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The Impact of Impending Credit Rating Changes on Management Earnings Forecasts

By Guanming He

Durham University

Abstract- This study investigates whether impending credit rating changes affect managers' voluntary financial disclosure behaviors. I find that firms near a credit rating change do not opportunistically alter their financial disclosure practices to manipulate rating agencies' perceptions about corporate credit risk. In particular, firms close to a credit rating change do not selectively release good news or withhold bad news in their earnings forecasts. Nor do the firms likely issue an optimistically biased forecast or a more precise forecast for good news than for bad news. Overall, there is no evidence suggesting that credit ratings are manipulated via management earnings forecasts.

Keywords: *credit ratings; management earnings forecasts; forecast news; forecast accuracy; forecast precision.*

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THE IMPACT OF IMPENDING CREDIT RATING CHANGES ON MANAGEMENT EARNINGS FORECASTS

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The Impact of Impending Credit Rating Changes on Management Earnings Forecasts

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Abstract- This study investigates whether impending credit rating changes affect managers' voluntary financial disclosure behaviors. I find that firms near a credit rating change do not opportunistically alter their financial disclosure practices to manipulate rating agencies' perceptions about corporate credit risk. In particular, firms close to a credit rating change do not selectively release good news or withhold bad news in their earnings forecasts. Nor do the firms likely issue an optimistically biased forecast or a more precise forecast for good news than for bad news. Overall, there is no evidence suggesting that credit ratings are manipulated via management earnings forecasts.

Keywords: credit ratings; management earnings forecasts; forecast news; forecast accuracy; forecast precision.

I. INTRODUCTION

Credit ratings are important to a firm due to their substantive impact on stock and bond valuations and to the regulatory costs and benefits associated with credit rating changes (Kisgen, 2006). So, managers have an incentive to maintain or achieve a desired credit rating through influencing rating agencies' perceptions about a firm's creditworthiness (He, 2018a). Given managers' desire for a higher credit rating, whether they tend to influence rating agencies' decisions in a credible or opportunistic manner is an important issue. This is because the quality of credit rating has been a big concern for widespread practitioners in the financial marketplace especially after the 2007-2008 financial crisis; a couple of firms (e.g., Enron, California utilities) that got a decent credit rating suddenly went into bankruptcy. The existing literature shows that managers' incentives to improve credit ratings affect their capital structure decisions (e.g., Kisgen, 2006; Kisgen, 2007; Kisgen, 2009) and corporate financing choices (Hovakimian et al., 2010), and suggests that managers tend to adjust financial leverage to manage credit ratings. However, leverage is not the only concern for rating agencies in determining a firm's credit rating. The rating process also entails analyses of publicly disclosed financial information that relates to a firm's creditworthiness (Standard & Poor's, 2009). A vast body of literature (e.g., Callen et al., 2009; Easton et al., 2009; De Fond and Zhang, 2014; Shivakumar et al., 2011) documents the relevance of earnings and of management earnings forecast for evaluating a firm's credit risk. Shivakumar et al. (2011) provide evidence

that credit markets react more strongly to management forecast news than to earnings news, suggesting that management forecasts are more informative than earnings announcements for credit pricing.

The objective of this study is to investigate whether managers use voluntary financial disclosures, in particular, management earnings forecasts, to influence rating agencies' perceptions about a firm's creditworthiness. I address this issue by looking at managers' ex post voluntary financial disclosure behaviors in response to an impending credit rating change, that is, whether managers change their financial disclosure practices during an impending rating change to manage rating agencies' perceptions about corporate credit risk.¹ I focus on management earnings forecast for two reasons. First, it represents the typical form of voluntary financial disclosures. To the extent that management forecasts of earnings have implications to outsiders for a firm's future earnings (Beyer et al., 2010), such forecasts could substantially influence rating decisions (Shivakumar et al., 2011). Second, it facilitates a large sample analysis of managerial voluntary disclosures to influence credit ratings.

Credit rating agencies have been criticized widely for failures to correct for opportunistic corporate reporting (e.g., SEC, 2003). The reasons for low rating quality are two-fold. First, rating agencies generally do not conduct audits or due diligence review over issuer-provided information (He, 2018a). Second, rating agencies' incentives to discourage opportunistic corporate behaviors could be compromised by conflict of interests arising from their dependence on rating fees paid by their clients (e.g., SEC, 2008). Thus, managers with an incentive to pursue a desired credit rating might engage in opportunistic disclosures in the belief that rating agencies might not undo and adjust for the opportunistic disclosures. However, credit rating is maintained regularly with a firm for long and widely used by outsiders for valuation, investment, regulatory, and contractual purposes. Not only rating agencies but also other outside stakeholders oversee a firm's rating information all along. As such, credit rating constitutes a

¹ An impending credit rating change refers to the case when a firm economically or financially approaches a rating upgrade or a downgrade per the standard rating criteria with respect to a firm's credit quality (Kisgen, 2006). If a specific rating of a firm is close to an upgrade or a downgrade, credit rating agencies would communicate the potential rating change to the firm ahead of time.

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repeated game between managers and outside stakeholders (He, 2018a). Managers might use opportunistic financial disclosures to deceive outsiders of interest in the short term, but would be penalized for the cheating once it is detected. Therefore, whether managers tend to manipulate their earnings forecasts to maintain or achieve a desired credit rating becomes an empirical question. Accordingly, I investigate it as an exploratory analysis.

There are three ways for managers to manipulate market expectations through earnings forecasts. First, managers can selectively release good news or withhold bad news in their earnings forecasts. I measure the nature of forecast news using the mean consensus analyst earnings forecast as the benchmark since the consensus forecast is a widely used proxy for market earnings expectation (e.g., Bartov et al., 2002). Second, given the issuance of an earnings forecast, managers can issue an optimistically biased forecast. The forecast bias is measured by the difference between management forecast of EPS and actual EPS. Third, even if managers do not withhold bad news or bias their forecasts, managers can manipulate the precision of their forecasts in a way that a good news forecast is more precise than a bad news forecast.

I find that managers do not opportunistically alter their earnings forecasts in response to an impending credit rating change. In particular, firms close to a rating change do not selectively release good news or suppress bad news on their earnings information. Nor are the firms prone to issue an optimistically biased forecast or a more precise forecast for good news than for bad news. These results hold (1) for firms near a credit rating upgrade and firms near a rating downgrade, respectively; (2) after controlling for firm-fixed effects using fixed-effects regression model; (3) after adopting multinomial logistic specification or Heckman Inverse-Mills-ratio method to correct for potential sample selection bias; (4) after including lagged dependent variable to control for the stickiness of management earnings forecasts; (5) after eliminating the confounding effect of other major concurrent disclosures; (6) after mitigating bias caused by incomplete coverage of management earnings forecast data on the First Call's Company Issued Guidance database; (7) when limiting the sample to firms that have a track record of issuing management earnings forecasts; (8) after using credit watch data to measure a firm's impending rating change statuses. Overall, there is no evidence to suggest that credit ratings are manipulated via management earnings forecasts.

This study contributes to the literature in three ways. First, prior disclosure literature examines the effect of managerial opportunistic incentives on corporate disclosures in the setting of equity offerings (Frankel et al., 1995; Marquardt and Wiedman, 1998; Lang and Lundholm, 2000), stock repurchases (Brockman et al.,

2008), management buyout offers (Hafzalla, 2009), stock-forstock mergers (Ge and Lennox, 2011), stock and stock option grants (Aboody and Kasznik, 2000; Nagar et al., 2003), and insider trading (Bushman and Indjejikian, 1995; Rogers and Stocken, 2005; Cheng and Lo, 2006; Rogers, 2008; Cheng et al., 2013; He, 2018b). Nonetheless, despite the importance of credit ratings to firms, little research attention has been paid to whether and how managers use voluntary disclosures to influence credit ratings. This study fills this gap by being the first to provide evidence on how credit rating affects a firm's voluntary financial disclosures, and should thereby have implications for rating agencies and other market participants, who need to evaluate a firm's creditworthiness and viability by means of its financial disclosure.

Second, credit rating constitutes a repeated game between managers and rating agencies. Hence, this study also contributes to the disclosure literature by shedding light on managerial voluntary disclosure behaviors in a repeated game setting, which have received little research attention to date. I find no evidence of managerial opportunistic disclosures to manipulate credit ratings in the setting of impending credit rating changes.

Third, prior research (e.g., Shivakumar et al., 2011) contends the relevance of management earnings forecast for evaluating a firm's default risk, and provides evidence that credit markets respond significantly to news in management earnings forecasts. My study extends this literature by investigating whether the relevance of management earnings forecasts for credit pricing induces managers to use the forecasts to manage credit ratings. I do not find evidence that managers strategically issue earnings forecasts to manage credit ratings, which is consistent with their concern that credit rating issuers/users are likely able to undo the strategic behaviors.

The remainder of the paper proceeds as follows. Section 2 develops the hypotheses. Section 3 describes the data. Section 4 presents the research methodologies. Section 5 discusses the results. Section 6 conducts the supplemental analyses, and Section 7 concludes.

II. HYPOTHESIS DEVELOPMENT

The massive accounting irregularities and corporate scandals during 2000-2002, particularly Enron and WorldCom, have triggered intense criticisms on credit rating agencies with regards to their competence in probing negative information and to their ability to adjust for opportunistic corporate reporting (SEC 2003; SEC 2005). Rating agencies generally do not audit the accuracy or integrity of issuer-provided information in the rating process (SEC, 2003). What's more, they might be compromised by conflict of interests resulting from their dependence on rating fees paid by their clients and

from ancillary consulting services offered to the clients (Economist, 2005; SEC, 2005). As such, managers might engage in opportunistic disclosures to manage ratings in the belief that rating agencies might not detect and adjust for the opportunistic disclosures. Therefore, one way of managing credit ratings is to strategically disclose corporate information that is viewed as important by rating agencies in the evaluation of a firm's creditworthiness.

However, Cheng and Neamtiu (2009) find that a recent increase in regulatory pressures and investor criticisms on credit rating quality induces rating agencies to increase the timeliness and accuracy of credit ratings. Rating agencies deal with their clients repeated and frequently in the long run and have superior access to the clients' private information (Jorion et al., 2005; SEC, 2000). They are familiar with a firm's financial, economic, and operational statuses (He, 2018a), and are supposed to be sophisticated and specialized in acquiring and processing corporate information (Kisgen, 2006). Hence, rating agencies are likely able to undo managerial opportunistic disclosures. Furthermore, aside from rating agencies, other parties such as regulators, investors, creditors, suppliers, customers, and employees also monitor firm credit ratings all along, since such ratings are widely used for investment, valuation, regulatory, and contractual purposes. In this scenario, using opportunistic earnings forecasts, a firm might succeed in cheating outside stakeholders occasionally, but cannot manage to do so each time when the firm is near a rating change. Also, the firm would be penalized for the opportunistic disclosure once it is discovered. Therefore, *ex ante*, it is ambiguous whether managers tend to engage in opportunistic disclosures to manage credit ratings. I explore this empirical issue along three dimensions.

First, managers could withhold bad news up to a certain threshold where it becomes too costly or difficult for managers to further withhold the bad news, but quickly reveal good news to the public (e.g., Kothari et al., 2009; He, 2015; He and Ren, 2018). The market might fail to unravel the withheld information as "*uncertainty exists about whether the manager is informed or, equivalently, whether the information in question has yet to arrive ...*" (Verrecchia, 2001). In view of this, managers might withhold bad news.

However, as insiders, managers are supposed to be well acquainted with future earnings trend of a firm and to know about the earnings news when it comes up. So, it is part of fiduciary duty for managers to update or correct preexisting disclosures on earnings information (Cheng et al., 2013). Without the earnings forecasts, negative earnings surprises at earnings announcements could necessarily imply that managers have withheld bad news. Outsiders dislike such negative earnings surprises, and would discount a firm that has no bad news warning (Skinner, 1997; Hutton, 2007). Withholding

bad news on earnings performance not only leads to reputational loss for a firm but also exposes the firm to high litigation risk (e.g., Skinner, 1994; Skinner, 1997; Field et al., 2005). Conversely, earlier revelation of bad news in earnings forecasts reduces the threats of litigation as the bad news warning diminishes the perception that firm management deliberately "conceals the truth" (Skinner, 1994; Field et al., 2005). Consistent with this notion, Donelson et al. (2012) find evidence that earlier releases of bad earnings news lower the likelihood of litigation; Billings and Cedergren (2015) also provide evidence that bad news warning reduces litigation risk. If managers withhold bad news, their firm would risk being discounted by not only the bad news *per se* but also the opportunistic withholding behaviors discovered by the market. Therefore, it is likely that managers abstain from selectively releasing good news or withholding bad news on earnings information albeit facing an impending credit rating change. The above discussion leads to the first hypothesis formulated in a null form as follows.

H1: Conditional on firms making an earnings forecast, the likelihood of an earnings forecast being good news (versus bad news) does not differ between firms that are close to a credit rating change and firms that are not.

The null hypothesis, H1, implies that firms close to a credit rating change do not selectively release good news or withhold bad news. However, if firms near a rating change tend to do so, the likelihood of an earnings forecast being good news (versus bad news) should be significantly higher for firms that are close to a credit rating change than for firms that are not.

Second, even if managers do not withhold bad news, they could issue an optimistic earnings forecast in a biased manner (measured by whether a management forecast of EPS exceeds the actual EPS) to manage market expectations about earnings performance and thereby affect rating agencies' perceptions about corporate credit risk. If outside stakeholders are perceived not to be sophisticated enough to process financial information, firms near a rating change would have an incentive to bias their earnings forecasts.

Nevertheless, outside stakeholders can use subsequent audited earnings reports as well as information from other resources to assess the credibility of management forecasts (He, 2018b). Thus, the issuance of biased optimistic forecasts would expose a firm to high litigation risk and to potential great reputational losses. Due to the disciplinary role of subsequent audited earnings reports in management earnings forecasts, it is likely that a firm wishing for a desired credit rating refrains from issuing an optimistic forecast. This leads to the second hypothesis formulated in a null form as follows.

H2: Conditional on firms making an earnings forecast, the likelihood of an optimistic earnings forecast does not

differ between firms that are close to a credit rating change and firms that are not.

The null hypothesis, H2, implies that firms close to a rating change do not issue an optimistically biased earnings forecast. But if firms near a rating change tend to do so, the likelihood of an optimistic earnings forecast should be significantly higher for firms that are close to a credit rating change than for firms that are not.

Third, managers have great discretion on earnings forecast precision. They can issue a point earnings forecast or a range forecast, with the width of the range (i.e., the difference between the upper and lower bounds) up to managerial discretion. Individuals tend to have limited attention and information processing power. Hence, information presented in a salient, explicit, and easily processed form is absorbed more easily and rapidly than information that is vague and less salient (Hirshleifer and Teoh, 2003). A couple of theoretical and empirical papers (e.g., Baginski et al., 1993; Kim and Verrecchia, 1991; Subramanyam, 1996) document that the magnitude of the market's response to a disclosure is positively related to the disclosure precision, suggesting that a more precise earnings forecast has a larger impact on outsiders' perceptions about firm value. Thus, strategically choosing a desirable forecast precision across varied forecast news, specifically, releasing good news in a more precise manner than bad news, is yet another way of boosting market expectations about a firm's creditworthiness.

However, as documented by Choi et al. (2010), high earnings forecast precision is associated with a higher likelihood of earnings forecasts being proven wrong *ex post*, thereby resulting in high disclosure risk for a firm (i.e., the situation when the actual earnings likely fall outside the earnings forecast range). Such disclosure risk also restrains managerial discretion on earning forecast precision. Due to the *ex post* discipline of audited earnings reports and to reputational concerns, it is likely that firms which wish for a desired credit rating do not resort to releasing a more precise earnings forecast for good news than for bad news. This leads to the third hypothesis formulated in a null form as follows.

H3: Conditional on firms making an earnings forecast, the precision of a good-news forecast relative to that of a bad-news forecast does not differ between firms that are close to a credit rating change and firms that are not.

The null hypothesis, H3, implies that firms close to a rating change do not manipulate earnings forecast precision across varied forecast news. However, if firms near a rating change tend to issue a more precise forecast for good news than for bad news, the precision of a good-news forecast relative to that of a bad-news forecast should be significantly greater for firms that

are close to a credit rating change than for firms that are not.

III. DATA

The main empirical analysis is based on data collected primarily from four sources: I/B/E/S, First Call, Compustat, and CRSP. For firm credit ratings, I use the Standard & Poor's long-term domestic issuer credit ratings reported by Compustat from the second quarter of 1985. Unlike bond-level credit ratings, firm-level credit ratings are maintained with a firm on a regular basis in a long run (He, 2018a). Hence, the credit ratings in my sample are all "regular" ratings, not "*ad hoc*" ratings.² The sample period ranges from 1989 to 2009. I focus on quarterly forecast data for two reasons. First, credit rating change statuses (i.e., whether a rating is close to a change or not) could vary from time to time within a year, thus it is more efficient to use quarterly data for the hypothesis tests. Second, prior research finds that quarterly forecasts are more informative and have a larger influence on the market (e.g., Pownall et al., 1993; Baginski et al., 1993). Table 1 shows the full sample distribution of credit ratings at the firm-quarter level from 1989 to 2009. Consistent with He (2018c), the majority of sample observations are rated between BB- and BBB+, with BBB level observations accounting for the highest percentage (10.71%).

² I obtain similar results when using the annual forecast data for all the major analyses involved in this study.

Table 1: Distribution of credit ratings

S&P Ratings	Frequency	Percentage (%)	Cumulative Percentage (%)
AAA	2570	1.67	1.67
AA+	1139	0.74	2.41
AA	4112	2.68	5.09
AA-	5694	3.71	8.80
A+	9206	5.99	14.79
A	13322	8.67	23.46
A-	11757	7.65	31.12
BBB+	13486	8.78	39.90
BBB	16458	10.71	50.61
BBB-	12444	8.10	58.71
BB+	7674	5.00	63.70
BB	10047	6.54	70.25
BB-	12969	8.44	78.69
B+	15296	9.96	88.64
B	8269	5.38	94.03
B-	4181	2.72	96.75
CCC+	1817	1.18	97.93
CCC	1023	0.67	98.60
CCC-	406	0.26	98.86
CC	434	0.28	99.14
C	10	0.01	99.15
D or SD	1304	0.85	100
Total	153618	100	100

Notes: This table shows the full sample distribution of credit ratings at the firm-quarter level from 1989 to 2009. The firm credit ratings are the long-term issuer credit ratings compiled by Standard & Poor's and reported on Compustat. The credit ratings range from AAA (the highest rating) to D (the lowest rating --- debt in payment default). The sample period ranges from 1989 to 2009 with a sample of 153,618 firm-quarter observations.

I restrict my sample to management forecasts of next quarter's earnings since the one-quarter-ahead forecasts account for the majority (approximately 75%) of all quarterly forecasts that occur over a fiscal quarter.³ To focus on voluntary earnings forecasts rather than earnings-pre-announcements, I follow prior literature to exclude forecasts issued on or after the fiscal quarter end dates (e.g., Frankel et al., 1995; Rogers and Stocken, 2005). I further require that firms have necessary data from I/B/E/S, First Call, Compustat, and CRSP to construct the variables of interest for the empirical analysis. For instance, in the tests of H1 and H2, I need to control for future earnings news (measured by the difference between actual EPS and analyst consensus forecast of EPS), since managers also have an incentive to manipulate analyst expectations to avoid negative earnings surprises (Matsumoto, 2002). To this end, I eliminate management forecasts with either no preceding analyst forecasts for the corresponding fiscal quarter or no actual EPS reported in the First Call database. The final sample ends up with 21,530, 17,776, and 5,300 firm-quarter observations for testing the impact of impending credit rating changes on management forecast news, forecast bias, and forecast precision, respectively.

³ Alternative use of two-quarter-ahead, three-quarter-ahead, or one-year-ahead earnings forecasts, or of all the earnings forecasts over a fiscal quarter, yields qualitatively the same results.

IV. RESEARCH DESIGN

a) Measures of a firm's impending credit rating change statuses

Credit rating scale consists of ten broad rating categories (i.e., AAA, AA, A, BBB, BB, B, CCC, CC, C, D) which represent ten different indicators for a firm's credit risk (Standard and Poor's, 2009). Each broad rating category from AA to CCC is divided into three subcategories with a distinction of minus, middle, and plus notches (e.g., BB+, BB, and BB-). Following Kisgen (2006) and He (2018a), I use two constructs to capture whether a firm is close to a credit rating change.

Firstly, I consider three rating statuses for each specific notch rating level of a firm (e.g., BBB+), that is, whether a firm is close to a change to an adjacent higher or lower specific notch rating (e.g., BBB+ to A- or BBB+ to BBB), or not near any notch rating change. Firms, which are ranked in the top (bottom) quintile within each notch rating based on credit quality determinants at the beginning of a fiscal quarter, are classified as firms near a notch rating upgrade (downgrade).⁴ The credit quality determinants include firm size, the ratio of debt to total capitalization, the ratio

⁴ I also check the robustness of this definition by specifying firms near a notch rating change as the top and bottom thirds (or as the top and bottom quartiles) within each notch rating. The results remain qualitatively the same under the alternative specifications.

of EBIT to total assets, and the ratio of total liabilities to total assets. I first estimate a pooled regression of credit rating on the credit quality determinants. Credit ratings are transformed into numerical scores using an ordinal scale ranging from 1 for the lowest rated firms (D) to 22 for the highest rated firms (AAA). The regression results (not tabulated) reveal that the coefficients on each of the explanatory variables are in the predicted sign and statistically significant at the 1% level, and that the adjusted R^2 equals 49.07%. I then sort firms into quintiles within each notch credit rating based on the magnitude of the fitted value from the regression.⁵ Observations in the top (bottom) quintile are classified as near a notch rating upgrade (downgrade), while observations in the middle three quintiles are classified as the benchmark group, which is regarded as not being close to any notch rating change.

Secondly, there are discrete costs (benefits) associated with not only a notch rating change but also a broad rating change (Kisgen, 2006).⁶ The discrete costs (benefits) are greater for a broad rating change (e.g., BBB- to BB+) than for a notch rating change within the same broad rating category (e.g., BB- to BB or BB+ to BB). The likelihood of being upgraded (downgraded) to an adjacent higher (lower) broad rating category is, on average, higher for firms in the outer notches (e.g., B+ or B-) than for firms in the middle notch (e.g., B). Hence, firms whose credit ratings are designated with a plus (minus) notch are classified as being near a broad rating upgrade (downgrade).

Rating agencies might formally warn the public of an impending rating change of a firm by placing the firm on the credit watch list. However, I do not use the credit watch data in this study for four reasons. First, rating agencies have the option not to place a firm on the credit watch list when the firm is close to a rating

b) *The impact of impending credit rating changes on management earnings forecasts*

To test H1, I run the following logistic regression model.

$$Goodnews_t = \alpha_0 + \alpha_1 Notch_{impending,t-1} (Notch_{t-1}) + \alpha_2 Control + \varepsilon \quad (1)$$

The dependent variable takes the value of 1 if a firm issues a good-news earnings forecast during fiscal quarter t , and 0 otherwise. I classify a management earnings forecast as a good news forecast if it is greater than the mean consensus analyst forecast issued within 90 days prior to the management forecast date.⁷ The

change. The option itself might be determined by some unobserved firm or CEO characteristics that also affect managerial voluntary disclosures. As such, watch list actions are most likely not exogenous to voluntary disclosures, giving rise to nontrivial endogeneity concerns. Second, other than warning the public of a firm's impending rating change, rating agencies can warn a firm privately or opt not to deliver any warning even when a firm is close to a rating change. Hence, if I use credit watch placements to measure a firm's impending rating change statuses, observations in credit watch (non-credit-watch) period would have excluded (included) observations that are subject to an impending credit rating change, thereby inducing bias to my empirical results. Third, firm-quarter observations that have watch list actions account for a small portion (around 2%) in the rated firm population, which would largely reduce the power of the tests. Fourth, prior studies (e.g., Chakravarty et al., 2009) well document that the market reaction to a credit watch placement is as economically and statistically significant as the market reaction to a credit rating change and that the announcement effect of a credit rating change is much smaller for firms that have a credit watch placement than for firms that do not. In a sense, a credit watch placement is compared to a credit rating change in terms of economic consequences for a firm. Given the substantive economic consequences, managerial voluntary disclosure in response to a credit watch placement might pertain to managers' delayed or late reactions to an impending credit rating change.

Despite these limitations of the use of credit watch data to measure impending credit rating changes, I conduct a supplemental analysis in Section 6.8 on firms that are placed on credit watch and those that are not.

nature of forecast news is measured based on the consensus analyst forecast, because it is a widely used proxy for the market earnings expectation and provides a measure of all earnings news that reaches market participants (e.g., Bartov et al., 2002). The inference persists if I use an alternative proxy for good news which

⁵ Following Kisgen (2006), I sort financial firms (SIC codes 6000-6499) and utilities firms (SIC codes 4000-4999) separately as these firms are subject to different rating criteria (Standard & Poor's, 2009).

