1)<0)	-0.245045	0.210941	-1.161672	0.2454
GARCH(-1)	0.102470	0.170391	0.601383	0.5476
VVS(-1)	5.74E-06	4.96E-06	1.156795	0.2474
VVS1(-1)	-3.85E-06	1.72E-06	-2.236848	0.0253

R-squared	0.078607	Meandependent var	-0.000702
Adjusted R-squared	0.065630	S.D. dependent var	0.075456
S.E. of regression	0.072938	Akaike info criterion	-2.512341
Sumsquaredresid	0.755432	Schwarz criterion	-2.327578
Log likelihood	191.1447	Hannan-Quinn criter.	-2.437266
Durbin-Watson stat	2.140342		

The test results of model (2) indicate that absolute variance has improved statistical significance of the parameters ω_3 *and* ω_4 i.e. when change in "noise trader" sentiment is positive, reflecting an optimism (pessimism), conditional volatility of the American stock market over the period 2001-2013 decreases (increases) leading to a subsequent increase (decrease) in excess returns of the S & P500 index. The empirical results we obtained corroborate the theoretical predictions postulated by Shleifer and Summers (1990: 19-20)) and Delong, Shleifer, Summers and Waldman (1990)). From these two positions, namely "investors are not fully rational and arbitration is risky and therefore limited" (Shleifer and Summers (1990) p: 19-20), it follows then that the market continues to be efficient. Under the action of irrational investors, price can sustainably deviate from its fundamental value, without rational arbitrators being able to fully bring price to its fundamental value because of price risk. Furthermore, NTA also indicates that the Friedman argument does not hold. Noise traders' strategies can generate higher returns than those obtained by rational investors (DeLong, Shleifer, Summers and Waldam (1990)) yields.

Consequently, neither arbitration nor selection can eliminate irrational investors, "noise traders".

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Indeed, arbitration seems to be unable to absorb all demand shocks. Unpredictability of investor sentiment may limit willingness of arbitrators to bring price to equilibrium. Not knowing that "noises traders" will react, arbitrators will perceive these potential interventions as risky and limit their funds. For example, suppose that in a given period "noise traders" are very optimistic and they inflate prices. The rational investor, convinced that the market is heavily overvalued, adopts the theoretically appropriate strategy to sell overvalued assets. However, at the end of the contract, it is possible that "noise traders' are more optimistic and drive a much larger increase in prices, which will result in a significant loss to arbitrators. Conversely, if "noise traders" are pessimistic about future returns causing a significant fall in prices, the arbitrator buys undervalued stocks anticipating their future increase. Similarly, the investor bears risk upon selling the stocks. "noise traders" are more pessimistic and thus cause a much greater decrease in prices. The disruptive nature of "noises traders' sentiment limits the willingness of arbitrators to act against them, therefore prices can deviate significantly from their fundamental values. This adds an additional risk to the market, known as "noise trader" risk or sentiment risk. Furthermore, NTA shows that the Friedman argument (1953), which assumes that irrational investors who purchase overvalued securities and sell undervalued securities are necessarily led to disappear in the market as they lose money, does not hold.

These results support studies indicating that investor sentiment is an important factor in financial markets (Lee, Shleifer and Thaler (1991), Shiller (2000) and Shleifer (2000)).

IV. Conclusion

The approach of "noise traders' claims that stock prices are fixed through a dynamic relationship between them and rational arbitrators (Shiller (1984), Shleifer and Summers (1999)). In other words, investor sentiment is involved in the process of generating returns. According to proponents of behavioral finance, in addition to fundamental innovations and macroeconomic variables, investor sentiment may induce co-movement of prices. Indeed, arbitration seems to be unable to absorb all demand shocks. Unpredictability of individual investor sentiment can limit the willingness of arbitrators to bring price to equilibrium. Not knowing that "noises traders" will react, the arbitrator will perceive these potential interventions as risky and limit their funding in response to irrational investors. The disruptive nature of "noises traders' sentiment limits the willingness of arbitrators to act against them, therefore price may deviate significantly from its fundamental value. This adds an additional risk to the market, known as "noise trader risk" or sentiment risk.

In this paper, we reported an empirical study in two parts:

- In the first part, we conducted econometric tests to identify the sentiment measure that best reflects variations not explained by fundamentals. As part of this empirical study, we used two measures of sentiment, based on sample surveys. The tests show that the sentiment index of SENTAAII is the most appropriate proxy that explains variations unexplained by fundamentals in the American market.
- In the second part, inspired by the work of DSSW (1990), we tested the impact of "noise trader" risk, both on excess returns and on their volatilities. To this end, we used a TGARCH-M model which, like Lee, Jiang and Indro (2004), examined the relationship between market volatility, excess returns and investor sentiment.

Our results on the American market show, first, that change in investor sentiment has a significant effect on excess returns (the results of model (1)). On the other hand, change in sentiment has a significant effect on conditional volatility of the American stock market that causes an increase (decrease) in excess returns (the results of model (2)).

Following these results, we can conclude that the presence of "noises traders' in the market helps explain excess volatility of stock prices relative to their fundamental values, as unpredictability of investor sentiment may limit the willingness of arbitrators to bring prices back to equilibrium. Not knowing that noises traders will react, the arbitrator will perceive their potential interventions as risky and limit their funding in response to irrational investors, leading to a persistent gap between prices and their fundamental values. These results gave birth to alternative theories of prices co-movement. They claim that asset prices are determined by a dynamic relationship between noises traders and rational arbitrators (Shiller (1984), Shleifer and Summers (1999)). In other words, investor sentiment is involved in the process of generating returns.

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Shari`ah Compliance in Islamic Banking-Why and How?

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Abstract- Shari`ah compliance is regarded as the foundation of the Islamic banking. Though Islamic banks give priority on Shari`ah compliance, a number of factors hinder Shari`ah compliance. Shari`ah knowledge, efforts and seriousness of the bank authorities and bank employees are the pre-requisites for complying Shari`ah appropriately. But it is observed that there are lack of Shari`ah knowledge, efforts and seriousness among bank authorities and bank employees. The present study demonstrates the importance of Shari`ah compliance in general and particularly in Islamic banking to make them aware and serious in complying Shari`ah. The reasons for Shari`ah compliance are divided into six, such as: Shari`ah compliance for better life in the earth, Shari`ah compliance for saving life, property and honor, Shari`ah compliance for better life after death, Shari`ah compliance for salvation from punishment in the earth, Shari`ah compliance for salvation from punishment after death and Needs for Shari`ah compliance in Islamic banking. The paper also direct the way how Shari`ah compliance is being carried out at the organizational level.

Keywords: shari`ah, compliance, islamic banking, qur'an, and sunnah.

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Shari`ah Compliance in Islamic Banking-Why and How?

Ruma Khanam[α] & Md Hafij Ullah[σ]

Abstract- Shari`ah compliance is regarded as the foundation of the Islamic banking. Though Islamic banks give priority on Shari`ah compliance, a number of factors hinder Shari`ah compliance. Shari`ah knowledge, efforts and seriousness of the bank authorities and bank employees are the pre-requisites for complying Shari`ah appropriately. But it is observed that there are lack of Shari`ah knowledge, efforts and seriousness among bank authorities and bank employees. The present study demonstrates the importance of Shari`ah compliance in general and particularly in Islamic banking to make them aware and serious in complying Shari`ah. The reasons for Shari`ah compliance are divided into six, such as: Shari`ah compliance for better life in the earth, Shari`ah compliance for saving life, property and honor, Shari`ah compliance for better life after death, Shari`ah compliance for salvation from punishment in the earth, Shari`ah compliance for salvation from punishment after death and Needs for Shari`ah compliance in Islamic banking. The paper also direct the way how Shari`ah compliance is being carried out at the organizational level. The study differs from other study in analyzing the Shari`ah importance rigorously based on the main Shari`ah source, 'Qur'an' and 'Sunnah'. Finally, the paper concludes with the expectation that the bank authorities and employees would be more knowledgeable in Shari`ah and they will provide more efforts for complying Shari`ah so that the Islamic banks can provide Shari`ah compliant services to their customers.

Keywords: shari`ah, compliance, islamic banking, qur'an, and sunnah.

I. Introduction

Shari'ah is regarded as the foundation of Islamic banks (Ullah, 2014) and, hence, no Islamic bank can function without Shari'ah compliance because if anyone or any bank does not follow Islamic Shari'ah, he/she cannot be recognized as Muslim and that bank cannot be treated as Islamic bank (Al-Quran, 5:44). Therefore, Islamic banks provide first priority is Shari'ah compliance in performing all of their transactions (Ullah, 2014).

