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An investigation on the relationship between Service Quality and Customer Loyalty: A mediating role of Customer Satisfaction

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ABSTRACT

Post war developments in Northern Province of Sri Lanka paved a way for hyper-competition in the market place among the already existing and the new banks where the former focuses on retaining the existing customers and the latter on attracting new customers. Such an intense competition emphasizes the need for identification of determinants of customer loyalty. Thus, the current study attempts to fill the empirical gap that exists especially in the Sri Lankan context. The study was conducted in a Commercial Bank setting and the hypotheses were developed in order to find out the relationship between the constructs. The population consisted of customers of Commercial Banks in the Northern Province of Sri Lanka and the sample of 300 respondents were selected. The data were analyzed using SPSS version 21.0 and SmartPls version 3.0. The findings revealed a positive, significant direct relationship between the service quality and customer satisfaction; customer satisfaction and customer loyalty and service quality and customer loyalty. Further, mediating effect of customer satisfaction between service quality and customer loyalty was proved. The paper discusses both Theoretical and practical implications.

Keywords: Customer Loyalty, Service quality, Customer satisfaction, Service quality dimensions, Commercial banks.

INTRODUCTION

Current market environment is highly competitive than ever before (Sivadas and Baker-Prewitt, 2000) where marketers try their best to capture a big market share. As stated by Arasli, Katircioglu and Mahtap-Smadi (2005) there is a growing importance of services in the world economy. Marketing of services indicates an intense competition (Zeithaml, Bitner, Gremler and Pandit, 2011) which is because of its' special characteristics such as intangibility, heterogeneity, inseparability and perishability. Moreover, the arrival of new firms in the market with almost similar products or services led to high competition and made the customers avail with number of options or choices which in turn equipped them with high bargaining power. The massive use of marketing communication tools enhanced the customer awareness and differentiation of brands (Andreassen and Lindestad, 1998). To compete in such congested and interactive marketplace, firms are forced to look beyond the traditional marketing strategies, which are no longer enough to be implemented for achieving competitive advantage. Hence, the firms have to find out different strategies for their survival in the market and to maintain their current position in an ever increasing competitive market place (Kandampully, 1998).

Service organizations are seeking ways to forge and to maintain an on-going relationship with their customers in order to protect their long term interest (Kandampully, 1998). Just attracting new customers in the market place is not enough rather organizations need to give more importance to the customer retention (Santouridis and Trivellas, 2010). Retention of existing customer is cheaper than attracting new customers. Further, loyal customers are more profitable to the firm and are sympathising with poor service and displaying poor sensitivity to price (Yang and Peterson, 2004). This reveals the need for building customer loyalty through

long-term customer relationships. As customer loyalty is the final goal of relationship marketing, it is concerned about building customer loyalty by providing value to all the parties involved in the relational exchanges (Peng and Wang, 2006).

There are several constructs identified by the past researchers as the determinants of customer loyalty such as service quality (Tarus and Rabach, 2013; Malik, Naeem and Arif, 2011; Puja and Yukti, 2011; Gurbuz, 2008; Ehigie, 2006; Bloemer, Ruyter and Wetzels, 1999; Zeithaml et al. 1996) customer satisfaction (Keisidou et al. 2013; Santouridis and Trivellas, 2010; Ehigie, 2006; Yang and Peterson, 2004), perceived service value (Tarus and Rabach, 2013; Yang and Peterson, 2004), customer trust (Roostika, 2011; Filip and Anghel, 2009), commitment (Ou, Shih, Chen, and Wang, 2011; Filip and Anghel, 2009), and perception of image (Keisidou et al. 2013; Akhter et al. 2011; Andreassen and Lindestad, 1998; Bloemer et al.1998). In addition, switching cost serves as a moderator (Rahman and Kamarulzaman, 2012; Filip and Anghel, 2009; Yang and Peterson, 2004) in the service quality and customer loyalty relationship. Ruyter, Wetzels and Bloemer, (1998) documented that the determinants of service loyalty were varied per industry.

Previous studies have focused different industries namely, telecommunication (Tarus and Rabach, 2013; Santouridis and Trivellas, 2010), hotel industry (Poku, Zakari and Soali, 2013; Rousan, Razmi and Mohamed, 2010; Lee, Barker and Kadampully, 2003), casinos (Pretice, 2013), tourism (Andreassen and Lindestad, 1998) entertainment, fast food industry, health care, Supermarkets (Bloemer et al., 1999; Rutyer et al., 1998), restaurants (Puja and Yukti, 2011), department stores (Ou et al. 2011; Sivadas and Baker-Prewitt, 2000), e-mail service providers (Ranganathan, Madupu, Sen and Brooks, 2013), call centres (Dean, 2002), library service (Kiran and Diljit, 2011) and banking industry (Caruana, 2002; Ganguli and Roy, 2011; Bloemer, Ruyter and Peeters, 1998; Hallowell, 1996; Olorunniwo and Hsu, 2006; Ehigie, 2006)
Service quality is one of the important antecedents of customer loyalty which has a direct and indirect impact on the later (Bloemer et al., 1998). Therefore, this is an attractive area for researchers over the last decade in banking sector (Bloemer et al. 1998; Ruyter and Peeters, 1998; Caruana, 2002; Dhandabani, 2010; Sureshchandar et al. 2002; Mosahab et al. 2010). To achieve customer loyalty, management should meet the diverse customer demands. According to Parasuraman et al., (1985) Service quality is positively related to loyalty because improved service quality could enhance loyalty where some other researchers (Hassan et al. 2013; Mosahab et al. 2010; Olorunniwo and Hsu, 2006; Caruana, 2002) revealed an indirect impact through customer satisfaction. Dick and Basu (1994) viewed perceived service quality as a key determinant of satisfaction with potential consequences for repeat patronage. Besides, Santouridis and Trivellas (2010) states that service quality and customer satisfaction are the crucial factors that lead to customer loyalty. Dick and Basu (1994) viewed perceived service quality as a key determinant of satisfaction with potential consequences for repeat patronage. According to Tam (2012), satisfied customers are more likely to make more repeat purchases and to share their positive experiences with others. Further, satisfied customers are likely to concentrate their business with the same provider and recommend the provider to others. Therefore, the current study focuses on the constructs of service quality, customer satisfaction and customer loyalty.

PROBLEM STATEMENT AND JUSTIFICATION

The current study intended to investigate whether there is a significant relationship between service quality, customer satisfaction and customer loyalty in the commercial banks of the Northern Province of Sri Lanka. While reviewing the literature, it was found that there were researches on investigating the impact of service quality and customer satisfaction on customer loyalty in different industries across the globe. There were some researches initiated

in Asia (Hassan, Mallik Imran, Hasnain and Abbas 2013; Hafeez and Muhammad, 2012; Annamalah, Munusamy, Chelliah, Sulaiman and Pandian, 2011; Siddiqi, 2011; Kheng, Mahamad, Ramayah and Mosahab, 2010; Dhandabani, 2010). But it was felt that, there is not that much of importance given to researches on customer loyalty in the Sri Lankan context where the constructs of service quality and customer satisfaction were studied intensively (Silva and Abeysekara, 2012; Sivesan, 2012; Kumaradeepan, 2012). In Sri Lanka, the construct of customer loyalty has been studied only with limited constructs and there were very few studies found in testing the relationship between the constructs of service quality, customer satisfaction and customer loyalty, there is a need still to fill the empirical gap. Moreover, some studies proved that the relationship between service quality and customer loyalty has been strengthened by customer satisfaction (Caruana, 2002; Tarus and Rabach, 2013). Hence, this research focuses on the constructs of service quality, customer satisfaction and customer loyalty and it is an attempt to fill the empirical gap in the Sri Lankan context, especially focusing on the Northern Province.

The Northern Province of Sri Lanka was directly affected by the war over three decades and has started to rebuild its economy with the end of the war in 2009. The post war situation created the opportunity for the extension of existing bank branches as well as the arrival of new private banks which in turn increased the competition among commercial banks in the Northern Province. Further, products offered to the customers of a bank are more or less standardized in nature (Ganguli and Roy, 2011) and the use of multiple banks and customer switching is a common feature among commercial banking customers, being the consequence of stiff competition (Silva, 2009). This competition forces the banks to realize the need for retaining the existing customers and make them loyal to the bank in any possible way. These are the reasons for directing special attention to the commercial banks of Northern Province of Sri Lanka in this study.

RESEARCH OBJECTIVES

1. To investigate the relationship between service quality and customer satisfaction.
2. To investigate the relationship between customer satisfaction and customer loyalty.
3. To investigate the relationship between service quality and customer loyalty.
4. To investigate the relationship between service quality and customer loyalty with the mediation of customer satisfaction.

LITERATURE REVIEW

Service Quality

During the past few decades service quality has drawn much attention from practitioners and researchers due to its strong impact on cost, customer satisfaction, retention, positive word of mouth, customer loyalty, business performance and profitability. Even though, defining service quality is not very easy, Gronroos (1984) defined service quality as the outcome of the evaluation process where the customer compares his expectation with the service he perceives during the service encounter. Similarly, Parasuraman et al. (1988) delineated service quality as the consumer's overall evaluation of a specific service firm that results from comparing that firm's performance with the customers' general expectations of how firms in that industry should perform.

Based on the literature and the definitions given by the scholars, in the current study, service quality in respect of commercial banks defined as *"the customer's overall evaluation of the bank's performance with his/ her expectation"*.

Customer Satisfaction

Customer satisfaction is a well-established concept in several sciences especially in marketing. According to Tam (2012), Customer satisfaction is a cornerstone of all marketing activies. In the academic literature, customer satisfaction is postulated as a function of discrepancy between consumer's prior expectations and his or her perception regarding the purchase (Oliver, 1980, 1993; Yi, 1990). According to Oliver (1997) 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 fulfilment, including levels of under- or over-fulfilment. Kotler (2003) defined satisfaction as a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance in relation to his or her expectations (Kotler, 2003, p.36). Therefore satisfaction is closely related to consumer expectation. Moreover, Giese and Cote (2000) defined customer satisfaction as a summary of affective responses of varying intensity and occurs at a particular time and is of limited duration and pertains to a particular focus as product choice, purchase or consumption. Jamal and Naser (2003) also defined customer satisfaction as a composite of overall attitudes that customers have towards the bank.

Combining the different definitions provided by the different scholars, the current study defines customer satisfaction as *"customers' feelings of pleasure or disappointment resulting from the evaluation of their prior expectation and the perceived performance*".

Customer Loyalty

Nowadays, research on customer loyalty has received considerable attention in the literature even though, defining and measuring loyalty has proved to be extremely difficult (Yang and Peterson, 2004). The benefits of customer loyalty accentuated the requirement of a thorough understanding in this area. Gremler and Brown (1996) defined service loyalty as the degree to which a customer exhibits repeat purchasing behaviour from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this provider when a need for this service arises. They emphasized that a loyal customer uses the service regularly, thinks highly about the organization and never considers about using another service provider. Based on the definition of Jacoby and Chestnut, Bloemer et el. (1998) defined customer (bank) loyalty as the biased (non-random) behavioural response (revisit), expressed over time, by some decision making unit with respect to one bank out of a set of banks, which is a function of psychological (decision making and evaluative) processes resulting in brand commitment. Likewise, Ou et al. (2011) defined loyalty as a held commitment to re-buy or re-patronize a preferred product consistently in the future.

By looking at the definition given by scholars, and combining those ideas, customer loyalty could be defined as *"a deeply held commitment to rebuy the service from the same provider consistently in the future and possessing a positive attitudinal disposition toward the provider"*.

CONCEPTUAL MODEL

A formal way of synthesizing and presenting literature is through the use of a conceptual model. Since this study mainly focuses on examining the relationship between service quality, customer satisfaction and customer loyalty in commercial banks, the conceptual model is developed in such a way as to study the relationship among those constructs.

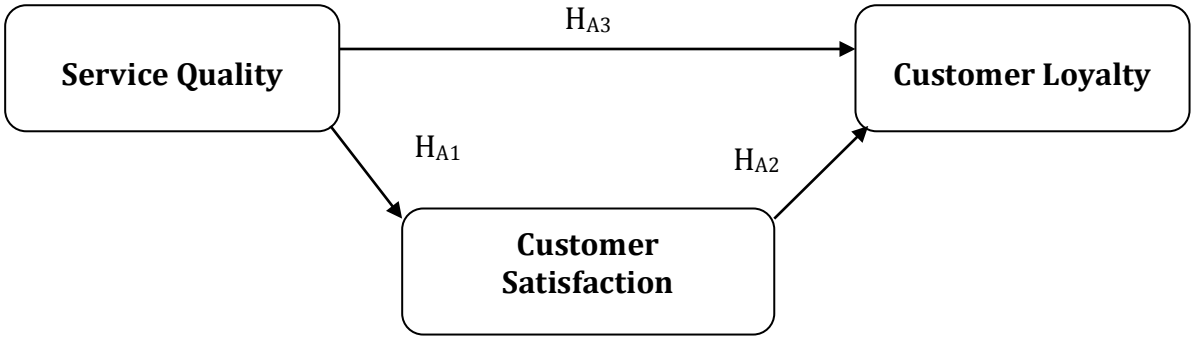

Figure 1: Conceptual model

HYPOTHESES FOR THE STUDY ANALYSIS

Four hypotheses (H_{A1}, H_{A2}, H_{A3} and H_{A4}) are formulated based on the conceptual model to achieve the research objectives of this study.