⁶ A notch credit rating includes a minus or plus notch, if given. Accordingly, a notch rating change refers to a change in rating of any kind, including both a rating change between two notch ratings within the same broad rating category (e.g., BB to BB+) and a rating change between two notch ratings across two broad rating categories (e.g., B+ to BB-). A broad rating change refers only to the latter (Kisgen, 2006).

⁷ For multiple management forecasts made during a fiscal quarter, *Goodnews* is coded as 1 if the last management forecast of EPS is greater than the mean consensus analyst forecast of EPS, and 0 otherwise. The last forecast of EPS for a fiscal quarter represents managers' most updated expectations about a firm's earnings performance and hence is likely to be valued the most by outsiders. This accords with managers' intent to affect market expectations for a desired credit rating. So, I use the last management forecast of EPS for the *Goodnews* measure (and for the *Optimism* measure to be mentioned in footnote 8).

is an indicator variable for whether the cumulative abnormal stock returns during the three-day window centered on the earnings forecast dates are positive. *Notchimpending_{t-1}* (*Notch_{t-1}*) equals 1 if a firm is close to a notch (broad) credit rating change at the beginning of

The following logistic regression model is specified to test H2.

$$Optimism_t = \alpha_0 + \alpha_1 Notchimpending_{t-1}(Notch_{t-1}) + \alpha_2 Control + \varepsilon \quad (2)$$

The dependent variable equals 1 if a management forecast of EPS is greater than the actual EPS reported in the First Call database for fiscal quarter *t*, and 0 otherwise.⁸ If a firm close to a rating change is not prone to issue an optimistic earnings forecast, H2 holds and α_1 would be statistically insignificant.

In model (1) and (2), I control for the following variables that are related to forecast news (*Goodnews*) and forecast bias (*Optimism*): firm size (*Size*) (e.g., Kasznik and Lev, 1995), analyst following (*AnaCov*) (e.g., Lang and Lundholm, 1993, 1996), industry-level litigation risk (*Litigation*) (e.g., Francis et al., 1994; Kasznik and Lev, 1995), book-to-market ratio (*BM*) (e.g., Bamber and Cheon, 1998; Hui et al., 2009), operating losses (*Loss*) (e.g., Ajinkya, 2005), management forecast horizon (*Horizon*) (e.g., Baginski and Hassell, 1997), earnings volatility (*Earnings Vol*) (e.g., Waymire, 1985; Kross et al., 1994), analyst forecast errors (namely, earnings surprise, (*AnaError*)) (Kasznik and Lev, 1995;

To test H3, I conduct the following Tobit regression model.

$$Precision_t = \alpha_0 + \alpha_1 Notchimpending_{t-1}(Notch_{t-1}) + \alpha_2 Goodnews_t + \alpha_3 Notchimpending_{t-1}(Notch_{t-1}) * Goodnews_t + \alpha_4 Control + \varepsilon \quad (3)$$

Precision_t equals the forecast width for a range forecast, calculated as (-1) times the absolute value of the difference between the high-end estimate and the low-end estimate for the fiscal quarter *t*, divided by the absolute value of the sum of the high-end estimate and the low-end estimate. *Precision_t* equals 0 for a point forecast. *Goodnews* is equal to 1 if a management forecast of EPS (the point estimate or the mid-point estimate for a range forecast) is greater than the mean consensus analyst forecast of EPS which is issued within 90 days prior to the management forecast date, and 0 otherwise. Open-ended forecasts are excluded from the analysis as it is difficult to compare qualitative open-ended forecast with the quantitative consensus analyst forecast. I do not use market reactions to earnings forecasts to capture the nature of news in model (3) because the forecast precision by itself affects the magnitude of stock returns (Cheng et al. 2013). *Notchimpending_{t-1}* (*Notch_{t-1}*) is interacted with *Goodnews* to test H3. α_2 signifies the precision of good news forecasts relative to that of bad news forecasts for firms

fiscal quarter *t* and 0 otherwise. If firms close to a rating change do not selectively release good news or withhold bad news in their earnings forecasts, H1 holds and α_1 would be statistically insignificant.

Lennox and Park, 2006; Atiase et al., 2005), and analyst forecast dispersion (*AnaDispers*) (e.g., Swaminathan, 1991). The likelihood that a firm selectively releases a good news forecast or issues an optimistically biased forecast is expected to be higher for firms that has smaller size (*Size*), lower book-to-market ratio (*BM*), lower analyst earnings forecast relative to reported earnings (*AnaError*), longer forecast horizon (*Horizon*), a loss in operating income (*Loss*), lower analyst coverage (*AnaCov*), smaller analyst forecast dispersion (*AnaDispers*), lower industry-level litigation risk (*Litigation*), or smaller earnings volatility (*Earnings Vol*). To control for the effect of potential fundamental-related events that might drive managerial disclosures, I also include two variables, abnormal trading volume (*Abtradvol*) and abnormal quarterly stock returns (*Qtrret*).⁹ All the control variables are defined in the appendix.

that are not close to a rating change. α_3 denotes the incremental precision of good news forecasts relative to that of bad news forecasts for firms near a rating change compared with firms not close to a rating change. Accordingly, $\alpha_2 + \alpha_3$ denotes the precision of good news forecasts relative to that of bad news forecasts conditional on an impending rating change. If a firm near a rating change strategically increases the precision of a good news forecast and decreases the precision of a bad news forecast, α_3 should be significantly positive.

Based on the existing literature, I select several additional independent variables that might also affect the precision of management earnings forecast: firm size (*Size*) (e.g., Kasznik and Lev, 1995), industry-level litigation risk (*Litigation*) (e.g., Francis et al., 1994; Kasznik and Lev, 1995), book-to-market ratio (*BM*) (e.g., Bamber and Cheon, 1998), operating losses (*Loss*) (e.g., Ajinkya, 2005), analyst following (*AnaCov*) (e.g., Baginski and Hassel, 1997), management forecast

⁸ In case of multiple management forecasts made during a fiscal quarter, *Optimism* is coded as 1 if the last forecast of EPS is greater than the actual EPS for a fiscal quarter, and 0 otherwise.

⁹ Alternatively, I exclude firm-quarter observations that have an announcement of equity issuances, mergers, acquisitions, or stock repurchases over fiscal quarter *t*, and the results for the tests of H1-H3 remain qualitatively unchanged.

horizon (*Horizon*) (e.g., Baginski and Hassell, 1997), earnings volatility (*Earnings Vol*) (e.g., Waymire, 1985; Kross et al., 1994), and analyst forecast dispersion (*AnaDispers*). Earnings forecasts are expected to be less precise for firms that have smaller size (*Size*), higher book-to-market ratio (*BM*), longer forecast horizon (*Horizon*), higher earnings volatility (*Earnings Vol*), higher litigation risk (*Litigation*), lower analyst coverage (*AnaCov*), higher analyst forecast dispersion (*AnaDispers*), or a loss in operating income (*Loss*). I also include two variables, abnormal trading volume (*Abtradvol*) and abnormal quarterly stock returns (*Qtrret*), as I do for models (1) and (2). All the control variables are defined in the appendix.

The sample used for the tests of H1-H3 is restricted to firms that contain at least one earnings forecast over a fiscal quarter. Note that the theme of this study is to probe the impact of impending credit rating changes on managers' *ex post* voluntary financial disclosure behaviors (i.e., the way that managers disclose corporate earnings news). So, it is important to condition the tests of H1-H3 on firms that have at least one earnings forecast over a fiscal quarter.

V. EMPIRICAL RESULTS

a) Descriptive statistics of management earnings forecasts

Table 2 presents descriptive statistics of the management forecast variables used in the regression

Table 2: Descriptive Statistics

Variable	Mean	Std.Dev.	25 th	Median	75 th	N
Earnings Guidance Characteristics						
Goodnews	0.4024	0.4904	0	0	1	21530
Optimism	0.3090	0.4621	0	0	1	17776
Precision	-0.0849	0.1665	-0.0833	-0.0435	-0.0244	5300

Notes: This table presents descriptive statistics of the management earnings forecast variables used in this multivariate analysis. All the variables are defined in the appendix. The sample period ranges from 1989 to 2009. The variable measures are based on the sample of firms that have at least one management earnings forecast over a fiscal quarter.

b) Univariate Results

Panel A (Panel B) of Table 3 reports management forecast characteristics for firms near a notch (broad) credit rating change and for firms not close to a notch (broad) rating change. The likelihood of a good-news earnings forecasts for firms near a notch rating change amounts to 39.81%, which is close to the likelihood of a good-news forecast for firms not close to a notch rating change (40.49%). The mean difference in the incidence of the good-news forecast is statistically insignificant (t-stat.=0.99). Also, the average incidence of a good-news forecast for firms close to a broad rating change is insignificantly different from that for firms not near a broad rating change (40.29% vs. 40.09%, t-stat.=0.30). These results suggest that firms do not selectively release good-news forecasts to avoid a rating downgrade or achieve an upgrade, thus consistent with H1.

analyses. The variable measures are based on the sample of firms that have at least one management earnings forecasts over a fiscal quarter. From the mean values of *Goodnews* and *Optimism*, we can infer that among firm-quarter observations that have at least one management earnings forecasts, only 40.24% of the observations have good news forecasts and only 30.90% of the observations have optimistic forecasts. Untabulated results further reveal that only a small portion of management earnings forecasts are confirming forecasts (1.69%) and forecasts without bias (8.63%), respectively, while the majority of the earnings forecasts are pessimistic forecasts (58.07%) and bad news forecasts (60.47%), respectively. This reconciles with prior evidence (e.g., Matsumoto 2002) that managers tend to use quarterly earnings forecasts to guide analyst forecasts downwards to avoid disappointing expectations at earnings announcements.

Table 3: Univariate Test

Panel A: Comparison of Management Earnings Forecast Characteristics by Notchimpending					
Variable	Notchimpending=1		Notchimpending=0		Mean Difference (t-stat.)
	Mean	N1	Mean	N0	
Goodnews	0.3981	7893	0.4049	13637	-0.0069 (0.99)
Optimism	0.3005	6136	0.3134	11640	-0.0129 (1.77)*
Precision	-0.0962	1635	-0.0795	3394	-0.0167 (3.16)***
Panel B: Comparison of Management Earnings Forecast Characteristics by Notch					
Variable	Notch=1		Notch=0		Mean difference (t-stat.)
	Mean	N1	Mean	N0	
Goodnews	0.4029	13464	0.4009	7858	0.0021 (0.30)
Optimism	0.3137	10982	0.3026	6627	0.0111 (1.55)
Precision	-0.0899	3243	-0.0780	2022	-0.0119 (2.57)**

Notes: This table reports descriptive statistics of management earnings forecast characteristics, partitioned by Notchimpending and Notch, respectively. Notchimpending equals 1 if a firm is near a notch rating change and 0 otherwise. Notch is equal to 1 if a firm's credit rating is near a broad rating change and 0 otherwise. N_1 (N_0) in Panel A refers to the number of firm-quarter observations that are (are not) near a notch rating change during the sample period of 1989-2009. N_1 (N_0) in Panel B refers to the number of firm-quarter observations that are (are not) near a broad rating change during the sample period of 2002-2009. All the variables are defined in the appendix. The variable measures are based on the sample of firms that have at least one management earnings forecasts during a fiscal quarter. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

The incidence of an optimistic forecast averages 30.05% (31.37%) for firms near a notch (broad) rating change and 31.34% (30.26%) for firms not close to a notch (broad) rating change. The mean difference amounts to -1.29% (1.11%) and is statistically insignificant at the 5% conventional level (t-stat.=1.77 (1.55)). This suggests that firms are not prone to release an optimistic earnings forecast when facing an impending notch (broad) rating change, thus consistent with H2.

Firms near a notch rating change have a mean level of forecast precision up to -0.0962, which is lower than the average precision of -0.0795 for firms not close to a notch rating change. The mean difference (-0.0167) is statistically significant at the 1% level (t-stat.=3.16). The average forecast precision of firms close to a broad rating change is also significantly lower than the average forecast precision of firms not near a broad rating change (t-stat.=2.57). These results indicate that firms that are confronted with an impending credit rating change generally issue less precise forecasts of EPS, which could be attributed to managers' fear of exposure to higher litigation risk arising from more precise forecasts.

The univariate results do not control for managerial incentives to use a short-term earnings forecast to guide analysts' expectations for meeting or beating their consensus forecasts. Nor do the univariate tests control for investment opportunities, demand for external financing, extent of information asymmetry, growth prospects, etc., which also affect management earnings forecasts. Therefore, I turn to multivariate analyses to account for these factors.

c) Multivariate Results

Table 4 reports the descriptive statistics and the multivariate results for model (1). The coefficients on *Notchimpending* and *Notch* are both statistically insignificant. Hence, there is no evidence indicating that firms close to a rating change selectively deliver good news or suppress bad news in earnings forecasts. This is probably because managers foresee a high likelihood that rating agencies or other outsiders would discover bad news hoarding in subsequent periods. As expected, the coefficients for *Horizon* and *Loss* are significantly positive while those for *AnaError*, *Qtrret*, and *AnaCov* are significantly negative. This suggests that a firm is less likely to selectively issue a good-news earnings forecast when (i) the firm has a shorter earnings-forecast horizon; (ii) the firm experiences a loss in operating income; (iii) the consensus analyst forecast of EPS is lower than the firm's actual EPS; (iv) the firm experiences high abnormal stock returns in the previous quarter; and (v) fewer analysts forecast earnings for the firm.

Table 4: Test of H1: The impact of impending credit rating change on managerial propensity to selectively release a good news forecast

Panel A: Descriptive statistics of variables

Variable	Mean	Std. Dev.	25 th	Median	75 th	N
Notchimpending	0.3666	0.4819	0	0	1	21530
Notch	0.6315	0.4824	0	1	1	21322
Size	7.9087	1.5523	6.9036	7.8183	8.9119	21530
BM	0.6205	2.8004	0.3146	0.5101	0.7660	21530
AnaError	-0.9017	66.5954	-8.207E-3	-1.501E-3	2.907E-4	21530
Horizon	23.1272	20.7920	6	15	38	21530
Loss	0.1737	0.3788	0	0	0	21530
AnaCov	1.0418	0.8897	0	1.0986	1.7918	21530
AnaDispers	0.9385	58.2072	0	0.01	0.04	21530
Litigation	0.1394	0.3464	0	0	0	21530
EarningsVol	69.0131	271.8509	5.4176	14.8943	44.5309	21530
Abtradvol	6.796E+6	5.187E+7	-3.065E+6	9.144E+4	3.991E+6	21530
Qtrret	0.0178	0.2400	-0.0906	0.0031	0.1028	21530

Panel B: Regression results for the test of H1

Variables	Pred. Sign	Dependent Variable = Goodnews	
Intercept	?	0.1559 (0.230)	0.1257 (0.363)
Notchimpending	?	0.0434 (0.283)	
Notch	?		0.0053 (0.896)
Size	-	0.0148 (0.343)	0.0180 (0.261)
BM	-	0.0002 (0.965)	0.0034 (0.429)
Ana Error	-	-0.0024 (0.011)**	-0.0023 (0.011)**
Horizon	+	0.0016 (0.044)**	0.0017 (0.041)**
Loss	+	0.2509 (<0.001)***	0.2566 (<0.001)***
AnaCov	-	-0.3021 (<0.001)***	-0.2982 (<0.001)***
Ana Dispers	-	4.63E-6 (0.984)	1.40E-5 (0.950)
Abtradvol	?	2.4E-10 (0.458)	4.74E-10 (0.240)
Qtrret	?	0.6302 (<0.001)***	0.6380 (<0.001)***
Litigation	-	-0.0227 (0.722)	-0.0180 (0.781)
Earnings Vol	-	-3.00E-5 (0.684)	-4.00E-5 (0.876)
Observations		21530	21322
Pseudo R ²		0.096	0.095

Notes: Panel A of this table reports descriptive statistics of the variables used in the regression. Panel B reports the regression results for the test of the impact of impending credit rating changes on managerial propensity to issue a good news earnings forecast (H1). The sample period ranges from 1989 to 2009. The logistic regression is used in the test. The dependent variable is Goodnews, an indicator variable for whether a firm issues a good-news earnings forecast during a fiscal quarter. All the variables are defined in the appendix. Year and quarter dummies are included in the regression but are not reported for brevity. p-values in parentheses are based on the robust standard errors clustered by firm. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5 presents the descriptive statistics and the regression results for model (2). Neither *Notchimpending* nor *Notch* takes on a statistically significant coefficient. This suggests that firms close to a credit rating change do not issue optimistically biased forecasts due to the disciplinary role of audited earnings reports in management forecast accuracy. *Size*, *Litigation*, *Qtrret*, and *AnaCov* have a significantly

negative coefficient, indicating that firms with large size, high litigation risk, high abnormal stock returns, or high analyst coverage are less inclined to optimistically bias their earnings forecasts. *Loss* is positive and significant at the 1% level, indicating that firms that experience a loss in operating income tend to issue optimistically biased earnings forecasts.

Table 5: Test of H2: The impact of impending credit rating changes on management earnings forecast optimism (bias)

Panel A: Descriptive statistics of variables

Variable	Mean	Std. Dev.	25 th	Median	75 th	N
Notchimpending	0.3452	0.4754	0	0	1	17776
Notch	0.6237	0.4845	0	1	1	17609
Size	7.7941	1.5189	6.8199	7.7116	8.7657	17776
BM	0.6200	3.0535	0.3155	0.5129	0.7704	17776
AnaError	-1.0619	73.2370	-7.968E-3	-1.449E-3	2.972E-4	17776
Horizon	22.5919	21.3327	5	14	38	17776
Loss	0.1737	0.3789	0	0	0	17776
AnaCov	0.9001	0.8293	0	0.6931	1.6094	17776
AnaDispers	1.0809	64.2437	0	0.01	0.04	17776
Litigation	0.1276	0.3336	0	0	0	17776
EarningsVol	62.4468	275.2879	5.0374	13.3264	39.2041	17776
Abtradvol	129811	3.149E+7	-2.620E+6	8.693E+4	3.394E+6	17776
Qtrret	0.0179	0.2400	-0.0881	0.0041	0.1016	17776

Panel B: Regression results for the test of H2

Variables	Pred. Sign	Dependent Variable = Optimism	
Intercept	?	0.4899 (0.002)***	0.4813 (0.005)***
Notchimpending	?	-0.0076 (0.883)	
Notch	?		0.0163 (0.758)
Size	?	-0.1001 (<0.001)***	-0.1005 (<0.001)***
BM	-	-0.0030 (0.410)	-0.0023 (0.562)
AnaError	-	-0.0054 (0.184)	-0.0056 (0.209)
Loss	+	0.4599 (<0.001)***	0.4563 (<0.001)***
AnaCov	-	-0.3402 (<0.001)***	-0.3380 (<0.001)***
AnaDispers	-	-0.0004 (0.609)	-0.0005 (0.617)
Abtradvol	?	1.83E-11 (0.975)	-1.33E-11 (0.983)
Qtrret	?	-0.2511 (<0.001)***	-0.2578 (<0.001)***
Horizon	+	-0.0053 (<0.001)***	-0.0054 (0.770)
Litigation	-	-0.1464 (0.019)**	-0.2225 (0.012)**
<i>(Continued on next page)</i>			

EarningsVol	-	-0.0001 (0.122)	-0.0001 (0.065)*
Observations		17776	17609
Pseudo R ²		0.082	0.081

Notes: Panel A of this table reports descriptive statistics of the variables used in the regression. Panel B presents the regression results for the test of the impact of impending credit rating changes on management forecast optimism (H2). The sample period ranges from 1989 to 2009. The logistic regression is used in the test. The dependent variable is Optimism, an indicator variable for whether a management forecast of EPS during a fiscal quarter is greater than actual EPS. All the variables are defined in the appendix. Year and quarter dummies are included in the regression but are not reported for brevity. p-values in parentheses are based on the robust standard errors clustered by firm. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6 shows the descriptive statistics and the regression results for model (3). Since the measure of management forecast precision is right-truncated at 0, the regression model is estimated using Tobit regression rather than OLS regression. The coefficient on neither *Notchimpending*Goodnews* nor *Notch*Goodnews* is statistically significant, suggesting that firms near a rating change do not choose to manipulate forecast precision across varied forecast news to affect the perceptions of outsiders of interest. *Goodnews* takes on a significantly positive coefficient, which is consistent

with the prior evidence (Cheng et al. 2013) that firms tend to release a more precise earnings forecast for good news than for bad news. As predicted, the coefficients on *EarningsVol*, *BM*, *Loss*, and *AnaDispers* are negative and statistically significant, indicating that firms with high earnings volatility, high book-to-market ratio, a loss in operating income, or high analyst forecast dispersion tend to issue less precise earnings forecasts. *Size* also has a statistically significant coefficient with the positive predicted sign, indicating that large firms tend to have high management forecast precision.

Table 6: Test of H3: The impact of impending credit rating changes on management earnings forecast precision

Panel A: Descriptive statistics of variables

Variable	Mean	Std. Dev.	25 th	Median	75 th	N
Notchimpending	0.3251	0.4685	0	0	1	5029
Notch	0.6150	0.4866	0	1	1	4995
Size	8.0966	1.4219	7.1771	8.0269	9.0268	5029
BM	0.5050	0.4893	0.2787	0.4405	0.6476	5029
Goodnews	0.4039	0.4907	0	0	1	5029
Horizon	60.5735	15.4330	56	64	70	5029
Loss	0.1201	0.3251	0	0	0	5029
AnaCov	1.3672	1.0848	0	1.3863	2.3026	5029
AnaDispers	0.0098	0.0171	0	0.01	0.01	5029
Litigation	0.2155	0.4112	0	0	0	5029
EarningsVol	51.6188	166.7748	5.3216	13.1563	36.1378	5029
Abtradvol	755074	3.465E+7	3.392E+6	1.997E+5	4.510E+6	5029
Qtrret	0.0161	0.1739	-0.0796	0.0062	0.0992	5029

Panel B: Regression results for the test of H3

Variables	Pred. Sign	Dependent Variable = Precision	
Intercept	?	-0.1749 (<0.001)***	-0.1724 (<0.001)***
Notchimpending	?	-0.0115 (0.061)*	
Notchimpending*Goodnews	?	-0.0037 (0.692)	
Notch	-		0.0028 (0.631)
Notch*Goodnews	?		-0.0089 (0.317)
Goodnews	+	0.1015 (0.053)*	0.0140 (0.043)**
<i>(Continued on next page)</i>			

Size	+	0.0184 (<0.001)***	0.0177 (<0.001)***
BM	-	-0.0211 (<0.001)***	-0.0202 (<0.001)***
Horizon	-	-0.0003 (0.033)**	-0.0003 (0.006)***
EarningsVol	-	-0.0001 (<0.001)***	-0.0001 (<0.001)***
Litigation	-	-0.0160 (0.003)***	-0.0186 (<0.001)***
Loss	-	-0.1046 (<0.001)***	-0.1057 (<0.001)***
Abtradvol	?	8.722E-11 (1.000)	9.541E-11 (1.000)
Qtrret	?	-0.0007 (0.958)	-0.0002 (0.987)
AnaCov	+	-0.0056 (0.014)**	-0.0025 (0.148)
AnaDispers	-	-0.5702 (0.008)***	-0.5753 (<0.001)***
Observations		5029	4995
Pseudo R2		0.183	0.182

Notes: Panel A of this table reports descriptive statistics of the variables used in the regression. Panel B reports the regression results for the test of the impact of impending credit rating changes on management forecast precision (H3). The Tobit regression is used in the test. The sample period ranges from 1989 to 2009. The dependent variable is Precision, which measures the precision of management earnings forecasts for a firm during a fiscal quarter. All the variables are defined in the appendix. Year and quarter dummies are included in the regression but are not reported for brevity. *p*-values in parentheses are based on the robust standard errors clustered by firm. ***, **, * denote the two-tailed statistical significance at the 1%, 5%, and 10% levels, respectively.

Overall, the multivariate results suggest that firms near a credit rating change do not opportunistically alter their disclosure strategies to manage rating agencies' perceptions about corporate credit risk. As rating agencies deal with their clients repeatedly in the long run and are specialized in acquiring and processing corporate information, rating agencies should have a fairly good sense of whether managers engage in opportunistic disclosures. This explains why firms close to a rating change do not engage in opportunistic financial disclosures to influence rating agencies' decisions.