Though Shari`ah compliance should be the prime concern of the Islamic banks but Ullah (2014) found the poor efforts of higher authorities and employees for 100 per cent Shari'ah compliance. Though Government rules and regulations, interest-based economy, fatwa shopping, tempting or influencing or invisible hand of management on the decision of Shari'ah Supervisory Board, different interpretation of existing Shari`ah rulings (Grais and Pellegrini, 2006; Ullah, 2012) and lack of specially-designed Shari'ah-complaint financial products (Koch and Stenberg, 2010) are impediments to Shari'ah compliance but Shari`ah knowledge of the bank authorities and employees is a vital pre-requisite.

Shari`ah knowledge among the employees are not as expected for accomplishing their duties efficiently. Ullah (2014) showed frustration regarding the findings on the knowledge of the executives on Shari'ah compliance and opined that higher authorities do not arrange sufficient programs for making employees more knowledgeable in Shari'ah. Iqbal, et al. (1998) also mentioned that many managers of Islamic banks are not very well trained in the use of Islamic modes of finance and unfortunately very little effort has been made to meet these requirements. Therefore, Ullah (2014) recommended that Islamic banks need to increase Shari'ah knowledge and commitment to Shari'ah compliance of the employees for increasing Allah fearing and adherence to the Islamic Shari'ah in personal, family, social and political life.

II. Literature Review

There are currently more than 475 Islamic financial institutions spread over 75 countries and well over 250 mutual funds that comply with Islamic principles (Malik, et al., 2011). Over the last couple of decades or so, Islamic banking and finance has grew into a full fledge system and has still been growing at an astonishing rate of 15-20 percent, i.e., it is doubling every 5 years (Malik, et al., 2011). The Islamic financial institutions are growing much faster than conventional banks because of the strong demand among consumers for products and services that comply with Shari`ah (Benaissa, et al., 2005). Similarly, Archer and Karim (2002) maintained that the major forces for the development of Islamic banking institutions is the growing sense of Islamic identity and religious consciousness among the peoples in Muslim countries.

In some cases, it is observed that Islamic banks cannot perfectly comply with Islamic Shari'ah due to due to lack of knowledge and seriousness of the employees (Ullah, 2014). But Islamic banks are Islamic because of performing their activities as per the guidelines of Islamic Shari'ah and basically the Shari'ah is the main

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guiding principles for directing all operations of Islamic banks (Siddiqi, 1983; Ahmad, 1984; Siddiqi, 1985; Khan and Mirakhor, 1986; Ahmad, 2000; Siddiqui, 2001). Chong and Liu (2009) also found that theoretically Islamic banking is profit-and-loss sharing (PLS) system but practically it is not very different from conventional banking. Similarly, Malik et al. (2011) argued that much of the financing offered by Islamic banks actually bear a closer semblance to debt instruments than to profit-and-loss sharing. Yus of and Fahmy (2008) observed that the most common argument against contemporary Islamic banking in Malaysia is that there is "no difference at all" without changing the name and documents and using "profit rate" in Islamic banking instead of interest rate.

Regarding impediments to Islamic Shari'ah compliance, the problem faced by the Islamic banking is the shortcoming of qualified professionals at all levels who have the knowledge of both conventional banking and Islamic laws (Malik et al., 2011; Grais and Pellegrini, 2006).Ahmad and Hassan (2007) identified another most important issue is the lack of a well-defined regulatory and supervisory framework for Islamic banks for their effective functioning in line with the tenets of Shari'ah. Hence, this paper is a noble attempt to highlight the importance of Shari`ah to the Islamic bankers and to guide a way to adopt in complying Islamic Shari`ah.

III. Objectives of the Study

The main objective of the study is to highlight the importance of Islamic Shari`ah compliance and to direct the ways how Shari`ah compliance is accomplished. The specific objectives of the study are enumerated as below:

a) To demonstrate the importance of Islamic Shari`ah compliance in general.
b) To highlight the importance of Shari`ah compliance in Islamic banking in particular.
c) To direct the ways of accomplishing Shari`ah compliance in case of banks or other organizations in Bangladesh.

IV. Methodology of the Study

The methodology followed in this study is mainly of library work basically based on the study of the Holy Qur'an, Hadiths and related literatures written in conventional and Islamic perspective. That is, the study is a qualitative study that used only the secondary data.

V. Islamic Bank

In 1978, OIC approved following definition of Islamic Bank, "Islamic Bank is a Financial Institution, whose statutes, rules and procedures expressly state its commitment to the principles of Islamic Shari`ah and to the banning of the receipt and payment of on any of its operations (Rahman, 2008)."

As defined, Islamic Banks aim to provide banking services that are in accordance with Islamic Principles and Shari`ah within the complete Islamic financial system, which in turn aims to bring the most benefit to society in terms of equity and prosperity, rather than focusing solely on creating maximum returns on capital (Zaher and Hassan, 2001). Islamic banks aim to achieve the socio-economic goals of the Islamic religion which are reaching full-employment, a high rate of economic growth, equitable distribution of wealth and income, socioeconomic justice, smooth mobilization of investments and savings while ensuring a fair return for all parties and finally emphasize the stability of money value (Hassan and Mervyn, 2007; Chapra, 1995).

VI. Islamic Shari`ah

Shari`ah is the Arabic word for Islamic law, also known as the Law of Allah. The term Shari`ah itself derives from the verb Shara'a, which according to Dictionary of the Holy Qur'an connects to the idea of 'spiritual law' (Al-Qur'an, 5:48) and 'system of divine law; way of belief and practice' (Al-Qur'an, 45:18) in the Qur'an (Omar, 2010). Shari`ah has certain laws which are regarded as divinely ordained, concrete and timeless for all relevant situations.

There are four sources of Islamic Shari`ah: (a) Interpretations of the Qur'an, (b) Interpretations of the Sunnah (Hadith), (c) Ijma, consensus amongst scholars (collective reasoning) and (d) Qiyas/Ijtihad analogical deduction (individual reasoning).

VII. Shari`ah Compliance----Why?

Shari`ah compliance means abide by all the rules and regulation of Qur'an and Sunnah and the person who completely follow Islam is a 'Muslim' (complete submission to Allah) and Allah (SWT) said "O you who believe, fear Allah as He should be feared and die not except in a state of Muslim" (Al-Qur'an, 3:102). Allah (SWT) accepts only one way of life that is Islam (Al-Qur'an, 3:19) and whosoever desires other than Islam as his way of life, that will never be accepted from him, and, in the hereafter, he is among those in abject loss (Al-Qur'an 3:85). Similarly, in another verse, Allah said "do they seek other than the Deen (the rules of life) of Allah? But to Him everything in the heavens and the earth has submitted, willingly and unwillingly, and to Him they will return" (Al-Qur'an 3:83).

Islam is a complete code of life (Al-Qur'an, 5:3; 6:154) because Allah (SWT) and Allah's messenger Prophet Mohammad (SAW) gave us guidelines regarding every aspect of human life to be dealt with (Al-Qur'an, 16:89). Allah (SWT) said, "This day, I have perfected your religion for you, completed My favor upon you, and have chosen for you Islam as your religion" (Al-Qur'an, 5:3). In different verses Allah (SWT) commanded to follow Islam (Al-Qur'an, 4:49; 5:44 & 48,

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6:155; 7:3; 42:47; 72:14; 75:18) like 'Say: verily, I am commanded to be the first of those who submit themselves to Allah (as Muslim)' (Al-Qur'an, 6:14; 39:11-12; 42:47; 72:14). Allah (SWT) said "Take what the Messenger gives you and abstain from what he forbids you" (Al-Qur'an, 5:33) and the Messenger of Allah did not speak of (his own) desire, it is only a revelation revealed (Al-Qur'an, 53:3-4).