Service Quality and Customer Satisfaction

Service quality has been found as an important input to or the antecedent of customer satisfaction (Kiran and Dilgit, 2011; Santouridis and Trivellas, 2010; Jamal and Naser, 2003; Caruana, 2002; Yavas et al., 1997). Favourable service quality sentiments were expected to result in higher levels of customer satisfaction and commitment (Yavas et al., 1997). Continuous improvement of service quality and customer satisfaction is required due to the strong correlation between the two constructs and further, superior service quality and high levels of customer satisfaction are the important goals to enhance the business performance of banks (Sureshchandar et al., 2002).

A study conducted by Arasli et al. (2005) spotted that all the service quality dimensions were statistically significant for overall satisfaction in Northern Cyprus and except for tangibles the other dimensions were statistically significant for banks in Southern Cyprus. According to Yavas et al. (1997) service quality dimensions namely responsiveness, empathy and tangibles were identified as significant predictors of Turkish customer satisfaction. For responsiveness, they emphasized the need for training programmes to be provided by the banks to their employees, specifically on listening skills. Further, in the case of empathy the banks were expected to give individual attention to customers and understand their specific needs. They suggested the banks use empathy as a weapon to compete in the battle field in order to prove their quality service which can bring a tremendous opportunity to the bank. Besides, in Malaysian banks, other than responsiveness and empathy, assurance was also found to have a significant positive relationship with customer satisfaction (Kheng et al., 2012). These findings have been further confirmed by Keisidou et al. (2012).They found that not the functional quality but the relational quality had a positive impact on customer satisfaction. They argued that, since all the banks provide the same level of functional quality, customers mainly focus on the relational quality of the bank where the intimacy received by the customers from the bank and its employees is mostly concentrated.

In addition, Yavas et al. (1997) emphasized the need for a pleasant banking environment and they suggested the adoption of a no smoking policy in a country dominated by smokers and where there is no such existing policy. The prominence of tangibles was further supported by Keisidou et al. (2012). They stated that the impact of tangibles on affective responses of customers such as the sense of pleasure, relaxation and the feeling of excitement led to a positive effect on customer satisfaction. In technology based banking, customer satisfaction is

highly affected by the customer service. In other words, proper customer service shapes consumer behaviour patterns (Ganguli and Roy, 2011). Moreover the importance of the ease of use of technology and its reliability was also found to be important.

Thus, based on the above justification the following hypothesis is proposed:
H_{A1}: There is a direct and positive relationship between service quality and customer satisfaction

Customer Satisfaction and Customer Loyalty

The more the customer is satisfied with the services of the bank the more likely the customer would be loyal and it is considered as a leading factor in determining loyalty (Ehigie, 2006). In addition, customer satisfaction was found to be more important than service quality perception in gaining customer loyalty (Ehigie, 2006). Similarly, Keisidou et al. (2012) also found that customer satisfaction has a strong effect on customer loyalty. Since customer satisfaction is the strongest predictor of customer loyalty, the managers should give more priority to customer satisfaction. If a bank repeatedly satisfies the customer, that customer will continue to do transactions with the same provider (Keisidou et al., 2012) and recommend the bank to others (Dhandabani, 2010). Further, Bloemer et al. (1998) found a direct relationship between customer satisfaction and customer loyalty in the banking sector. Tam (2012) stated that, higher satisfaction would enhance loyal behaviour. The service provider must understand the important aspects of service that contribute more to customer satisfaction to effectively influence loyalty. Arasli et al. (2005) found a positive relationship between customer satisfaction and on customer's word of mouth which revealed that if a customer is satisfied with the service provided by the bank he/she will engage in spreading positive word of mouth to others about the bank.

Moreover, a significant positive relationship between customer satisfaction and customer loyalty has been proved in the technology based banking services such as internet banking, ATM banking, mobile banking etc. (Ganguli and Roy, 2011). As there is high risk in the use of technology in business transactions, customer satisfaction is identified as an important factor. If the customer is satisfied with the previous encounter with the technology channel, he/she will reuse the same channel for future transactions.

Based on the above justification, the following hypothesis is proposed:
H_{A2}: There is a direct and positive relationship between customer satisfaction and customer loyalty

Service Quality and Customer Loyalty

Service quality is the outcome of the evaluation process, where the customer compares his expectation with the service he perceives while he actually consumed the service (Gronroos, 1984) and the quality of the service provider plays a pivotal role in services which require a high degree of contact with the service provider (Tam, 2012). Service quality is a major predictor of both customer satisfaction and loyalty (Santouridis and Trivellas, 2010). Loyalty is the extent to which a customer regards himself or herself as loyal, the customer's willingness to recommend the bank to others, and his or her intention to continue to use the bank in the future (Komunda et al., 2012). The initial choice and the continued patronage by customers are strongly influenced by the quality of service rendered (Tarus and Rabach, 2013). According to Gurbuz (2008) customers who favourably perceive the service quality will tend to develop loyalty to the firm and its brand as a consequence. Different dimensions of service quality had differing impacts on the loyalty of customers and their future patronage (Prentice, 2013).

Service quality has both direct and indirect effects on bank loyalty (Bloemer et al, 1998). In the banking service (in Netherland) reliability was found to be the most important factor that influences customer loyalty. Further Bloemer et al. (1998) indicated the necessity of trustworthy impression of employees on the customers in general service encounters as well as in complaint handling. In other words, the need for investment in monitoring the employees was emphasized. Similarly Kheng et al. (2012) also found a positive relationship between reliability, empathy, assurance and customer loyalty in Malaysian banks. They argued that, in the case of empathy, the friendship between the customers and service employees contribute to the development of customer loyalty. In the Pakistan banking environment Malik et al. (2011) found a significant impact of service quality dimensions; tangibles, empathy and assurance on customer loyalty where tangibles posted more impact than the other two. In contrast to this, another study in Malaysia indicated that tangibles had no significant impact on customer loyalty in banks due to the availability of self-service terminals (Kheng et al., 2012).

Moreover, a positive relationship has been observed between service quality and preference loyalty and price indifference loyalty where the influence of service quality on preference loyalty varied per industry (Ruyter et al., 1998). Ruyter et al. (1998) further stated that favourable disposition towards the service provider and the increased commitment to repatronage can be achieved through higher service quality and consumers are less sensitive to price increases in services at higher service quality levels. As the dissatisfaction response is related to an incident or specific service attribute, it was found to be insignificant. In contrast, Yavas et al. (1997) revealed that service quality negatively related to the complaining behaviour of customers where empathy only had a significant relationship. Good service quality results in lower likelihoods of complaint and the complaints help the banks to improve the performance of the employees in empathy. Further, Zeithaml (1996) also supporting this finding, stated that customers who experience no service problems have the strongest level of loyalty intentions and the weakest switch and external response intentions.

Accordingly the following hypothesis is proposed:
H_{A3}: There is a direct and positive relationship between service quality and customer loyalty

Through the mediation of customer satisfaction, an indirect effect of service quality on customer loyalty was observed in several studies (Caruana, 2002). As some of the researchers found, both direct and indirect effects between the constructs (Mosahab et al., 2010; Bloemer et al, 1998), some studies only found indirect effects with the mediation of customer satisfaction (Annamalah et al., 2011; Kiran and Dilgit, 2011; Olorunniwo and Hsu, 2006; Caruana, 2002). According to Annamalah et al. (2011), banks can achieve customer loyalty through highly satisfying the customers where satisfaction is determined by the customers' perception of service quality. Findings of Hassan et al. (2013) reflected a full mediation of customer satisfaction between reliability assurance and customer loyalty while empathy and customer loyalty were partially mediated by customer satisfaction. It was reported that, with the mediation of satisfaction, the impact of service quality on behavioural intention had become stronger (Olorunniwo and Hsu, 2006).

Thus, based on the above justification the following hypothesis is proposed:
H_{A4}: There is an indirect and positive relationship between service quality and customer loyalty through customer satisfaction.

METHODS

This research has adopted the deductive approach of testing the theory and the purpose of the study is to test the hypotheses in order to achieve the research objectives. The unit of analysis

of this study is all individual bank customers of four leading commercial banks in the Northern Province of Sri Lanka who had dealing with the bank for more than five years and who were aged above 18 years. The data were collected from 300 respondents using the convenience sampling method. Every respondent was asked to choose a bank as their main bank among those they might have transactions and where they maintained at least one active account for more than five years.

Construction of instrument

The current study has also adopted the model of Parasuraman *et al*. (1988), including a 22-item Likert-type scale in order to measure the service quality. Further this study has adopted the argument of Caruana (2002) that service quality can be measured only with customer perception where customers give their response using the comparison. This also can avoid the boredom in answering a lengthy questionnaire. The construct of customer satisfaction measured through a 5-items scale measurement adopted from Gremler and Gwinner (2000). A five-item instrument adopted from Zeithaml (1996) used to measure customer loyalty which was used and validated by Tam (2012). The measures were assessed on a five-point scale and the pilot study results proved an acceptable level Cronbach's Alpha value.

Table 1: Operaltionalization

Concepts	Dimensions	Items	Previous studies
Service Quality	Tangibles	1. My bank has modern looking equipment	Parasuraman *et al*. (1985) Caruana (2002)
		2. My bank's physical facilities are visually appealing.	
		3. My bank employees are well dressed and appear neat.	
		4. Materials associated with the service (such as pamphlets or statements) are visually appealing at bank.	
	Reliability	5. When my bank promises to do something by a certain time, it does so.	
		6. When I have a problem, my bank shows sincere interest in solving it.	
		7. My bank performs the service right the first time	
		8. My bank provides its services at the time it promises to do so.	
		9. My bank insists on error-free records	
	Responsiveness	10. My bank keeps customers informed about when services will be performed.	
		11. Employees in my bank give me prompt service	
		12. Employees in my bank are always willing to help me	
		13. Employees in my bank are never too busy to respond to my request.	
	Assurance	14. The behaviour of employees in my bank instils confidence in me	
		15. I feel safe in my transactions with my bank	
		16. Employees in my bank are consistently courteous to me	
		17. Employees in my bank have knowledge to answer my questions	

	Empathy	18. My bank gives me individual attention	
		19. My bank has employees who give me personal attention	
		20. My bank has my best interest at heart	
		21. Employees of my bank understand my specific needs	
		22. My bank has operating hours that are convenient to all its customers.	
Customer Satisfacti-on		23. Based on all of my experience with my bank, I am very satisfied with the banking services it provides.	Gremler and Gwinner (2000), Dhandabani (2010), Kaura (2013), Fatima and Razzaque (2014), Caruana (2002)
		24. My choice to use this bank was a wise one.	
		25. Overall, I am satisfied with the decision to use this bank.	
		26. I think I did the right thing when I decided to use this bank for my banking needs.	
		27. My overall evaluation of the services provided by this bank is very good.	
Customer Loyalty		28. I recommend my bank to someone who seeks my advice.	Zeithaml *et al*. (1996) Tam (2012), Ganguli and Roy (2011), Dhandabani (2010), Suh and Yi (2006), Caruana(2002)
		29. I say positive things about my bank to other people.	
		30. I encourage friends and relatives to do business with my bank.	
		31. I consider my bank as first choice to buy banking services.	
		32. I will do more business with my bank in the next few years.	

(Source: Developed for study purpose)

METHODS OF DATA ANALYSIS

The data was analyzed using the Statistical Package for Social Sciences (SPSS) Version 21.0 in order to describe the demographic information and characteristics of research information. SmartPLS version 3.0 was used in the test of hypotheses.

ANALYSIS

Sample characteristics and banking behaviour

The following table presents the demographic factors of the respondents. The analysis of the respondent demographics revealed that the majority of the respondents were female and majority of the respondents' educational qualification was either G.C.E (A/L) or the degree. Further, the majority of the customers were aged between 28 - 47 and the majority had a monthly income between Rs.25,001 - 50,000. Further, the majority of the respondents have their relationship with the bank for more than 13 years.