VI. SUPPLEMENTAL TESTS

a) Separate impending credit rating upgrades from impending rating downgrades

I separate the effect of impending notch (broad) rating upgrades on management earnings forecast from the effect of impending notch (broad) rating downgrades. To do so, I replace *Notchimpending* (*Notch*) with *Splus* and *Sminus* (*Plus* and *minus*) in models (1)-(3) for the regression analyses. *Splus* (*Sminus*) equals 1 if a firm is near a notch rating upgrade (downgrade) and 0 otherwise. *Plus* (*Minus*) equals 1 if a firm's credit rating is close to a broad rating upgrade (downgrade) and 0 otherwise. The results (not tabulated) indicate that neither *Splus* (*Sminus*) nor *Plus* (*Minus*) takes on a statistically significant coefficient, suggesting that H1-H3 hold for firms near a rating upgrade and firms near a downgrade, respectively.

b) Control for sample selection bias

The sample used for the tests of H1-H3 is restricted to the observations that have management earnings forecasts, which might give rise to sample selection bias. To address this possibility, I adopt a multinomial logistic specification for models (1)-(3) using the full sample, whereby the potential selection bias would be corrected (Bourguignon et al., 2007).¹⁰ The inferences for H1-H3 remain unchanged for the multinomial logistic specification.

Alternatively, I employ a two-stage Heckman Inverse-Mills-ratio method to control for the potential selection bias. The probit model is used for the first-stage regression, where a binary variable for the incidence of management earnings forecast (*Occur*) is regressed on the following variables that are likely to be related to managerial decisions to issue an earnings forecast: analyst following (*AnaCov*), firm size (*Size*), analyst forecast errors in absolute term ($|AnaError|$), earnings volatility (*EarningsVol*), analyst forecast dispersion (*AnaDispers*), book-to-market ratio (*BM*), firm age (*Firm age*), financial leverage (*Debt*), and industry-level litigation risk (*Litigation*) (Kasznik and Lev, 1995; Frankel et al., 1995; Bushee and Leuz, 2005; Lang and Lundholm, 1996; Ajinkya et al., 2005, among others). All these variables are defined in the appendix. The Inverse Mills ratio estimated from the first-stage regression is

¹⁰ When multinomial logistic specification is applied for model (3), the dependent variable is dichotomized as equal to 1 if *Precision* of a firm-quarter observation is above the sample median and 0 otherwise.

included in the second-stage regression model, which is modeled by model (1), (2), and (3), respectively, to control for potential selectivity bias. The results for the coefficients on *Notchimpending* and *Notch* under the Heckman Inverse-Mills-ratio method are qualitatively the same as those reported in Tables 4-6.

c) *Control for firm-fixed effects*

Whether to issue earnings forecasts could be a firm's long-term financial policy. As a firm periodically has an earnings number, there might be a firm-specific and time-invariant aspect to a firm's earnings forecasts which are likely driven by some unobserved firm characteristics. Therefore, I run firm-fixed-effects logistic regression for models (1)-(3). The regression results are qualitatively the same as those reported in Tables 4-6. This indicates that the impact of impending rating changes on the incidence of management earnings forecast is robust to including firm-fixed effects.

d) *Control for the stickiness of management earnings forecast*

Hirst et al. (2008) pinpoint the dynamic and iterative nature of management earnings forecasts. To control for the potential stickiness of management earnings forecasts, I augment models (1)-(3) by their lagged dependent variables, namely, *LagGoodnews*, *LagOptimism*, and *LagPrecision*, respectively, which are defined in the appendix. The results for the augmented models (1)-(3) are qualitatively identical to those reported in Tables 4-6.

e) *Eliminate the confounding effects of other concurrent disclosures*

My measures of earnings forecast news might be subject to noise or systematic bias when the forecasts are released concurrently with other disclosures. In addressing this issue, I consider two major types of concurrent disclosures: earnings announcements and voluntary disclosures of product or business expansion plans, which are commonly seen and investigated in practice. I exclude earnings forecasts that are issued concurrently with earnings announcements or with the disclosures of product or business expansion plans. Because the product and business expansion disclosure data are not available in Capital IQ database until after 2001, I narrow the robustness test to the sample period of 2002-2009, for which I exclude the observations that contain the concurrent disclosures of product and business expansions plans. All my inferences for H1-H3 remain the same after I eliminate the confounding effects of these concurrent disclosures.

f) *Correct for bias from the CIG's incomplete coverage of earnings forecast data*

Chuk et al. (2013) find that there exists substantive bias caused by the incomplete coverage of management earnings forecasts data on the First Call's

Company Issued Guidance database. Chuk et al. (2013) suggest that researchers should examine the sensitivity of their results by (i) omitting sample periods prior to 1998 and (ii) conducting analyses on a subsample where coverage of management earnings forecast data is known to be better (i.e., observations with high analyst following). My results are robust to the above two tests recommended by Chuk et al. (2013).

g) *Limit the sample to firms that have a track record of issuing earnings forecasts*

Managers' decisions to strategically issue earnings forecasts to influence credit ratings might be affected by whether their firm has already had a track record of issuing earnings forecasts in the past. It would be an easier decision for managers to make good news forecasts, optimistic forecasts, and more precise forecasts for good news than for bad news if a firm has consecutively issued earnings forecasts in the recent past than if they had not. I thus limit my sample to observations that have at least one earnings forecasts for each fiscal quarter of the past three fiscal years. I re-run regressions for models (1)-(3) based on this subsample, and obtain qualitatively the same results as those reported in Tables 4-6.

h) *Use credit watch data to measure a firm's impending credit rating change status*

I identify a sample of 434 firms that are subject to S&P credit watch reviews over the sample period of 1989-2009. The data are obtained from Mergent Fixed Investment Securities database (FISD). Firm-quarter observations that are involved in credit watch actions over the sample period amount to 2,748 and are classified as the treatment sample. A credit watch is a public warning of a firm's impending credit rating change status. It is possible that a firm is close to a rating change but is not warned publicly by rating agencies. Hence, the non-credit-watch firm-quarter observations are used as the control sample only if they are classified as not near a credit rating change under the Kisgen (2006)'s classification approach. The control sample amounts to 23,237 firm-quarter observations.

To compare the characteristics of management earnings forecasts between the treatment sample and the control sample, I conduct the regression analyses for models (1)-(3) where *Notchimpending* and *Notch* are replaced with *Watchimpending*. *Watchimpending* is an indicator variable equal to 1 (0) for the treatment (control) sample. The regression results indicate that the coefficients for *Watchimpending* are all statistically insignificant, suggesting that firms do not pursue opportunistic disclosures in response to a credit watch action taken by their rating agencies.

VII. CONCLUSION

This study examines whether managerial incentives for a desired credit rating affect voluntary

financial disclosure behaviors. Credit rating agencies claim to have incorporated the quality of public disclosures into credit ratings. Opportunistic disclosures worsen information environment of a firm, and once detected, would lower rating agencies' expectations about a firm's creditworthiness. Consistent with this rationale, my results suggest that firms refrain from making opportunistic earnings forecasts during impending credit rating changes. In particular, firms do not selectively release good news or withhold bad news in their earnings forecasts when facing an impending rating change. Nor do the firms tend to issue an optimistic earnings forecast or a more precise forecast for good news than for bad news. Overall, there is no evidence to suggest that credit ratings are manipulated via management earnings forecasts.

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APPENDIX

Summary of Variable Definitions

Variables	Definitions
Optimism	1 if the last management forecast of EPS is greater than actual EPS for a fiscal quarter and 0 otherwise.
Goodnews	1 if the last management earnings forecast is greater than the mean consensus analyst earnings forecast issued within 90 days prior to the management forecast date for a fiscal quarter and 0 otherwise.
Precision	The absolute value of the difference between the highest estimate and the lowest estimate of earnings for a fiscal quarter times (-1), divided by the absolute value of the sum of the highest estimate and the lowest estimate of earnings for the fiscal quarter.
Notchimpending	1 if a firm is near a notch rating upgrade or downgrade and 0 if the firm is not near any notch rating change.
Notch	1 if a firm's credit rating is at the top or bottom of a broad rating category and 0 otherwise.
Spplus	1 if a firm is near a notch rating upgrade and 0 otherwise.
Sminus	1 if a firm is near a notch rating downgrade and 0 otherwise.
Plus	1 if a firm's credit rating is at the top of a broad rating category and 0 otherwise.
Minus	1 if a firm's credit rating is at the bottom of a broad rating category and 0 otherwise.
AnaCov	The natural logarithm of 1 plus the number of analysts following a firm during a fiscal quarter.
Size	The natural logarithm of 1 plus the market value of a firm's common equity at the beginning of a fiscal quarter.
Litigation	1 for firms in the biotechnology (2833-2836 and 8731-8734), computers (3570-3577 and 7370-7374), electronics (3600-3674), and retail (5200-5961) industries and 0 otherwise.
AnaError	A firm's reported EPS minus the mean consensus analyst forecast of EPS during a fiscal quarter, divided by the stock price at the beginning of a fiscal quarter.
EarningsVol	The standard deviation of quarterly earnings over 12 quarters ending at the beginning of a fiscal quarter.
BM	The book value of common equity divided by the market value of common equity at the beginning of a fiscal quarter.
AnaDispers	The standard deviation of analyst earnings forecasts during a fiscal quarter.
Horizon	The number of days between the management earnings forecast date and the fiscal quarter end date.
Abtradvol	The difference between dollar trading volume of the current fiscal quarter and that of the previous fiscal quarter.
Qtrret	The size-adjusted buy-and-hold returns over a fiscal quarter, which equal the compounded raw returns minus the compounded equally-weighted returns of the same CRSP size decile and the same CRSP exchange index (NYSE/AMEX/NASDAQ) that a firm belongs to.
Loss	1 if a firm reports an operating loss during a fiscal quarter and 0 otherwise.
Debt	Long-term debt divided by the market value of equity at the end of a fiscal quarter.
Firmage	The natural logarithm of the number of years since a firm got listed.
LagOptimism	1 if the last management forecast of EPS is greater than actual EPS for the previous fiscal quarter and 0 otherwise.
LagGoodnews	1 if the last management earnings forecast is greater than the mean consensus analyst earnings forecast issued within 90 days prior to the management forecast date for the previous quarter and 0 otherwise.
LagPrecision	The absolute value of the difference between the highest estimate and the lowest estimate of earnings for the previous fiscal quarter times (-1), divided by the absolute value of the sum of the highest estimate and the lowest estimate of earnings for the previous fiscal quarter.



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Analyzing the Impact of Working Capital Management on Profitability: A Study on DSE Listed Cement Companies in Bangladesh

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I. INTRODUCTION

Working capital refers to capital available for running day to day operations of a business. It is the measurement of firm's ability to meet its short-term obligations. Positive working capital means the firm can pay off its short-term liabilities. Negative working capital means that a firm is unable to meet the short-term liabilities with its current assets. Key components of working capital are receivables, payables, cash and its equivalents. Working capital management (WCM) involves management decisions about cash, inventory, account receivables and payables which are crucial components of financial management for a firm.

Efficient management of working capital is very important because it impacts profitability of a firm (Taleb et al., 2010). Insufficient working capital leads to liquidity problems, on the other hand, holding excess working capital results in reduction of profitability (Ghosh & Maji, 2003). Excess working capital means having idle funds that do not generate any return for the firm. Inadequate working capital disrupts production process and ultimately reduces profit. Through efficient working capital management, a firm can maintain proper level of working capital and pay off obligations timely (Eljelly, 2004). The goal of WCM is to maintain an

optimum balance among the components of working capital to maximize financial health of the firm.

A popular measurement of WCM is cash conversion cycle (CCC) (Raheman & Nasr, 2007). It is the time lag between purchase of raw materials to collection of cash from sale of good or service rendered. The longer the CCC, the larger the investment in working capital (Deloof, 2003). Profitability might be increased through long CCC as it increases sales. However, profitability of a firm might also decrease with CCC, if cost of investment is greater than the benefits of holding more inventories and/or granting more trade credit.

Cement sector in Bangladesh is experiencing an upsurge in usage of cement. Increase in demand for cement is due to acceleration in urban development, with construction of houses, apartments and infrastructural development projects such as Padma Bridge, Gulistan Jatrabari Flyover, Kuril Flyover, Hatirjheel Project, Dhaka-Chittagong Access Control Highway, Dhaka Metro Rail Transit, Dhaka-Narayanganj-Gazipur-Dhaka Elevated Expressway and deep-sea port in Chittagong (Nur, 2014; Kabir, 2013). According to Nahar (2012), the industry is currently in growth stage. Bangladesh exports cement to Myanmar and northeastern states of India including Tripura, Meghalaya and Assam. (Kabir, 2013).

The impact of WCM on profitability for cement companies are examined by Almazari (2014); Arshad and Gondal (2013), Haq et al. (2011), Manzoor (2013), Ramana, Ramakrishnaiah and Chengalrayulu (2013), and Rehman and Anjum (2013) among others. However, there are few studies with reference to Bangladesh in the context of cement companies such as Dhar and Aziza (2018), Mizan and Hossain (2014), and Quayyum (2011). Quayyum (2011) examined effect of WCM on profitability of four listed cement companies of the Dhaka Stock Exchange (DSE) for the period 2005-2009 using cross section data.

In this context, the aim of this paper is to provide a more robust analysis on the impact of WCM on profitability by using panel data. Panel data is a data set comprising both time series and cross-sectional elements (Stock & Watson, 2010). This study is focused on analyzing the impact of working capital management on profitability of cement companies listed in the Dhaka Stock Exchange. To understand the impact of WCM on

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profitability for cement companies, the impact of CCC and its components on profitability are statistically analyzed.

II. REVIEW OF LITERATURE

In literature, traditional definition of working capital is current assets minus current liabilities (Preve & Sarria-Allende, 2010). Current assets include inventories, accounts receivable, cash and its equivalents. Working capital management is defined as financing current assets and managing current assets and current liabilities of firm (Vural et al., 2012). Naser et al. (2013) identified working capital management as the management of cash, receivables, inventories and payables. Ganesan (2007) explained working capital management as short-term financing requirements of a firm.

According to Bieniasz and Golas (2011) receivables is the number of days from the moment of sale (issuing of invoice) until receiving of the payment. Credit sales create accounts receivable and increase sales volume. However, this can lead to increase in bad debts (Bhattacharya, 2009). Bernstein and Wild (1998) state that increase in average collection period generally reflects poor collection efforts, delays in customer payments and financial distress faced by the customer.

Mathuva (2009) defined inventory conversion period as the time taken to convert inventory held into sales. Cost of inventory tends to increase if inventory conversion period increases (Jayarathne, 2014). So, the purpose of inventory management is to minimize these costs without causing disruption in the production (Bhattacharya, 2009).

According to Jayarathne (2014), cash conversion cycle starts with purchase of raw materials followed by production process converting the raw materials into finished goods. Finished goods are then sold. He defined payable period as the time lag between arrival of stock to the company and payment of cash to suppliers for the materials. If payment period is increased, it may result in loss of good suppliers (Bhattacharya, 2009).

Uyar (2009) studied the relationship of cash conversion cycle with firm size and profitability for firms listed at Istanbul Stock Exchange. The study found significant negative correlation between cash conversion cycle and profitability. Raheman and Nasr (2007) studied the effect of different variables of working capital management including average collection period, inventory turnover in days, payable deferral period, cash conversion cycle and current ratio on net operating profitability of Pakistani firms. The authors found a strong negative relationship between variables of working capital management and profitability. They also found that as the cash conversion cycle increases, it leads to decrease in profitability of the firm and managers can create a positive value for the

shareholders by reducing the cash conversion cycle to a possible minimum level. Padachi (2006) examined the trends in working capital management and its impact on firm's performance for 58 Mauritian small manufacturing firms during 1998 to 2003. He explained that a well designed and implemented working capital management is expected to contribute positively to the creation of firm's value. The results indicated that high investment in inventories and receivables is associated with low profitability. Lazaridis and Tryfonidis (2006) found a significant negative relationship between cash conversion cycle and gross operating profit. The findings reveal that managers can create profit for their companies by maintaining the cash conversion cycle and its components (accounts receivable, accounts payable and inventory) to an optimal level. To extend Lazaridis and Tryfonidis's findings, Gill et al. (2010) found statistically significant relationship between cash conversion cycle and profitability, measured through gross operating profit. Deloof (2003) found a significant negative relation between gross operating income and the collection period of accounts receivable, average days in inventories and accounts payable of Belgian firms. The results suggested that managers can create value for shareholders by reducing collection period of accounts receivable and average days in inventories to a reasonable minimum.

In case of research on working capital management and profitability for cement companies, Almazari (2014); Arshad and Gondal (2013); Manzoor (2013); Ramana et al. (2013); Rehman and Anjum (2013); Haq et al. (2011) have conducted study among others. For Saudi cement companies, Almazari (2014) found that current ratio affected profitability and as the size of a firm increased, profitability increased. However, when debt financing increased, profitability declined. Linear regression confirmed a high degree of association between working capital management and profitability. Arshad and Gondal (2013) found that current ratio and net current assets to total assets have significantly positive effect on profitability meaning when accounts receivable lengthen, profitability increases. However, quick ratio has significantly negative effect on profitability indicating that profitability decreases when inventory periods increase. Manzoor (2013) found significant negative relationship between average collection period, inventory turnover period and firm size with profitability. Positive significant relationship was found between leverage and profitability. Ramana et al. (2013) found that receivables management has significant impact on profitability. Rehman and Anjum (2013) concluded that WCM has negative association with profitability meaning when working capital increases, profitability decreases. Haq et al. (2011) found that current ratio, liquid ratio, current assets to total assets ratio, debtors' turnover ratio and cash turnover ratio have significant positive relation with return

on investment. This positive relationship showed that working capital management except inventory turnover ratio has significant positive impact on profitability of cement companies.

In case of cement companies in Bangladesh, Quayyum (2011) investigated the effect of working capital management efficiency on the profitability of companies listed with the Dhaka Stock Exchange. The study was a cross section data evaluation and found that cash conversion cycle negatively affects profitability of a firm, expressed by return on asset. A study by Dhar and Aziza (2018) investigated the relationship between working capital and EPS of cement companies in Bangladesh. The authors found no significant impact of working capital on EPS of cement companies.

III. RESEARCH DESIGN AND METHODOLOGY

a) Sample Size and Data Collection

The study is based on an all-inclusive sampling of all the 7 cement companies listed on the Dhaka Stock

$$GOP_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 SIZE_{it} + \beta_3 SG_{it} + \beta_4 LEV_{it} + \epsilon_{it} \quad (1)$$

$$GOP_{it} = \beta_0 + \beta_1 ACP_{it} + \beta_2 SIZE_{it} + \beta_3 SG_{it} + \beta_4 LEV_{it} + \epsilon_{it} \quad (2)$$

$$GOP_{it} = \beta_0 + \beta_1 ICP_{it} + \beta_2 SIZE_{it} + \beta_3 SG_{it} + \beta_4 LEV_{it} + \epsilon_{it} \quad (3)$$

$$GOP_{it} = \beta_0 + \beta_1 APP_{it} + \beta_2 SIZE_{it} + \beta_3 SG_{it} + \beta_4 LEV_{it} + \epsilon_{it} \quad (4)$$

Where CCC_{it} (cash conversion cycle), $Capet$ (average collection period), ICP_{it} (inventory conversion period), APP_{it} (payables deferral period) are used as proxy for working capital for firm i at time t ; $SIZE_{it}$ is the natural log of total assets for firm i at time t ; SG_{it} is the natural log of sales for firm i at time t ; LEV_{it} is debt ratio for firm i at time t ; α is the intercept and ϵ_{it} is the error term. Here GOP is the dependent variable, CCC , ACP , ICP and APP are the independent variables, and $Size$ ($SIZE$), $Sales Growth$ (SG) and $Leverage$ (LEV) are used as control variables to adjust the individual firm effect.

Hypothesis

To examine the above models, the following hypothesis was developed.

H_0 : There is no significant impact of working capital management on profitability.

H_1 : There is significant impact of working capital management on profitability.

Exchange (DSE) for the period 2007-2015. Only listed companies were selected primarily for the availability and reliability of the data as listed companies are required to present annual reports to make their shares more attractive to investors.

b) Data Collection

The sources of the data for the study are secondary in nature, comprising annual reports and financial statements.

c) Empirical Model

The empirical framework for this study is based on Deloof (2003); Raheman and Nasr (2007) and Shin and Soenen (1998).

Four models are employed to see the impact of working capital management using cash conversion cycle and its components on profitability. These models regress Gross Operating Profit (GOP) as proxy for profitability for firm i at time t .

As the study used panel data, choice between Random effect models versus fixed effect model was performed which is a classical test for panel data analysis. To determine which of these models is appropriate, coefficients are estimated for both random effect and fixed effect and then Housman test was performed to decide the appropriate model. Housman test failed to reject null hypothesis, therefore implying random effect model is the appropriate fit. Random effect model is estimated using GLS method.

IV. RESULTS AND DISCUSSION

Table 1 presents the summary statistics of all variables in the study. Gross operating profit is on average 23.93 Taka and standard deviation is 13.27. It means that profitability can deviate from the mean value to both sides by 13.27. The average cash conversion cycle is 49.18 days and standard deviation is 44.25 days. Other variables also follow similar patterns.

Table1: Descriptive Statistics

Variable	Label	Obs	Mean	Standard Deviation	Minimum	Maximum
GOP	Gross Operating Profit in Taka	63	0.2393	0.1327	-0.007	0.5047
CCC	Cash Conversion Cycle in Days	63	49.1808	44.2519	-27.1706	198.752
ACP	Average Collection Period in Days	63	50.5098	46.2312	8.4687	223.8953
ICP	Inventory Conversion Period in Days	63	63.6443	34.8664	24.3028	236.1099
APP	Payables Deferral Period in Days	63	66.3395	61.7447	8.9788	298.0796
SIZE	Enterprise Size in Taka	63	21.0719	2.1208	15.7906	23.1508
SG	Sales Growth in %	63	0.2426	0.3219	-0.3688	1.5884
LEV	Leverage in %	63	0.5559	0.2233	0.1948	0.9042

Source: Author's own calculation

Table 2 presents the Pearson coefficient of correlation for pairs of variables. GOP and CCC are negatively correlated with a coefficient of -0.394. This result is consistent with findings by Deloof (2003); Riemann and Nasr (2007) and Quayyum (2011). It shows cash conversion cycle has negative relation to gross operating profit, indicating profitability could be improved by decreasing cash conversion cycle. There is a significant positive correlation between GOP and APP.

It means average collection period has a positive relation to profitability, thereby when payables deferral period increases, profitability also increases. It can be interpreted as the longer companies take to pay their bills, the more profitable they are. There is a significant negative correlation between GOP and ACP and GOP and ICP. It indicates that if a company takes more time in collecting receivables and selling inventory, respectively, profitability will decrease.

Table 2: Correlation Matrix

	GOP _{it}	CCC _{it}	ACP _{it}	ICP _{it}	APP _{it}	SIZE _{it}	SG _{it}	LEV _{it}
GOP _{it}	1.000							
CCC _{it}	-0.394*	1.000						
ACP _{it}	-0.545**	0.215	1.000					
ICP _{it}	-0.337*	0.570**	0.364*	1.000				
APP _{it}	0.348*	-0.235	0.790**	0.417**	1.000			
SIZE _{it}	-0.561**	0.131	0.013	0.143	-0.138	1.000		
SG _{it}	-0.152	0.242	-0.135	-0.033	-0.127	0.258	1.000	
LEV _{it}	-0.468**	0.084	0.117	0.287	0.234	0.312	-0.154	1.000

*Correlation is significant at the 0.05 level, **Correlation is significant at the 0.01 level

Source: Author's own calculation

Table 3 presents the results of random effect GLS regression. Results show that the regression coefficients of CCC, ACP, ICP and APP are statistically significant. It implies that these variables have significant relationship with GOP. In other words, cash conversion cycle, average collection period, inventory conversion period and payable deferral period of the sampled firms during the study period have significant impact on gross operating profit, thereby impacting profitability of the firm. CCC, ACP and ICP have negative coefficients, implying that cash conversion cycle, average collection period and inventory conversion period have significant

Negative impact on profitability (GOP). These results are in confirmation with Abuzayed (2012); Eljelly (2004); Deloof (2003); Jayarathne (2014); Raheman et al. (2010) and Rahman and Nasr (2007). Only payable deferral period (APP) has significant positive impact on profitability. This is in confirmation with Azam and Haider (2011); Charitou et al. (2010) and Raheman et al. (2010). Results also show that debt ratio and profitability move in opposite directions. Based on the results, it can be further interpreted that when a company increases its debt financing, this might lead to decrease in profitability.