As per the Holy Qur'an, none can give order or command except Allah because Allah has created everything and Allah has the right to give law or command (Al-Qur'an, 7:54; 12:40). In the Holy Qur'an, Allah (SWT) said, "Say: True guidance is the guidance of Allah" (Al-Qur'an, 3:73) and "Whom Allah does guide, he is on the right path. Whom He rejects from His guidance, such are the persons who lose" (Al-Qur'an, 7:178). Allah (SWT) also said, "O you who believe! Enter perfectly in Islam (by obeying all the rules and regulations of Islamic religion) and follow not the footsteps of Shaitan (Satan). Verily, He is to you a plain enemy" (Al-Qur'an, 2:208) and "Say: my worship and my sacrifice and my living and my dying are for Allah, Lord of the Worlds. He hath no partner. And of this I have been commanded, and I am first of those who surrender (unto Him)." (Al-Qur'an, 6:162-163).

a) Shari`ah compliance for better life in the earth

The Shari`ah that Allah (SWT) was Himself going to provide to all human beings and nations at different times through a chain of his Messengers to guide them in living up to their mission as vicegerent of Allah and to manage their affairs in this world in a way which is in harmony with this mission (Al-Qur'an, 16:36; 40:78). Shari`ah helps provide the right direction to all human effort by injecting a meaning and purpose into life, and transforming individuals into better human beings through a change in their behavior, life-style, tastes, preferences, and attitude towards themselves as well as other human beings, resources and the environment (Chapra, 2008). The purpose of Shari`ah compliance is being happy in the earth and also in the life after death as Allah (SWT) taught us to pray as "Our Lord! Give us in this world that which is good and in the Hereafter that which is good, and save us from the torment of the fire!" (Al-Qur'an, 2:201).

Allah (SWT) declared the objectives of sending Muhammad (pbuh) as Messenger that to relieve mankind of the burdens and chains that have been imposed on them (Al-Qur'an, 7:157) and "We have sent you as a blessing for mankind" (Al- Qur'an, 21:107). The ultimate goal of all Islamic teachings is to be a blessing for mankind (Chapra, 2008) and this is the primary purpose for which the Prophet (pbuh) was sent to this world (Al-Qur'an, 21:107). Establishment of justice has, therefore, been the primary mission of all Allah's Messengers (Al-Qur'an, 57:25). In many verses of the Holy Qur'an, Allah (SWT) declared good messages for the people who follow the guidelines and fear Him. Some of which are: "if the people of the towns had believed and had the Taqwa (piety), certainly We should have opened for them blessings from the heaven and the earth" (Al-Qur'an, 7:96); "if only they had acted according to the Taurat (Torah), Injeel (Gospel), and what has (now) been sent down to them from their Lord (the Qur'an), they would surely have gotten provision from above them and from underneath their feet" (Al-Qur'an, 5:66); "whosoever fears Allah and keeps his duty to Him, He will make a way for him to get out (from every difficulty) and He will provide him from (sources) he never could imagine and whosoever puts his trust in Allah, then He will suffice him" (Al-Qur'an, 65:2-3); and "Therefore, give good tidings to my servants who hear advice and follow the best thereof" (Al-Qur'an 39:17-18; 16:122; 12:56-57; 3:148; 16:89).

Human beings are the khalifahs or vicegerents of Allah (SWT) on earth (Al- Qur'an, 2:30) whose duty is to implement the responsibility of the Sender and to live up to the mandate given to them by their Creator and, thereby, not to pollute their nature and degrade themselves (Chapra, 2008). Justice cannot be ensured without faithfully observing the rules of behavior provided by Divine Guidance as Allah knows everything better for His creation. Without justice, as the Qur'an has clearly warned, there can be no peace of mind, (Al-Qur'an, 13:28) or peace in the world (Al- Qur'an, 6:82), which are both among the most important psychological needs of the human personality.

Gruber (2005) stated that "There are hundreds of articles in sociology, psychology, and medicine that overwhelmingly document the positive impact of religiosity on a wide variety of outcomes". Qur'an also proved this saying that verily, in the remembrance of Allah do hearts find rest (Al-Qur'an, 13:28). Many empirical studies have consistently found that high rates of religious commitment and activity are associated with mental health, reduced stress and increased life satisfaction (Ellison, 1993 and Iannaccon, 1998). Chapra (2008) said that if the human being utilize these resources and interact with each other in accordance with these rules, it may not only be possible to ensure the well-being of all humans but also to protect the environment, including animals, birds and insets.

b) Shari`ah compliance for saving life, property and honor

The Qur'an equates the unwarranted killing of even a single individual (irrespective of whether he/she is a Muslim or non-Muslim) with the killing of the whole of mankind, and the saving of a single life with the saving of the whole of mankind (Al-Qur'an, 5:32). This is but natural because the Islamic call for the respect of life and the brotherhood of mankind would be meaningless if the life of non-Muslims were not considered as sacred as that of Muslims. The Prophet (pbuh), also

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pronounced in the address which he delivered during his farewell pilgrimage that: "Your lives, your property and your honor are as sacred as this Day of yours (Hajj), in this month of yours, in this city of yours" (Abu Daud, 2006, Hadith No. 1903).

Ghazali (1937), a prominent and highly respected reformer in the fifth century Hijrah, is specific about the requisites for real human well-being. He says: "The very objective of the Shari`ah is to promote the well-being of the people, which lies in safeguarding their faith (dīn), their self (nafs), their intellect ('aql), their posterity (nasl), and their wealth (māl). Whatever ensures the safeguard of these five serves public interest and is desirable and whatever hurts them is against public interest and its removal is desirable." The sayings of the Prophet (pbuh) also prove that Shari`ah compliance increases the honor of human being in the earth: "Do not beg anything from people" (Abu Dawud, 2006, Hadith No. 1642-1646), and "The hand that is above is better than that is below" (Sahih Muslim, 2002, Hadith No. 2254; Al-Adabul Mufrad, Hadith No. 196).

c) Shari`ah compliance for better life after death

Muslims always give emphasis on the reward of Allah (SWT) after death as Allah said that the life of this world is nothing but play and amusement (Al-Qur'an, 6:32) and verily, the reward of the Hereafter is better for those who believe and used to fear Allah and keep their duty to Him (by abstaining from all kinds of sins and evil deeds and performing all kinds of righteous good deeds) (Al-Qur'an, 4:162; 12:57; 29:64).Allah (SWT) said, "Those are Allah's bounds (Shari`ah), whosever obey Allah and His Messenger, He will admit him to gardens underneath which rivers flow, therein dwelling forever; that is the mighty triumph" (Al-Qur'an, 4: 13-14) and that home of the Hereafter (Paradise), We shall assign to those who rebel not against the truth with pride oppression in the land nor do mischief by committing crimes. Such is the Paradise which we shall give as an inheritance to those of Our slaves who have been Al-Muttaqun (the pious) (Al-Qur'an, 19:63) and the good end is for the Muttaqun (the pious) (Al-Qur'an, 28:83). In another place Allah (SWT) said regarding the pious that 'as for him who feared standing before his Lord, and restrained himself from impure evil desires and lusts; verily, Paradise will be his abode' (Al-Qur'an79:40-41).

Allah (SWT) asked, 'Are you pleased with the life of this world rather than the Hereafter? But little is the enjoyment of the life of this world as compared to the Hereafter' (Al-Qur'an, 9:38) and indeed whosoever purifies himself shall achieve success but you prefer the life of this world although the Hereafter is better and more lasting and should be given more preference (Al-Qur'an, 87:14-17; 17:21). The people who obey Allah and His Messenger will be raised with those whom Allah blessed and good companions like Prophets, just men, martyrs and the righteous in Hereafter (Al-Qur'an, 4: 69-70) and they will get mercy from Allah (Al-Qur'an, 3:132).

d) Shari`ah compliance for salvation from punishment in the earth

Shari`ah compliance is also important for salvation from the punishment because Allah (SWT) give punishment in the earth sometimes to warn and sometimes to exemplify for others. Allah (SWT) said, We will give them a taste of the minor punishment before the greater punishment, that they might turn back (i.e. to what is right) (Al-Qur'an, 32:21). In the Holy Qur'an, Allah (SWT) gave description of the generation of A'd, Tha' mud, Firaun, and Lut, etc. who were very strong but Allah destroyed all through different kinds of sever torment because of not following the Shari`ah what Allah provided to them (Al-Qur'an, 11:77-83; 89:6-14; 41:13-18; 51:41-45; 26:123-140 & 170-173).

As per Islamic Shari`ah, Muslims are bound to follow Islamic rules and regulations in each step of life but if they want to follow their own desire then they will fall in the punishment of Allah (SWT). As Allah said, whatever calamity befalls you, it is according to that which your own hands have earned - and Allah forgives much (Al-Qur'an, 42:30) and Whatever good comes to you is from Allah, and whatever evil comes to you is from yourself (Al-Qur'an, 4:79). In other places Allah warned us as 'if they do not answer your call, know that they only follow their own hawaa (desire), and who is more astray than the one who follows his own desire without guidance from Allah, and Allah does not guide those who oppress' (Al-Qur'an, 7:157; 5:77; 2:145; 28:50; 6:119).