Table 2: Demographics of the respondents

Characteristics	Categories	Percentage
Gender	Male	44%
	Female	56%
Age	18-27	19.5%
	28-37	30.2%
	38-47	28.3%
	48-57	19.1%
	Above 57	2.9%
Educational Qualification	G.C.E (O/L) and below	11.2%
	G.C.E (A/L)	34.9%
	Graduate	35.3%
	Postgraduate	5.4%
	Professional	13.3%
Monthly Income	Below Rs. 10,000	8%
	Rs. 10,001- 25,000	26.5%
	Rs. 25,001- 50,000	45.1%
	Rs. 50,001- 75,000	11.7%
	Rs. 75,001- 100,000	5.9%
	Above Rs. 100,000	2.8%
Number of years of cooperation with the bank	5-7 years	19.9%
	8-10 years	25.3%
	11-13 years	19.1%
	More than 13 years	35.7%

(Source: Survey data)

Confirmatory factor analysis using SPSS

Pre analysis testing for suitability of the entire sample for factor analysis was computed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett tests of sphericity. The KMO measure of sampling adequacy was 0.870, 0.859 and 0.824 for service quality, customer satisfaction and customer loyalty respectively and the Bartlett tests of sphericity was significant at 0.000 for all three constructs (see table 3). These results indicated that the sample was suitable for factor analytic procedures.

Table 3: Eigen values, Total Variance Explained, KMO measure of sampling adequacy and Cronbach's alpha values

Constructs	Eigen value	% variance	KMO Sampling Adequacy	Bartlett's test Significance	Cronbach's alpha
Service Quality	3.383	67.65	0.870	0.000	0.877
Customer Satisfaction	3.497	69.95	0.859	0.000	0.891
Customer Loyalty	3.032	60.64	0.824	0.000	0.796

(Source: Survey data)

Consistent with the findings of Parasuraman *et al.* (1988), the current study also identified five factors of service quality which hold Eigen values greater than one. These five dimensions of service quality accounted for nearly 68% of the variance (see table 3). The items of customer satisfaction also loaded with its' predestined factor and the Eigen value greater than one where these items explained nearly 70% of the variance (see table 3). Items of customer loyalty

explained almost 61% of the variance and the Eigen value greater than (see table 3). In this current study, almost all items of service quality, customer satisfaction and customer loyalty had loadings greater than the widely accepted thumb rule of 0.5 (Hair *et al*., 1998) except Loy1. However, the loading of Loy 1 is 0.491 which is also closer to 0.5.

As, the Eigen values of all constructs were greater than one and the loadings of almost all individual items were above 0.5, the unidimensionality of the factors was ensured.

Structural equation modelling

The examination of the conceptual framework was conducted with the use of the structural equation modelling technique (SmartPls Version 3.0) as it has the ability to examine a number of dependent and independent variables simultaneously where one or more constructs are both dependent and independent (Hair *et al*., 1998). Moreover, it helps to calculate the direct and indirect effects between constructs.

Measurement model analysis

Measurement model specifies the relationship between the latent variables and their observed indicators (Wong, 2013). Before the testing of hypotheses, the measurement model should be tested as basis. The strength of the measurement model is ensured by the examination of factor loading and internal consistency reliability. Outer loadings of all indicators of all constructs ranged between 0.491 and 0.880 and were statistically significant. Thus, the indicator reliability was established. Further, the composite reliability of the constructs service quality, customer satisfaction and customer loyalty were correspondingly 0.912, 0.921, and 0.881 (see table 4). As all the composite reliability values were above the widely recognised rule of thumb of 0.7, the internal consistency reliability was proved.

The measurement models' validity assessment focuses on convergent validity and discriminant validity. The convergent validity is attested based on the value of Average Variance Extracted (AVE). Table 4 presents the value of each construct; service quality, customer satisfaction and customer loyalty as 0.676, 0.699 and 0.605 respectively. Since all the values were above the threshold value of 0.5, the convergent validity was confirmed.

Table 4: Summary of results of measurement model

Construct	Indicators	Loadings	Composite reliability	Cronbach's alpha	Average Variance Extracted (AVE)
Service Quality	Tangibles	0.683	0.912	0.878	0.676
	Reliability	0.868			
	Responsiveness	0.880			
	Assurance	0.876			
	Empathy	0.788			
Customer satisfaction	SAT 1	0.792	0.921	0.892	0.699
	SAT 2	0.832			
	SAT 3	0.857			
	SAT 4	0.875			
	SAT 5	0.822			
Customer Loyalty	LOY 1	0.491	0.881	0.830	0.605
	LOY 2	0.855			
	LOY 3	0.847			
	LOY 4	0.835			
	LOY 5	0.799			

(Source: Survey data)

Further, Hair *et al.* (1998) stated that discriminant validity assesses the extent to which a measure does not correlate with other constructs from which it is supposed to differ. For adequate discriminant validity, the diagonal values should be significantly larger than the correlation of a specific construct with any other constructs (Hair *et al*., 2011; Fornell and Larcker, 1981). Table 5 shows that all the diagonal values are larger than the correlation of a specific construct with any other constructs.

Table 5: Discriminant validity

Constructs	Service quality	Customer satisfaction	Customer loyalty
Service quality	**0.822**		
Customer satisfaction	0.766	**0.836**	
Customer loyalty	0.658	0.743	**0.778**

(Source: Survey data)

Moreover, Hair *et al*. (2011) emphasised that loadings of indicators should be higher than their cross loading. Table 6 shows the cross loadings of the indicators with their constructs. As expected, all the indicators had high loading with its predestined construct. Thus, the discriminant validity is confirmed and is sufficient to support the model of this study.

Table 6: Cross loadings and Cross validated redundancy

Indicators	Customer loyalty	Customer satisfaction	Service quality	Q^2
Service Quality				
Tangibles	0.439	0.494	**0.683**	
Reliability	0.558	0.656	**0.868**	
Responsiveness	0.567	0.674	**0.880**	
Assurance	0.571	0.687	**0.876**	
Empathy	0.599	0.621	**0.788**	
Customer Satisfaction				***0.402***
Sat1	0.586	**0.792**	0.680	0.451
Sat2	0.584	**0.832**	0.603	0.361
Sat3	0.605	**0.857**	0.622	0.381
Sat4	0.663	**0.875**	0.604	0.357
Sat5	0.659	**0.822**	0.686	0.461
Customer Loyalty				***0.335***
Loy1	**0.491**	0.268	0.259	0.064
Loy2	**0.855**	0.669	0.567	0.450
Loy3	**0.847**	0.591	0.523	0.353
Loy4	**0.835**	0.648	0.611	0.443
Loy5	**0.799**	0.609	0.517	0.367

(Source: Survey data)

Structural model analysis

The structural model was used to determine the model's explanatory power and to test the developed hypotheses based on the cause-effect relationship among the constructs. The model's explanatory power was assessed by the coefficient of determination, R^2. The coefficient of determination (R^2) is 0.571 for the "customer loyalty" construct (see figure 2). This means that the two constructs (service quality and customer satisfaction) moderately explain 57.1% of the variance in customer loyalty since the R^2>0.50 (Hair *et al.*, 2011). Further, the coefficient of determination (R^2) of the "customer satisfaction" construct is 0.587 which means that, the construct of service quality alone moderately explains 58.7% of the variance in customer satisfaction.

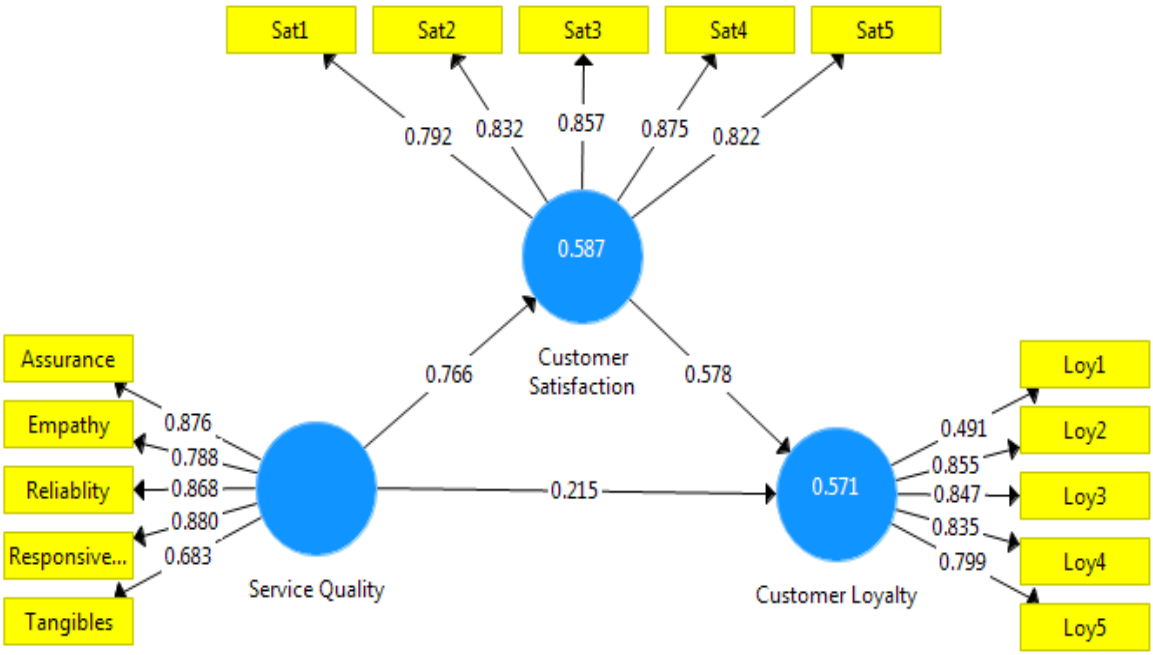

Figure 2: Structural model (PLS Algorithm)
(Source: Survey data)

Another important assessment of a structural model is the models' capability to predict. Predictive relevance postulates that the model must be able to adequately predict each endogenous latent construct's indicators (Hair *et al.*, 2011). The Q^2 value was obtained using the blindfolding procedure with omission distance seven. The Q^2 of cross validated redundancy was selected since it uses the PLS-SEM estimates of both the structural model and the measurement models for data prediction. Table 6 shows the Q^2 values of constructs and indicators of endogenous latent construct (dependent variables). As all the values were larger than zero, the model adequately predicts each indicator of the endogenous latent constructs.

The strength of the cause- effect relationships were assessed through the path coefficient values (β) and bootstrapping has been used to test the significance of structural paths using T-Statistics (Hair *et al.*, 2011; Wong, 2013). The inner model suggests that service quality has the strongest effect on customer satisfaction (0.766), followed by customer loyalty (0.215) and customer satisfaction has the strongest effect on customer loyalty (0.578). Thus it is concluded that all the hypothesized path relationships between the constructs; service quality and customer satisfaction; customer satisfaction and customer loyalty; and service quality and customer loyalty were statistically significant.

Hypotheses testing

As shown in Table 7, the hypotheses were tested using the path coefficient (β) indicating the strength of the cause-effect relationship between the research constructs using the p value. The bootstrapping procedure was used to assess the significance of path coefficient values (β). The statistical significance was tested at 5% ($p < 0.05$).

Table 7: Research hypotheses testing

Hypotheses	Path coefficient (β)	*P* values	Supported/ Not Supported
Hypothesis 1: Service quality → Customer satisfaction	0.766	0.000	Supported
Hypothesis 2: Customer satisfaction → Customer loyalty	0.578	0.000	Supported
Hypothesis 3: Service quality → Customer loyalty	0.215	0.040	Supported
Hypothesis 4: Service quality → Customer satisfaction → Customer loyalty	0.443	0.000	Supported

(Source: Survey data)

Testing Hypothesis 1:

H_{A1}: There is a direct and positive relationship between service quality and customer satisfaction

According to the results in Table 7, service quality affected customer satisfaction (p = 0.00) with a larger effect size (β = 0.766). Since service quality was directly, positively and significantly related to satisfaction of the customers (β= 0. 766, p < 0.05), supporting H_{A1}.This provides the support to the contention that high service quality of the bank is likely to increase customer satisfaction. The current study finding is supported by a few previous studied on testing these two constructs.

Service quality was identified as a major predictor of customer satisfaction by Santouridis and Trivellas (2010). Overall service quality appears to be a significant determinant of customer satisfaction (Yavas *et al*., 1997). Sureshchandar *et al.* (2002) assured that, people who perceive the service quality as high are highly satisfied with the services of the bank. Even in the retail store setting, the influence of service quality on customer satisfaction was proved by Sivadas and Baker-Prewitt (2000). A strong positive individual linear correlation between each service quality dimensions with customer satisfaction was found by Ushantha, Wijeratne and Samantha (2014) in state sector banks in Sri Lanka.