Table3: Random Effect GLS Regression

Regression Model	(1)	(2)	(3)	(4)
Variables	Regression Coefficient			
CCC _{it}	-0.0035 (0.00)			
ACP _{it}		-0.001 (0.04)		
ICP _{it}			-0.0009 (0.03)	
APP _{it}				0.0002 (0.04)
SIZE _{it}	-0.0021 (0.04)	-0.0033 (0.06)	-0.0032 (0.06)	-0.0101 (0.09)
SG _{it}	0.0028 (0.31)	0.0027 (0.12)	0.0018 (0.52)	0.0022 (0.17)
LEV _{it}	-0.0031 (0.00)	-0.0081 (0.00)	-0.0010 (0.00)	-0.0070 (0.00)
Constant	0.0093 (0.00)	0.0093 (0.00)	0.0097 (0.00)	0.0094 (0.00)
Adjusted R ²	0.5045	0.5139	0.6361	0.4805
F statistics	31.48 (0.00)	23.74 (0.00)	60.06 (0.00)	20.98 (0.00)
Hausman Test	(0.5318)	(0.5840)	(0.1400)	(0.5699)

Source: Author's own calculation

Based on the results, it can be concluded that the alternate hypothesis (H1) that WCM has significant impact on profitability is to be accepted. At a 95% level of confidence, the null hypothesis is rejected as GLS regressions show that working capital management (measured by cash conversion cycle and its

components) have significant impact on profitability (measured by gross operating profit).

V. CONCLUSION

Cement industry in Bangladesh is currently in the growth stage and has potential for playing a

significant role in the economy of the country. This study examined the impact of working capital management on profitability of cement companies listed in the Dhaka Stock Exchange for 2007-2015. The results show that for the cement industry, working capital management has significant impact on profitability. Cash conversion cycle, average collection period and inventory conversion period have significant negative impact on profitability. It suggests that managers can improve profitability by reducing the cash conversion cycle, by collecting receivables faster and by selling inventory sooner, respectively. Results also found a significant positive impact of payable deferral period on profitability implying managers can increase profitability by taking more time to pay the bills. Evidence suggests increase in leverage leads to decline in profitability.

This research can be further extended to identify the optimal level of cash conversion cycle and its components for cement companies that will generate the maximum profitability. Moreover, research could also be further extended to evaluate the trade credit policies practiced by the cement companies.

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Assessment of Service Delivery Practice and Customer Satisfaction of Micro Finance Institutions: (The Case of ACSI, Gondar)

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Keywords: *service delivery practice, customer satisfaction, micro-finance.*

GJMBR-C Classification: *JEL Code: G21*



ASSESSMENT OF SERVICE DELIVERY PRACTICE AND CUSTOMER SATISFACTION OF MICROFINANCE INSTITUTIONS THE CASE OF ACSI GONDAR

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Kibret Tekeba^α & Ermias Worku Mengistu^ο

Abstract- The main aim of this study is to assess the service delivery practice in terms of quality and customer satisfaction in Amhara Credit and Saving Institution (ACSI) in case of Gondar city branches. The required data was collected from a sample of 314 customers. Simple random sampling technique was used to select the respondents. Both descriptive and inferential statistics were used to analyze and interpret the collected data. Questionnaires and report analysis were used as a data collection instruments. According to this research finding, the majority of customers are dissatisfied with the service delivery process of ACSI. Thus, credit and saving institutions are concerned about customer satisfaction and have to pay attention to understand their customers' preferences to survive in a competitive environment.

Keywords: service delivery practice, customer satisfaction, micro-finance.

I. INTRODUCTION

Every business is established with the aim of achieving success and being profitable. The service industry like any other business sector shares this objective. The service industry is among the oldest and most diverse industries in the world. Services vary in many ways and include various stages. Lovelock and Wirt (2004) defined service as “an act or performance made by one party to another although the process may be tied to a physical product, the performance is transitory, often intangible in nature and does not normally result in ownership of any of the factors of production”. It is an economic activity that creates value and provides benefits for customer at specific time and place by bringing about a desired change in or on behalf of the recipient of the service.

The service industry is among the highly dynamic industries as consumers and customers often demands change. These changes further drive the service provision and deliver forward with increasing demand for better service. Since services are intangible in nature their success and failure is not easily measured or quantified. The success of any service providing organization according to Huffman & Bateson (2001) can be measured in terms of its customers' Expectation towards the service delivery practice, which means service quality, will be the dominant element in customers' evaluations of a given service. Customers'

go to service providers expecting to get a good service and the level of expectation among each individual varies. Finding out what customers' expect is essential in providing a quality service. This can be done through business research focusing on issues such as what features are important to customers, what levels of these features customers expect and what customers think the company can and should do when problems occur in service delivery practice.

In a service rendered business, the customer and the front-line service employee interact to create the service. Effective interaction, in turn, depends on the skills of front-line service employees and on the support processes backing these employees. Thus, successful service companies focus their attention on their customers (Kotler and Armstrong, 2012). Unlike product manufacturers who can adjust their machinery and inputs until everything is perfect, service delivery will always vary, depending on the interactions between employees and customers.

Microfinance plays a very important role in the economic life of a nation. Although the microfinance is growing and offering various types of financial services to the public (particularly to low income citizens) their mere existence does not do anything unless they deliver a quality service.

In Ethiopia various different microfinance institutions: Amhara Saving and Credit Institution, Dedit Saving and Credit Institution, Addis Micro Finance Institution etc. are established for supporting the lower level income citizens, in relation to their financial gain, to support them through providing loans and saving services. Most of these institutions are government oriented and the service delivery system is expected to meet the satisfaction level of the customers. This research is, therefore tries to assess the service delivery practice and customer satisfaction of Micro Finance Institutions, in case of Amhara Credit and Saving Institution (ACSI) in Gondar city branches.

II. STATEMENT OF THE PROBLEM

It is very important that service rendered companies' measure and monitor service delivery practice and customer satisfaction with the view of influencing the behavioral intention of their customers (Saha and Theingi, 2009). Unsatisfactory customer

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service leads to a drop in customer satisfaction and no willingness to recommend others to come and use this institution.

This is especially true in Micro Finance Institutions (MFIs) where there is frequent interaction with customers which hold the highest stake in ensuring the organization to exceed its competitors and outshine in the service it provides. In winning this competition, it is obvious that customer satisfaction is a critical issue as it is highly correlated with the quality of services provided by competing organizations (Zegeye, 2013). Currently, both service quality and customer satisfaction are the mirror image targets of microfinance institutions in getting significant number of customers for such institutions (Lafourcadeetal., 2005).

Most studies conducted on MFIs concentrated on the following areas; outreach service and sustainability of the MFIs (Facade, 2011), contribution of MFIs to beneficiaries (Marta, 2014) performance of MFIs in Ethiopia (Alemayehu, 2008). Findings of these studies reveal that a number of problems are hindering the smooth delivery of the microfinance services. There is customer's dissatisfaction over the service offered and the available services do not match the expectation of the customers.

Customers' point of view regarding quality service delivery and customer satisfaction was not properly studied. Therefore, this research tried to address significant outcome of service quality and customer satisfaction of ACSI from customer' point of view. Moreover, the issue of both ensuring quick service delivery and customer satisfaction are still unanswered question in ACSI. So, this research attempts to fill this gabby answering the following basic research questions.

1. What is the quality of the services delivered by ACSI?
2. Are clients of ACSI satisfied with available services?
3. What is the relationship between service quality and customer satisfaction?
4. What is the effect of service delivery in terms of quality on customer satisfaction of ACSI?

III. LITERATURE REVIEW

According to Kotler and Armstrong (2006), service is any activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything. From customer's perspective, Johnston and Clark (2008), define service as the combination of customers' experience and their perception of the outcome of the service. The customer experience is the customers' direct experience of the service process and concerns the way the customer is dealt with by the service provider. It includes the customer's personal interaction with the organization, its customer facing staff, technology and facilities.

A service occurs when an interaction is established between customers and service providers and/or the physical component of the service and/or the systems through which the service is delivered (Shahin & Jonathan, 2011).

The concept of service is used and defined in various perspectives by many scholars. A service is a commodity with no physical existence, usually created and consumed at the same time. Gronroos (2001) described a service as a process resulting in an outcome in a partly simultaneous production and consumption process. This definition points to the fact that service provision and consumption are simultaneous activities.

Service is intangible in nature, it cannot be mass produced. It cannot be inventoried and stored after production. Due to the fact that services and consumers of services are inseparable, they cannot be produced until the consumer is ready to consume them. Providing consistent quality is difficult for service because of the characteristic of variability (Clow and Kurtz, 2003). When one puts it in the simplest term; services are deeds, processes and performances (Zeithaml and Bitner, 2004). It is apparent that services are produced not only by service businesses but also are integral to the offering of many manufactured goods producers. Philip kittler (2000) defines services as "A service is any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership or anything, it's production may not be tied to a physical product."

a) *Characteristics of financial Services*

Service Intangibility: Services cannot be seen, tasted, felt, heard, or smelled before they are bought. For this reason, customers try to evaluate the quality of a service by looking at tangible components such as the place, people, price, equipment, and communications apparent (Armstrong & Kotler, 2011).

Service Inseparability: Services cannot be separated from their providers, whether the providers are people or machines. This means that the employee providing the service becomes part of the service, in most cases, the customer is also present at the time of providing the service. Therefore, the provider-customer interaction becomes important in determining the outcome of the service (Armstrong & Kotler, 2011)

Service Variability: The quality of services depends on who provides them as well as when, where, and how they are provided (Armstrong & Kotler, 2011). This means that the quality of a service provided is not just determined by the company but by the service provider too. Therefore, understanding the role of service providers is crucial to understand perceptions of service quality.

Service Perishability: Services cannot be stored for later sale or use (Armstrong & Kotler, 2011), although Lovelock and Wirtz (2011) argue that “not all service performances are perishable” like video recordings of events and concerts. One problematic situation that accompanies this characteristic is when demand exceeds supply (Armstrong & Kotler, 2011). This can be applied to the banking sector when there is traffic at the counters and no enough service providers, thus the service in that case cannot be stored for later use. In this case, banks should think of better ways to match the service supply with the demand. For this reason, understanding perishability of services is important in the context of this study.

b) *Service Quality*

Quality can only be judged in a context of customer's expectations and experience. Its value to the customers which should be the driving force of quality needs to be a dynamic Factor responding to change. Jim Whittles (1995) cited in Ken Irons (1997) said “service is the one Unique opportunity we have to be better than competitors and make sure our customers return” which would mainly be the result of a quality service. Gringos (1984) defined service quality as the outcome of an evaluation of process where the consumer compares their expectations with the service they received. He postulated that customer perceived service quality is a function of expected service, perceived service, and image quality Lehtinen and Lehtinen (1982) defined service quality in terms of physical quality, interactive quality and corporate (image) quality. Physical quality is associated with tangible aspects of the service. Interactive quality involves the interactive nature of services and refers to the two-way flow, which occurs between the customer and the service provider, or his/her representative, including both automated and animated interactions. Corporate quality refers to the image attributed to a service provider by its current and potential customers, as well as other publics. They also suggested that, when compared with the other two quality dimensions, corporate quality tends to be more stable over time. Researchers argue that the distinctive nature of services requires a distinctive approach to defining and measuring service quality. As a result of the intangible multifaceted nature of many services, it may be harder to evaluate the quality of a service than of a good. Because customers are often involved in service production particularly in people processing services, distinction needs to be drawn between the process of service delivery and the actual output of the service. Perceived quality of service is the result of an evaluation process in which customers compare their perception of service delivery and its outcome against what they expect. The most extensive research in to service quality is strongly user oriented. Valarie Zeithmal and Leonard

Berry (1990) cited in Lovelock and Wirtz (2004) identified criteria consumers use in evaluating service quality. In subsequent research, they found a high degree of correlation among several of these variables and so consolidated them into five broad dimensions.

c) *Measuring Service Quality*

Conceptual service quality models are useful to provide an overview of the factors which have the potential to influence the quality of an organization and its service offerings. They facilitate our understanding and can help organizations to clarify how quality shortfalls develop. However, human behavior significantly affects the quality of an organization and its offerings, and this is more evident in service organizations. The most widely used models in measuring service quality in the banking sector are the SERVQUAL and SERVPERF model.

d) *Customer Expectation*

Customer expectations according to Davis and Heineken (2003) is the customer's pre-conceived notions of what level of service they should receive from a particular service. It is also viewed as what customers feel a service provider should offer rather than would offer (Simon and Foresight, 2009). Expectations can be derived from several sources; advertising, word of mouth, and previous experiences with similar types of operations Davis and Heineken (2003).

As Johnston and Clark (2008) described the customer is an input resource for many service operations and thus not only do we need to know how to manage customers but also we need to understand what they expect from the operation. The purpose of understanding customer's expectations is to try to insure that service can be designed and delivered in order to meet those expectations. Thus expectations and indeed perceptions are key components in delivering a quality service. Customer expectations about service delivery vary from person to person, product to product, service to service, culture to culture, etc. and failure to meet adequate service delivery expectations results in customer dissatisfaction (Fogli, 2006). He further explained that when customers experience long wait times, late deliveries, incompetent service, or complicated procedures, they respond with dissatisfaction in various ways.

e) *Customer Satisfaction*

Satisfaction is a judgment that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under or over-fulfillment (Oliver 2010).

Zenithal and Bitner (2000) defined customer satisfaction as the customers' evaluation of a product or service in terms of whether that product or service has met their needs and expectations.

Customer satisfaction can also be defined as the “customer’s response to the evaluation of the perceived discrepancy between prior expectation and the actual performance of the product as perceived after its consumption” (Test and Wilton, 1998). Jamal and Nader (2002) argued that customer satisfaction is not only linked with the view of customers but also on their experience with the service delivery process. (Abram path Amah Mensa 2010) Customer satisfaction reflects the degree of a customer’s positive reaction for a service provider in a bank context, it is necessary for service providers (bank) to recognize the customer’s vision of their services. A high level of customer satisfaction can have a positive impact on customer loyalty (Deng et al., 2010).

f) *The Relationship between Customer Satisfaction and quality Service delivery*

To achieve a high level of customer satisfaction, most researchers suggest that a high level of service should be delivered by the service provider as better service delivery is normally considered an antecedent of customer satisfaction (Cronin and Taylor, 1992). However, the exact relationship between satisfaction and service delivery has been described as a complex issue, characterized by debate regarding the distinction between the two constructs and the casual direction of their relationship. Parasuraman et al. (1988) concluded that the confusion surrounding the distinction between the two concepts was partly attributed to practitioners and the popular press using the terms interchangeable, which make theoretical distinctions difficult. Interpretations of the role of service delivery and satisfaction have varied considerably (Cronin and Taylor, 1992; Parasuraman, et al. 1988). Parasuraman et al. (1988) confined satisfaction to relate to a specific transaction as service. This meant that expected service delivery was a global judgment, relating to the superiority of the service. Cronin and Taylor (1992) argued against Parasuraman et al.’s categorization. Cronin and Taylor (1992) found empirical support for the idea that perceived service delivery led to satisfaction and argued that service delivery was actually an antecedent of consumer satisfaction. Cronin and Taylor (1992) asserted that consumer satisfaction appeared to exert a stronger influence on purchase intention than service delivery, and concluded that the strategic emphasis of service organizations should focus on total customer satisfaction programs.

g) *Empirical studies on service delivery and customer satisfaction*

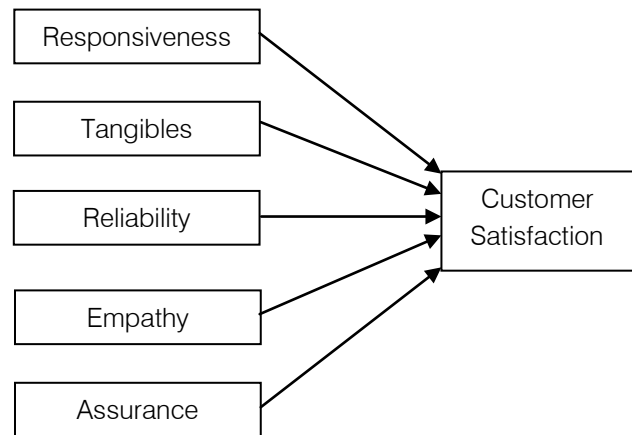
IFAD (2007) studied customer satisfaction and service delivery in rural micro-finance institutions in Uganda, Kenya and Tanzania. Combining qualitative (14 focus group of 71 clients) and quantitative approaches (209 interviews), this study assessed the determinants of customer satisfaction for rural

customers accessing both credit and savings facilities. Results revealed that “ customers prefer unlimited access to their savings while on credit facilities, customers want to have access to loan amounts they actually apply for at a ‘reasonable’ price and on flexible repayment term conditions”. The study suggested also that surveyed customers were all satisfied exhibiting a Customer Satisfaction Index of 81%. The study concluded that “financial services should be delivered by courteous staffs that preferably are not being ‘changed /swapped”.

Murray (2001) concentrated his study on customer satisfaction levels using data from four MFIs affiliated to Women’s World Banking in three countries: Colombia (America), Bangladesh (Asia) and Uganda (Africa) with a total sample of 3,000 clients. Using Liker’s scale, the author took into account expectations and perceptions items plotting results on a two-axis grid. Results proved that customers are more satisfied by accessing higher loan amounts, faster turnaround times, lower loan requirements and lower prices. However, it seemed that customers preferring to develop a long-term relationship with the MFI want to be given preferential treatment while all customers are demanding increasing levels of customer service.

h) *Conceptual Framework*

The conceptual framework indicates the relationship between the quality service delivery (independent variables of the study) responsiveness, tangibles, reliability, empathy, assurance and customer satisfaction (dependent variable of the study).



Source: Parasuraman, et al, 1988

IV. RESEARCH METHODOLOGY

a) *Research Design*

The research employed quantitative research design. This approach was used so as to take the findings of the study for generalizability purpose. Data was collected on the service quality dimensions using SERVQUAL model. Explanatory study is used to explain the relationship between the independent variables, (Tangibility, Reliability, Responsiveness, Empathy and

Assurance) and the dependent variable (customer satisfaction).

b) Sampling Technique and Size

For this study, cluster sampling technique was used. Those 23 administrative areas were clustered in to seven branches where the service is being delivered. These branches are Arbegnoch Adebabay, Mehalarada, Gebrial, Advisable, Maraca, Azezo and Teda. Among those seven branches three of them were selected by using simple random sampling technique. Lottery system was employed for the better selection of the three branches. Based on this, the three branches which the researcher uses are Arbegnoch Adebabay, Maraki, and Azezo. The total populations of these three branches were found in the following table.

Table 1: Number of customers in three branches or clusters

Clusters or Branches	Total Customer
Arbegnoch cluster	432
Maraki cluster	564
Azezo cluster	454
Total	1450

(Source: ACSI, 2016)

Table 2: Appropriate sample size from each of the branches

Branches	Number of Customers	Proportion = Number of customers in each branch/ Total number of customers	The required sample size (314)	Sample size from each branch = Proportion X Total sample size
Arbegnoch Adebabay	432	0.29	314	94
Maraki	564	0.38	314	122
Azezo	454	0.31	314	98
Total	1450	0.98	314	314

(Source: own survey, 2017)

c) Method of Data Analysis

Both descriptive and inferential statistics were used to analyze and interpret the findings. Demographic variables of the respondents and mean scores of the service quality dimensions are interpreted using descriptive statistics whereas inferential statistics is used to find out the relationship between service quality dimensions and customer satisfaction using correlation and regression analysis. All quantitative data were analyzed using SPSS Version 20. The open ended questions and interview responses were analyzed through the use of content analysis by categorizing similar responses and interests in their identical partition.

The target populations of the study were customers of ACSI, in three branches of Gondar city. ACSI has 6,086 customers and there are seven branches of (Dec, 30/2016. The sample size of this study is determined by using the formula developed by Taro Yamane (1967) as:

$$n = 1450 \div 1 + 1450 (0.5)^2 = 314$$

Thus, the sample size of the study was 314 customers. Proportions of customers in each branch were taken in to consideration while selecting participants of the study. Accordingly, samples were drawn from the three branches shown in the table below.

respondents automatically to compare their expectations with the quality service delivery levels being provided. The model contains 25 questions and a five point liker scale is used to assess performance. For all the service quality dimensions (Tangibles, Reliability, Responsiveness, Empathy and Assurance), the mean score have been computed. The table below represents the result.

a) Tangibility

Tangibility refers to the appearance of physical facilities, equipment, personnel and communication materials.

V. DATA ANALYSIS AND INTERPRETATION

To measure customers' satisfaction of the service quality provided by Amharic Credit and Saving Institution, SERVQUAL model is used. SERVQUAL directly measures the service quality performance that leads

Mean score for Tangibility

		ACSI employees up-to-date equipment and technology	ACSI physical facilities are visually appealing	ACSI's employees are well dressed and appear neat and had uniforms.	The offices of ACSI are pleasant and attractive	The offices of ACSI are clean	The physical facilities and technology of ACSI goes with the type of service they provide	Tangibility
N	Valid	302	302	302	302	302	302	302
	Missing	0	0	0	0	0	0	0
Mean		2.69	2.90	2.15	3.42	3.54	2.76	2.91

Accordingly the mean value of tangibility is 2.91 and as it can be seen from the table above from the 6 questions asked under tangibility the highest mean score is obtained on the offices of ACSI are clean which shows that majority of the respondent's agree that the offices of ACSI is clean. The lowest mean score is obtained in the statement which asks whether ACSI's employees are well dressed and appear neat and had uniforms or not.

b) *Reliability*

Reliability is the ability to perform the promised service dependably, accurately and consistently. It is performing the service right the first time. It also means that the firm honors its promises. Reliability of service designates ACSI's capability to supply the promised output at the stated level.

Mean Score for Reliability

		ACSI provide services at the time they promise to do so	ACSI's employees show genuine interest in solving a problem you face	ACSI perform services right the first time (error free service)	ACSI keeps your records accurately (statements, account balance, information...)	Reliability
N	Valid	302	302	302	302	302
	Missing	0	0	0	0	0
Mean		3.34	3.12	2.91	3.78	3.29

Accordingly the mean value of reliability is 3.29 which are the highest from all the service quality dimensions. The highest mean score is 3.78 and obtained on questions no.4 thus respondents agree that ACSI keeps your records accurately (statements, account balance, information...). The lowest mean score is 2.91 and obtained on question no.3 which asks whether ACSI perform services right the first time (error free service) or not.

c) *Responsiveness*

Responsiveness refers to the prompt response to the service need of the customer and the readiness of Employees to provide service. It is the speed and timeliness of service delivery. This includes the ability of the service to respond promptly to customer service requests, with minimal waiting and queuing time.

Mean Score for Responsiveness

		There are always adequate numbers of employees to respond to your needs at the branches of ACSI	ACSI lets you know exactly when the service will be performed	You receive on time service from ACSI office	ACSI responded quickly to solve the problems of customers	ACSI's employees are never busy to respond to your enquires	Responsiveness
N	Valid	302	302	302	302	302	302
	Missing	0	0	0	0	0	0
Mean		3.03	2.94	2.93	2.74	2.84	2.90

When the customer is kept waiting for no apparent reason creates unnecessary negative

perceptions of quality. Conversely, the ability for the ACSI to recover quickly when service fails. This

dimension touched on subjects as information about the request by customers being authorized promptly, communication of new services to customers and handling of customer professionally. As it can be noted from the above table the mean score of responsiveness is 2.90. The highest mean score is 3.03 and obtained on question number 1. Here majority of the respondents agree that there are always adequate numbers of employees to respond to your needs at the branches of ACSI. Whereas the lowest mean score is 2.74 and obtained on question number 4.

d) *Empathy*

Empathy is providing caring and individualized attention to customers to make them feel they are receiving caring services and individualized attention. Service empathy characterizes both the service provider's willingness and capability to respond to individual customer desires. This means putting one's self in the shoes of the customer.

Mean score on Empathy

		ACSI's employees give you individual attention during service delivery (ex: For pregnant, elders, disables...)	ACSI's service hours are convenient to you	ACSI's branches are easily accessible to you	ACSI's forms are easily understandable (deposit, account opening.)	ACSI's employees understand customers specific needs	Empathy
N	Valid	302	302	302	302	302	302
	Missing	0	0	0	0	0	0
Mean		2.74	3.40	3.32	3.46	2.68	3.12

The mean score of Empathy is 3.12. The majority of the respondents agree that ACSI's forms are easily understandable (deposit, account opening,) and hence the highest mean score is 3.46 and obtained here. The lowest mean score is 2.68 and obtained on the question which asks whether ACSI's employees understand customer's specific needs or not.

confidence so that the customer feels he or she is in courteous, able and competent hands. It relates to the capability of the service provider to deliver the output, specifically in terms of the knowledge, politeness and trustworthiness of the employees to the customer of the service firm. This dimension is about the behavior and ability of the employees to instill confidence, secure transactions, courtesy of the employees and the knowledge of the employees to answer questions from customers.

e) *Assurance*

Assurance is the knowledge and courtesy of employees and their ability to convey trust and

Mean Score for Assurance

		The behavior of ACSI's employees instills confidence in you	You feel safe in Credit and Saving with ACSI	ACSI's employees are consistently polite to welcome customers	ACSI provides you the adequate information on the service you requested.	The services of ACSI are trustworthy	Assurance
N	Valid	302	302	302	302	302	302
	Missing	0	0	0	0	0	0
Mean		3.07	3.36	3.11	3.19	3.48	3.24

Accordingly assurance has a mean score of 3.24 which is the second highest from all the service quality dimensions. The highest contributor for this score is question number 5 where the majority of the

respondents agree that the services of ACSI are trustworthy. The lowest mean score is 3.07 and obtained on question number 1.