Again, Allah (SWT) said, 'whosoever turns away from My reminder (teaching of Qur'an and Sunnah); verily, for him is a life of hardship' (Al-Qur'an, 20:124). Allah (SWT) instructed to save us from punishment as 'turn toward your Lord, and submit to Him before the punishment comes to you, and you are without help' (Al-Qur'an, 39:54). And finally Allah (SWT) gave guaranty that He save those who follow Islamic Shari`ah and fear Him saying that 'we saved those who believed and used to fear Allah, keep their duty to Him and avoid evil (Al-Qur'an, 41:18).

e) Shari`ah compliance for salvation from punishment after death

Akhi'rah (life after death) is the final stage where all the activities of human being would be judged for providing reward for Shari`ah compliance and punishment for Shari`ah non-compliance. Allah (SWT) said, 'the wretched will avoid the Shari`ah and for which they will enter the great fire (and will be made to taste its burning) where they will neither die (to be in rest) nor live (a good living)' (Al-Qur'an, 87:11-13); and 'whosever disobey Allah, and His Messenger, and transgresses His bounds, him He will admit to a Fire, therein dwelling forever, and for him there awaits a humbling chastisement' (Al-Qur'an, 4: 13-14). In another verse

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Allah (SWT) said, 'as for those who disbelieved and belied Our Ayat (proofs, evidences, verses, lessons, signs, revelations, Allah Messengers, Resurrection, etc.), and the meeting of the hereafter, such shall be brought forth to the torment (in the Hell-fire) (Al-Qur'an 30:16; 79:37-39).Again, Allah (SWT) said 'the torment of the Hereafter for the disbelievers and sinners is far more severe and more lasting (Al-Qur'an, 20:127) for which they will cry: 'O Malik (Keeper of Hell)! Let your Lord make an end of us but he will say: verily, you shall abide forever' (Al-Qur'an, 43:77).

After death, disbelievers (Whosoever desires the life of the world and its glitter) will repentance for their acts (Al-Qur'an, 25:27-29); all of their activities will go in vain and of no effect is that which they used to do (Al-Qur'an, 11:15-16; 7:147); they will be raised as blind (Al-Qur'an, 20:124); in the Hereafter they will be the greatest losers (Al-Qur'an, 27:4-5) and hence, Allah (SWT) instructed that 'say: I fear, if I disobey my Lord, the torment of a mighty day' (Al-Qur'an, 6:15; 39:13, 72:17).

f) Shari`ah Compliance in banking—Why?

Shari`ah compliance is important in case of banking mainly because of avoiding interest. As per Islamic Shari`ah, interest is to be avoided due to Shari`ah compliance for the following reasons:

i. *Allah Forbade Interest*

In Surah Baqarah, Allah forbade interest stating that Allah declared trading as Halal and interest as Haram (Al-Qur'an, 2:275). In Surah Al-Imran, Allah (SWT) said, O you who believe! Eat not usury doubled and multiplied, but fear Allah that you may be successful (Al-Qur'an, 3:130).

ii. *Interest is destroyable*

In Surah Baqarah, Allah said that Allah will destroy interest and will increase for Sadaqat (deeds of charity) (Al-Qur'an, 2:276). Moududi (2007) stated a Hadith referring to Ibne-Majah, Baihaki and Ahmad, where Allah's Messenger (pbuh) said that though the interest amount may be greater now but it is bound to reduce at last. As per the Hadith narrated by Abu Huraira ® stated in Bukhari, Muslim and Abu Daud, Allah's Messenger (pbuh) instructed to protect us from seven destructive issues which include usury (Annual Report of AIBL, 2010).

iii. *Avoiding interest is a sign of Belief (Iman) on Allah*

In Surah Baqarah, Allah (SWT) said, O you who believe, Be afraid of Allah and give up what remains (due to you) from usury (from now onwards), if you are really in believers (Al-Qur'an, 2:278).

iv. *Avoiding interest is a sign of Taqwa (Allah fearing)*

Allah said, O you who believe, Be afraid of Allah and give up what remains (due to you) from usury (from now onwards) (Al-Qur'an, 2:278). In Surah Al-Imran, Allah (SWT) said, O you who believe! Eat not usury doubled and multiplied, but fear Allah that you may be successful (Al-Qur'an, 3:130).

v. *Taking interest is a serious punishable activity*

In Surah Baqarah, Allah (SWT) said, if you do not avoid interest, then take a notice of war from Allah and his Messenger (2:279). Ibne Abbas ® said that in the day of judgment the usurer will be asked to take preparation with arms to battle with Allah (SWT) and he again said the imams (leaders) of all times should take oath of avoiding interest, if they do not do it then the imam should kill them (Ibne Kathir, 2008, 755). Allah also state that whoever returns to interest after Allah's forbidden, they are the dwellers of the fire and in the day of judgment, the usurer will be as like as mad beaten by Satan (Al-Qur'an, 2:275). As per the Hadith narrated by SamuraIbn Zundub ® where Allah's Messenger (pbuh) described a scenario of punishment giving to usurer hitting him with rocks while the usurer swimming helplessly in the river (Sahih Bukhari, 2003, Hadith No. 1955) and Hadith narrated by Abu Hurayrah ® stated that the belly of the usurer is full of snakes (Al-Tirmidhi, 2010, Hadith No. 2828).

vi. *All parties relating to interest equally cursed*

Jabir Bin Abdullah ® said that Allah's Messenger (pbuh) cursed the acceptor of interest and its payer, and the one who records it, and the witness; and he said they are all equal (Sahih Muslim, 2002, Hadith No. 3947; Abu Daud, 2006, Hadith No. 3300).

vii. *Taking interest is a reason of Allah's anger*

Abdullah IbnMasud ® has quoted a Hadith of Allah's Messenger (pbuh) as saying: Whenever adultery and usury become rampant in a community, it is inevitable that wrath of Allah will befall upon them (Annual Report of AIBL, 2010).

viii. *Usurer will not enter the heaven*

As per the Hadith narrated by Abu Huraira ® stated in Mustadarake Hakim, Allah's Messenger (pbuh) said that Allah as his unique right will not allow four categories of people to enter the heaven and also refrain them from taking taste of his bounties which include the usurer (Annual Report of AIBL, 2010).

ix. *Interest destroys previous accepted good acts*

In an Hadith Ayesha ® said that interest will destroy the benefits of previous accepted 'Jihad' (utmost trial of establishing Islam) though that 'Jihad' may be participated with Allah's Messenger (IbneKathir, 2008).

x. *Interest was compared with most disliking sins*

In the notes of Hadith No. 3947 of Sahih Muslim includes two more Hadiths giving reference to Ahmad, Ibne-Majah and Baihaki where it is stated that taking interest of a silver coin equivalent to doing thirty-six times 'Jina' (illegal intercourse) and in another one it is

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stated that interest includes seventy types of sins of which the lowest one is to do illegal intercourse with own mother (Sahih Muslim, 2002).

On the other hand, Saleem (2008) identified few evil effect of interest like (a) evil effects on allocation of resources; (b) evil effects on production; (c) evil effects on distribution; and (d) expansion of artificial money and inflation. Rahman (2008) also discussed few reasons for which interest is to be avoided namely (i) Interest is injustice; (ii) Interest creates grievance; (iii) Interest creates misery and greedy; (iv) Interest destroy morality; (v) Interest reduces capital formation because of reducing profit of the producers; (vi) Interest reduces the investment of producers; (vii) Interest reduces the investment in risky and welfare sectors; (viii) Interest makes lenders idle; (ix) Interest increases unemployment; and (x) Interest increases inflation.