According to Gupta and Dev (2012), improvement in the service quality in the banking industry increases customer satisfaction. Moreover, the positive relationship between service quality and customer satisfaction was confirmed in the Iranian Islamic banking context too (Estiri *et al*., 2011). A satisfied customer requires a sense of belongingness, individual attention, understanding his/ her needs and having his/ her best interest at heart (Kumar *et al.*, 2009). Consistent examination of the level of customer satisfaction will provide insights to the banks as to what are the areas that need to be improved or maintained that will lead to the development of strategies such as training and retraining their employees and motivating them to become more customer oriented through customer relationship management (Kumar *et al.*, 2009). Further, Tam (2012) suggested that to resolve their problems or to meet their unmet needs, customers seek professional judgement and the skills of the service provider. Further, Attitudes and behaviour of the service provider have strong influence on customer feelings especially to the services which require a high degree of contact with a service provider while the effects of physical environment on customer satisfaction differs depending on the service context.

Hence it was concluded that, it is 95% confident that there is a direct and positive relationship between service quality and customer satisfaction in commercial banks of the Northern Province of Sri Lanka.

Testing Hypothesis 2:

H_{A2}: There is a direct and positive relationship between customer satisfaction and customer loyalty

As shown in Table 7, customer satisfaction affected customer loyalty ($p = 0.00$) with an effect size ($\beta = 0.578$) since customer satisfaction was directly, positively and significantly related to customer loyalty ($\beta = 0.578$, $p < 0.00$), supporting $H_{A2.}$ This indicates that customer satisfaction is likely to display higher customer loyalty towards the bank.

The past literature has enough support for the current findings. According to Annamalah *et al*. (2011), loyalty of the banking customer is directly affected by satisfaction. Satisfied customers ultimately become loyal to the bank (Hassan *et al*., 2013). Tam (2012) emphasised that the higher the satisfaction the stronger the loyalty towards the firm. Further, it is necessary to a service provider to find the most contributing service aspect of customer satisfaction to loyalty that will help to effectively influence loyalty. Mokhtar *et al.* (2011) found that customer satisfaction plays an important role to enhance the level of customer loyalty. In other words, the higher the level of satisfaction the more the customer becomes loyal. Further, ensuring customer satisfaction is very important and could be achieved by identifying focusing and improving the factors that determine the level of satisfaction of the clients. Customer satisfaction was found to have a strong effect on customer loyalty (Keisidou *et al*., 2013) which means that continuous satisfaction with the banking service will make the customer to maintain the transactions continuously with the bank. Since customer satisfaction is the strongest predictor of customer loyalty, the mangers should give their first priority to customer satisfaction where they should listen to the requirements of the customers and create products and services that fulfil the requirement. Furthermore, customer satisfaction has a positive significant impact on customer loyalty in the technology based banking service (Ganguli and Roy, 2011) which means if a customer is once satisfied with the previous encounter he will reuse the same for future transactions especially in the technology based banking service.

Hence it was concluded that there is a direct and positive relationship between customer satisfaction and customer loyalty in the commercial banks of Northern Province of Sri Lanka.

Testing Hypothesis 3:

H_{A3}: There is a direct and positive relationship between service quality and customer loyalty

As shown in Table 7, service quality affected customer loyalty ($p = 0.040$) with an effect size of $\beta = 0.215$. Service quality was directly, positively and significantly related to customer loyalty ($\beta = 0.215$, $p < 0.05$), supporting H_{A3}.This indicates that the more favourable is the service quality perception of customers, the more loyal they are to their bank.

The current finding coincided with the findings of the scholars. Service quality identified as a major predictor of customer loyalty (Santouridis and Trivellas, 2010). Consumers who perceive the service quality favourably will tend to develop loyalty to the store which will lead to loyalty towards the brand as a consequence (Gurbuz, 2008). Service quality indeed is an important driver of customer retention which was explained by the highest variation in customer retention (Ranaweera and Neely, 2003). If the technology provided is easy to use and reliable as well as convenient, the customers become loyal to the bank especially in the

technology based banking services (Ganguli and Roy, 2011). Moreover, Zeithaml *et al*. (1996) also stated that service quality is associated positively with favourable behavioural intentions and negatively with unfavourable behavioural intentions. Further, Sivadas and Baker-Prewitt (2000) argued that recommending a department store to friends was influenced by service quality.

According to Ehigie (2006), due to the intangibility of bank products, service quality is usually assessed by the customer - service provider relationship. Therefore, the banks which are more vigilant on the staffs' skill possession, knowledge, the attention given to customers and their needs, efficient and quick service deliveries, and the general attitude to customer service will achieve more. Further, in Nigerian banking context, confidentiality in transactions, trustworthiness of banks, introduction of weekend banking, extension of banking hours and provision of insurance for customers were identified as the important issues in gaining customer loyalty. Moreover, Malik *et al*. (2011) postulated that service quality dimensions have a positive impact on customer loyalty in the Pakistani context. Further, a study of Sri Lankan Telecom PLC (Karunanithy and Rasanayagam, 2013) also found a higher positive relationship between service quality and customer loyalty where they stated that there is a high chance to improve customer loyalty by improving the service quality.

Hence, it was concluded that in commercial banks of Northern Province of Sri Lanka too there is a positive relationship between service quality and customer loyalty.

Testing Hypothesis 4:

H_{A4}: There is an indirect and relationship between service quality and customer loyalty through customer satisfaction

More interestingly the findings revealed that service quality and customer loyalty were mediated by customer satisfaction. Thus the total effect showed that service quality affected customer loyalty ($p = 0.00$) with an effect size ($\beta = 0.658$) totally (see table 8).

Service quality affected customer loyalty through customer satisfaction ($p=0.00$) with an effect size of $\beta= 0.443$ (see table 7 and 8). This revealed an indirect relationship between the constructs service quality and customer loyalty through customer satisfaction ($\beta= 0.443$, $p < 0.05$). Evidence from the past researches of several scholars supported this finding (Hassan *et al*., 2013; Annamalah *et al*., 2011; Santouridis and Trivellas, 2010; Caruana, 2002). According to Annamalah *et al*. (2011), satisfaction mediates the relationship between service quality and customer loyalty which showed that, customer loyalty can be achieved through improving customer satisfaction where customer satisfaction is determined by customer perceptions of service quality. Hassan *et al*. (2013) highlighted that high quality service will eventually turn satisfied customers into loyal customers. This requires the managers to pay full attention to how the service is being offered by the bank in order to make the customers satisfied and build long term relationships with the bank. Dhandabani (2010) identified service quality as an important driver of customer loyalty and that its indirect effect through customer satisfaction was larger than the direct effect in the generation of customer loyalty. Further, Caruana (2002) provided support for a completely mediated effect of service quality on customer loyalty via customer satisfaction while the direct link between service quality and customer loyalty was insignificant.

Therefore, it is obvious that there is an indirect positive and significant relationship between service quality and customer loyalty through customer satisfaction.

Table 8: Direct, indirect and total effect between constructs

Path	Direct effect		Indirect effect		Total effect	
	Path coefficient	P value	Path coefficient	P value	Path coefficient	P value
Service quality→ Customer satisfaction	0.766	0.000	-	-	0.766	0.000
Customer satisfaction → Customer loyalty	0.578	0.000	-	-	0.578	0.000
Service quality → Customer loyalty	0.215	0.040	0.443	0.000	0.658	0.000

(Source: Survey data)

CONCLUSION

According to the findings, customer loyalty is moderately explained by both service quality and customer satisfaction and service quality alone moderately explained the customer satisfaction in the Commercial banks of Sri Lanka. It revealed that there were significant positive relationships between service quality and customer satisfaction, customer satisfaction and customer loyalty and service quality and customer loyalty. Further, it is observed that the relationship between service quality and customer loyalty mediated by customer satisfaction. Therefore, it was concluded that higher levels of service quality of banks lead to higher levels of customer satisfaction, and customer loyalty. Further, it was concluded that customer loyalty towards the banks can be enhanced through higher levels of customer satisfaction. It also revealed that improving the service quality of the banks directly leads to enhancing customer satisfaction which eventually leads to enhance customer loyalty towards the banks. Hence, not only customer satisfaction but also service quality can be recognized as critical factor to which banks should pay more attention.

IMPLICATIONS OF THE STUDY

The findings of the current study provided the following implications for both theory and practice.

Theoretical implications

The current study revealed the applicability of the SERVQUAL model of 22 items of Parasuraman *et al.* (1988) to the Sri Lankan context. This study confirmed the fivefold service quality dimensions namely, tangibles, reliability, responsiveness, assurance and empathy in the commercial banking sector in the Sri Lankan context, proving service quality as a multidimensional construct as mentioned in the literature. The current study narrowed the empirical gap by exploring the role of service quality on customer satisfaction and customer loyalty. The findings showed that the banks with a higher level of service quality can develop higher levels of customer satisfaction, and customer loyalty. Further the study revealed that customer loyalty is highly impacted by customer satisfaction, for which service quality is identified as an important predictor. Moreover, the mediation of customer satisfaction between service quality and customer loyalty also proved in the Commercial banks of Sri Lanka.

Practical implications

Since the offerings of the banks are more or less similar in the competitive banking industry, one bank can differentiate itself from another only through the quality of the service they deliver. Developing higher levels of service quality in the banks leads to enhance customer satisfaction and customer loyalty. As loyal customers are the profitable customers, banks are searching ways to make their customers loyal to them. Customer loyalty towards the banks

could be achieved by enhancing customer satisfaction and service quality of banks also indirectly affects customer loyalty through customer satisfaction. Developing proper strategies to improve the service quality in all the aspects; maintain the same level of quality in every points of contact; having right employees who really care for customers and an attractive and conducive physical environment will leads to feel the higher level of service quality which consequently satisfy the customers and that eventually leads to make the customers loyal to the bank.

LIMITATIONS OF THE STUDY

Even though the current study carries important implications and new insights to commercial banks, to academics and especially to managers in the banking industry, there were a few inherent limitations identified in this study.

a) Mainly service quality and customer satisfaction were considered as important determinants of the study. Apart from these constructs, other constructs which influence customer loyalty namely; value, trust, corporate image and commitment also could be studied to predict customer loyalty.

b) The current study explored the relationships between three constructs only in the commercial banks of the Northern Province of Sri Lanka.

c) Only four banks were selected including two state banks and two private banks and therefore care should be taken in generalizing the findings. The sample was selected using the convenience sampling method among the selected banks and the sample size was limited to three hundred.

d) The reliability of data depended on the respondents' understanding and perceptions as given in the self-reported data.

FUTURE RESEARCH DIRECTION

Even though the current study narrowed the empirical gap, it still provides a pathway for future research. First, the objective of the current study was to explore the influence of service quality and customer satisfaction on customer loyalty in commercial banks of the Northern Province of Sri Lanka, therefore it did not include banks other than commercial banks in the banking industry. It also focused on the Northern Province of Sri Lanka. Thus the scope of generalizing the results to other contexts and to the whole of Sri Lanka may be limited. Therefore, covering the whole banking industry in all of Sri Lanka may provide new findings. Further, replications in other service contexts are highly desirable. Comparison of models of government and private banks will give more understanding on the difference between them. Further, developing a richer model that incorporates other constructs such as value, trust and corporate image will also give further insights.

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Exploitation Of Aquatic Fauna During The Metal Age In Bukit Kamiri, Semporna, Sabah, Malaysia

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ABSTRACT

This article discussed on the analysis of faunal remains from the aquatic environment uncovered from Bukit Kamiri, Semporna, Sabah, Malaysia. Based on the result of archeozoological analysis, the reptile, fish and mollusc remains from the Metal Age cultural layer were consisted of various fish and molluscs species of freshwater, estuarine, mangrove swamp, coastal, coral reef and marine habitats. A range of fishing, hunting and gathering methods were used to obtain the various types of food and resources. Besides their diet, the reptile, fish and mollusc remains also show that it was used multi-purposely as grave goods, based on its association with the finding of human burial.

Keywords: archaeology, Bukit Kamiri, aquatic faunal remains, grave goods.

INTRODUCTION

An excavation had been carried out in 2007 by the Centre for Global Archaeological Research (CGAR), Universiti Sains Malaysia (USM), Penang, Malaysia in collaboration with the Sabah Museum Department and the National Heritage Department at the volcanic rock shelter site of Bukit Kamiri, Semporna, Sabah, Malaysia (Figure 1). The excavation had shown evidences of a Late Prehistoric (Metal Age) culture dated 2,830 BP (Chia *et al*., 2005:204; Chia, 2007; 2008; 2016; Eng, 2009:175-176; Eng and Chia, 2010:44). The material cultures found were stone tools, pottery shards, beads, metal objects, human skeletons and faunal remains (vertebrate and invertebrate remains). The faunal remains from the Metal Age layer had been analysed by using archaeozoological approaches. However, the discussion that will be focused in this paper is only on the result of the analysis on aquatic fauna which are reptilian bones, fish bones and mollusc remains.