In summary the mean and standard deviation of each service quality dimensions is represented in the table below. The service quality dimension with the highest mean score is Reliability 3.29, followed by

Assurance 3.24; Empathy 3.12, Tangibility 2.91 and Responsiveness 2.90 With this we can infer that the service provided by ACSI Gondar branches are somewhat focus on reliability and assurance.

Mean score and Standard Deviation for Service Quality Dimensions

	N	Mean	Std. Deviation
Tangibility	302	2.91	.733
Reliability	302	3.29	.772
Responsiveness	302	2.90	.870
Empathy	302	3.12	.838
Assurance	302	3.24	.949
Valid N (listwise)	302		

f) *Customer Satisfaction*

As explained in the literature review, customer satisfaction involves the fulfillment of customers' expectation of the goods and services. Customers become satisfied if the performance of the good or service is equivalent to, or even surpasses, the original

expectation. Accordingly identifying satisfaction level of customers is one interest of this study. The satisfaction level in this study is also categorized and it ranges from highly dissatisfied, Dissatisfied, Neutral, Satisfied and Highly Satisfied. The table below presents the overall level of customer satisfaction.

Overall Customer satisfaction level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly Dissatisfied	34	11.3	11.3	11.3
	Dissatisfied	112	37.1	37.1	48.3
	Neutral	34	11.3	11.3	59.6
	Satisfied	111	36.8	36.8	96.4
	Highly Satisfied	11	3.6	3.6	100.0
	Total	302	100.0	100.0	

As it can be seen from the above table 37.1% of the respondents are dissatisfied, 11.3% percent of the respondents are highly dissatisfied, 11.3% chose to remain neutral, 36.8% are satisfied and 3.6% is highly satisfied. Therefore the highest percentage of respondents that is 48.4 % are dissatisfied by the service provided by ACSI Gondar branches 40.6% of the respondents are satisfied from these one can infer that

ACSI needs to work more to improve and change this result and highly satisfy its customers because customers are key drivers of micro finance institutions performance in today's environment.

For the sake of analyzing service quality dimensions and satisfaction level, mean difference based on gender was computed and summary of the results are presented in the table below.

Mean difference on service quality dimensions and satisfaction level based on gender

Variable	Sex	N	Mean	Std. Deviation	Std. Error Mean	t-value
Tangibility	Male	167	16.62	4.473	.346	-3.758**
	Female	135	18.50	4.094	.352	
Reliability	Male	167	12.89	3.312	.256	-1.671
	Female	135	13.48	2.759	.237	
Responsiveness	Male	167	13.41	4.483	.347	-4.937**
	Female	135	15.81	3.796	.327	
Empathy	Male	167	14.87	4.602	.356	-3.419**
	Female	135	16.50	3.423	.295	
Assurance	Male	167	15.50	5.093	.394	-2.907**
	Female	135	17.07	4.130	.355	
Satisfaction Level	Male	167	2.63	1.164	.090	-3.711**
	Female	135	3.11	1.070	.092	

**p<0.01

Independent t test is undertaken to find out whether there is a significant difference on the response

of male and female customers towards service quality dimensions and satisfaction level. The table above

states the mean score of the service quality dimensions for female and male respondents and from the score we can observe that the responses of female and male respondents on reliability dimension is not statistically significant and differences are observed on tangibility, responsiveness, empathy and assurance dimension. On the independent t test, t value and p value of tangibility is -3.758, -4.937, -3.419 and -2.907 respectively at 99%

confidence interval which confirms that the response of the male and female respondents have statistically significant different on tangibility, responsiveness, empathy and assurance the mean score stated on the above table also confirms same. In addition to this level of customer satisfaction between male and female respondents have been found to be statistically significant difference.

g) *Correlation Analysis between Service Quality and Customer Satisfaction*

Table 7: Correlations

Variables		Tangibility	Reliability	Responsiveness	Empathy	Assurance	Satisfaction Level
Tangibility	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	302					
Reliability	Pearson Correlation	.487**	1				
	Sig. (2-tailed)	.000					
	N	302	302				
Responsiveness	Pearson Correlation	.526**	.690**	1			
	Sig. (2-tailed)	.000	.000				
	N	302	302	302			
Empathy	Pearson Correlation	.525**	.605**	.660**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	302	302	302	302		
Assurance	Pearson Correlation	.498**	.633**	.700**	.710**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	302	302	302	302	302	
Satisfaction Level	Pearson Correlation	.539**	.472**	.537**	.488**	.612**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	302	302	302	302	302	302

From the result above we can see that assurance is highly correlated to satisfaction (0.612) followed by tangibility (0.539), responsiveness (0.537), and empathy (0.488) and reliability (0.472). When we look at the inter correlation between the service quality dimensions we can see that there is a positive and significant relationship which implies that a change made in one of the service quality dimension will positively motivate the other service quality dimension.

many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. In this study regression analysis is used to identify the effect of service quality on customer satisfaction of ACSI. Thus it answers the third research question.

h) *Regression Analysis*

Regression analysis is a statistical process for estimating the relationships among variables. It includes

Table 8.a: Model Summary for Tangibility

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.539 ^a	.291	.288	.967

a. Predictors: (Constant), Tangibility

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	114.969	1	114.969	122.867	.000 ^b
	Residual	280.716	300	.936		
	Total	395.685	301			

From the regression analysis above us can see that there is a positive statistical relationship between tangibility (the independent variable) and customer satisfaction (the dependent variable). As the table above shows the coefficient of determination (R-squared) indicates the proportionate amount of variation in the

response variable (customer satisfaction) explained by the independent variable (tangibility) in the linear regression model. The larger the R-squared is, the more variability is explained by the linear regression model. Thus, 29% (R² = .291) of the variation on customer satisfaction is explained by tangibility.

i. Reliability

Table 8.b: Model Summary for Reliability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472 ^a	.223	.221	1.012

a. Predictors: (Constant), Reliability

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88.305	1	88.305	86.184	.000 ^b
	Residual	307.381	300	1.025		
	Total	395.685	301			

b. Predictors: (Constant), Reliability

From the regression analysis above us can see that there is a positive statistical relationship between reliability (the independent variable) and

customer satisfaction (the dependent variable). Thus 22% (R² = .223) of the variation on customer satisfaction is explained by the independent variable reliability.

ii. Responsiveness

Table 8.c: Model Summary for Responsiveness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.537 ^a	.288	.286	.969

a. Predictors: (Constant), Responsiveness

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113.984	1	113.984	121.388	.000 ^b
	Residual	281.701	300	.939		
	Total	395.685	301			

b. Predictors: (Constant), Responsiveness

From the regression analysis we can see that here is a positive statistical relationship between responsiveness (the independent variable) and customer satisfaction (the dependent variable). Thus

28% (R² = .288) of the variation on customer satisfaction is explained by the independent variable responsiveness which indicates a high level effect on customer satisfaction.

iii. Empathy

Table 8.d: Model Summary for Empathy

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.488 ^a	.238	.235	1.003

a. Predictors: (Constant), Empathy

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.143	1	94.143	93.662	.000 ^b
	Residual	301.542	300	1.005		
	Total	395.685	301			

b. Predictors: (Constant), Empathy

From the regression analysis above us can see that there is a positive and statistically signify can't Relationship between empathy (the independent and

customer satisfaction (the dependent variable).has 23% (R2 = .238) variation level of customer satisfaction is explained by the independent variable empathy.

iv. Assurance

Table 8.f: Model Summary for Assurance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.612 ^a	.375	.373	.908

a. Predictors: (Constant), Assurance

ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	148.302	1	148.302	179.844	.000 ^b
	Residual	247.384	300	.825		
	Total	395.685	301			

b. Predictors: (Constant), Assurance

From the regression analysis we can see that there is a positive and statistically significant relationship between assurance (the independent variable) and

customer satisfaction (the dependent variable). Thus 62 % (R2 = .612) variation level of customer satisfaction is explained by the independent variable assurance.

v. Overall Regression Analysis

Table 8.g: Model Summary of Service Quality Dimensions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.674 ^a	.454	.445	.854

a. Predictors: (Constant), Assurance, Tangibility, Reliability, Empathy, pensiveness

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	179.822	5	35.964	49.316	.000 ^b
	Residual	215.864	296	.729		
	Total	395.685	301			

b. Predictors: (Constant), Assurance, Tangibility, Reliability, Empathy, Responsiveness

As it can be seen from the above table there is a positive and statistically significant relationship between the independent variables (tangibility, reliability, responsiveness, empathy and assurance) and the dependent variable (customer satisfaction). Thus 45% (R2 = .454) variation on customer satisfaction is explained by the independent variables.

From the ANOVA table 8.g. above it has been determined that F = 49.316 and Sig. is .000 which confirms that service quality have significant effect on customer satisfaction. Hence the result seen that Service delivery interims of Quality has a significant effect on Customer Satisfaction in Amhara credit and saving institution Gondar branches. Therefore question number three of the research question is answered.

VI. CONCLUSION

In today's competitive environment standing out from other competitor requires challenging effort. In

order to win the competition, business organizations have to work more on their customers. Customers expect better service quality from their service providers. Understanding customers' needs and improving the service quality on the basis of their demand is a critical issue.

In addition, they were asked to express their satisfaction level and suggestion to improve the service delivery of ACSI. From this study, it was found that customers experience about the service delivery practice of ACSI to be at least to their expectation level. However, in most service quality dimensions, the performance of ACSI Gondar branch was found below customers' expectation.

The overall service quality was also below customers' expectation. Furthermore, the study revealed that the majority of customers were dissatisfied with the service delivery of ACSI. In order to fill the gap and improve the service delivery performance of this

institution customers pointed out the measures that needs to be done.

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Tesfaye Boru Lelissa ^α & Abdurazak Mohammed Kuhil ^σ

Abstract- The study has investigated one of the key research questions: how do bank specific factors are related to bank performance? The model constructed is framed based on the commonly used supervisory tool to monitor bank performance: CAMEL. This consists of elements from Capital Adequacy, Asset Quality, Management, Earning and Liquidity. It has used six variables representing each of the components and run a regression model based on fixed and random models. The outcome shows that many of the bank specific factors have a significant statistical relationship with performance measures. Despite the mixed result in the various models, the study explored that bank's capital holding, asset quality and business diversification, cost control and liquidity positions are important part of the management decisions to have a significant influence on performances.

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I. INTRODUCTION

The Money and banking Proclamation No. 83/1994 identifies banking business as:....an operation that involves such activities like receiving funds, discounting and negotiating of promissory notes, drafts, bills of exchange and other evidence of debt; receiving deposits of money and commercial paper, lending money, and buying and selling of gold and silver bullion and foreign exchange. Even if the list in the proclamation is exhaustive, from the balance sheet and income statements of banks it can be inferred that the main stay of banks largely relied on the intermediation activities (NBE report, 2015/16). A bank is usually defined as an institution whose current operations consist in granting loans and receiving deposits from the public (Mishkin, 2001). Therefore, as core to their functions, banks need to mobilize deposits (in local and foreign currency) from the public so that they can lend the deposit to borrowers and foreign currency users and earn income in the process. The need for more liquidity is associated with the high leverage position following the very limited capital base of banks as compared to their asset holdings. For instance, the capital to asset

ratio for banks in Ethiopia in year 2015 is 17% reflecting that a great part of banks' activity is financed through deposit collection (NBE, 2015/6).

From the income structure of banks, it appears that the current trend in banking activities seem altered towards pursuing a mix of fee-generating activities along with the intermediation business. That is, instead of just accepting deposits and making loans; they receive good sum of earning from fee-based activities like foreign operations and off balance sheet activities. Literature also supports that non-interest income is among the most rapidly growing sources of revenue for deposit accepting institutions (Rose and Hudgins, 2008). A similar trend has been noted in the Ethiopian banking situation where income from non-interest sources is revealing growing trend overtime. For instance, the share of fee income from international banking activities in some banks exceeds the income from interest sources. Industry wide scenario also reflects fee income has constituted almost half of the total earning of Ethiopian banks (NBE report, 2015/16). Nachane and Ghosh (2007) remarked that the dynamism in the banking sector has urged banks to be innovative in their operations. This innovation process has contributed for wider expansion in the off-balance sheet activities which are contributing for the expansion in fee income. This may, however, have effect on increasing overall risk of banks by exposing them to high income volatility. In addition, literature suggested that banks with relatively high non-interest earning assets are less profitable (Demirgiic-Kunt and Huizinga, 1999). Despite such argument on the risk associated with holding high share of non-interest income, the significant share of fee income justifies the need to incorporate them in the analysis of bank performance. More specifically, if performance is rated based on profitability measure, excluding fee-based variables will lead to bias. For instance, Rogers (1998) explained that the exclusion of nontraditional activities in the estimation of bank performance and efficiency actually understates it. The other scenario which differentiates banks from other businesses is that of the existence of risk factors. This is because the capital base of a bank is smaller

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relative to the asset base and liability it holds. In terms of the risk types, Allen and Cartelli (2008) identified two major risk types which are associated with the core activities of banks: default and liquidity risks. Thus, existence of both liquidity and default risk for a bank differentiates it from an ordinary firm and the impact of such risk factors on performance should deserve consideration.

Beyond the abovementioned factors driving bank performances, there remains several factors to have implications on banks profitability. These factors are mostly classified in to two parts: internal and external. For instance, Al-Tamimi (2010) and Aburime (2005), have classified the determinant factors as internal and macroeconomic variables. The internal factors are defined as the characteristics exhibited by individual banks and which fall under the management's control. On the other front, the external factors include sector or country wide factors and appear outside the control of the management but have a bearing on performances. There are also studies which attempted to separate the external factors into sector and macroeconomic variable (Ongore, 2011). The former considers industry related factors that commonly affects the individual banks while the later takes into account the general economy wide variables. This study provides focus on bank specific variables that have a bearing on the performance of banks. We follow on the approach that is most commonly used by bank regulators to monitor performance: CAMEL approach with the core aim of exploring factors under the control of the management on banking operational excellence. The core theme of the research is to investigate the impact of bank specific factors, which are highly related to internal management of resources, on performance of banks. In such endeavor the banks own undertaking to excel in performance through managing some of the key selected determinant factors will be examined through testing a hypothesis: Ho: Bank Specific Variables has no impact on the Performance of Banks. The study employs a panel data of all commercial banks operating in the country from 1990-2015.

II. LITERATURE REVIEW

The approach that is most commonly used by bank regulators to monitor performance is the CAMEL approach. This is a composite of various bank performance components that management is expected to act upon so as to improve performances. The CAMELS approach evaluates financial institutions like banks on the basis of SIX critical dimensions which are: Capital adequacy, Asset quality, Management, Earnings Liquidity, and Sensitivity to Market risk. Nevertheless, the sensitivity to market risk which requires a well developed financial market is not commonly used in the developing countries studies. Each of the components and the variables to be used in this study is explained below:

III. CAPITAL ADEQUACY

The Capital Adequacy ratio is the ratio of banks primary capital to risk weighted assets (Directive No. SBB/9/95). Regulators like the NBE issue directives on the manner of computation of the capital adequacy ratio which is a specification on the risk conversion rates for on and off balance sheet assets as well as classification of different components of capital. The directive demands banks to strictly maintain a capital level exceeding or equivalent to 8% of the risk weighted assets. This is with the intent that holding a reasonable level of capital is expected to serve as cushion in times of crisis (Dang, 2011). Nevertheless, such view is also supported by others as adequate capital level being a source of liquidity enhances performance via reducing the banks' financing costs (Diamond, 2000). Holding a high capital level is also challenged by the counter view in that it reduces the return on equity. This is because excessive capital encourages a low risk taking attitude that potentially impacts the earning potential. Furthermore, a higher capital reduces the debt position of firms resulting in lower earnings from the tax exemption from debt leverage Bourke (1989) and Berger (1995). Therefore, the impact of the capital adequacy ratio has uncertain a priori as it could potentially reduce or improve performance depending on its utilization and level of exposures. The study uses the capital to asset ratio which is not risk adjusted to proxy the actual capital adequacy ratio as the data is not publicly available.

IV. ASSET QUALITY

As discussed above, one of the critical success factors for better bank performance is its ability to manage the risk emanating from defaults. A bank balance sheet is mostly a composite of various asset elements such as cash, foreign deposits, reserves at the NBE, loans, investments, fixed assets etc. However, the loan portfolio remains to have the dominant share of the asset especially for banks that highly rely on the intermediation business for their earnings. Therefore, keeping the quality of such asset is witnessed in many studies to affect performances. For instance, Dang (2011) claims that delinquent loans are the highest risk components whose poor handling can lead to substantial losses. Similarly, Liu and Wilson (2010) finds that problem in credit quality reduces the profitability measures, the ROA and ROE. Correspondingly, the impact on the price measure Net Interest Margin (NIM) appears positive as banks look for an increase in their margins to reimburse their default risk as well as monitoring credits. Usually, the share of nonperforming loan in the total loan portfolio is employed to measure the asset quality of banks. Even regulators sometime set a threshold for banks to monitor their asset quality level. For instance, in Ethiopia, the NBE has set banks to maintain their nonperforming loan ratio to a maximum of

5% of their credit exposure in terms of loans and advances. Nevertheless, banks usually keep their record on delinquent loans confidential, hence, studies are obliged to use another proxy measure, the provision to total loan ratio as a measure of the asset quality (Kumbirai and Webb, 2010). This study also uses the provision to total loan ratio as a measure of the risk arising from credit defaults. As pointed in the start of this section, banks ability to diversify income through integrating both interest and non interest income sources as another variable revealing quality of assets. Therefore, the study also similarly follows the same trend as noninterest income appears a growing business in the Ethiopian banking industry.

a) *Management*

Banks as financial firms managing large resources, their management quality obviously affects their performances. Nevertheless, empirical studies usually confirm the difficulty in measuring management performances with financial ratios (Ongore, 2013). The regulator like NBE also apply various quantifiable and non-quantifiable factors to rate the management performances. Empirically, however, there is an attempt to apply proxy financial measures to measure management and mostly from the efficiency side. The ratios applied to measure management include: operating profit to income ratio (Rahman et al., 2009) and costs to total assets (Nassreddine, 2013), cost to income ratio Altunbaset. et (2001)). In terms of relationship with performances, the applied management quality measures are found to relate positively with performances. For instance, Altunbas et. el., (2001) investigated the relationship between management efficiency and profitability and finds a positive results. This study also employs the cost to income ratio as well as the efficiency measures that directly relates to management performance, the x-efficiency.

b) *Earning*

The ability of banks to generate adequate return from their operations is one of the key components of CAMEL. It considers not only the ability to remain profitable but to ensure sustainable return from core earning sources. As discussed in the introduction, Earning from fee generating activities nowadays is becoming a dominant banking income sources while the perception of the regulators still relied on income from the intermediation activities. Earning performance is usually measured therefore using the common profitability indicators like return on assets, return on equity and net interest margin. Nevertheless, income mix analysis usually separates the non-interest income sources from interest earning sources. Sustainability and innovation in banking therefore is emerging to be reflected on the dominance of fee based income in the income composition of banks. This study also considers

the share of non-interest income sources from the total income in order to examine the reliability of the banks' income as well as to explore its impact on the performance of banks.

c) *Liquidity*

The liquidity status of a bank indicates the bank's position to meet its obligations in a timely and effective manner. Even its considered as one of the factors determine a bank to stand as a financial institution (Samad, 2004). The measurement used, nevertheless, has wide variations among the various empirical studies. Some authors like Ilhomovich (2009) used cash to deposit ratio to measure the liquidity level of banks in Malaysia. Others use the loan to deposit ratio, liquid asset to asset etc. Regulators in most countries, however, set the minimum required level of liquidity holding of banks. A similar trend is witness in Ethiopia where the NBE set the liquid asset to deposit ratio which is expected not to fall below 15% of the Bank's net current liability of which around 5% is expected to be held in the form of primary reserve assets, cash and assets easily convertible to cash (see directive no SBB 55/2013). Studies reveal a mixed outcome with regard to the relationship between bank liquidity position and performance. Studies witnessing a negative relationship between liquidity and performance claim that the liquidity reserves mainly of those that are compulsory remain a burden for banks (Berger and Bouwman, 2009). Others find a positive relationship state that a reliable liquidity position improves performance (Dang, 2011; Bourke, 1989). There are also other studies that are done in China and Malaysia that explored absence of a significant relationship between liquidity and performances of banks (Said and Tumin, 2011). This study, therefore, employees the liquid asset to deposit ratio, which is a measure used by the NBE to evaluate its link with performances.

V. METHODOLOGY

The unit of analysis for the study is all commercial banks operating in the country from 1990-2015. A quantitative approach is adopted to form a causal link among different variables with bank performance measures. A panel data set from 1999 to 2015 for all (eighteen) commercial banks is used for the quantitative study. The quantitative study employs a panel data regression model to investigate the relationship between bank specific factors with profit and price performances. Conceptually, the study uses the CAMEL framework which is a widely used performance monitoring tool by regulators to set variables and establish relationship with performances. In order to test the effect of bank specific factors on performances several models have been derived. The basic model is primarily follows the commonly used regulatory approach to measure performance of banks

across various parameters. The CAMEL rating system which was introduced by the Basel and commonly accepted regulators across countries including the National Bank of Ethiopia considers rating for its individual components: Capital Adequacy Asset Quality, Management, Earning and Liquidity. The aggregate rating will be a derivative of the result on each individual composite rating. Therefore, the a priori assumption on each rating is expected to have a positive relationship with bank performance. In other words a bank scoring well in each component is believed to performing well

on composite basis. Therefore based on such framework the model is constructed as follows:

$$\text{Per}\%_{i,t} = \beta_0 + \beta_1\text{BSF}\%_{i,t} + \epsilon_{i,t} \quad (1)$$

Where Per % $_{i,t}$ is the proxy of bank performance measure for bank i in period t (for detailed definition of the variable refers the conceptual framework on a variable setting section of Chapter Five); BSF% $_{i,t}$ is estimated bank specific variables for bank i in period t ; and $\epsilon_{i,t}$ is the error term.

Based on the CAMEL framework the above model is then extended to incorporate proxies for each component:

$$\text{Per}\%_{i,t} = \beta_0 + \beta_1\text{CAR}\%_{i,t} + \beta_2\text{PRTL}\%_{i,t} + \beta_3\text{NIITI}\%_{i,t} + \beta_4\text{XEFF}\%_{i,t} + \beta_5\text{COIN}\%_{i,t} + \beta_6\text{LATD}\%_{i,t} + \epsilon_{i,t} \dots \quad (2)$$

Where CAR is capital adequacy ratio, PRTL- provision to total loans, NIITI- Non-Interest Income to Total Income, XEFF- managerial efficiency, COIN- Total cost to Total income, LATD- Liquid assets to Deposits. The summary definition of each variable is as shown below.

three performance indicators that have been collected from interview and the regulatory organ formats of bank rating with an added variable from the literature and the study result from efficiency assessment. The definition and the expected relationship are framed based on the literature work. These are displayed on the below table:

a) Variable Definition and a priori assumption

The independent and dependent variables are chosen from six proxies of bank specific factors and

Table 1: Variable Definition and CAMEL Category

Variables	Definition	Representation in CAMEL Category	Expected Relationship
Dependent			
ROA	Ability of a bank's management to generate profits from the bank's assets		
ROE	The return to shareholders on their equity		
NIM	Residual of interest income resulted from efficient decision making of management		
Independent			
CAR	Capital adequacy ratio- computed as percentage of capital to asset	Capital Adequacy	+/-
PRTL	Provision to Loans- ratio of provision expenses to total loans	Asset Quality	-
XEFF	Managerial efficiency measure using DEA scores	Management	+
NIITI	Non-Interest Income to Total Income measures the share of earning from non-intermediation sources	Earning	+
COIN	Cost to income- share of aggregate income from the total income	Management	-
LATD	Liquid Asset to Total Deposit- the share of liquid asset from total deposit .	Liquidity	+/-

Source: Author's Computation

b) Data and Data sources

The data used in the study mostly relies on secondary data sources. This is gathered mainly from the financial records of each bank as well as various publications and databases of the NBE. A time series data from 1999 to 2015 for 18 commercial banks is used in the study.

provision level of around 4% of their outstanding loans. This is a bit higher than the provision required for outstanding loans had all loans been in pass status and is closer to the provision required for loans under special mention status (3%) as per the directives of the NBE (SBB 43/2008). Therefore, based on such comparability, the level of industry wide problem asset stock does not seem significant. The worrying issue is the variation across banks is significant with a standard deviation closer to 5 and a maximum PRTL record of 28%. The distribution measure through skewness also shows an asymmetrical distribution with a long tail to the

VI. DESCRIPTIVE STATISTICS

In terms of maintaining asset quality records through controlling of non-performing assets, the ratio of PRTL shows that banks on average are holding a

right with higher positive value. Therefore, despite the good record of managing assets at sector level, there appears a notable difference across banks in terms of managing their credit exposures which is costing some banks up to 28% of their lending in the form of provision expenses. This remains to be a worrying a concern of a regulator which has set a directives/circulator for banks to maintain their non-performing loans to 5% of their outstanding loans which later revised even to a reduced level ,3% as per a circular issued in relation to meeting the Growth and Transformation Plan of the country (BSD09/2015). The other parameter, NIITI, which is indicative of the banks attempt to ensure a diversified business mix through operating in non-interest income sources also witnessed an encouraging trend. The mean score shows that banks were generating around 43% of their average income from non-interest income sources which are basically related to foreign exchange transactions, commissions from off-balance sheet

exposures, service related fees etc. This seems following the global trend which is now shifting towards fee based sources that are serving as an additional income outlet to banks through providing wide spectrum of services to their customers. The reason behind such trend is due to the decline in interest income from intermediation business which is highly dependent on banks capacity to mobilize deposits from customer bases. The less growth rate in deposit market and the high competition level coupled with various regulatory measures (e.g. bill purchase) affecting the lending productivity seems shifting the Ethiopian banks to work more towards searching for other income bases. The variation however is still strong in such parameters where some banks seem by large reliant of the non-intermediation business for their income sources while others are still dependent on the traditional intermediation business as their earning sources.