VIII. Shari`ah Compliance - How?

a) Pre-Requisites for Shari`ah Compliance

Pre-requisites of complying Islamic Shari`ah in an organization are Government authorizations, mission, vision, objectives, policies, Act, rules–regulations, intention of owners and directors must be in the line with Islamic Shari`ah. Pre-requisites in the employees to comply Islamic Shari`ah are Iman (belief) on Oneness of Allah (SWT), Islam as the religion, Islamic knowledge, fearness of Allah (SWT), accountability, belief in life after death, and training on Shari`ah compliance.

b) Shari`ah Supervisory Board

The current understanding of a Shari`ah Board is defined by the Accounting and Auditing Organization of Islamic Financial Institutions (AAOIFI, 2003) in Bahrain. This body is built to standardize key practices of the industry. Their definition is as follows: "A Shari`ah supervisory board is an independent body of specialized jurists in fiqh al mu'amalat (Islamic commercial jurisprudence). However the Shari`ah supervisory board may include a member other than those specialized in fiqh al-mu'amalat but who should be an expert in the field of Islamic financial institutions and with knowledge of fiqh al-mu'amalat. The Shari`ah supervisory board is entrusted with the duty of directing, reviewing and supervising the activities of the Islamic financial institution to ensure that they are in compliance with Islamic Shari`ah rules and principles. The fatwas and rulings of the Board shall be binding on the Islamic financial institution."Presley, J.R. (n.d.) commented in the book 'Directory of Islamic Financial Institutions' "An Islamic Bank does not only have to have a board of directors but it also has to have a Shari`ah advisory board. This is most important where Islamic Banks operate in a society which does not fully apply Shari`ah laws. The board should possess a high degree of independence both internally & externally."

c) Muraqib and their Qualifications

Muraqibs are those experts of Shari`ah principles who supervise, visit and examine Shari`ah implementation position in Banks. Bangladesh Bank provided some specific guidelines regarding educational qualification, experience and exposure, track record, solvency and financial integrity and integrity, honesty and reputation of Muraqib. The qualifications regarding education, experience and exposure as stated by Bangladesh Bank are as below:

i. *Educational Qualification*

The member of 'Shari`ah Supervisory Committee' must have the following educational qualification: Kamil or Dawa or Post Graduate Degree in Islamic Studies, Arabic, Islamic Law, Islamic Economics or Islamic Banking with profound knowledge in Arabic language.

ii. *Experience and exposure*

The member of 'Shari`ah Supervisory Committee' must have the following experience and exposure:

a) Must have at least 3 years-experience of teaching or research work in Islamic Jurisprudence/Islamic Law/Islamic Banking related subject;
b) 3 years-experience as a Member of any 'DarulIfta'/ Fatwa Board in giving Shari`ah rulings on Islamic trade and commerce/banking and financial matters, or
c) Publication of 3 exclusive articles on Islamic trade and commerce, Islamic banking, Islamic Economics and Islamic Commercial Jurisprudence in any recognized journal or publication of 3 books on the same subjects.

d) Activities of Shari`ah supervisory board/council

Shari`ah supervisory board/council has to perform a lot of works. Some of the important activities are as follows: (i) Audit and inspection in field level; (ii) Arrangement of training and workshop; (iii) Issuance of circular/guidelines; (iv) Examination of various types of deeds; (v) Invention of new products; (vi) Opine on new products; (vii) To see the interest of organization/ customers; (viii) Creation of awareness throws publication of books and journals, arranging seminar and customer gathering; (ix) Decision on Shari`ah/ fatwah; (xi) Advising and recommendation; (xii) Supervision; (xiii) Representing in decision making forum; (xiv) Marking of ACR; (xv) Research activity; (xvi) Using of doubtful income in proper sector/welfare sector; (xvii) Satisfying clients' requirement on Shari`ah issues; (xviii) Approval of principles/guidelines; (xix) Meeting the need of asking of works force; and (xx) Dawah activities of Shari`ah.

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IX. Conclusion

Shari`ah compliance is the most important duty of every Muslim and Islamic organization in their personal and social life. A Muslim will be aware about his duties only if he understands his responsibilities. One can abide by the duties also if he knows how to materialize it. The purpose of the present paper is to make the people understand the importance and the way to implement the Shari`ah in their life in general and more specifically in banking.

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An Alternative Investigation of Weak Form Efficiency in Dhaka Stock Exchange based on Technical Analysis

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Abstract- One highly documented method to test a capital market for weak form efficiency is to identify the return predictability of technical trading rules in that market. Studies on these tests are fewer in number in emerging markets than that of in developed markets and most of the tests have drawn conclusion by including only trend indicators in their trading rules. But it has already been recognized in some previous developed markets studies that trend indicators generally fail to identify sufficient information content in the past prices; hence practitioners very often use these trend indicators combined with confirming indicator (Loh 2007). The current study has investigated Dhaka Stock Exchange, an emerging market of South Asia, for weak form market efficiency by approaching the tests of technical trading rules and has confirmed the profitability of these rules up to 2.15 percent costs per transaction. Here it has used stochastic oscillator as a confirming indicator combined with moving averages (trend indicators) which is the first study of its kind in this market, and has found that it can improve the return predictability only for the short length moving averages.

Keywords: dhaka stock exchange, tests of technical trading rules, market efficiency, moving averages combined with stochastic oscillator.

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ANALTERNATIVEINVESTIGATIONOFWEAKFORMEFFICIENCYINDHAKASTOCKEXCHANGEBASEDONTECHNICALANALYSIS

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Abstract- One highly documented method to test a capital market for weak form efficiency is to identify the return predictability of technical trading rules in that market. Studies on these tests are fewer in number in emerging markets than that of in developed markets and most of the tests have drawn conclusion by including only trend indicators in their trading rules. But it has already been recognized in some previous developed markets studies that trend indicators generally fail to identify sufficient information content in the past prices; hence practitioners very often use these trend indicators combined with confirming indicator (Loh 2007). The current study has investigated Dhaka Stock Exchange, an emerging market of South Asia, for weak form market efficiency by approaching the tests of technical trading rules and has confirmed the profitability of these rules up to 2.15 percent costs per transaction. Here it has used stochastic oscillator as a confirming indicator combined with moving averages (trend indicators) which is the first study of its kind in this market, and has found that it can improve the return predictability only for the short length moving averages.

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I. Introduction

In Efficient Market Hypothesis (EMH) it is assumed that the current market price of a security reflects all the information of the respective security and investors by using the information content in the historical price cannot be able to predict current or future price to make abnormal return even if the market is efficient at its weak form (Fama 1970). So the tests of Weak Form Market Efficiency basically try to find out whether there is any relationship between the past prices and the current price, in other word whether the current price can be predicted by using the past prices of a security. By being one of the central areas of research interest during the last couple of decades, this area has showed its development in many phases.

The first formal test of market efficiency could be found when Kendall (1953) applied serial correlation coefficient test on weekly changes of nineteen indices of UK industrial stock prices and found near zero correlation coefficient, which supported the market to be complied with random walk model. After that so many studies have been conducted on some other developed markets. If we take a look at the literature up to the year 1970, most of the studies were found to be consistent with market efficiency (Kendall 1953; Fama 1965; Fama & Blume 1966; James 1968; Jensen & Benington 1970; etc.), though subsequently several studies came up with a totally opposite finding (Lo & MacKinlay 1988; Sweeny 1988; Brock et al. 1992; etc.). But to be more precise developed markets are found to be weak form efficient in so many studies (Kendall 1953; Fama 1965; Fama & Blume 1966; James 1968; Jensen & Benington 1970; Hudson, Dempsey & Keasey 1996; etc.).

Many studies have also been documented on emerging stock markets. But those are mainly based on statistical tests of independence like: serial correlation coefficient tests, runs tests, tests of normality, variance ratio test and stationarity test, etc. The evidence from emerging markets can be presented by dividing these markets into four areas. Firstly if we look at the Asian markets then we see Poshakwale (1996), Kumar & Dhankar (2011) and Gupta & Yang (2011) did their studies on Indian Stock Markets and concluded the market to be inefficient. In some other studies Moustafa (2004) and Hassan, Abdullah & Shah (2007) have concluded the stock markets of Pakistan and United Aram Emirates respectively as inefficient. Evidence from several literatures also suggests about the weak form inefficiency of the capital markets of Bangladesh (Mobarek & Keasey 2000; Mobarek, Mollah & Bhuyan 2008; Hussain, Chakraborty & Kabir 2008; Khan & Huq 2012, 2013). In Chion & Veliz C. (2008) and Metghalchi, Garza-Gomez, Glasure & Chang (2008) studies the emerging markets of South America (Peru, Argentina, Brazil, Chile, Columbia, Mexico, Venezuela) are found to be weak form inefficient. From the studies of Gilmore & McManush (2001) on European emerging markets (Czech Republic, Hungary and Poland) and Aly, Mehdian & Perry (2004), Ntim, Opong & Danbolt (2007) on African emerging markets (Egypt and Ghana) the evidence of weak form inefficiency has revealed. But basically for methodological and data differences some findings contrary to previous evidence have also been documented in several studies, where some emerging

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markets are found to be weak form efficient (Vaidyanathan & Gali 1994; Gilmore & McManush 2001; Akhter & Misir 2005; Cooray & Wickremasinghe 2007; Rehman, Masood, Arshed & Shah 2012).