METHOD OF THE STUDY AQUATIC FAUNAL REMAINS

The methods that are applied in analysing the samples are anatomic, taxonomic and statistical analyses. The aim of anatomic analysis is to identify the anatomic parts or terminologies of vertebrates and invertebrates (Hesse and Wapnish, 1985; Claassen, 1998; Yule and Yong, 2004; Matsui, 2007). This analysis could also help in obtaining potential samples for the taxonomic identification done in the taxonomic analysis (Reitz and Wing, 1999; Pickering et outcome of this analysis will be quantified into statistical data, especially in calculating the minimum number of individuals (MNI) (Renfrew and Bahn, 1996; Harris *et al.*, 2015). These data could give an indicator on the daily activities of the prehistoric societies especially in food processing (Pickering and Egeland, 2006; Faith *et al.*, 2009). Taxonomic analysis is a method used to identify the types of fauna according to the taxonomic hierarchy such as Class, Order, Suborder, Family, Genus and Species (Hesse and Wapnish, 1985; Reitz and Wing, 1999; Allen, 2000). The identification is done by referring to reference specimens as well as various

reference books such as Saunders (1979), Dance (1992), Poutiers (1998a and 1998b), Reitz and Wing (1999), Allen (2000), Abbott, (2002), Fiene-Severn *et al*. (2004), Das (2006), Matsui (2007), Yule and Yong (2004), Hook (2008) and Azmi *et al.* (2010). Thus, the species of aquatic fauna exploited by the Metal Age societies in Semporna can be determined. Taxonomic data would also contributes to strengthen the interpretation on their adaptation and environment (Bekken *et al*., 2004:333; Grabarkiewz and Davis, 2008:5; Cranbrook, 2010:374). Meanwhile, the statistical analysis approaches that are applied in this discusson are the number of identified specimens (NISP), MNI and weight. The analysis of NISP refers to the number of specimens (parts of skeletons and shells) that can be identified according to its taxonomy while the analysis of MNI determine the number of animals that are exploited based on the statistics of NISP (Klein dan Cruz-Uribe, 1984:25; Reitz and Wing, 1999:192; Renfew dan Bahn, 1996:273; Grant *et al*., 2008:73; Giovas, 2009; Harris *et al.*, 2015).

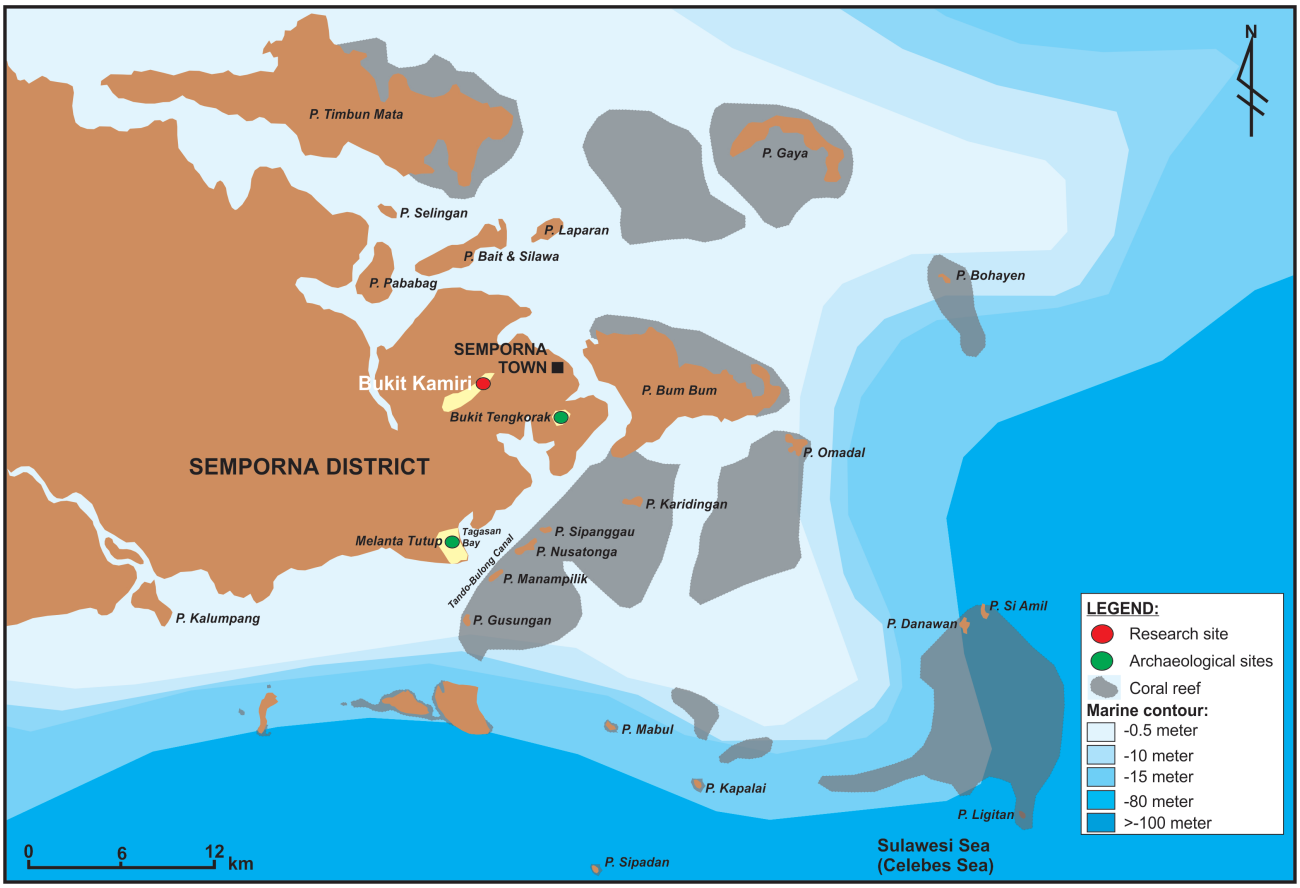

Figure 1: The location of Bukit Kamiri site at Semporna, Sabah, Malaysia. (Adapted from: LEMBAR (Sheet) 4/118/11)

RESULTS OF AQUATIC FAUNAL REMAINS ANALYSIS

The total of specimens analysed are 517 samples or 711.4 g in weight (Figure 2). Based on anatomic and taxonomic analysis, the vertebrate aquatic faunal remains sample (189 NISP/348.5 g) can be divided into two main classes which are reptiles (26 NISP/161.2 g) and fishes (163 NISP/187.3 g) while the invertebrate aquatic faunal remains sample (230 NISP/331.6 g) can be divided into two main classes which are gastropods (128 NISP/124.1 g) and bivalves (102 NISP/207.5 g). Discussions on the identified aquatic faunal remains according to the vertebrate and invertebrate classes are as follows.

Reptililian Bones

The aquatic reptile that has been identified is from the Cheloniidae family or turtles. The anatomy of turtle specimens that are identified are the pectoral girdle and carapace (pleural).

The species of turtles that were exploited by the Metal Age societies in Bukit Kamiri are most likely *Chelonia mydas*, *Eretmochelys imbricata* or *Lepidochelys olivacea*. All of these three species of turtles are still recorded to exist in the Malaysian coast (Leong and Siow, 1984:192; Das, 2006:131-133). Previous studies of faunal remains at other sites in Semporna such as Bukit Tengkorak and Melanta Tutup also found evidence of the exploitation of turtles during the Metal and Neolithic Age (Chia, 2003; 2016; Velat and Chia, 2014). However, there are no specimens suitable to calculate for MNI.

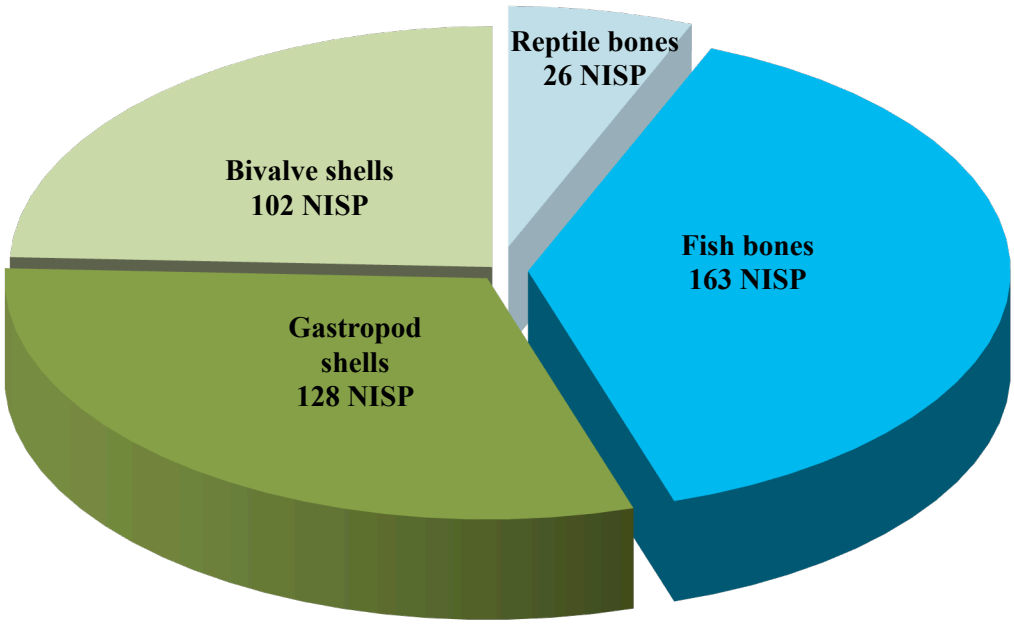

Figure 2: The aquatic faunal remains represented by NISP in Bukit Kamiri, Semporna

Fish Bones

Based on the morphological characteristics of the fish bones identified from Bukit Kamiri, the exploited fish could be divided into either Osteichthyes or Condrichthyes class. The total number of Osteichthyes specimens found in Bukit Kamiri is 163 NISP (187.3 g) and 20.9 percent of them can be identified according to various familiae such as Diodontidae, Tetraodontidae, Serranidae, Scaridae, Sparidae, Scombridae and Lethrinidae. Meanwhile, the rest of them are specimens that could not be identified to their familiae and classified under the Osteichthyes class only. The identification is hard to be done as the specimens are consisted of small fragments. Meanwhile, the identification of fish from the class Condrichthyes to their familiae are also hard and could only be speculated that they are from the order Archarhiniformes. The result of the analysis and statistics according to the fish familiae is as follows.

Diodontidae: The fish from this family is known as the porcupinefish. The anatomy of the porcupinefish specimens that has been identified are the dentary parts. The species of porcupinefish that were exploited by the Metal Age societies of Bukit Kamiri were possibly *Diodon liturosus* or *Diodon hystrix*. Both of these species are categorised as highly-toxic fish and could be fatal if eaten (Allen, 2000; Lieske and Myers, 1994). However, these species of porcupinefish has been one of the local delicacies among the Bajau Laut in Sabah even today (Ridzwan, 1993:222). Based on NISP, two dentaries found means that there are a minimum of two porcupinefish exploited. This is because each porcupinefish only has a single dentary (Table 1).

Table 1: Statistics on NISP and MNI of porcupinefish and pufferfish from Bukit Kamiri, Semporna

Family/Anatomy	NISP	MNI	Weight (g)
Diodontidae			
Dentary	2	2	8.6
Sub-total	2	2	8.6
Tetraodontidae			
Dentary	2	1	60.7
Sub-total	2	1	60.7
Total	**4**	**3**	**69.3**

Tetraodontidae: The identification of the fish from the Tetraodontidae family is also based on its dentary. The species of fish from the Tetraodontidae family is pufferfish that is related with the fish from the Diodontidae family (Matsui, 2007:93). Based on the statistics, only one MNI of this family can be determined (Table 1). This is due to the fact that a pufferfish can only have a pair of dentary.

Serranidae: There are various species and sizes of fish under this family which are mainly living around coral reef and estuarine (Allen, 2000:82-90). Grouper fish is one of the fish under this family. Based on the specimens that are identified, it is most likely that the species of grouper fish exploited in Bukit Kamiri is *Epinephelus malabaricus* or the Malabar grouper. A total of 12 spesimens or 5.1 g in weight of grouper fish are identified (Table 2). Among the identified specimens are dentary (1 NISP/0.4 g), premaxilla (5 NISP/2.5 g) and maxilla (6 NISP/2.2 g). Based on the NISP statistics, the MNI of grouper fish exploited is five (Table 2).