Table 2: Descriptive Statistics of Bank Specific Variables

Stats	ROE	ROA	NIM	CAR	PRTL	NIITI	XEFF	COIN	LATD
Mean	18.996	2.233	4.547	14.389	3.901	43.357	84.332	65.817	50.143
Max	90.820	5.250	10.160	54.464	28.972	76.687	100.000	89.231	137.705
Sd	12.880	1.107	1.806	7.505	4.702	13.158	12.467	26.079	18.951
P50	18.318	2.420	4.400	12.385	2.451	42.457	84.975	61.285	47.397
Kurtosis	9.264	2.724	2.916	9.644	10.855	2.812	4.954	17.553	4.920
Skewness	1.684	-0.309	0.263	2.069	2.554	0.042	-0.916	3.315	0.997
P75	24.806	2.999	5.633	17.364	4.637	52.151	94.656	71.771	60.796
OBS	193	193	193	193	193	193	193	193	193

Source: Author's Computation (STATA 12)

With regard to cost control, the aggregate cost to income ratio for the industry on average is 65%. This witnesses the fact that banks are expending 65 cents in their various engagements to generate a 1 Birr income per their transactions. The large variation is also an indicative for the existence a wider room for improvement for some banks with regard to controlling their expenditures. On the liquidity front, the liquid asset to deposit ratio, a commonly used measure of liquidity level by the NBE, shows that during the periods considered, banks are operating at a reliable level of liquidity. Despite occasional adjustment in the regulatory requirement, the level of LATD appears to exceed the standards of the NBE (15%) and witnesses a high liquid asset stock holding (SBB/57/2014). This is in line with the argument for the growth in the share of non interest income sources which is enforcing banks to operate under a high liquidity position through maintaining significant balance of liquid asset bases such as foreign deposits. This is in fact usually offset by the counter side off balance sheet commitments already allocated for letter of credit and other mode of trade payments. However, the ratio is still strong if one considers the easily convertible and liquid nature of the accounts.

a) Pearson Correlations

Investigation of the relationship between variables with a Pearson correlation coefficient and result from the significance value shows that in most of the variables the probability of getting a correlation coefficient this big in an observation of 193, if the null hypothesis were true, is very low. Hence, we can gain confidence that there is a genuine relationship between the variables in the model. For instance, the relationship between CAR and the dependent variables (ROE, RoA, NIM) is much strong and negative with regard to the return on equity than others due to the impact of change in capital on the level of returns from equity holdings. The negative and strong relationship will not be a surprise considering the usage of capital as a denominator in computing the return on equity; therefore, an increase in capital has a reverse impact on the earning to equity ratio and vice versa. In addition, the variable has significant relationship with other explanatory variables of which it is strongly and positively related to liquidity and cost to income measures. The positive relationship with liquidity supports the argument for the use of capital as a buffer stock in case of liquidity problems and its association

with cost to income is related to the lack of its productive usage in a situation of excess liquidity standing. The CAR is also strongly but negatively related to PRTL, XEFF and NIITI. But the coefficient is modest with regard to NIITI. The association basically emanates from the pressure of high nonperforming assets (high risk scenario) on capital cushion, challenge to manage and plan capital usage in excess liquidity and under regulatory involvements scenario as well as the limited effect of capital to create non-interest income despite its notable contribution to boost the currency holding position of banks.

Similarly, the asset quality measure (PRTL), is negatively associated with most of dependent and explanatory variables. The association could not be a surprise considering the impact of a problem asset stock on most of profitability, price and liquidity measures. The rationale behind such relationship lies on the impact of credit risk on the cost of credit through affecting provision expenses, narrowing intermediation margin through affecting the interest recognition from loans and tiding the flow of funds from loan collections as a result of default and/or late payments.

Table 3: Correlation Matrix of Bank Specific Variables

		Correlations								
		ROE	ROA	NIM	CAR	PRTL	NIITI	XEFF	COIN	LATD
ROE	Pearson Correlation	1								
	Sig. (2-tailed)									
ROA	Pearson Correlation	.652**	1							
	Sig. (2-tailed)	.000								
NIM	Pearson Correlation	-.143*	.023	1						
	Sig. (2-tailed)	.047	.752							
CAR	Pearson Correlation	-.520**	-.165*	.344**	1					
	Sig. (2-tailed)	.000	.022	.000						
PRTL	Pearson Correlation	.122	-.168*	-.244**	-.435**	1				
	Sig. (2-tailed)	.090	.020	.001	.000					
NIITI	Pearson Correlation	.129	.309**	.019	.018	-.030	1			
	Sig. (2-tailed)	.074	.000	.793	.799	.679				
XEFF	Pearson Correlation	.194**	.147*	-.036	-.238**	.269**	-.120	1		
	Sig. (2-tailed)	.007	.042	.624	.001	.000	.096			
COIN	Pearson Correlation	-.621**	-.736**	.138	.510**	-.031	-.159*	-.331**	1	
	Sig. (2-tailed)	.000	.000	.055	.000	.669	.027	.000		
LATD	Pearson Correlation	-.283**	-.239**	.118	.501**	.095	.280**	-.309**	.384**	1
	Sig. (2-tailed)	.000	.001	.101	.000	.188	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed). N=193 * . Correlation is significant at the 0.05 level (2-tailed).

Source: Author's Computation (SPSS 20)

Another important relationship derived from the correlation table is that the negative and significant relationship between LATD with both profitability and efficiency measures. This is in line with the argument that liquidity establishes a trade off with profitability through resulting in a relationship where an increase in liquidity impacts profitability to the negative through limiting the share of productive assets in the portfolio of the Bank. Therefore, balancing such trade-off through maintaining an adequate liquidity level without compromising the profitability opportunity through efficient use of funds remain a challenge to be tackled by Banks management. An ineffective use of fund therefore not only affects the profit level but affects the efficiency level of banks through affecting the cost of idle fund.

Overall speaking, the correlations among the independent variables are not high (less that 0.50), indicating that there might be no serious Multicollinearity

problems existing. Gujarati and Porter (2009) suggest that if the pair-wise correlation coefficient between two independent variables is in excess of 0.8, then multicollinearity is a serious problem. Therefore, considering the correlations among variables and the tests in the following sections, the models to test the hypothesis are built.

b) Outliers and Missing Values

Before applying the econometrics models to the data, it is necessary to address the potential problem of outliers and missing values as they may have an undesirable influence on the estimates produced by the regressions. A univariate statistics showing summary for missing and extreme values is computed. The result shows that there are no missing values that are likely to lower the quality of panel date but the data for some variables holds extreme values. For instance, the univariate statistics of variables presented in the table below shows that there are six extreme values in the

dependent variable, mainly related to the higher extreme. Therefore, in order to reduce the potential bias caused by the outliers, the variables in the Models are winsorized¹ at the 5% and 95% levels. In other words, the top and bottom 5% values of CR% are replaced by the value at the 5th and 95th percentiles, respectively. Therefore, the winsorized output is used as the

dependent and explanatory variables for the Models. This is justifiable in consideration of uneven financial records of banks during the early year of entrance to the industry. Newly formed banks usually show a lower profitability record resulting from high capital expenditure for establishment costs, branch expansions, IT investments, low level of asset portfolio and income.

Table 4: Univariate Statistics of Bank Specific Variables

	N	Mean	Std. Deviation	Missing		No. of Extremes ^a	
				Count	Percent	Low	High
RoE	193	18.9962	12.87965	0	.0	0	6
RoA	193	2.2333	1.10661	0	.0	0	1
NIM	193	4.5473	1.80649	0	.0	0	1
CAR	193	14.3889	7.50490	0	.0	0	11
PRTL	193	3.9012	4.70174	0	.0	0	18
NITI	193	43.3567	13.15770	0	.0	1	0
XEFF	193	84.2089	12.55139	0	.0	2	0
COIN	193	65.8174	26.07931	0	.0	0	8
LATD	193	50.1431	18.95113	0	.0	0	4

a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

Source: Author's Computation (SPSS 20)

c) Tests of Stationerity

Graphical Observation of the variables shows that the variables selected don't exhibited non-stationerity. Further test based on a mathematical approach is done applying the Fisher Type unit root test which is based on the Augmented Dicky-Fuller tests. The Fisher Type appears more pertinent considering the unbalanced data stock on panel. Therefore, the basis hypothesis Ho: All panels contain unit roots is tested and the result witnessed that all variables are stationery at zero ADF. Therefore, the variables can be used in the model without being differenced or further action.

VII. RESULTS AND DISCUSSIONS

Before running the model both normality and panel unit root tests were conducted. The normality test through kurtosis and skewness witnesses the normality of the data As shown in the below table, both the F-test and the LM test with large chi-square result rejects the null hypothesis. Hence, the fixed and random effect models appear better than pooled OLS. The Hausman test taking the coefficients of the fixed and random models tests the null hypotheses that Ho: difference in coefficients not systematic. The chi-square result is with probability lower than 0.05 rejects our initial hypothesis

probability lower than 0.05 rejects our initial hypothesis that the individual-level effects are adequately modeled by a fixed-effects model in case of RoA but not in others. Therefore, the estimation result has been done through the fixed effect model in the RoA model but random effect model is applied in RoE and NIM models.

As shown in the table below among the identified six bank specific determinant factors and applied to model 1 (RoA) four of them were significant and considered to be drivers of the banks' profitability. More, specifically, with regard to the coefficients on the independent variables, CAR remains significant in all the models where it acts as a regressor, suggesting that the ratio of capital to asset has a statistically significant impact on bank profitability and price performances. The unexpected result is that the direction of impact provides a mixed result where the CAR has been found to positively relate to RoA and NIM but remained negative in case of RoE. The negative relationship with RoE however is expected in consideration of the relative impact of capital building on the earning measure through diluting the earning to equity position of banks. Therefore, the growth rate in capital should follow the proportional growth in the earning base of banks. Otherwise, obstruction on capital planning from internal and external forces potentially result in a counter impact on the RoE of banks.

¹ There are different ways of dealing with outliers, such as winsorisation, exclusion, or retention. In this study, since the number of observations is not large, and the extreme values are likely to seriously bias the estimates, either exclusion or retention seems to be inappropriate. In this study, all winsorizing are done based on full sample rather than on balanced sample i.e. on the 193 cases.

Table 5: Regression Results

	Model 1	Model 2	Model 3
	RoA	RoE	NIM
CAR	.0522522 (0.0000)*	-.5180715 (0.0010)*	.0814718 (0.0050)*
PRTL		-.445118 (0.0019)*	-.0199116 (0.5820)
NIITI	.0295337 (0.0000)*	.1060527 (0.0125)*	.0006569 (0.9600)
XEFF	.0108347 (0.0538)	-.0570724 (0.3770)	.663684 (0.5520)
COIN	-.034499 (0.0000)*	-.2449508 (0.0000)*	-.0000826 (0.8980)
LATD	-.5186258 (0.0570)	.0181338 (0.0721)	-.0054677 (0.5710)
CONS	-4.167119 (0.0000)*	42.79821 (0.0000)*	3.277389 (0.0150)*
Adjusted R2	62.8%	45.05%	42.5%
Walid Chi2		152.72 (0.0000)*	54.8 (0.000)*
F(6,168)	57.1 (0.0000)*		
F-test	2.88 (0.0003)*	5.5 (0.0000)*	2.66 (0.0000)*
LM test	4.62 (0.0315)*	54.33 (0.0000)*	9.6 (0.0019)*
Hausman Chi2	216.3 (0.0000)*	8.24 (0.2143)	1.32 (0.4532)
Rho	(fraction of variance due to u _i)	.14795143	.14163641

Source: Author's Computation (STATA12)

Considering the sporadic involvement from the regulator in setting the requirement of entry as well as capital threshold for banks already in the business, the impact of capital on earning position remained negatively affecting RoE. This obviously will be severe for banks which already are operating at a capital level in excess of their asset holdings and/or are managing to operate under limited growth of earning as compared to their growth in their capital level. On the other front, the positive relation of CAR with RoA and NIM, is much related with the notable impact of a high level of capital on business expansion through increasing the capacity of banks to achieve large credit extension for a single borrower and boosting their capacity to hold an increased foreign currency holdings. This will be very relevant to the Ethiopian banking industry where the lending decision to single borrower, 25% of capital (Directives SBB/53/12) and foreign currency positions, 15% of capital (Directives SBB27/01) are directly attached with the capital level by regulations. This has been an important driver for banks to operate under a relatively excess capital level with a motive to register a rapid balance sheet expansion. This has assisted to boost the earning position of banks through directing their activity to a high growth-high earning scenario and without worrying much about liquidity shortfall. This however, has not adequately covered the negative impact of capital on their RoE (or earning per share)

which doesn't seem a worry to the banks until recent period considering the high earning per share and dividend offering of the Ethiopian banks. This benign regime however might not sustain in the forthcoming as banks are stipulated to operate under a capital level beyond their expectation and the gradual slowdown in their earnings growth due to a growing competition and regulatory tightening. Therefore, to some extent capital planning remains to be one of critical bank specific determinants warranting management intent in the process to discharge their obligations to various stakeholders, most importantly of the shareholders. This has been one of several reasons enforcing banks management to capitalize on a business mix through focusing noninterest income sources.

On the other hand, the commonly used proxy metrics to measure asset quality, PRTL, has been positive but insignificant in the RoA model and witnessed significant and negative relationship with RoE model. The model related to price (NIM) similarly shows negative and insignificant relationship with PRTL. As shown in the trend and descriptive statistics, the aggregate PRTL level is towards a positive track record revealing the banks remarkable achievement in maintaining a healthy asset portfolio through in placing control on the level of their nonperforming asset. This has been not only an internally driven strategy but supported by enforcement from the regulator which

insisted banks not to hold nonperforming assets beyond 5% of their loan portfolio, a high risk asset component. Therefore, the low level of PRTL record observed in most banks in the industry succeeded to establish a positive relationship with the earning position of banks through controlling the cost of asset mismanagement as shown in low rate of provision expenses as compared the loan portfolio. In other words, the effect of provision for problem assets has limited impact on profitability performances justifying for the insignificant relationship with the RoA and RoE. Nevertheless, the mixed outcome with regard to the direction of impact mostly relates to the differences in the sensitivity of the base at which the two ratios are computed i.e. asset and capital. Banking is a highly leveraged business with most of its sources of businesses relies highly on liability from customers than shareholders investments leading to hold asset level far exceeding the capital invested by its shareholders. Such scenario potentially has put banks capital more sensitive to earning disorder from asset quality related problems as compared to the level of banks. This can be easily justified if one considers the coefficient values of PRTL in the two models. In contrast, the pricing measure establishes a negative and significant relationship with PRTL due to the double effect of non-performing assets on net yield from intermediation activity. On one front, nonperforming assets potentially reduces the level of interest income from lending business through restricting the earning from problem assets. This is because income recognition from problem assets is not allowed unless the asset is backed by cash and cash substitute collateral (Directives SBB/43/08). On the other front, problem assets will bring additional costs in the form opportunity cost of unproductive use of interest bearing deposits besides the demand to set aside provision based on the classification level of the problem asset. Therefore, the double side impact results in a narrow interest income that provides a narrow interest margin justifying a negative relationship of PRTL with NIM.

The other measure applied to assess banks' capacity to ensure a diversified income sources through establishing appropriate level of business mix, NIITI remained a significant driver of profitability measure. Nevertheless, it has insignificant effect on the price related performances. The direction of relationship, however, is positive in all models considered. The established relationship goes well with the a priori assumption due to the obvious effect of a diversified and hence increased income bases on the gross income and profit level of banks. In addition, the macroeconomic framework of the country remained suitable for banks to generate a substantial income in their foreign trade offerings granting a liberty to set charges of their discretion for their international banking services and during currency selling. The liberty of charging basically emanates from the shortage in the

availability of foreign currency due to high unmet demand from the business community that are engaged in import related businesses. Therefore, a bank holding a reliable level of foreign currency obviously manages to easily convert its foreign assets to fee based income and associated gain from currency conversions. Additionally, a high demand in off balance sheet related services such as issuing guarantees and offering domestic banking services ensured another source of fee based services increasing the income base of banks. The aforesaid services have contribution not only on the income base of banks but on the overall risk portfolios through directing their activities on almost risk free services bearing a lower impact to affect their income positions. The insignificant relationship with price measure is basically is a result of a loose association between NIM, which is basically a measure of the yield from intermediation business and NIITI which covers businesses exterior to the traditional banking engagements. Therefore, NIITI is not much affected by a change in the price for earning assets and the cost of fund for deposits as a result of its distinct pricing mechanism and limited use of locally mobilized deposits.

An important finding from the empirical result is that management's ability to control costs has a negative impact in all the models. This suggests that in addition to banks' endeavor for boosting revenue through engaging themselves in diversified businesses, their specific experience in managing expenses appears to be an important factor in determining performance. More specifically, the COIN ratio established a statistically negative significant relationship to the profit based models witnessing the fact that the cost of undertaking banking business is one of the prominent variables requiring the managements' focus. Lack of proper cost control could potentially drain profit of banks and its effect as revealed in the coefficient is much strong on RoE. This will be an important finding of the study because it instigates management to have careful considerations on their cost of doing business during critical cost driven decisions like expansions through branch network, IT investments, e-banking channels, employment etc. On the other front, the study contributes a variable which can serve to assess management performance during rating by the Board or the regulator which mostly prefers to do it applying simple ratios as witnessed during the interview sessions. Such approach has an obvious drawback of aggregating costs potentially hiding the effect of individual cost components through offsetting their under and over usage. Nevertheless, the aggregate position serves as an initial start to look for the affixed cost management capacity in banks. The COIN relationship with price measure, NIM, is insignificant which could be associated with the current interest rating setting regime reigning in the system. The interest

rate in both asset and liability side naturally seems variable but in practice has a fixed nature due to limited variation in interest rate applied both lending and deposit side. This has provided an opportunity for banks to run under a stable yield curve, hence, the burden to manage expenses through price controls appear irrelevant or deserved a reduced merit justifying for the insignificant relationship with the price related variable. Nevertheless, the negative relationship provides indication an existing concern to manage costs through controlling factors that have implication on both cost and income. Such factors as discussed above include maintaining healthy asset portfolio, managing deposit mixes, etc. among others. Supporting this argument, the managerial efficiency measure, the XEFF, shows that performance of some banks could be improved through increasing the efficiency of management. The established relationship in some models, however, is not statistically significant that indicates a homogenous management approach. However, as shown in previous section and suggested in the interview, managerial efficiency is one of the area deserving improvement and to be considered for building competitive advantage in the Ethiopian banking system.

On the liquidity front, a mixed result has been witnessed in the three models with a negative relationship record in the RoA and NIM models and a positive relationship with RoE. This is in line with the literature where the impact of liquidity is reflected depending upon the usage of liquidity to optimize the liquidity-profitability trade off. Surplus liquidity holding ensures a comfortable status to meet commitments at ease but drains profitability by increasing vulnerability to growing expenses on excess fund holding. As indicated in the descriptive statistics, the Ethiopian banks are mostly characterized by surplus liquidity holdings maintaining a liquid asset level far above required by the regulatory standard. Therefore, the impact of such norm has negatively affected profitability measures as well as placed a pressure on the productivity of their intermediation businesses. This is a signal for the lack of in-placed strong liquidity management that can ensure an optimum usage of funds. As shown in the models, the impact of the above constraint has been significant on both profitability and price performance sides with notable exceptions on the RoE model. The explanation for the exception is in relation to the reduced pressure arising from surplus liquidity on the capital planning of banks. Planning for capital growth, therefore, appears much slower in circumstances of excess liquidity unless it is driven by exceptional business motive and fulfilling regulatory requirements. This remains an important finding of the study indicating that banks in the Ethiopia still have a way to boost their earnings not only aiming at further expansions but also ensuring their capacity to establish a liquidity-profitability trade off. In addition, their liquidity position among several factors could be

considered as an important variable in their capital growth decisions.

a) *Robustness Test (Specification Tests after the Result)*

The residual statistics shows the error term has a normal distribution with a mean of 0. Hence, the normality assumption holds. The results from the VIF table suggest that VIF is not greater than 10 for any of the explanatory variables. The Breusch-Pagan / Cook-Weisberg test for heteroskedasticity test shows that at 5% level of significance, the p-value is higher showing that heteroskedasticity is not significant in the model. The small value of chi-square also supports the constant variance of the error term. The result has shown that the D-statistic (1.273) appears closer but lesser than 2 depicting positive correlation. As suggested by Field (2009), values less than 1 or greater than 3 are a cause of concern. Hence from Field's rule of thumb it can be inferred that autocorrelation is not serious.

VIII. CONCLUSIONS

Concerning the third research question: 'How do bank specific factors relate to bank performance' the study explored that most of the proxies to measure bank specific factors are significantly related to performances. Therefore, the result rejects the null hypothesis that bank specific factors have no impact on bank performances. The constructed model has used the CAMEL framework which is a widely used supervisory tool to measure bank performances. The result shows that the capital adequacy ratio (CAR) remains significant in all the models suggesting statistically significant relationship with bank profitability and price performances. Nevertheless, the direction of impact is mixed where the CAR has been found to positively related to RoA and NIM, but remained negative in the case of RoE. The mixed result appears justified in consideration of the multifaceted impact of capital to asset ratio on performances. In one front, a higher capital to asset ratio improves profitability by enhancing the banks' risk assimilation capacity and creating a reliable liquidity position. On the other hand, it affects performances of banks as measured by the return on their equity as it places burden on banks via setting an expectation for management to match the growth in profit in line with the capital holdings. On the other front, the quantitative study finds a positive and insignificant relationship of the asset quality (PRTL) with RoA, but witnessed significant and negative relationship with RoE. The model related to price (NIM), similarly shows negative and insignificant relationship with PRTL. The qualitative study, however, identified that asset quality remains an important determinant of bank profit and price performances as problem assets directly affect the profit performance demanding for equivalent provision expense holdings. In addition, they affect prices by drawing down the earnings from granted loans. From the mixed result of the two studies, the research concludes that the low

asset quality problem in most banks has concealed the potential impact of asset problem on performances. In addition, the study suggests the use of the actual rate of nonperforming loan ratio instead of the proxy provision to total loans in future researches attempting to investigate the impact from asset quality problems. This study has used the proxy measure as non-performing assets related data are not publicly available due to confidentiality. Nevertheless, the mixed outcome with regard to the direction of impact mostly relates to the differences in the sensitivity of the base at which the two ratios are computed i.e. asset and capital.

Another important finding of this study is that banks' capacity to ensure a diversified business mix (NIITI) remained a significant driver of profitability measure. Nevertheless, it has insignificant effect on the price related performances. The direction of relationship, however, is positive in all models considered. As shown above, the proxy variable not only appears as a significant driver of performance but is also a major source of efficiency. This arises from the double edge impact of a diversified business to ensure an enhanced income base and its positive contribution to maintain quality asset portfolio.