As the review from literature shows mixed result, the efficiency of these markets has remained always inconclusive. At the same time, chronological development of testing methods in this field like using time series regression models (Fama & French 1988; Poterba & Summers 1988), applying variance ratio test (Lo & Mackinlay 1988) or using neural network and genetic algorithm (Allen & Karjalainen 1999; Hong & Lee 2003) keeps the scope for further research always open. So this paper is going to test the weak form market efficiency in Dhaka Stock Exchange, which is an emerging capital market of South Asia, by adopting test of technical trading rules based on practitioner's view point. The next few chapters of this paper will include some reviews from the relevant literature and justification of this study, the research questions which it will address and the objectives of the research, data sources and detailed research methodology, findings of this research, and in the final section it will make concluding remark along with some recommendations.

II. Literature Review

In order to test Weak Form Market Efficiency some of the researchers approached through statistical tests of independence like Serial Correlation Coefficient test (Kendall 1953; Fama 1965), runs test (Fama 1965) and some other approached through test of technical trading rules like filter rule (Alexander 1961; Fama & Blume 1966), Moving Averages (Van Horne & Parker 1967; James 1968; Brock, Lakonishok & LeBaron 1992; Mills 1997). In fact before 1961 the tests for market efficiency were based on statistician's or academician's view point where the independence of the stock price was tested by using various statistical techniques. But Alexander (1961; 1964) drew attention by introducing the professional trader's view point, where the technicians could understand the trend and beat the market by using the technical trading rules. Hence the market will be efficient only if the technical trading rules can be proven worthless. He used x% filter rule on New York Stock Exchange (NYSE), DJIA and Standard & Poor's Industrial and found his results were contradictory to random walk hypothesis. From then on so many studies have been conducted based on test of technical trading rules discovering different results, aspects and methodology.

Practically capital market is not frictionless; hence the profitability of trading rules can be challenged with the existence of transaction costs. Fama & Blume (1966) confirmed that Alexander's results overstated the profit and x% filter rule would not outperform buy and hold policy considering the higher transaction costs. Van Horne & Parker (1967) also concluded the NYSE to be consistent with random walk hypothesis after examining it with moving average technical trading rules. Sweeny (1988) came up with a different conclusion from that of Fama & Blume (1966) on DJIA. He used some new filter rules and found the trading rules were more useful than Fama & Blume did. He added that floor traders can be able to obtain data at a lower transaction cost. James (1968) applied monthly moving averages trading rule on the listed common stocks of NYSE. His results were consistent with random walk hypothesis as he found buy and hold policy was better off in most of the cases. Jensen & Benington (1970) has conducted relative strength trading rule on twenty nine independent samples of two hundred securities of NYSE and confirmed that the market was efficient as the trading rule could not earn more than buy and hold policy after netting the transaction costs. Brock, Lakonishok & LeBaron (1992) used two technical trading rules-moving average and trading range break on DJIA and found the evidence of profitability of trading strategies. The study of Brock et al. (1992) was replicated on UK market by Hudson, Dempsey & Keasey (1996) and they came up with the finding that technical trading rules cannot generate excess return if cost of transaction is considered. But they confirmed that technical trading rule may exhibit some predictability.

So far most of the trading rules like moving averages used in academic research are basically trend indicators which practitioners do not use in predicting the stock price in isolation, as they think these would be too naive to capture the information content in the past prices. Loh (2007) applied a test of technical trading rule based on practitioner's approach on five developed Asian-Pacific stock markets: Australia (ASX), Hong Kong (HKSE), Japan (NIKKEI), South Korea (KOSPI) and Singapore (STI), for the time period 1990 to 1995. His test basically denoted as combined test of trend indicator (moving average) and confirming indicator (stochastic oscillator). He got two interesting results from his analysis- a combined strategy is more effective compared with a simple moving average technique, and weak form efficiency is not determined by technological progress but factors.

In fact there are a very few studies on test of technical trading rules in Dhaka Stock Exchange and was none before Kader & Rahman (2005) tested K% filter rule in Dhaka Stock Exchange and concluded it as weak form inefficient. After that Hussain, Chakraborty & Kabir (2008) have tested Moving Average 50, 100, and 200 rules over a big data set from 1986 to 2008 with 5815 observations. They found all the MA rules could outperform buy and hold strategy even considering 0.5% transaction cost for both buy and sell.

Most of the previous studies fail to address the practitioner's viewpoint. As the practitioners very often do not use the trend indicator solely rather they adopt some confirming indicator combined with the trend

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indicator to create more accurate and sophisticated technical trading rules, the tests which have included only the simple trading rules may not be able to capture the complete information content in the past prices. Considering this fact Loh (2007) adopted moving averages combined with stochastic oscillator in his study and contributed some new findings. In addition to the methodology of Loh (2007) this study has included longer length moving averages to make better comparison among the trading rules. This is the first time applied test of its kind in this country market. It has compared the findings between the traditional approach (simple moving averages) and the practitioners' approach as well as showed the profitability of these rules over buy and hold strategy even after considering the transaction costs.

III. Research Questions and Objectives

This study is going to address the following research questions:

- Are technical trading rules profitable in Dhaka Stock Exchange (DSE)?
- Do the confirming indicators improve the return predictability of the trading strategy when they are combined with trend indicators?
- Can the technical trading rules outperform the buy and hold strategy even after considering the transaction costs?

From the research questions the following objectives of this research can be formulated:

- To test the trading strategies like single moving averages, double moving averages and moving averages with stochastic oscillator to conclude about the profitability of these rules in this market.
- To conclude about the profitability of the strategy even after considering the transaction costs.
- To find out whether the technical trading rules can outperform the simple buy and hold strategy and whether combining the confirming indicator along with the trend indicator can improve the return predictability of the trading rules.

IV. Research Methodology and Data Sources

Fama (1991) suggested that the test of weak form market efficiency basically denotes to the test of return predictability, which means to find out whether the past return series can predict the future return series. Fama (1965a) described two approaches for test of return predictability for the researchers. The first approach is to use some statistical tools like Serial Correlation Coefficient test, Runs test, etc. to find out whether the past return series is random and statistically independent, so that the chartist or technical analyst cannot be able to predict the prices to earn more return than that of a buy and hold strategy. The second approach is to formulate some suitable technical trading rules and use these directly on the recent market prices to predict the market trend and to find out whether these trading rules are profitable or not. If the trading rules are profitable and can earn more return than that of a buy and hold strategy then it can be concluded that return is predictable and the market is weak form inefficient. Reilly & Brown (2004, p. 180) has named these two test approaches as firstly, Statistical Tests of Independence, and secondly, Tests of Trading Rules. In order to conduct the Test of Trading Rules, mainly the methodology of Loh (2007) has been followed here. Though Loh (2007) has used MA (5-20, 5-60) rules only, this study has used MA (1-50, 1-200, 5-50, 5-200) rules, because, these rules are more popular and widely used by the technicians (Mills 1997; Hussain, Chakraborty & Kabir 2008), besides it may help to draw some conclusion on the performance of longer length moving averages when these are combined with the confirming indicators.

There are so many trading rules. Here can be named some of the popular among those-

- The Single Moving Average trading rule
- The Double Moving Average trading rule
- The Moving Average rule combined with Stochastic Oscillator
- The Channel rule
- The Filter rule
- The rule designed around ARIMA (1,0,1) forecasts of future returns, etc.

This study is going to test the first three trading rules. A brief description of these rules and signaling process is provided here.

Moving Average Trading Rule

Moving Averages are very famous but simple and easy to use trading rules. Moving Average Trading Rule basically works with buy and sell signals received from the movement of a short run moving average (SRMA) and a long run moving average (LRMA). The formula for calculating a moving average is given below:

$$MA_t = \frac{1}{L}\sum_{i=1}^{L} P_{t-i}$$

Here, MA_t is the moving average for the time period t, L denotes to the length of moving average. P is the stock or index price. The value of L in an $SRMA_t$ ranges from one to five days. On the other hand the length of moving average L in an $LRMA_t$ depends upon the investors' preferences as the investors may like to track short run, intermediate or long run trends in the stock prices. Generally L is observed to be 200 days in a long run moving average. If the value of L in $SRMA_t$ is one then the moving average is known as Single Moving Average, because, then the price series directly can be

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used as $SRMA_t$. Otherwise, for any other value of L in $SRMA_t$ the moving average is known as Double Moving Average. Generally a moving average trading rule is expressed in this form: MA SRMA-LRMA. For an example trading rule MA 1-50 denotes that this is a moving average trading rule with SRMA = 1 day and LRMA = 50 day.