Table 2: Statistics on NISP and MNI of Serranidae fish from Bukit Kamiri, Semporna

Anatomy	NISP	MNI	Weight (g)
Dentary	1	-	0.4
Premaxilla	5	2	2.5
Maxilla	6	3	2.2
Total	**12**	**5**	**5.1**

Scaridae: The fish under the Scaridae family is parrotfish and mostly from the coral reef ecology. Based on the different characteristics on the pharyngeal and premaxilla, there are two species of parrotfish identified which are *Bolbometopon muricatum* (double-headed parrotfish) and *Bolbometopon bicolor* (bicolour parrotfish). There are ten specimens (22.0 g) of *Bolbometopon muricatum* and five specimens (30.5 g) of *Bolbometopon bicolor* that are identified (Table 3). Based on the pharyngeal and premaxilla parts, the total of *Bolbometopon muricatum* is four MNI and *Bolbometopon bicolor* two MNI (Table 3).

Table 3: Statistics on NISP and MNI of Scaridae fish from Bukit Kamiri, Semporna

Famliy/Anatomy	NISP	MNI	Weight (g)
Bolbometopon muricatum			
Pharygeal	3	1	3.3
Premaxilla	7	3	18.7
Sub-total	10	4	22
Bolbometopon bicolor			
Premaxilla	5	2	30.5
Sub-total	5	2	30.5
Total	**15**	**6**	**52.5**

Sparidae: The fish specimen from the Sparidae family is under the group of breams fish. Based on the premaxilla (1 NISP/4.2 g) that has been identified, the species is probably *Sparus sarba* or also known as Goldlined sea bream. However, the MNI cannot be determined due to lack of enough specimens.

Scombridae: Tuna fish is one of the species in the Scombridae family. The identification is based on the premaxilla part (1 NISP/1.1 g). Due to lack of specimens, the MNI for tuna fish also cannot be determined.

Lethrinidae: Based on identified specimens, the fish from the Lethrinidae family is probably *Lethrinus laticaudis* (Grass emperor). However, since there is only one NISP of this species found which is the premaxilla part, the value of MNI cannot be determined.

Condrichthyes: The total number of specimens identified under the class Condrichthyes is 16 NISP and 10.9 g in weight. The identified specimens are three vertebrae bones that are believed to be shark fish from the order Archarhiniformes.

Mollusc Remains

The mollusc remains that are analysed are divided into two main class, which are Bivalvia (102 NISP/207.5 g) and Gastropoda (128 NISP/124.1 g) (Figure 2). There are four familiae of Bivalvia that have been identified, which are Arcidae, Cyrenidae, Lucinidae dan Ostreidae (Table 4). Meanwhile, for Gastropoda, there are eight familiae that are identified, which are Thiaridae, Stromidae, Pachychilidae, Potamididae, Muricidae, Neritidae, Conidae and Turbinidae (Table 4).

Table 4: Statistics on NISP and MNI of mollusc remains from Bukit Kamiri, Semporna

Family	NISP	MNI	Weight (g)
Bivalvia			
Arcidae	49	7	113.6
Cyrenidae	46	3	54.9
Lucinidae	5	0	7.2
Ostreidae	2	0	31.8
Sub-total	102	10	207.5
Gastropoda			
Thiaridae	24	15	16.2
Strombidae	35	12	51.2
Pachychilidae	16	11	11.8
Potamididae	32	8	20.3
Muricidae	14	3	18.6
Neritidae	3	2	1.6
Conidae	1	0	1.8
Turbinidae	3	0	2.6
Sub-total	128	51	124.1
Total	**230**	**61**	**331.6**

Arcidae: There are two species of Arcidae or ark clams that are identified, which are *Anadara antiquata* and *Tegillarca granosa*. *Anadara antiquata* lives on muddy bottoms in the littoral and sublittoral zone of the sea, while *Tegillarca granosa* lives on muddy bottoms in the littoral and shallow sublittoral zone of the estuarine or in mangrove swamps (Poutiers, 1998a). Both of these species are native in the Indo-Pacific region and are locally collected for food not only in Malaysia but in Indonesia, Thailand and Australia (Meehan, 1982; Ridzwan, 1993; Poutiers, 1998a). This family represents the most dominant bivalves found in the Metal Age layer of Bukit Kamiri. Although it is the most in terms of weight, but due to fragmentation a lot of specimens cannot be used to calculate for MNI.

Cyrenidae: The shells of the Cyerinidae family can be distinguished with other clams based on their thick hinges with strong lateral teeth and three diverging cardinal teeth in each valves (Poutiers, 1998a). Malaysians called them as *lokan* and they are widely collected as food (Ridzwan, 1993; Poutiers, 1998a). They live in soft bottoms of shallow fresh or brackish water areas such as in mangrove swamps (Poutiers, 1998a). Specimens can only be confidently identified to its genus level, *Geloina* sp. as they are mostly fragmented. They could only be identified based on the distinguishable features of their teeth and hinges.

Lucinidae: The specimens of the Lucinidae family found in the Metal Age layer of Bukit Kamiri are mostly fragmented but identifiable based on their deep concentric growth lines that could resembles either the *Anodontia* or *Austriella* genus. However, there are no distinct anatomical parts present on specimens that could be calculated for MNI. Both *Anodontia* sp. and *Austriella* sp. lives in the mangrove swamp areas and are locally marketed in central Philippines for food, shell-craft and lime-making (Poutiers, 1998a).

Ostreidae: The Ostreidae family or oysters lives cemented to hard substrates mainly in littoral and shallow sublittoral zone of the sea (Poutiers, 1998a). The specimens are identified based

on their irregular shape. However, the species and the MNI of the Osteridae specimens cannot be determined because the specimens are fragmented and abraded.

Thiaridae: *Balanocochlis glandiformis* belongs to the Thiaridae family and it is the most abundant mollusc in the Metal Age layer of Bukit Kamiri according to its MNI. This species lives in rivers with sandy bottom in the forests and occurs mainly in Borneo (Galli, 2016; Poppe and Poppe, 2017). However, Pyron and Brown (2015:389) stated that this species is at risk of extinction. Based on the photos by Poppe and Poppe (2017) and Femorale (2017), specimens are identifiable as *Balanocochlis glandiformis* based on the similarity of their anatomy, such as the spire, aperture and shape of outer lips.

Strombidae: Molluscs from the Strombidae family or conchs are mainly living in shallow water on sandy, muddy or rubble bottoms or on marine grassflats as well as coral reef (Poutiers, 1998b). Due to fragmentation, specimens from this family can only be identified to their genus, *Strombus*. However, it can be said that there are perhaps more than one species of *Strombus* among the specimens, probably *Strombus urceus*, *Strombus labiatus* or *Strombus canarium*. Nevertheless, these *Strombus* spp. are edible and locally collected for food as well as shell-crafts (Ridzwan, 1993; Poutiers, 1998b).

Pachychilidae: *Brotia* sp. is the third most dominant gastropod remains found in the Metal Age layer of Bukit Kamiri according to its MNI. The genus *Brotia* from the Pachychilidae family are mainly consisted of freshwater snails that are conical to broadly elongated with a turreted spire and a well-rounded to angulate and broad aperture (Koehler and Glaubrecht, 2002). These features are all found present in the specimens found. However, fragmentation and abrasion of specimens make it hard to identify samples no lower than its genus level. Most of the specimens are found to have missing apices, probably cut or smashed during food preparation.

Potamididae: There are two species of Potamididae that are found which are *Terebralia sulcata* and *Telescopium telescopium*. Both of these species live on mud flats in the littoral zone of estuarine and mangrove swamp areas (Poutiers, 1998b). They are also still locally collected as food not just by the people in Sabah but also in Peninsular Malaysia, Thailand, Indonesia and Philippines (Wong *et al.*, 1984; Ridzwan, 1993; Poutiers, 1998b; Nilus *et al.*, 2010).

Muricidae: The shells of the murex shells or Muricidae usually have spines, tubercles or blade-like processes. The species of this family is most likely *Hexaplex cichoreum* based on anatomic analysis. This species lives in rocky to muddy areas in low tide of the littoral zone and in the sublittoral zone and also still collected for food and shell-crafts (Poutiers, 1998b).

Neritidae: The shells of Neritidae family or nerites have a very distinguished anatomic feature where the aperture is semicircular (Fiene-Severns *et al.*, 2004). Nerites that are found in the site are believed to be from the genus *Nerita* based on anatomic analysis. *Nerita* sp. usually lives in rocky shores in the littoral zone as well as in the shallow coral reef areas (Poutiers, 1998b). *Nerita* sp. is called *sesuk* in the Bajau Laut language and prized for food as well as shell-crafts (Ridzwan, 1993; Poutiers, 1998b).

Conidae: Molluscs of the Conidae family or cone shells have cone-shaped shells with a low spire and a long aperture (Poutiers, 1998b). Although some cone shells are venomous, some are known to be locally used as food in the Indo-West Pacific (Poutiers, 1998b). In addition, cone shells are favourites among shell collectors and are traditionally modified as ornaments

in Sabah as well as across the Indo Pacific region (Ridzwan, 1993; Poutiers, 1998b). Cone shells are mainly living under rocks or corals in the littoral and shallow sublittoral zones.

Turbinidae: Molluscs from this family are mainly living in the rocky bottoms or shallow coral reef in the littoral and shallow sublittoral zones (Poutiers, 1998b; Abbott, 2002). They are also edible and used for shell-crafts (Ridzwan, 1993; Poutiers, 1998b). Specimens of *Turbo* sp. found in the site are identified based on its outer sculpture that is nodular, resembling either *Turbo setosus* or *Turbo bruneus*. But, there are no distinguished anatomical parts present to calculate for MNI.

DISCUSSION AND CONCLUSION

During the Metal Age (2,830 BP) at Bukit Kamiri, Semporna, the exploitation and adaptation patterns of its societies were consisted of various types of food resources ranging from the river, estuarine, mangrove swamp, coastal, coral reef and marine environment. This is evident based on the exploitation of aquatic fauna such as turtles, fish and molluscs. These subsistence and adaptation activities were also influenced by the environment during that time. For example, fishes from the coral reef environment ranging from the littoral to the sublittoral zones as deep as 60 m were exploited as the source of diet, such as the porcupinefish, parrotfish, breams fish, grouper fish and emperor fish. Besides that, molluscs that are gathered are also from the same environment as these fishes, such as *Hexaplex cichoreum*, *Conus* sp., *Turbo* sp. and *Anadara antiquata* (Table 5). Fishing activities also took place in the lagoon environment based on the findings of shark fish specimen. They also exploited various species of diet resource from the estuarine and mangrove swamp environment, such as the pufferfish and molluscs (*Tegillarca granosa, Geloina* sp. and *Terebralia sulcata*; Table 5). The findings of *Balanocochlis glandiformis* and *Brotia* sp. also show that mollusc gathering took place at freshwater rivers in the surroundings of open forest.

Table 5: The species of mollusc remains represented at Bukit Kamiri, Semporna

Class	Family	Genus species	Habitat
Gastropoda	Muricidae	*Hexaplex cichoreum*	Marine (rocky to muddy bottoms in low tide and sublittoral zone)
	Conidae	*Conus* sp.	Marine (rocky or coral reef in littoral and shallow sublittoral zone)
	Turbinidae	*Turbo* sp.	Marine (rocky or coral reef in littoral and shallow sublittoral zone)
	Strombidae	*Strombus* spp.	Marine (sandy, rocky or coral reef in littoral zone)
	Neritidae	*Nerita* sp.	Marine (rocks or coral reef in littoral zone)
	Potamididae	*Terebralia sulcata*	Mangrove swamp / Estuarine (littoral zone)
	Potamididae	*Telescopium telescopium*	Mangrove swamp / Estuarine (littoral zone)
	Thiaridae	*Balanocochlis glandiformis*	Freshwater
	Pachychilidae	*Brotia* sp.	Freshwater
Bivalvia	Arcidae	*Anadara antiquata*	Marine (muddy bottoms in littoral and sublittoral zone)
	Arcidae	*Tegillarca granosa*	Mangrove swamp / Estuarine (littoral and shallow sublittoral zone)
	Lucinidae	sp.	Mangrove swamp / Estuarine (littoral zone)
	Cyrenidae	*Geloina* sp.	Mangrove swamp / Freshwater
	Ostreidae	sp.	Marine (attached on hard substrates in littoral and shallow sublittoral zone)

The diversity of species and habitat of aquatic fauna show that there is a variety in the strategies of fishing and gathering practiced by the Metal Age socities. Fishing activities by using nets, spears and poisonous root plants were probably applied especially to catch the Serranidae, Scaridae and Lethrinidae fishes (Chia, 2003:137; Ono, 2003:198; 2004:96). Nets and trawls have been practiced since 5,000 to 2,000 BP especially in the coastal areas in Taiwan and East Timor (Tsang, 1995; O'Connor, 2006). According to Poutiers (1998b), the fishermen in the Philippines traditionally used shells of *Strombus canarium* as net-sinkers. Thus, evidence of *Strombus* spp. fragments in Bukit Kamiri could probably indicate their use as net-sinkers. Spearing or harpooning large fish such as sharks are still practiced by the Bajau Laut people in Semporna using what they called as *sundak* (Ridzwan, 1993:19-20). Besides that, using poisonous plant roots of *Derris elliptica* might also be practiced although only practical to be used in the shallow coral reef zone (Ono, 2002:96). According to Ono (2003:194), line-fishing technique is the appropriate strategy to apply when fishing for Lethrinidae, Serranidae and Scombridae fishes that are mainly living in shallow littoral coastal areas. The Metal Age societies of Bukit Kamiri also probably had the knowledge and strategy on gathering molluscs according to the tide level, especially in the mangrove swamp and

estuarine environment. This is because mollusc gathering activities especially in the mangrove swamp (*Geloina* sp. and *Terebralia sulcata*) and estuarine (*Tegillarca granosa*) environment can only be carry out during low tide.