The empirical result also shows that management's ability to control costs (COIN) has a positive impact in all the models showing that in addition to banks endeavor for boosting revenue through engaging themselves in diversified businesses, their specific experience in managing expenses appears to be an important factor in determining performance. Nevertheless, the qualitative study shows that cost control should be supported by an optimum expense management strategy that ensures a balance to meet both short-term and long-term goals. Unlike the above finding, the managerial efficiency variable (XEFF), established a statistically positive relationship with performances showing that performance of some banks could be improved through increasing the efficiency of management. The established relationship in the models however is not statistically significant. The result appears unexpected, but explained in the qualitative study on the ground that the tight regulatory framework which discourages risk taking in banking business apart from traditional and common banking endeavors has limited to use top management experience in innovative practices. Furthermore, regulation has also taken the critical role of management in some cases such as strategy setting that establish areas and modes of bank growth. However, there is a suggestion from bank managers for improvement in managerial efficiency allowing the freedom to be used as a competitive tool.

Banks' ability to maintain a reliable liquidity position (LADP) witnessed a mixed result in the models: a negative and statistically significant relationship with the RoA and NIM models and a positive statistically insignificant relationship with RoE. Nevertheless, the

finding is justified as excess liquidity standing could reduce the profitability of banks by exposing them to non-earning placements. Nevertheless, it can ensure better customer services to comfortably meet the credit demand of borrowers. The important finding of this study replicating the findings in literature is that banks' decision with regard to liquidity should consider the trade-off between profitability and liquidity. This accepts the commonly accepted liquidity- profitability trade-off theory.

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Le Niveau De Capitalisation Et La Solidite Bancaire: Une Relation Controversee

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Abstract- In this article we review the literature on the relationship between the capitalization requirement and the ability of the bank to withstand a shock. The theoretical literature review reveals a controversy about the relationship between the level of capitalization and bank robustness. On the basis of portfolio selection theory, a binding capitalization requirement can lead to an increase in risk taking. Conversely, the state preference theory argues for the positive effect of the capitalization requirement on bank robustness.

Keywords: *capitalization requirement, portfolio choice, capacity.*

GJMBR-C Classification: *JEL Code: G29*



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Le Niveau De Capitalisation Et La Solidite Bancaire: Une Relation Controversee

Kadandji André

Résumé- Dans cet article, nous faisons une revue de la littérature concernant la relation qui existe entre l'exigence de niveau de capitalisation et la capacité de la banque à supporter un choc. Il ressort de la revue de littérature théorique une controverse à propos de la relation qui existe entre le niveau de capitalisation et la solidité bancaire. En s'appuyant sur la théorie du choix de portefeuille, on constate qu'une exigence de capitalisation contraignante peut entraîner une augmentation de la prise de risque. A contrario, la théorie de préférence sur les états défend l'effet positif de l'exigence de capitalisation sur la solidité bancaire.

Motsclès: exigence de capitalisation, choix du portefeuille, capacité.

Abstract- In this article we review the literature on the relationship between the capitalization requirement and the ability of the bank to withstand a shock. The theoretical literature review reveals a controversy about the relationship between the level of capitalization and bank robustness. On the basis of portfolio selection theory, a binding capitalization requirement can lead to an increase in risk taking. Conversely, the state preference theory argues for the positive effect of the capitalization requirement on bank robustness.

Keywords: capitalization requirement, portfolio choice, capacity.

I. INTRODUCTION

La gestion du risque par la banque est une exigence pour les différents apporteurs des fonds à la banque. Comme tous ces apporteurs des fonds (actionnaires, déposants et créanciers) n'ont pas la même fonction objective, il est donc important qu'un observateur indépendant intervienne pour protéger les épargnants.

Le couple dirigeants/actionnaires peut cacher une information importante, concernant le niveau de risque de leur institution, afin d'amener les déposants à choisir leur structure pour la sécurité de leurs épargnes. Ils profitent de l'incapacité des déposants à distinguer les couples dirigeants/actionnaires risquophobes des couples risquophiles. En effet, une fois le dépôt effectué, la banque peut adopter des stratégies risquées afin de maximiser l'espérance de son revenu au détriment des déposants. L'aléa moral, entre les déposants et la banque, naît donc de l'incapacité des déposants à contrôler les intentions du couple dirigeants/actionnaires et à évaluer ses efforts une fois le depot effectué (Boussaada, 2012). C'est cette

situation qui justifie avant tout l'existence du régulateur. Ce dernier cherche à réduire l'asymétrie d'information qui existe entre le couple dirigeants/actionnaires et les déposants. Pour atteindre l'objectif de protection des déposants, le régulateur recommande le respect de certaines exigences: les exigences des fonds propres, la discipline de marché et la communication financière.

Les exigences en matière de capitaux constituent un instrument préventif utilisé par les régulateurs. La capitalisation d'une banque fait allusion à son niveau d'accumulation des fonds propres. Elle détermine la capacité de la banque à supporter les pertes (Lindgren et al., 1996). En effet, pour certains auteurs (Berger, 2010 ; Petey, 2004 et Tartari, 2002) les fonds propres constituent pour la banque le premier élément qu'attaquent les pertes avant qu'elles ne s'en prennent à l'épargne des déposants et conduisent vers la défaillance de la banque. Les exigences en capitaux propres selon les accords de Bâle comprennent des mesures qualitatives et quantitatives conçues comme modèle de référence par le Comité de Bâle. L'aspect quantitatif de ces exigences provient de l'estimation des risques à couvrir par les fonds propres. C'est pour cette raison que Tartari (2002) pense qu'un ratio approprié des capitaux propres peut être considéré comme un instrument de solidité bancaire.

L'impact des exigences en fonds propres sur la solidité des banques est d'un intérêt considérable. Les résultats du débat théorique et empirique sur ce sujet restent mitigés, car la réglementation prudentielle peut avoir un effet incitatif pour la prise des risques. C'est pour cette raison que certains auteurs (Blüm, 1999; Kim et Santomero, 1988; Koehn et Santomero, 1980) pensent qu'une exigence en fonds propres restrictives peut accroître le niveau de risque de la banque. La réglementation prudentielle peut aussi rendre les banques sélectives en rationnant le crédit (Aglietta, 1992; Mojon, 1996). Pour ces différents auteurs, cette réglementation peut sous certaines conditions, réduire la solidité des banques en augmentant le niveau de leurs risques de défaillance. Par contre, plusieurs auteurs (Berger, 2010; Gouriéroux et Tiomo, 2007; Madji, 2002; Petey, 2004; Tartari, 2002) considèrent les fonds propres comme un garant de la solvabilité des banques. Pour ces auteurs, sous certaines conditions, les exigences en fonds propres peuvent conduire les banques à réduire leur prise de risque. C'est cette dernière idéologie qui est prônée par le Comité de Bâle.

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Dans cet article, nous examinons théoriquement la relation qui existe entre le niveau de capitalisation et la solidité bancaire. L'objectif de cet article est de contribuer au débat sur l'apport des exigences de capitalisation à la solidité bancaire. Dans la suite de l'article, nous posons les fondements théoriques de l'étude de la relation niveau de capitalisation et capacité bancaire à résister aux chocs défavorables. Avant de conclure, nous nous intéressons à l'arbitrage entre la théorie de préférence sur les états et la théorie du choix de portefeuille.

II. LE CADRE D'ANALYSE DE L'EFFET DU NIVEAU DE CAPITALISATION SUR LA SOLIDITE BANCAIRE

La faillite d'une banque peut avoir une influence sur la confiance que les clients accordent à l'ensemble du système bancaire. En effet, le risque systémique peut partir de la faillite d'une seule banque. C'est pour cette raison, qu'il est important de mettre sur pied des stratégies permettant de réduire la probabilité de survenance des faillites des banques. Parmi ces stratégies, nous avons les exigences minimales en fonds propres. En effet, l'idéologie défendue par la plupart des organismes de supervision, c'est que les fonds propres doivent protéger la banque contre les risques de défaillance. Considérer les fonds propres comme un coussin, pose la problématique de la quantité adéquate des fonds propres qu'une banque doit disposer dans son bilan. C'est ainsi qu'en juillet 1988, le Comité de Bâle publie l'accord sur les fonds propres en se fixant deux objectifs fondamentaux à savoir : d'une part le renforcement de la solidité des établissements financiers et de la stabilité du système bancaire international, et d'autre part proposer un dispositif simple et pertinent afin d'être uniformément applicable dans toutes les banques de tous les pays.

Les exigences en matière des fonds propres, définies par les Accords de Bâle, sont utilisées comme un instrument préventif par les régulateurs pour atteindre l'objectif de la stabilisation du système bancaire (Tartari, 2002). La stabilité¹ du système bancaire est une conséquence positive de la solidité des banques. La situation d'instabilité ou de turbulence intervient lorsqu'un choc de grande ampleur déstabilise le système financier. L'instabilité financière est souvent confondue avec la notion de fragilité ou de vulnérabilité des institutions². Dans le cadre de la préservation de la solidité des banques, une réglementation micro-prudentielle est proposée par le Comité de Bâle. Pour

atteindre l'objectif de stabilité du système bancaire en mettant l'accent sur la solidité des composantes du système bancaire, le Comité de Bâle a conçu des mesures qualitatives et quantitatives des fonds propres pour couvrir les risques. Ces mesures sont reprises dans le volet prudentiel des différents organismes de régulation.

Un ratio des fonds propres bien élaboré et approprié peut être utilisé comme un instrument adapté pour la solidité bancaire. En effet, les fonds propres permettent à la banque d'éviter la faillite en absorbant ses pertes. C'est pour cette raison que l'aspect quantitatif des fonds propres doit résulter de l'estimation des risques par des méthodes de calcul bien élaborées. Ainsi, dans le cadre de la prévention de la faillite bancaire, concevoir un lien entre les exigences en fonds propres et la solidité des banques s'avère important. Pour cela, il se pose des interrogations sur la quantité des fonds propres et sur l'estimation des risques bancaires.

a) *Les fonds propres: un outil de couverture contre les risques*

Le capital d'une banque est un outil de protection contre les pertes susceptibles de survenir dans cette banque. Les banques peuvent être obligées de maintenir un niveau optimal de capitalisation pour trois raisons d'après Saadaoui (2010). 1) Il existe un niveau optimal de capitalisation déterminé par un arbitrage entre le coût de faillite et l'avantage fiscal³, de façon à maximiser la valeur des titres de propriété. En effet, d'après Modigliani et Miller (1958), il existe un caractère incontestable de la nécessité d'une adéquation entre les fonds propres et le risque de défaillance. 2) La deuxième raison est liée au coût de transaction, étant donné qu'une banque a une préférence pour les comptes de dépôts qui sont moins coûteux à émettre et à gérer que les titres de propriété. Par ailleurs, il est impossible de se financer exclusivement par émission de dettes, elle sera alors incitée à identifier un montant optimal de fonds propres qu'elle devrait affecter afin de ne pas compromettre sa rentabilité. 3) La troisième raison est l'existence d'un problème d'asymétrie de l'information entre l'autorité de régulation et la banque, ce qui légitime le recours à la réglementation des fonds propres afin d'inciter la banque à limiter sa prise de risque (Berger, 2010). Le recours aux exigences en matière des fonds propres renforce la capitalisation et permet de réduire l'exposition aux risques en limitant l'effet de levier.

Pour Petey (2004), la capitalisation des banques et la réglementation qui l'encadre visent à réduire la faillite des banques en diminuant leurs probabilités d'insolvabilité, car ils permettent de doter

¹ La stabilité bancaire fait référence aussi bien à la stabilité de chaque établissement bancaire qu'à celle des relations qui s'établissent entre ces institutions.

² La stabilité bancaire fait référence aussi bien à la stabilité de chaque établissement bancaire qu'à celle des relations qui s'établissent entre ces institutions.

³ Pour plus de développement, confère la théorie de Modigliani et Miller.

ces banques des capacités suffisantes d'absorption des pertes. Ainsi, un niveau de capitalisation plus élevé avec un actif inchangé doit conduire à une réduction globale de la probabilité de défaillance des banques. De plus, il est important de noter que l'exigence de se conformer à une norme des fonds propres peut empêcher une banque d'avoir une attitude risquophile. Lorsque le capital représente la perte à supporter en cas d'insolvabilité, la banque prend soins de risque qu'elle encourt au fur et à mesure que son niveau de capitalisation augmente. Ceci justifie la relation positive entre le niveau de capitalisation et la solidité bancaire. Pour que l'exigence en fonds propres et la réglementation qui l'encadre soient efficaces, il faut tenir compte de la qualité des actifs, c'est-à-dire de la composition des portefeuilles d'actifs et de la structure du capital des banques.

D'après Saadaoui (2010), les fonds propres réglementaires sont là aussi pour résoudre le problème de l'asymétrie d'information. Il suppose que ce mécanisme prudentiel peut être utilisé afin de compléter l'assurance-dépôts. Ainsi, en combinant ces deux outils réglementaires, les autorités bancaires auront d'après cet auteur la possibilité d'extraire le maximum d'informations concernant la situation de la banque et la qualité de ses actifs. De plus, en s'appuyant sur une norme de fonds propres, les autorités bancaires ont la possibilité de réduire le risque d'anti-sélection dans les banques. En effet, l'introduction d'une norme rigide peut permettre par effet de répression réglementaire d'éviter la prise excessive de risque, ce qui peut obliger les banques à adopter un comportement prudent vis-à-vis du risque.

En se référant à certains auteurs (Berger, 2010; Petey, 2004 et Saadaoui, 2010), on peut dire qu'en effet, les fonds propres réglementaires, à travers leur effet prudentiel, servent à diminuer la prise de risque dans les banques, à protéger ces dernières du risque de crédit et à les contraindre à couvrir leur endettement en limitant l'effet de levier. Ainsi, lorsqu'une banque se conforme à ces exigences réglementaires, on suppose qu'une augmentation du niveau de ses fonds propres doit conduire à une diminution de sa prise de risque. Tandis qu'une augmentation de la prise de risque d'une telle banque, doit être couverte par un renforcement de ses fonds propres. En conséquence, un accroissement de l'effet de levier va conduire cette banque à augmenter ses fonds propres pour couvrir son endettement et sa position en liquidité.

Le rôle des exigences en fonds propres comme instrument de couverture contre le risque fait l'objet d'un débat théorique. En effet, tout comme certains défendent le rôle prudentiel des fonds propres, plusieurs auteurs remettent en cause ce rôle prudentiel associé aux normes de fonds propres. Pour ces derniers auteurs, quand cette norme est définie indépendamment du risque, par la fixation d'un seuil

minimal de capitalisation proportionnel au volume des crédits, cela peut amener la banque qui vise à optimiser la combinaison rendement – risque de son portefeuille, à accroître le niveau relatif des crédits risqués. Cette attitude est liée au degré d'aversion au risque de cette banque et à la nature de la relation entre le rendement et le risque, en d'autres termes la volatilité du rendement. De toutes les façons l'exigence en fonds propres est un mécanisme qui est susceptible d'induire la prudence des banques vis-à-vis des risques.

b) *La théorie de préférence sur les états: l'effet positif des exigences de capitalization*

La capitalisation est un élément essentiel de la solidité, du développement et de la pérennité de tout établissement financier. En effet, certains auteurs comme Lindgren et al. (1996), pensent que la capitalisation peut être considérée comme un critère important dans la détermination de la solidité bancaire. Dans cette lignée, Petey (2004) suppose que la décision de capitalisation de la banque est basée en grande partie sur un objectif de maîtrise du risque de ses activités et particulièrement de son risque de faillite. C'est pourquoi, la variation du capital de la banque doit être observée périodiquement, pour un suivi dynamique de sa solidité. En principe, le risque de faillite de la banque est permanent, il est donc nécessaire que la vigilance de la banque soit aussi permanente. On peut justifier cette observation dynamique de la capitalisation bancaire, par le fait qu'une banque peut théoriquement augmenter ou diminuer sa prise de risque en distribuant des crédits aujourd'hui, compte tenu de la couverture des coûts futurs lié à l'accroissement des exigences réglementaires.

La théorie de préférence sur les états développée par des auteurs comme Kareken et Wallace (1978), considère que les dirigeants de la banque cherchent à maximiser la valeur de leur institution tout en respectant la réglementation. Ainsi, pour répondre à une exigence réglementaire sur les capitaux propres plus rigoureuse, les dirigeants de la banque vont toujours réduire le risque du portefeuille de cette dernière afin d'éviter les pénalités. En effet, les pénalités peuvent avoir un impact négatif sur la valeur de la banque. C'est pour cette raison que, les banques ont souvent tendance à arbitrer entre les pertes de rendement qu'engendre leur conformité aux exigences réglementaires et les coûts liés aux sanctions légales si elles enfreignent les règles. Pour Couppey et Madiès (1997), cette théorie constitue l'un des premiers cadres d'analyse utilisé pour étudier les exigences réglementaires dans le domaine bancaire. L'hypothèse fondamentale de cette théorie est l'existence d'un système complet de marchés financiers contingents. Dans ce cadre d'analyse, la banque est appréhendée comme une entreprise spécifique du fait de son pouvoir de marché tant à l'actif qu'au passif. La complétude de

marchés financiers est difficile à atteindre dans les économies en développement, ceci rend l'hypothèse de base de cette théorie moins réaliste.

Supposons que la banque agit entre deux instants représentant le début et la fin d'une période d'exercice. Les résultats obtenus par la banque en fin de période sont conditionnés par des états de la nature possibles dans son monde. Ces états de nature existent en nombre fini. De plus, on considère que les décisions concernant le choix d'un portefeuille d'actifs financiers et d'une structure de passif de la banque ont lieu en début de période. A cet instant l'état de la nature qui va prévaloir dans ce monde n'est pas encore connu. Il faut rappeler que les choix de la banque tiennent compte des fonctions objectives des différents apporteurs des fonds (les actionnaires, les créanciers et les déposants). Les actionnaires de la banque sont supposés avoir une responsabilité limitée, car les fonds propres représentent une créance résiduelle que détiennent les actionnaires sur les actifs de la banque (Mongin, 2000). Dans ce contexte, la banque effectue son choix de manière à maximiser sa valeur, sous la contrainte d'équilibre de son bilan.

Lorsque la banque constate une diminution de ses produits issus d'intérêts, donc de ses bénéfices anticipés, suite à un changement du contexte, elle va augmenter sa prise de risque (Saadaoui, 2010). En effet, la préservation du pouvoir de marché, est un objectif primordial pour la banque dans la conquête de sa part de marché. Ceci dit, la perte de l'avantage de préservation du pouvoir de marché par une banque peut l'inciter à l'excès de prise de risque. C'est pour cette raison, qu'il faut tenir compte de certains facteurs pour l'exigence des fonds propres, car l'imposition d'une norme de fonds propres onéreuse et contraignante, peut avoir des effets néfastes sur les banques. Il peut arriver qu'une banque en difficulté de capitalisation, pour se conformer à la norme prenne des risques. Cette banque va financer des activités à forte rentabilité et volatiles avec une marge d'intérêt élevée pour augmenter ses réserves et indirectement accroître son niveau de capitalisation d'une manière rapide, mais imprudente.

Dans la littérature, la solidité d'une banque, c'est-à-dire sa probabilité à rester rentable et solvable pour résister à des évolutions défavorables est subordonnée principalement à une capitalisation suffisante. C'est pour cela que la plupart des organes de supervision bancaire exige un certain niveau de capitalisation des banques. Le sixième principe fondamental pour un contrôle bancaire efficace stipule ce qui suit : « les autorités de contrôle bancaire doivent fixer à toutes les banques des exigences de fonds propres minimales et appropriées. Celles-ci devraient refléter les risques qu'elles encourent et doivent déterminer les composantes du capital, en tenant compte de leur capacité d'absorber les pertes. Au

moins pour les banques qui opèrent à l'échelle internationale, ces exigences de fonds propres ne doivent pas être inférieures à celles qui sont prévues dans l'Accord de Bâle et ses amendements ». Si l'on se réfère aux accords de Bâle II, il ressort que les principes essentiels du deuxième pilier de ces accords sur la surveillance prudentielle, met l'accent sur l'adéquation des fonds propres. C'est ainsi que le principe un de Bâle II se décline en ces termes: « les banques devraient disposer d'une procédure permettant d'évaluer l'adéquation globale de leurs fonds propres par rapport à leur profil de risque, ainsi que d'une stratégie permettant de maintenir leur niveau de fonds propres ». La mise en œuvre d'une telle procédure n'implique pas seulement les dirigeants des banques, mais elle passe par: une surveillance par les actionnaires et les managers; une évaluation saine des fonds propres; une évaluation exhaustive des risques; la mise en place d'un système adéquat de surveillance et de notification de l'exposition au risque aux instances de la banque; et enfin l'analyse par le contrôle interne (COBAC, 2009). Ces éléments sont importants pour le maintien des équilibres financiers fondamentaux et même de la pérennité des banques. C'est pour cette raison que certains superviseurs exigent un couplage de l'apurement du bilan avec des mesures interne visant à accroître la profitabilité à travers une recapitalisation.

Les accords de Bâle qui ont été mis en place depuis 1988 avec l'accord de Bâle I, se fondent sur l'idée de mise en adéquation des fonds propres aux risques des banques. C'est ainsi qu'à cette époque, cet organe innove en proposant dans son premier accord un ratio des fonds propres qui devrait permettre aux banques de couvrir leurs risques. Les banques doivent ainsi disposer, à tout moment, d'un montant de fonds propres qui couvre au moins 8% de la valeur de leurs actifs pondérés de leurs risques. Cependant, il s'avère que l'imposition d'un seuil réglementaire de capitalisation, indépendant du risque, peut conduire les dirigeants d'une banque, qui cherchent à maximiser leur profit, à adopter des stratégies plus ou moins risquées, en fonction de leur aversion au risque. C'est pour éviter un tel comportement risqué, qu'il est recommandé de lier le niveau de capitalisation réglementaire au niveau du risque qui caractérise les différentes catégories d'actifs dont détient une banque (Saadaoui, 2010). C'est pour cette raison que les accords de Bâle en proposant le ratio des fonds propres, propose aussi une application à l'échelle internationale de la dissociation des actifs par catégorie de risque. A chaque fois, il a fallu l'adapter à la conjoncture économique. C'est ainsi qu'en 2009, conformément au mandat confié par le G20, le Comité de Bâle a défini un troisième dispositif, qui a abouti à la publication en décembre 2010 de nouvelles normes détaillées sur l'adéquation des fonds propres et la liquidité des établissements de crédit, communément appelées « Bâle III ».

Dans la même logique Kim et Santomero (1988) montrent qu'en l'absence de contrainte réglementaire sur le niveau de fonds propres, les banques présentant une faible aversion pour le risque vont sélectionner des actifs plus risqués et cherchent le taux de fonds propres le plus faible. Pour Saadaoui (2010), il est possible aussi que les banques réduisent leur effort de capitalisation et augmentent leur prise de risque durant les périodes de forte concurrence où les marges d'intermédiation se resserrent. Selon l'auteur, la comparaison des résultats entre les banques fortement capitalisées et les banques faiblement capitalisées montre qu'il n'y a pas de relation claire entre le degré de capitalisation et la prise de risque. Par conséquent, une attention particulière doit être portée, sur le degré de capitalisation et la sensibilité des banques à leurs marges d'intermédiation. Kim et Santomero (1988) pensent que l'hétérogénéité des préférences en matière de risque dans l'industrie bancaire implique une relation négative entre le risque des actifs et le taux de fonds propres. Pour cela donc, la capitalisation des banques doit influencer négativement la prise des risques, d'où la relation négative entre la capitalisation et le risque d'insolvabilité. Malheureusement, certaines études empiriques soutiennent que l'augmentation de la capitalisation réglementaire n'influence pas la prise de risque des banques, alors que l'excès de risque induit une diminution du niveau de leurs fonds propres (Saadaoui, 2010).

c) *La théorie du choix de portefeuille: les effets inattendus des exigences en fonds propres*

Le niveau de capitalisation de la banque relève des exigences réglementaires utilisées pour résoudre le problème posé par l'incitation des banques à une prise excessive de risque. En dépit des raisons avancées pour justifier l'importance des exigences en fonds propres, l'efficacité de ces exigences reste largement controversée. En effet, Diamond (1984) considère la banque comme un gestionnaire délégué du portefeuille. Ainsi, face à une contraction des exigences en fonds propres, la réaction de la banque peut prendre la forme d'une réallocation de son portefeuille d'actifs. En effet, pour augmenter sa rentabilité, la banque peut être amenée à accroître proportionnellement ses actifs rentables et risqués, ce qui va par conséquent augmenter sa probabilité de faillite. On aboutit ainsi à un paradoxe, car le respect de la réglementation conduit à un effet pervers, c'est-à-dire l'accroissement de la prise de risque par la banque.