Now the process of generating buy and sell signals from a moving average will be discussed. A buy (sell) signal is generated when $SRMA_t$ intersects $LRMA_t$ from below (above):

Buy signal at time period t (BS_t): $SRMA_t > LRMA_t$ and $SRMA_{t-1} < LRMA_{t-1}$

Sell signal at time period t (SS_t): $SRMA_t < LRMA_t$ and $SRMA_{t-1} > LRMA_{t-1}$

After generating a buy (sell) signal the position will be continued before another sell (buy) signal is generated by the moving average process discussed above. Hence the holding period (days) in buy position will be (Db): $SRMA_t > LRMA_t$, and in the same way the holding period (days) in sell position will be (Ds): $SRMA_t < LRMA_t$.

Moving Average combined with Stochastic Oscillator

Most of the studies on Tests of Moving Averages as a trading rule have included only these single or double moving averages, but from the practitioner's view point depending only on the trend indicator might be misleading. Hence an inclusion of another confirming indicator named 'Stochastic Oscillator' along with the moving averages would be more meaningful. So this study is also going to test the combined signal of moving average and stochastic oscillator. The construction method of a stochastic oscillator is described below:

$DL_t = P_t - \min(P_t, P_{t-1}, \ldots, P_{t-m+1})$

$HL_t = \max(P_t, P_{t-1}, \ldots, P_{t-m+1}) - \min(P_t, P_{t-1}, \ldots, P_{t-m+1})$

$K_t = (DL_t / HL_t) \times 100$

Here, DL_t denotes to the difference between the current closing price and the recent lowest price over a predefined period, m. Generally m is assumed as 14 by the practitioners, but this study has considered m equals to L in the $LRMA_t$ (Loh 2007). In the same way HL_t is the difference between the recent highest closing price and lowest closing price. K_t is the ratio of latest price range to recent price range. In order to generate a confirming signal K_t is compared with another signal line named D_t, which is calculated in the following way:

$$D_t = \frac{1}{n}\sum_{i=1}^{n} K_{t-n}$$

So from the formula above it is quite clear that D_t is an n-period moving average of K_t. 'n' is commonly assumed as 3 by the practitioners. But in this study n equals to L in the $SRMA_t$ is assumed (Loh 2007). The main intuition behind this strategy is- if the line K_t intersects D_t from below then it is assumed by the traders that the market has moved from an oversold to an overbought position so a buy signal is generated and vice-versa. Finally a trading strategy based on moving average combined with stochastic oscillator will look like the same as below:

Buy signal at time period t (BS_t):

$SRMA_t > LRMA_t$ and $SRMA_{t-1} < LRMA_{t-1}$ and $K_t > D_t$

Sell signal at time period t (SS_t):

$SRMA_t < LRMA_t$ and $SRMA_{t-1} > LRMA_{t-1}$ and $K_t < D_t$

A buy (sell) position will be continued until a sell (buy) signal is generated by both the indicators simultaneously.

Besides the profitability, this study will also compute the break even cost (BEC) of the trading strategies. The main idea behind this BEC is that, if the trading cost is below the BEC then the strategy will be profitable despite the existence of cost of trading. The formula for calculating BEC is given below:

$$BEC_t = (D_b \times M_b - D_s \times M_s) / (2 \times (N_b + N_s))$$

Here, D_b and D_m are the total number of buy and sell days and M_b and M_s are average daily return from buy days and sell days respectively. N_b and N_s denote to the number of buy and sell signal respectively. As each buy (sell) signal is associated with a sell (buy) signal, the total number of buy and sell signals are multiplied by 2.

Data

This study has considered daily price data of two indices of Dhaka Stock Exchange (DGEN and DSE20) from the year 2002 to 2010. Here data after the year 2010 has been ignored intentionally, because, at the end of the year 2010 Bangladesh faced severe capital market turmoil which persisted for a long time and at the beginning of the year 2013 Dhaka Stock Exchanged replaced its previous two indices with new ones. In order to calculate the return series the following formula has been used (ignoring the dividends):

Return on index at time period t = Ln (MI_t) – Ln (MI_{t-1})

Here, Ln denotes to natural logarithm, MI_t is the market index price at time period t and MI_{t-1} is the price of index at time period previous of t. The standard t-test (one tailed two sample unequal variances t-test) has been used to find out whether the mean return from trading strategy is significantly higher than the mean return from buy and hold strategy. If the profitability of these trading strategies is confirmed over that of the buy and hold strategy then the weak form efficiency of this market will be questionable.

V. Empirical Results

In this part three moving average trading rules (Single Moving Average-MA 1-50, MA 1-200; Double Moving Average- MA 5-50, MA 5-200; Moving Average

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combined with Stochastic Oscillator, MASO 5-50, MASO 5-200) will be applied on DGEN and DSE20 return series to find out whether these are profitable and can outperform the buy and hold strategy.

Table 5.11 : Results from trading rules (2002-2010).

Trading Rules	N_b	N_s	F_b %	F_s %	Absolute Return* %	Absolute Return from Buy and Hold Strategy %
DGEN						
MA 1-50	48	48	100	100	506	236
MA 1-200	15	15	100	100	319	224
MA 5-50	31	30	70.97	76.67	295	236
MA 5-200	10	10	80	60	243	224
MASO 5-50	28	25	78.57	84	309	236
MASO 5-200	8	7	87.50	85.71	110	224
DSE 20						
MA 1-50	50	50	94	96	437	236
MA 1-200	19	19	94.74	68.42	284	224
MA 5-50	30	29	63.33	68.97	254	236
MA 5-200	8	8	75	75	232	224
MASO 5-50	26	27	73.08	70.37	271	236
MASO 5-200	6	8	83.33	75	196	224

*Note: Here N_b(N_s) denotes to number of buy (sell) signals, Fb(Fs) denotes to the percent of correctly predicted immediate upward(downward) prices by buy (sell) signals. *In return calculation trading cost has not been considered because this study has calculated Break Even Cost (BEC) to draw conclusion.*

Table 5.12 : Testing the significance of results from trading rules (2002-2010).

Trading Rules	D_b	D_s	B_c %	S_c %	BUY= M_b - M_h	SELL= M_s - M_h	B – S =M_b - M_s
DGEN							
MA 1-50	1427	777	62.16	58.82	0.001546** (3.8413)	-0.002789** (-5.6396)	0.004335** (8.1858)
MA 1-200	1298	698	59.24	51.86	0.001045* (2.4282)	-0.001728** (-3.2456)	0.002773** (4.8518)
MA 5-50	1462	774	58.28	52.45	0.000763 (1.9097)	-0.00143** (-2.8900)	0.002194** (4.1558)
MA 5-200	1292	702	58.13	49.57	0.000761 (1.7651)	-0.001162* (-2.1886)	0.001923** (3.3689)
MASO 5-50	1482	754	58.23	52.65	0.000786* (1.9756)	-0.001535** (-3.0691)	0.002321** (4.3681)
MASO 5-200	1017	977	57.32	46.57	0.000603 (1.2943)	-0.000457 (-0.9675)	0.001059 (1.9421)
DSE 20							
MA 1-50	1240	997	62.74	55.47	0.00166** (3.9482)	-0.002058** (-4.5515)	0.003718** (7.3601)
MA 1-200	1212	786	59.74	51.40	0.001049* (2.3864)	-0.001435* (-2.8175)	0.002485** (4.4562)
MA 5-50	1235	1002	59.43	51.30	0.0009295* (2.2078)	-0.001139* (-2.5237)	0.0020689** (4.0970)
MA 5-200	1218	778	58.95	50.13	0.000827 (1.8842)	-0.001102* (-2.1540)	0.0019287** (3.4517)
MASO 5-50	1221	1016	60.11	51.97	0.001024* (2.4232)	-0.001224** (-2.7250)	0.002248** (4.4579)
MASO 5-200	1092	904	59.24	49.11	0.000882 (1.9407)	-0.000899 (-1.8556)	0.001782** (3.2548)

*Note: D_b (D_s) means holding period in buy (sell) days; B_c (S_c) denotes to the proportion of buy (sell) days which were correctly held to the total number of holding buy (sell) days; M_b (M_s) denotes to average daily return generated in buy days and M_h denotes to average daily buy-and-hold return. In parenthesis the t-statistic for testing the differences is given. * and ** are statistically significant numbers at 5% and 1% level respectively.*

From Table 5.11, all the trading strategies are found profitable over the buy and hold strategy, except for MAS0 5-200 strategy. The best strategy to outperform buy and hold strategy is MA 1-50. It is quite interesting finding that short length moving averages (1-50, 5-50) are doing better in making profit and

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predicting movement of the stock price than that of the long length moving averages (1-200, 5-200). For MA 1-50 trading rule the accuracy in predicting the immediate upward or downward movement of index price (DGEN) is 100%. But at the same time it should be noted that the number of transaction is also higher for the short length moving averages (1-50, 5-50). So if the trading cost is very high in a market, the short length MA rules may not show that much profitability which is observed from the table 5.11.