The discovery of porcupinefish had also indicated that the Metal Age societies of Bukit Kamiri were highly knowledgable about the porcupinefish. This is because porcupinefish is categorised among the poisonous fish that are highly toxic and could be fatal if eaten (Ridzwan, 1993; Allen, 2000). Despite that, this fish is safe to eat if it is processed perfectly because the practice of eating porcupinefish is still practiced among the Bajau Laut people in Semporna (Ridzwan, 1993).

Marine turtles (Cheloniidae) are easier to catch when landed to the shore to lay their eggs. Besides that, turtles might be hunted in the coral reef, lagoon or shallow areas either by using spears or nets. However, it is more practicle to hunt turtles when they landed at the beach to lay eggs (Das, 2007:1131-132; Hook, 2008:209). If this method is applied then the Metal Age societies in Bukit Kamiri are very knowledgable in the habit and seasons for the turtles to lay eggs.

Evidence of aquatic faunal remains that have been identified is also associated with the Metal Age burial layer. Hence, it is possible that these specimens were grave goods for the dead. Offerings of food (turtles, fish and molluscs) might have a connection with the belief of life after death. (Medway, 1959/60:372; Zuraina, 1994:39-42). The ritual practiced was unique and had been applied since Late Palaeolithic and Neolithic age in Malaysia (Zuraina, 2005:12-14; Barker, 2005:101; Soejono, 2008:3-5; Goh, 2010:65; Velat and Chia, 2009: 213-124). Indication of burnt bones might also be related with food preparation activities by using fire (Cranbrook, 1988: 148; Pookarjorn, 1994:8; Azman, 1998). Various morphology of fragmentation of mollusc remains may also indicate food preparation. The fleshes of molluscs are easier to obtain depending on the pattern of fragmentation, such as the removal of apices of *Brotia* sp. and *Terebralia sulcata*, direct percussion to the body of *Telescopium telescopium* as well as to the valve of oysters (Meehan, 1982; Zuraina, 1994; Ridzwan, 1993).

As a conclusion, aquatic fauna associated with the evidence of Metal Age human skeletons in Bukit Kamiri are comprised of reptiles, fishes and molluscs. The variety of species of aquatic fauna that are identified clearly show the strategy and technology in hunting, fishing as well as gathering. This is because the habitat of aquatic fauna ranges from the river, estuarine, mangrove swamp, coastal, coral reef (either shallow or deep) and marine environment that are surrounding the site of Bukit Kamiri (Figure 1). Different habitats of aquatic fauna also indicate a high level of exploitation skills that were practiced. Based on the habitats of fish and molluscs, the Metal Age societies in the area most probably used canoes, rafts or boats to travel when hunting, fishing and gathering, especially in coral reef and marine areas. The majority of species of the aquatic faunal remains represented at Bukit Kamiri can still be found in Semporna, suggesting a past environment closely similar to that of the present day Semporna. Hence, the adaptation of the Metal Age societies of Bukit Kamiri is probably the same as today. The concentration of the faunal vertebrate and invertebrate remains that are diverse but lack in quantity suggest that the site does not function as a habitation or seasonal camp. But, the remains of turtles, fish and molluscs are found to be associated with human burial, suggesting that during the Metal Age, Bukit Kamiri site functioned as a burial ground. This further proven that the remains of aquatic fauna are parts of ritual item or grave goods.

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Corporate Strategy and Performance of Kenyan Companies

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ABSTRACT

The study examines the effect of corporate strategy on organizational performance. A structured questionnaire was used to collect data from 46 companies listed on the Nairobi Securities Exchange. Descriptive and inferential statistics were used to analyze the data. The study findings reveal that corporate strategy has significant effect on organizational performance. A theoretical and empirical implication of the study illustrate that the stakeholder theory is fully supported. Methodological implication shows that the validity and reliability tests carried out on the data collection instruments confirm that the instrument is sufficient to collect data from respondents. The researchers recommend future research on the individual corporate strategy constructs tested against the raw score of each of the seven performance indicators of Kenya's publicly quoted companies.

Key Words: Corporate Strategy, Organizational Performance, Stake-holders

INTRODUCTION

In the wake of myriad challenges and turbulence in the global market environment, the concept of corporate strategy has been embraced worldwide because of its perceived contribution to organizational performance. Researchers have postulated many factors that affect performance of companies globally, key among them is strategy. Aosa (1992) noted that emphasis in strategic management is mainly market driven approaches strategy, which should ideally help companies to gain sustainable competitive edge in the turbulent global market arena. Corporate strategy entails environmental scanning, strategy formulation, strategy implementation, and evaluation and control. Studies on strategy have indicated that firm competitive advantage could be generated from internal structure and resources through value creation in a manner that is rare and difficult to imitate (Busienei, 2013; Pfeiffer, 2013). Successful application of strategy contributes immensely to high firm performance (Ansoff, 1979). The choice to conduct this study was motivated by the fact that performance of most publicly quoted Kenyan companies has been dismal to the extent that some have lately called for financial bailout. Over the past few decades a lot of changes have taken place in Kenya and the global market arena. The country was affected by such international phenomena as globalization, recession fluctuation in oil prices, climate change and terrorism. Many listed companies in Kenya have gradually embraced corporate strategy as a fundamental tool in managing their processes. There is empirical evidence that joint effect of core competencies, core capabilities, strategy and strategy implementation lead to superior performance (Aosa, 2011; Awino, 2011). This study focused on companies listed on the Nairobi Securities

Exchange, primarily because the Nairobi Securities Exchange is representative of the main sectors of the Kenyan economy.

LITERATURE REVIEW

The primary goal of strategy is to guide the organization in setting out its objectives, priorities, and refocuses itself towards realizing the same with a view to achieving superior performance. Empirical studies point out that a range of potential benefits to intrinsic values accrues to both the company and external stakeholders from the use of strategy. It is very useful to organizations during turbulent times (Ansoff et al., 1991). The strategic management process is fundamental in turning an organization's vision or mission into concrete achievable goals and objectives.

Handerson (1979) posits that the aim of strategy is to provide organizations with direction through a meticulously developed plan and a series of related opportunities which the organization follows. Advantages of formulating, developing and implementing strategy are manifold as it enables an organization to make the best use of its resources and opportunities in achieving its attendant objectives namely: It involves the whole organization and provides focus and review for managers and employees at all levels of the organization. It focuses on the relationship between the organization and its environment. It includes the management and leadership of both internal and external stakeholders. It covers the full range of activities the organization undertakes including products, services, competition, market and environmental changes. It is central to the creation of competitive advantage through added value and reduced costs. Additionally, Strategy helps organizations to focus on how they may create sustainable competitive advantage as a maximum objective or survive as a minimum in declining market situation (Porter, 1980).

Subsequently, companies seek to beat their competitors on cost leadership seek to add more value through differentiation for the same cost than competitors are able to do. However, the added value has to be perceived as such in the eyes of the paying customers or a particular market niche. The strategic approach was revived by Porter (1987) who did admit that strategy had fallen out of fashion in the 1970s but needed rediscovery and recasting to meet today's environmental demands (Aosa, 2011).This proposition is anchored on the organization, strategy, performance and environment (SOEP) dependent paradigm, which postulates that organizations must formulate appropriate strategies which align them to the external environment to enable them to attain superior performance (Ansoff, 1991; Ombaka,2014). Strategy is therefore, likely to give positive influence with respect to profitability and performance of the large firms.

Corporate strategy may be defined as the pattern of major objectives, essential policies and plans for achieving the goals stated in such a way as to define what business the company is in or is to be in and the type of company it is or is it to be (Andrews, 1971). From this definition, it is imperative to have a focus on the firm, its industry positioning, the need for implementation and the attendant achievement of the objectives. Additionally, we take cognizance of the fact that the cardinal goal of every organization is to achieve superior performance and long term survival in the constantly changing volatile global business environment.

Porter (1985) defined the goal of strategy as the search and realization of a favourable competitive position in an industry as well as a firm's positioning and competition. According to Ansoff (1987), strategic management is a systematic approach to position and relate the firm to its environment in such a way which will assure its continued success and make it

secure from contingent surprises. This definition underscores firm positioning in the environment devoid of surprises and need for enhanced performance; where the surprises are caused by industry competition.

Many scholars including Johnson and Scholes (1993), Waweru (2008) and Aosa (2011) have conceptualized that strategic management is largely concerned with deciding on the strategy and planning how that strategy will be actualized through strategic analysis, strategic choice and ultimately strategy implementation. These scholars are implicit about competition with respect to choice which is a factor where various options or strategies are competing for implementation and these choices emanate from environmental conditions.

On the other hand the researchers are explicit about the need for implementation. Strategic management is the set of decisions and actions that result in the formulation and implementation of plans designed to achieve a company's objectives (Pearce and Robinson, 2007). From the foregoing definitions it is explicit that competition is central factor in strategy. Certo and Peter (1995) view strategy as a continuous iterative cross functional process aimed at keeping an organization as a whole appropriately matched to its environment. Since competition is part of the environment this can be a call for being cognizant of and responsive to competitor moves. It also calls for the need for success in all environmental conditions. The authors further emphasize strategy implementation as an imperative for strategic management and organizational success.

Ansoff (1987) contends that strategy is an elusive and somewhat abstract concept. This concept may be crystallized by a definition of strategic management as a synergy of the various elements and procedures of strategy which culminate in a synthesized competitive strategy implementation aimed at achieving sustainable competitive advantage and superior performance. It is thus explicit that all endeavours in strategic management are geared towards attainment of competitive edge and ultimately superior firm performance and organizational success.

METHODOLOGY

The researcher used the deductive approach of positivism research philosophy. The research design was the cross sectional survey. The population of the study was all the companies listed on the Nairobi Securities Exchange. Reliability and validity test were conducted. The primary data was collected from the key managers using a structured questionnaire while the secondary data was obtained from the Nairobi Securities Exchange office. Data was analyzed using the multi-level analysis.

RESULTS

Corporate Strategy and Performance

The first objective of the study was to determine the effect of corporate strategy on organizational performance. Hypothesis (H_1) was stated as: *Corporate strategy has significant effect on organizational performance*. The study set out to establish the independent effect of corporate strategy on organizational performance. Corporate strategy was measured using generic strategies constructs namely: cost leadership, differentiation and focus together with strategic alliance construct.

This section summarizes the effects of corporate strategy on each operational indicator of organizational performance. The operational indicators of performance included earnings per share, internal business processes, customer perspective, learning and growth, employee perspective, market share, corporate social responsibility (CSR) and environmental

responsiveness. At the end a regression test was run on the effects of corporate strategy on overall organizational performance. The section presents the tables and their interpretations. Test of hypothesis was done using three tables: model summary, analysis of variance (ANOVA), and coefficients. Table 4 presents the results of the test p-value of the influence of corporate strategy on earnings per share.

Table 4: Influence of Corporate Strategy on Earnings per Share

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.294[a]	.086	-.003	9.24940

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	330.829	4	82.707	.967	.436[b]
	Residual	3507.604	41	85.551		
	Total	3838.433	45			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.540	13.714		.185	.854
	Cost Leadership	-4.608	2.983	-.265	-1.545	.130
	Differentiation	3.934	3.904	.247	1.008	.320
	Focus	1.137	4.585	.063	.248	.805
	Strategic alliances	.220	3.068	.013	.072	.943

a. Dependent Variable: EPS

b. Predictors: (Constant), Strategic Alliances, Cost Leadership, Differentiation,

Source: Research Data (2015)

Table 4 shows the results of the analysis done to establish the effect of corporate strategy on earnings per share. The results indicate that strategy is correlated with earnings per share up to 0.294 (R=0.294). Further, strategy explains 8.6 percent variations in earnings per share (R^2 =0.086) with the remaining 91.4 percent being explained by other variables which were not considered in this model. The *F* value for the model was 0.967 and *p*-value was 0.436. Since the calculated *p*-value was greater than 0.05, the hypothesis was rejected implying that corporate strategy had no significant effect on Earnings per Share. Therefore, the model was not robust enough to predict the hypothesized relationship. To test the relationship between corporate strategy and internal business processes, a multivariate regression analysis was conducted. The results are presented in Table 5.