Pour la théorie du choix de portefeuille, la banque choisit la composition de son portefeuille en fonction de la rentabilité et de la volatilité de cette dernière. Ainsi, pour un niveau de risque donné, la banque choisira le portefeuille qui maximise son profit espéré, compte tenu des rendements des actifs. Ceci suppose que la banque agisse dans un espace risqué-

rentabilité. Ainsi, l'introduction d'une exigence en fonds propres influence la frontière risqué-rentabilité de la banque, ce qui conduit la banque à reconfigurer la composition de son portefeuille des actifs. La banque en reconfigurant son portefeuille peut augmenter sa probabilité de faillite, car le dirigeant de la banque peut choisir de compenser la perte d'utilité due à l'introduction de l'exigence en fonds propres en choisissant un portefeuille plus risqué. Pour Kim et Santomero (1988), Koehn et Santomero (1980), la reconfiguration du portefeuille de la banque dépend de son degré d'aversion au risque. Pour ces auteurs les banques non averses au risque vont répondre à l'introduction de l'exigence en fonds propres par une augmentation du risque de leurs portefeuilles, ce qui va par conséquent augmenter leurs niveaux du risque de faillite. En effet, ils pensent qu'une restriction sur les fonds propres est susceptible de rendre le portefeuille de crédits de la banque inefficace, ce qui ne lui permettra pas d'atteindre la combinaison optimale rendement-risque qui maximise la valeur de son portefeuille. On peut expliquer ainsi, le fait qu'une banque à faible aversion au risque puisse modifier la structure de son portefeuille crédits en octroyant plus de crédits risqués (Kim et Santomero, 1988; Koehn et Santomero, 1980). Ainsi, la réglementation prudentielle est alors vidée de toute substance, puisqu'elle aboutit à l'effet opposé à celui escompté.

Dans l'étude de la relation ratio minimum du capital et cycle de crédit, Mojon (1996) pense que le seul moyen pour les banques de procéder à leur recapitalisation à partir de leur activité traditionnelle d'intermédiation est d'augmenter leur marge d'intérêt. En effet, les banques peuvent aussi se tourner vers des activités hors-bilan sur produits dérivés en misant sur les commissions. Ces activités semblent être moins consommatrice du capital que la transformation de dépôt en crédit. Cette nouvelle orientation stratégique des banques contribue à la baisse de l'offre de crédit, au travers du désengagement des banques de leur activité traditionnelle. C'est ainsi que l'auteur constate que dans les années 1990, la mise en place de la nouvelle réglementation prudentielle dans le secteur bancaire a renforcé le retournement de l'offre de crédit qui avait un lien étroit avec la conjoncture. Selon lui, ce n'est qu'après avoir constaté une forte augmentation du nombre des prêts non-performants due à l'offre de crédit parallèle à la conjoncture, que les banques ont commencé à provisionner beaucoup plus qu'elles ne le faisaient auparavant.

D'autres auteurs pensent que la réglementation prudentielle a pour effet le rationnement du crédit par les banques. En réalité, les banques moins capitalisées étant limitée dans la distribution de crédit, vont procéder au rationnement du crédit. Ce comportement va se généraliser dans le système bancaire du fait de mimétisme des banques. Pour Aglietta (1992), ce

comportement peut conduire à une instabilité dynamique de l'offre de crédit, car il pense que même les banques bien capitalisées, c'est-à-dire dont le niveau de fonds propres est supérieur au minimum exigé, auront tendance à rationner les crédits par un comportement moutonnier des autres banques. Contrairement à cette idée, Saadaoui (2010) croit que les banques bien capitalisées peuvent développer un engouement pour le risque. Il se fonde sur le fait que la forte capitalisation de leur banque, procure un excès de confiance aux actionnaires qui auront tendance à pousser les managers de leur banque à s'aventurer dans le financement des projets plus risqués afin d'accroître leur marge de profit. Pour bien comprendre cette situation, il faut partir de l'hypothèse de conflit d'agence (principal-agent) qui peut influencer le rôle prudentiel des fonds propres réglementaires. En effet, les actionnaires d'une banque (le principal) sont portés essentiellement vers la maximisation de la valeur de leurs actions, alors que les dirigeants (l'agent) cherchent à protéger leur poste et leur rémunération. Ainsi, si ce sont les actionnaires supposés peu averses au risque qui influencent les choix de financement de la banque, il peut avoir une hausse de la prise de risque, notamment si leurs objectifs coïncident avec ceux poursuivis par les dirigeants. De plus, il peut arriver que l'excès de capitalisation provoque chez les dirigeants de la banque, un sentiment de sécurité qui va les encourager à choisir des stratégies plus risquées. Il faut rappeler que l'offre de crédit bancaire est fonction du taux d'intérêt et du taux de refinancement bancaire. En s'appuyant sur la théorie du cycle du crédit, on peut dire que les fonds déterminant l'offre de crédit sont constituées principalement des fonds propres et des dépôts.

Il faut se rappeler des différentes asymétries d'information qu'on trouve au niveau de la banque. D'après Couppey et Madiès (1997), pour bien étudier la banque, il est nécessaire de tenir compte de toutes ses relations, car dans celles-ci, il existe une asymétrie d'information qui peut être favorable ou défavorable à la banque. Il peut avoir une asymétrie d'information exploitée ou subie par la banque dans ses différentes relations. Par conséquent, en ce qui concerne la relation banque-régulateur, la structure du contrat qui les lie doit prendre en considération cette réalité. Dans la littérature, lorsque le contrat liant le régulateur et la banque prend en considération une contrainte d'incitation, le mécanisme des fonds propres réglementaires devient alors un mécanisme susceptible de conduire les banques à la prudence. Toutefois, dans certaines circonstances, les éléments qui poussent une banque à prendre de risque à l'excès peuvent dominer ceux qui l'incitent à la prudence (Saadaoui, 2010). Par exemple, le niveau de conformité d'une banque aux exigences réglementaires peut baisser, si les dirigeants de celle-ci anticipent une diminution de l'espérance des profits

futurs, suite à l'augmentation du capital et/ou si le coût de monitoring des crédits octroyés par cette institution est assez élevé (Blüm, 1999). On peut dans certains cas penser que, les banques prennent des risques excessifs pour couvrir les coûts associés aux procédures d'augmentation du capital, tout en maximisant la valeur de leurs actions. De plus, l'obligation de la reconstitution du capital par les banques pour atteindre le ratio minimum de capitalisation, est un facteur haussier du niveau de risque. Mojon (1996) suppose que lorsqu'une banque constate des pertes sur les prêts accordés antérieurement, elle va chercher à accroître son produit bancaire jusqu'à ce que ces pertes soient intégralement absorbées. Les banques étant incapables de prévoir le risque de défaut de leurs emprunteurs, couvrent ex-post les pertes associées à la réalisation de ce risque en augmentant souvent avec retard leur marge d'intérêt.

III. L'ARBITRAGE ENTRE LA THEORIE DE PREFERENCE SUR LES ETATS ET LA THEORIE DU CHOIX DE PORTEFEUILLE: LE ROLE DES FONDS PROPRES DANS CERTAINS RATIOS

L'importance des capitaux propres dans la solidité des banques, peut être appréciée à travers la qualité du ratio calculé. En effet, un ratio approprié des capitaux propres augmente les capacités de la banque à faire face aux chocs défavorables et peut servir d'outil de prévention de celle-ci contre la faillite. La solidité financière d'une banque peut être essentiellement mesurée par le montant des fonds propres de cette banque, car ces capitaux déterminent la capacité de la banque à supporter les éventuels risques liés à ses activités.

Les banques doivent être en permanence solvables, c'est-à-dire pouvoir honorer leurs engagements à tout moment. En effet, si les clients déposants de la banque doutent de sa solidité financière, ils risquent de ne plus avoir confiance en la banque et de retirer leurs dépôts, précipitant ainsi la banque (et tout le système s'il s'agit d'une banque importante) dans des difficultés majeures. Pour cela, il faut des instruments permettant de jauger le niveau de solvabilité des différentes banques. C'est pour cette raison que le Comité de Bâle a établi des ratios, que les différents régulateurs doivent mettre en application et s'assurer du respect de ces ratios par toutes les banques.

a) *Le ratio de solvabilité: la pierre angulaire de l'appréciation de la solidité*

La solvabilité d'une banque est sa capacité à rembourser la totalité ou encore l'intégralité de ses engagements en cas de liquidation totale. Elle dépend de la qualité des actifs de cette banque, particulièrement de la facilité avec laquelle ces actifs

peuvent être transformés en liquidité, et du montant des engagements de cette banque. La solvabilité d'une banque peut être aussi considérée comme sa capacité à supporter les demandes de retrait de ses déposants. Il est de la responsabilité du superviseur de s'assurer que les banques sont bien aptes à respecter l'obligation de satisfaire les demandes de retrait de leurs clients déposants. Pour ce faire, les superviseurs apprécient la solvabilité des banques en imposant un niveau minimal des fonds propres, ceci en tenant compte du principe que les fonds propres de la banque sont son seul moyen de protection contre les probables pertes. Pour Gouriéroux et Tiomo (2007) les fonds propres de la banque peuvent être considérés comme le garant de la solvabilité de celle-ci face aux pertes que peuvent engendrer les risques qu'elle aura pris à l'actif. Le fait de considérer les fonds propres comme une garantie, témoigne de l'importance des exigences en capitaux propres.

Les exigences réglementaires en capitaux prennent souvent deux formes à savoir: le ratio de solvabilité brute et le ratio des fonds propres ajusté des risques (Mishkin, 2010). Le ratio des fonds propres (FPTA) est utilisé par les banques et les autorités de contrôle des banques comme un instrument important de gestion. Ce ratio est le rapport des fonds propres (FP) au total de l'actif du bilan (TA) de la banque, $FPTA = \frac{FP}{TA}$. Pris ainsi, ce ratio donne une mesure brute de la solvabilité de la banque. Son inverse est très souvent considéré comme le multiplicateur de fonds propres appelé couramment le ratio de levier financier. Ce ratio indique le nombre d'unités d'actifs rémunérateurs que peut générer chaque unité de capitaux propres détenue par la banque. Il permet aussi de ressortir la relation qui existe entre le coefficient de rentabilité (rapport entre le profit net après impôt et fonds propres) et le coefficient de rendement (rapport entre le profit net après impôt et total actif).

Le ratio de levier financier permet aux actionnaires d'arbitrer entre la sécurité et la rentabilité des capitaux investis, ce qui conduit à mettre en évidence l'importance du capital de la banque du point de vue des apporteurs des fonds. En effet, pour les actionnaires par exemple, le capital est avantageux, parce qu'il rend leur investissement sûr en réduisant la probabilité de faillite de la banque.

La deuxième forme de ratio de solvabilité est le ratio de fonds propres ajusté des risques. Ce ratio tient compte du risque des actifs. Pour Mishkin et al. (2010), il existe deux variantes de ce ratio selon la manière dont on mesure les risques, ce sont: soit forfaitairement, soit à l'aide des modèles probabilistes plus élaborés. En effet, les crises de fin des années 1980 ont attiré l'attention des régulateurs sur la détention des actifs risqués. Cette situation a conduit les superviseurs bancaires des économies industrialisées à une

concertation entre eux au sein du Comité de Bâle. Cette coopération aboutit en 1988 à la définition d'un ratio de fonds propres ajusté des risques communément appelé le ratio Cooke. Pour les Etats qui appliquent ce ratio, les banques assujetties sont obligées de détenir en capital l'équivalent d'au moins 8 % de leurs actifs pondérés par des coefficients de risque forfaitaires. L'entrée en vigueur de l'accord de Bâle II a eu pour idée principale de proposer aux banques une approche probabiliste, et non plus arithmétique du risque de crédit et à leur permettre de calculer leurs fonds propres réglementaires sur la base de leurs modèles internes d'évaluation des risques.

b) *Le ratio de liquidité: un élément du renfort de la résilience des banques*

La liquidité une notion faussement facile, mais bien au contraire c'est un concept complexe comme l'a illustré la récente crise des subprimes. La notion de liquidité est multidimensionnelle et se réduit difficilement et/ou statistiquement à un seul indicateur. Le Comité de Bâle, dès sa création, avait travaillé parallèlement sur la solvabilité et la liquidité, mais autant le thème portant sur la solvabilité a été couronné de succès avec la mise en place de Bâle I puis de Bâle II, autant celui de la liquidité n'a concrètement débouché sur un exercice de coordination internationale.

La crise des subprimes qui a mis en exergue la question des risques de liquidité, a conduit à l'intégration plus qu'avant des considérations de liquidité dans le toilettage de Bâle II. Cela se justifie d'autant plus que les considérations de solvabilité, de liquidité, et les risques associés sont fortement interdépendants. Le fait d'accorder plus de poids qu'auparavant au risque de liquidité concerne les trois piliers de Bâle II : d'abord la définition des ratios des fonds propres proportionnés aux risques encourus (pilier 1), ensuite les règles de surveillance de la gestion des fonds propres, c'est-à-dire l'exercice de la supervision bancaire (pilier 2) ici, il faudra accorder une attention particulière à la liquidité des institutions, et enfin la « discipline de marché » (pilier 3) puisque les banques doivent être plus transparentes sur leur situation de liquidité.

Pour le Comité de Bâle, les exigences strictes en matière de fonds propres sont indispensables à la stabilité du secteur financier, mais elles ne suffisent pas. Pour cela, avoir une liquidité adéquate, renforcée par des normes prudentielles robustes est tout aussi importante. Jusqu'en 2011, il n'y a pas eu d'harmonisation internationale dans le domaine de la liquidité des institutions financières (Comité de Bâle sur le Contrôle Bancaire, 2011). Le Comité de Bâle dans ses réformes récentes avec les accords de Bâle III, a mis en place des normes de liquidité mondiales harmonisées. De même que les normes mondiales de fonds propres, les normes de liquidité établissent des

exigences minimales. Ces normes favorisent des conditions de concurrence équitables pour éviter un « nivellement par le bas ».

Les accords de Bâle III édictent un ensemble de normes portant sur la mise en place d'un ratio de liquidité pour les banques internationales, d'un ratio d'effet de levier, des mesures contra-cycliques, d'une redéfinition des fonds propres et d'une révision de la couverture de certains risques. Cet ensemble de normes contribue à renforcer la résilience du secteur financier et bancaire en prévision de nouvelles tensions financières et économiques, indépendamment de la source. L'ensemble de ces nouvelles mesures que le Comité de Bâle a développé pour solidifier la réglementation, le contrôle et la gestion des risques dans le secteur bancaire vise à renforcer la transparence et la communication au sein des banques. Ces mesures permettent d'améliorer la capacité des banques à absorber les chocs défavorables, la gestion des risques et la gouvernance. Le renforcement des exigences qualitatives, quantitatives et les mesures élaborées par le Comité de Bâle sont axés sur deux démarches. Ils concernent d'une part la réglementation au niveau des banques, c'est-à-dire le niveau micro-prudentiel, pour renforcer la résilience des institutions bancaires en période de tension. D'autre part ces mesures concernent les risques systémiques (le niveau macro-prudentiel de la réglementation) qui peuvent s'accumuler dans le secteur bancaire, ainsi que leur amplification pro-cyclique dans le temps.

Les réformes élaborées par le Comité de Bâle pour les accords de Bâle III ont pour objectif d'améliorer la capacité du secteur bancaire à absorber les chocs consécutifs à des tensions économiques ou financières et de réduire par conséquent, le risque de propagation à l'économie réelle. Ces réformes sont conçues pour renforcer la réglementation micro-prudentielle et comportent également, une dimension macro-prudentielle en visant les risques systémiques qui peuvent entraîner la faillite de tout le système.

Pour contrer les pressions observées durant la récente crise, deux normes réglementaires ont été élaborées par le Comité de Bâle pour réaliser des objectifs distincts mais complémentaires au niveau international. Il s'agit d'une part du ratio de liquidité à court terme, « Liquidity Coverage Ratio » (LCR) qui concerne certains actifs liquides pouvant être utilisés pour compenser des sorties nettes de liquidités dans des scénarios de tensions brèves définis par les responsables prudentiels, et d'autre part du ratio structurel de liquidité à long terme, « Net Stable Funding Ratio » (NSFR) qui évalue l'ensemble du bilan au moyen d'une estimation des sources de financement fiables en présence de tensions plus prolongées et moins sévères.

Selon Berger (2010), la liquidité est le principal défi pour de nombreuses banques avec plusieurs conséquences (abandon d'activités, désintermédiation

du financement des entreprises). L'objectif des accords de Bâle III est de réduire au minimum l'exposition du système bancaire aux chocs néfastes d'offre et de demande d'actifs liquides.

c) *Les ratios de la rentabilité: un indicateur de gestion pour les actionnaires*

La décision des banques concernant leurs capitalisations se justifie par trois raisons: le capital sert à éviter les défaillances bancaires; le montant de capital affecte le rendement des propriétaires de la banque et l'exigence réglementaire d'un montant minimal de capital. En effet, les actionnaires d'une banque doivent avoir une idée sur sa gestion. Pour cela, ils ont besoin d'un instrument de mesure de la profitabilité bancaire.

Il existe deux types d'instrument permettant d'apprécier la rentabilité d'une banque. Il s'agit du coefficient de rendement et du coefficient de rentabilité.

Le coefficient de rendement (Return on Assets, en abrégé ROA) est une mesure simple de la rentabilité bancaire. Le ROA est un rapport entre le profit net après impôt (RN) et le total des actifs (TA). Sa formule est $ROA = \frac{RN}{TA}$. Il donne une idée sur le profit net d'impôt généré par une unité d'actif. Ce ratio donne une information sur l'efficacité de gestion de la banque par les managers. Indirectement le coefficient de rendement permet d'apprécier la productivité de la banque en indiquant combien de bénéfices sont engendrés en moyenne par une unité d'actif.

Les actionnaires s'intéressent beaucoup à ce que leur rapporte leur investissement. Pour avoir cette information, les investisseurs utilisent un deuxième instrument d'appréciation de la rentabilité. Le coefficient de rentabilité (Return On Equity, en abrégé ROE) est une mesure simple de la profitabilité bancaire. Ce ratio est déterminé par le rapport entre le profit net après impôt et les fonds propres (FP), en d'autres termes, $ROE = \frac{RN}{FP}$.

Nous constatons que la relation qui existe entre le niveau de capitalisation et la rentabilité des capitaux est directe dans le coefficient de rentabilité. Cette relation montre bien l'importance du débat qu'il y a autour de l'exigence des fonds propres minimum. En effet, nous constatons qu'une augmentation des fonds propres sans impact sur le profit va entraîner une baisse du coefficient de rentabilité. Par contre, certains auteurs pensent que l'augmentation des fonds propres entraîne une augmentation du profit, ce qui va induire aussi une augmentation du coefficient de rentabilité. Il est donc important de ressortir la relation qu'il y a entre le coefficient de rendement et le niveau de capitalisation. Pour cela, nous devons savoir qu'il y a une relation directe entre le coefficient qui mesure l'efficacité de gestion de la banque et celui qui mesure le rendement de l'investissement des actionnaires de la banque. En effet, si nous tenons compte du multiplicateur de fonds

propres encore appelé le ratio de levier financier (Leverage Ratio, abrégé LR), qui se définit comme le montant d'actifs par unité de capital. C'est-à-dire $LR = \frac{TA}{FP}$. Ainsi, en partant de la relation $\frac{RN}{FP} = \frac{RN}{TA} * \frac{TA}{FP}$ avec $\frac{RN}{FP} = ROE$, $\frac{RN}{TA} = ROA$ et $\frac{TA}{FP} = LR$ on a donc la relation suivante: $ROE = ROA * LR$. Ceci nous amène à comprendre l'importance de la prise en compte du niveau de fonds propres ou en d'autres termes de capitalisation de la banque dans la détermination de sa performance.

IV. CONCLUSION

A propos de la nature de la relation qui existe entre le niveau de capitalisation et la solidité bancaire, il ressort de la revue de littérature théorique une controverse. En effet, certains auteurs (Shrieves et Dahl, 1992; Kim et Santomero, 1988; Artus, 1991) pensent qu'il existe une relation positive entre le niveau de fonds propres et la prise de risque. Pour ces auteurs, les exigences en fonds propres contraignantes et coûteuses ont pour effet l'augmentation de la prise des risques, non seulement par les banques moins capitalisées, mais par effet d'imitation même les banques bien capitalisées augmentent leur prise des risques. Ils justifient cela, en s'appuyant sur la théorie du choix de portefeuille. Ces auteurs pensent qu'il est important de tenir compte de l'asymétrie d'information qui existe entre la banque et le régulateur et le degré d'aversion pour le risque, afin d'éviter un sentier d'expansion déséquilibré de la banque, compte tenu des différents modes de gouvernance⁴. C'est pour cette raison que Rochet (2008) pense qu'il ne sert à rien de mettre au point des ratios de solvabilité complexes, si les banques qui ne respectent pas ces exigences ne sont pas sévèrement pénalisées. Malheureusement, il paraît révélateur à cet égard que le pays qui était allé le plus loin dans ce sens (les États-Unis avec le système de « Prompt Corrective Action », les actions de correction rapide qui oblige les autorités de contrôle à fermer les banques insuffisamment capitalisées avant qu'il ne soit trop tard), n'a pas pu empêcher la quasi-faillite de la banque Bear Stearns.

A contrario, certains auteurs comme Miskhin et al. (2010) montrent qu'il existe bel et bien une relation négative entre la capitalisation bancaire et la prise des risques. Pour ces auteurs, le débat devrait plutôt porter sur le niveau de capitalisation et non le sens de la relation. Cette idéologie soutenue par la théorie de préférence sur les états, est celle défendue par le Comité de Bâle. En fait, l'idée c'est d'arriver à déterminer un niveau adéquat des fonds propres pour

chaque niveau de risque. C'est pour cette raison que tous les actifs doivent être pondérés, car fixer un taux minimum forfaitaire des fonds propres indépendamment du niveau de risques peut conduire à l'effet contraire.

De ce qui précède, on peut dire que l'exigence réglementaire en fonds propres peut provoquer des effets inattendus sur le comportement d'une banque. Il peut arriver qu'une banque renforce sa capitalisation, en augmentant sa prise de risque et, parallèlement, si elle augmente sa prise de risque, elle réduira ses fonds propres. Ainsi, le volume du crédit peut se restreindre considérablement d'une période à une autre si les pertes supportées par les banques sont importantes. En résumé, il ressort que les effets de la capitalisation sur les risques bancaires restent ambigus. La tendance majoritaire soutient l'idée de l'effet positif de l'adéquation des fonds propres aux risques sur la solidité bancaire. C'est ainsi que la plupart des organes de supervision applique des ratios des fonds propres en rapport avec les risques des actifs pondérés.

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⁴ En ce qui concerne les modes de gouvernance de la banque, Lobeze (2010) décrit deux modes contradictoires qui déterminent le type de sentier d'expansion de la banque. Il s'agit du mode de gouvernance des actionnaires avec plus de risques et du mode de gouvernance des déposants qui prône moins de risques.

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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.

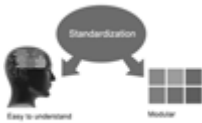


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The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.



We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.



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.

Other:

The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:

- 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.



- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10% discount if one is co-author or main author among group of authors.
- 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.

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PREFERRED AUTHOR GUIDELINES

We accept the manuscript submissions in any standard (generic) format.

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from <https://globaljournals.org/Template.zip>

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

BEFORE AND DURING SUBMISSION

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct*, along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

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Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures



- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

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1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

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PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- 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.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



FORMAT STRUCTURE

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning 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 a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

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Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

TIPS FOR WRITING A GOOD QUALITY MANAGEMENT RESEARCH PAPER

Techniques for writing a good quality management and business research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice. Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. 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 for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon 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 through which your research is going to be in print for 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 of 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 criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to 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 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 avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite 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 approaches 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. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a 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 limit the initial two items to no more than one line each.

Reason for writing the article—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 for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity 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 of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets 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 for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

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 soundly written procedures segment allows a capable scientist to replicate 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 to give the least amount of information that would permit another capable scientist to replicate 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 section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show 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:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the 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—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and 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 as 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. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.



Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give 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 manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit 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 section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an 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 implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully 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 the prospect, and let it drop at that. Make a decision as to whether each premise is supported or 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 an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of 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:

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Describe generally acknowledged facts and main beliefs in present tense.

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<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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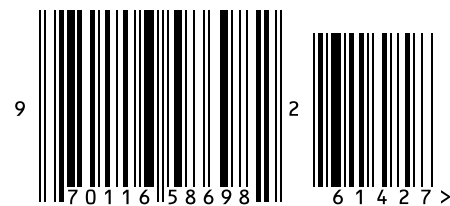
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