In this study, a confirming indicator which is known as stochastic oscillator is used with Moving Average to improve the predictability and profitability of the moving average trading rules. Here it is found that using stochastic oscillator with moving average improves only the short length moving average (compare MA 5-50 and MASO 5-50), but for the long length moving average (Compare MA 5-200 and MASO 5-200) the result becomes reversed. So the result does not fully support the findings of Loh (2007).

Table 5.12 shows all most in all the cases (except for two cases) the holding days are found correct for more than 50% of days. Differences are significantly different from '0' at 5% and 1% level of significance. BUY must be positive and SELL must be negative in order the trading rules to be held successful in predicting the market movements.

Table 5.13 : Break Even Costs (BEC)

Trading Rules	Break Even Cost (BEC) %
DGEN	
MA 1-50	2.63
MA 1-200	2.24
MA 5-50	2.42
MA 5-200	2.43
MASO 5-50	2.91
MASO 5-200	3.67
DSE 20	
MA 1-50	2.18
MA 1-200	3.73
MA 5-50	2.15
MA 5-200	7.26
MASO 5-50	2.56
MASO 5-200	7.02

Besides, using stochastic oscillator as a confirming indicator improves the predicting capacity of MA 5-50 rule in both buy and sell cases, which also complies with the findings of Loh (2007). But the same is not true for MA 5-200 rule. Rather the predictive ability has been decreased when we used stochastic oscillator. So it can be inferred that using stochastic oscillator as a confirming indicator may not applicable for improving the performance of longer length moving averages as Loh himself used MA 5-20 and MA 5-60 in his study.

Table 5.14 : Results from t-test

Trading Rules	Mean Return (Trading Rules)	Mean Return (Buy and Hold strategy)	t-statistic
DGEN			
MA 1-50	.00226	.00105	3.425*
MA 1-200	.00154	.00107	1.230
MA 5-50	.00131	.00105	0.745
MA 5-200	.00117	.00107	0.243
MASO 5-50	.00138	.00105	0.922
MASO 5-200	.00053	.00107	-1.448
DSE 20			
MA 1-50	.00195	.00105	2.540*
MA 1-200	.00137	.00107	0.784
MA 5-50	.00113	.00105	0.227
MA 5-200	.00112	.00107	0.121
MASO 5-50	.00121	.00105	0.444
MASO 5-200	.00095	.00107	-0.335

*Note: For this t-test, H_0: Mean return from trading rule <= Mean return from buy and hold strategy, H_1: Mean return from trading rule > Mean return from buy and hold strategy. *The H_0 will be rejected only if t-statistic > t-critical value at 5% level of significance.*

Up to this it has not been revealed whether a complete strategy can outperform the buy and hold strategy and Table 5.14 will be helpful in this regard. We assume here a complete strategy like holding the index in buy position in buy signal days and holding it in short position in sell signal days rather comparing these as a separate strategy. Average daily return of the whole holding period is calculated. This is the most interesting part of this study as now it becomes quite apparent that only MA 1-50 rule can outperform the buy and hold strategy. Because, though all other trading rules showed greater return than buy and hold strategy (except for only a few exceptions) in Table 5.11, only MA 1-50 (for both DGEN & DSE20) shows statistically significant higher return than that of buy and hold strategy in Table 5.14. This result also complies with the findings of some earlier studies where short length moving averages performed better than the long length moving averages in the markets bearing short trend in price series (Isakov & Hollistein 1999; Lento 2007).

VI. Conclusion

Tests of trading rules conducted in this study reveal the profitability of trading rules set on Dhaka Stock Exchange even after considering transaction costs. It implies that investors of Bangladesh can apply different technical trading strategies to predict the market movement and earn return without bearing appropriate risk. Moreover, by combining the confirming indicator along with the trend indicator the return predictability of short length moving averages can be increased significantly. As the trading rules are found to

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significantly outperform the buy and hold strategy, the market is not following weak form of efficiency. Findings from the previous chapter and also from the previous studies confirm that Dhaka Stock Exchange is suffering from weak form market inefficiency and the information content in the past prices does not reflect in the current market price of securities, which is alarming for the general investors of this market. To address the issues related to weak form market inefficiency, policies should be taken to remove information asymmetry, i.e. improving the disclosure policies, creating awareness among the investors, etc. In order to uphold the general investors' interest the regulatory authority can control the opportunities of making excess return by violating the market structures. Educational and training initiatives should be taken and increased to disseminate basic investment knowledge to the investors so that they can make informed decision. Besides growing number of actively traded securities and quality IPOs can also help to enhance the securities trade flow, which may further help in raising informational efficiency in this market.

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The "FARSC" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.

The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as "Institutional Board of Open Association of Research Society"-(IBOARS).

The Institute will be entitled to following benefits:

The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA) The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.





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The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of "Open Association of Research Society, U.S.A (OARS)" so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.



The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.

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After nomination of your institution as "Institutional Fellow" and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.
The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:



Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.

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We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth $ 2376 USD.

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- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.

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- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

Process of submission of Research Paper

The Area or field of specialization may or may not be of any category as mentioned in 'Scope of Journal' menu of the GlobalJournals.org website. There are 37 Research Journal categorized with Six parental Journals GJCST, GJMR, GJRE, GJMBR, GJSFR, GJHSS. For Authors should prefer the mentioned categories. There are three widely used systems UDC, DDC and LCC. The details are available as 'Knowledge Abstract' at Home page. The major advantage of this coding is that, the research work will be exposed to and shared with all over the world as we are being abstracted and indexed worldwide.

The paper should be in proper format. The format can be downloaded from first page of 'Author Guideline' Menu. The Author is expected to follow the general rules as mentioned in this menu. The paper should be written in MS-Word Format (*.DOC,*.DOCX).

The Author can submit the paper either online or offline. The authors should prefer online submission.Online Submission: There are three ways to submit your paper:

(A) (I) First, register yourself using top right corner of Home page then Login. If you are already registered, then login using your username and password.

(II) Choose corresponding Journal.

(III) Click 'Submit Manuscript'. Fill required information and Upload the paper.

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- Font type of all text should be Swis 721 Lt BT.
- Paper Title should be of Font Size 24 with one Column section.
- Author Name in Font Size of 11 with one column as of Title.
- Abstract Font size of 9 Bold, "Abstract" word in Italic Bold.
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- Two Column with Equal Column with of 3.38 and Gaping of .2
- First Character must be three lines Drop capped.
- Paragraph before Spacing of 1 pt and After of 0 pt.
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- Numbering of First Main Headings (Heading 1) must be in Roman Letters, Capital Letter, and Font Size of 10.
- Numbering of Second Main Headings (Heading 2) must be in Alphabets, Italic, and Font Size of 10.

You can use your own standard format also.
Author Guidelines:

1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

1. GENERAL

Before submitting your research paper, one is advised to go through the details as mentioned in following heads. It will be beneficial, while peer reviewer justify your paper for publication.

Scope

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Complete support for both authors and co-author is provided.

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Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5.STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

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Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

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Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

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TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

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5. Ask your Guides: If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

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7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

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9. Use and get big pictures: Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

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15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

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18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

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20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

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28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

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32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



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Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
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- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

B

Baisser · 2, 6, 7

C

Camerounais · 27, 30, 31, 32, 35, 38, 39
Ciblage · 1

D

Debouches · 7
Demirgug · 28, 30, 31, 35, 38
Deuxieme · 4, 6, 10, 11, 39
Distinguant · 31

F

Fournie · 30

L

L'inflation · 1, 6, 13, 30, 31, 35

M

Monetaire · 1, 2, 4, 6, 7, 10, 11, 12, 13, 27, 28, 29, 30, 32, 33, 35, 38





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