Table 5: Influence of Corporate Strategy on Internal Processes

R	R Square	Adjusted R Square	Std. Error of the Estimate
.858[a]	.736	.711	.22670

Sum of Squares		df	Mean Square	F	Sig.
Regression	5.886	4	1.472	28.634	.000[b]
Residual	2.107	41	.051		
Total	7.994	45			

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.011	.336		3.007	.004
Cost Leadership	.628	.073	.791	8.596	.000
Differentiation	-.081	.096	-.111	-.844	.403
Focus	-.112	.112	-.137	-.995	.326
Strategic alliances	.299	.075	.381	3.973	.000

Table 4.20: Influence of Corporate Strategy on Internal Processes

Table 4.20: Influence of Corporate Strategy on Internal Processes

Source: Research Data (2015)

Table 5 shows the results of the analysis done to establish the effect of corporate strategy on internal processes. The results indicate that strategy is correlated with internal processes up to 0.858 (R=0.584). Further, strategy explains 73.6 percent variations in internal processes (R^2 =0.736) with the remaining 26.4 percent being explained by other variables which were not considered in this model. The *F* value for the model was 28.634 and *p*-value was 0.00. Since the calculated *p*-value was less than 0.05, the study failed to reject the hypothesis implying that strategy had a significant effect on internal processes. Therefore, the model was robust enough to predict the hypothesized relationship. The analysis of t-test values showed significant results for the coefficients of cost leadership and environmental dependency. This relationship was presented in the following equation.

Internal Processes =1.011 +0.628 cost leadership + 0.299 strategic alliance.

The model shows that a unit change in cost leadership and strategic alliance will result in internal business processes changing by0.628 and 0.299, respectively. To test the relationship between corporate strategy and internal business processes, a multivariate regression analysis was conducted. The results are presented in Table 6.

Table 6: Influence of Corporate Strategy on Customer Perspective

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.922[a]	.849	.835	.30026	
ANOVA[a]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.842	4	5.210	57.794	.000[b]
	Residual	3.696	41	.090		
	Total	24.538	45			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.199	.445		-2.693	.010
	Cost_Leadership	.744	.097	.535	7.688	.000
	Differentiation	.823	.127	.647	6.491	.000
	Focus	-.157	.149	-.109	-1.054	.298
	Strategic_alliances	-.138	.100	-.101	-1.389	.172

a. Dependent Variable: Customer_Perspective

b. Predictors: (Constant), Strategic_alliances, Cost_Leadership, Differentiation, Focus

Source: Research Data (2015)

Table 6 shows the results of the analysis done to establish the effect of corporate strategy on customer perspective. The results indicate that corporate strategy is correlated with customer perspective up to 0.922 (R=0.922). Further, strategy explains 84.9 percent variations in customer perspective (R^2 =0.849) with the remaining 15.1 percent being explained by other variables which were not considered in this model.

The *F* value for the model was 57.794 and *p*-value was 0.00. Since the calculated *p*-value was less than 0.05, the study failed to reject the hypothesis implying that strategy had a significant effect on customer perspective. Therefore, the model was robust enough to predict the hypothesized relationship.

The analysis of t-test values showed significant results for the coefficients of cost leadership and differentiation. This relationship was presented in the following equation.

Customer Perspective =1. 199 + 0.744cost leadership + 0.823diffentiation

The model shows that a unit change in cost leadership and differentiation will result in customer perspective changing by0.744 and 0.823, respectively. To test the relationship between strategy and employee perspective, a multivariate regression analysis was conducted. The results are presented in Table 7.

Table 7: Corporate Strategy and Employee Perspective

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.915[a]	.838	.822	.24947	
ANOVA[a]					
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13.188	4	3.297	52.976	.000[b]
	Residual	2.552	41	.062		
	Total	15.739	45			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.522	.370		1.410	.166
	Cost Leadership	-.135	.080	-.121	-1.677	.101
	Differentiation	.643	.105	.631	6.102	.000
	Focus	.491	.124	.428	3.971	.000
	Strategic alliances	-.085	.083	-.077	-1.024	.312

a. Dependent Variable: Employee Perspective

b. Predictors: (Constant), Strategic alliances, Cost Leadership, Differentiation, Focus

Source: Research Data (2015)

Table 7 shows the results of the analysis done to establish the effect of strategy on employee perspective. The results indicate that strategy is correlated with employee perspective up to 0.915 (R=0.915). Further, corporate strategy explains 83.8 percent variations in employee perspective (R^2 =0.838) with the remaining 16.2 percent being explained by other variables which were not considered in this model. The *F* value for the model was 52.976 and p-value was 0.00. Since the calculated p-value was less than 0.05, the study failed to reject the hypothesis implying that strategy had a significant effect on employee perspective. Therefore, the model was robust enough to predict the hypothesized relationship. The analysis of t-test values showed significant results for the coefficients of differentiation and focus. This relationship was presented in the following equation.

Employee Perspective = 0.643 differentiation+ 0.491 focus

The model shows that a unit change in differentiation and focus will result in employee perspective changing by0.643 and 0.491, respectively. Another operational indicator of performance is learning and growth. To test the relationship between strategy and learning and growth, a multivariate regression analysis was conducted. The results are presented in Table 8.

Table 8: Corporate Strategy, Learning and Growth

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.812[a]	.660	.627	.30653	
ANOVA[a]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.470	4	1.867	19.873	.000[b]
	Residual	3.852	41	.094		
	Total	11.322	45			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.344	.454		.757	.453
	Cost Leadership	.006	.099	.006	.062	.951
	Differentiation	-.131	.129	-.151	-1.010	.318
	Focus	.642	.152	.659	4.225	.000
	Strategic alliances	.340	.102	.364	3.341	.002

a. Dependent Variable: Learning and Growth

b. Predictors: (Constant), Strategic alliances, Cost Leadership, Differentiation, Focus

Source: Research Data (2015)

Table 8 shows the results of the analysis done to establish the effect of various indictors of strategy on learning and growth. The results indicate that strategy is correlated with learning and growth unto 0.812 (R=0.812). Further, corporate strategy explains 66 percent variations in learning and growth (R^2 =0.660) with the remaining 34 percent being explained by other variables which were not considered in this relationship. The F value for the model was 19.873 and p-value was 0.00. Since the calculated p-value was less than 0.05, the study failed to reject the hypothesis implying that strategy had a significant effect on learning and growth. Therefore, the model was considered robust enough to predict the hypothesized relationship.

The analysis of t-test values showed significant results for the coefficients of focus and Strategic alliances. This relationship was presented in the following equation:

Learning and Growth = 0.642 focus + 0.340 Strategic alliances

The model shows that a unit change in focus and strategic alliance will result in learning and growth changing by0.642 and 0.340, respectively. Another operational indicator of performance is environmental perspective. To test the relationship between strategy and environmental perspective, a multivariate regression analysis was conducted. The results are presented in Table 9.

Table 9: Corporate Strategy and Environmental Perspective

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.781[a]	.610	.572	.30419	
ANOVA[a]					
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.945	4	1.486	16.063	.000[b]
	Residual	3.794	41	.093		
	Total	9.739	45			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.059	.451		2.348	.024
	Cost Leadership	.051	.098	.058	.516	.608
	Differentiation	-.041	.128	-.051	-.317	.753
	Focus	.097	.151	.107	.643	.524
	Strategic alliances	.624	.101	.722	6.185	.000

a. Dependent Variable: Environmental Perspective

b. Predictors: (Constant), Strategic alliances, Cost Leadership, Differentiation, Focus

Source: Research Data (2015)

Table 9 shows the results of the analysis done to establish the effect of various indicators of strategy on environmental perspective. The results indicate that corporate strategy is correlated with environmental perspective up to 0.781 (R=0.781). Further, strategy explains 61 percent variations in learning and growth (R^2 =0.610) with the remaining 39 percent being explained by other variables which were not considered in this relationship.

The F value for the model was 16.063 and p-value was 0.00. Since the calculated p-value was less than 0.05, the study failed to reject the hypothesis implying that corporate strategy had a significant effect on environmental perspective. Therefore, the model was considered robust enough to predict the hypothesized relationship. The analysis of t-test values showed significant results for environmental dependency only. The reset of the coefficients were statistically not significant. This relationship was presented in the following equation:

Environmental perspective= 1.059 + 0. 624e strategic alliance

The model shows that a unit change in strategic alliance will result in environmental perspective changing by0.624. Another operational indicator of performance considered for this study was corporate social responsibility. To test the relationship between strategy and corporate social responsibility, a multivariate regression analysis was carried out. The results are presented in Table 10.

Table 10: Corporate Strategy and Corporate Social Responsibility

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.612[a]	.374	.313	.33233	
ANOVA[a]					
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.711	4	.678	6.136	.001[b]
	Residual	4.528	41	.110		
	Total	7.239	45			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.691	.493		3.432	.001
	Cost Leadership	.275	.107	.364	2.569	.014
	Differentiation	.207	.140	.300	1.478	.147
	Focus	.060	.165	.077	.366	.716
	Strategic alliances	-.023	.110	-.031	-.209	.836

a. Dependent Variable: CSR

b. Predictors: (Constant), Strategic alliances, Cost Leadership, Differentiation, Focus

Source: Research Data (2015)

Table 10 presents the results of the analysis done to establish the effect of various indicators of strategy on corporate social responsibility. The results indicate that corporate strategy is correlated with corporate social responsibility up to 0.612 (R=0.612). Further, strategy explains 37.4 percent variations in corporate social responsibility (R^2 =0.374) with the remaining 62.6 percent being explained by other variables which were not considered in this relationship. The F value for the model was 6.136 and *p*-value was 0.001. Since the calculated *p*-value was less than 0.05, the study failed to reject the hypothesis implying that strategy had a significant effect on corporate social responsibility. Therefore, the model was considered robust enough to predict the hypothesized relationship. This relationship was represented in the following equation:

Corporate social responsibility= 1.691+ 0.275cost leadership+ 0.207diffrentiation+ 0.06 Focus - 0.023 strategic alliance

However, the analysis of *t*-test values showed significant results for the constant and cost leadership only. The rest of the coefficients were statistically not significant. The resultant equation was thus written as:

Corporate social responsibility= 1.691+ 0.275 cost leadership

The model shows that a unit change in cost leadership will result in corporate social responsibility changing by0.275. Finally, to test the main hypothesis, a composite score for performance was developed. The composite was drawn from all the seven indicators of performance considered in this study. To test the relationship between strategy and overall

performance, a multivariate regression analysis was carried out. The results are presented in Table 11.

Table 11: Corporate Strategy and Overall Performance

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.970[a]	.942	.936	.09119	
ANOVA[a]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.495	4	1.374	165.223	.000[b]
	Residual	.341	41	.008		
	Total	5.836	45			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.571	.135		4.225	.000
	Cost Leadership	.262	.029	.386	8.898	.000
	Differentiation	.237	.038	.382	6.151	.000
	Focus	.170	.045	.243	3.767	.001
	Strategic alliances	.169	.030	.253	5.601	.000

a. Dependent Variable: Performance

b. Predictors: (Constant), Strategic alliances, Cost Leadership, Differentiation, Focus

Source: Research Data (2015)

Table 11 presents the results of the analysis done to establish the effect of various indicators of strategy on performance. The results indicate that corporate strategy is correlated with environmental perspective up to 0.971 (R=0.971). Further, corporate strategy explains 94.7 percent variations in learning and growth (R^2 =0.94.7) with the remaining 5.3 percent being explained by other variables which were not considered in this relationship. Overall, there was a very strong fit (R^2 = 0.942) whereby all the indicators contributed positively and were hence statistically significant. The F value for the model was 165.223 and *p*-value was 0.00. Since the calculated *p*-value was less than 0.05, the study failed to reject the hypothesis implying that corporate strategy had a significant effect on performance. Therefore, the model was considered robust enough to predict the hypothesized relationship. The analysis of *t*-test values showed significant results for all the indicators of strategy. This relationship was presented in the following equation:

Performance= 0.571 + 0. 262 cost leadership + 0.237 differentiation+ 0.170 focus + 0.169169 strategic alliances

The model shows that a unit change in cost leadership, differentiation, focus and strategic alliance will result in performance changing positively by0. 262,0.237, 0.170 and 0.169, respectively.

DISCUSSION

The first objective of this study was to establish the effect of strategy on organizational performance. The findings of the study revealed that strategy was present to a large extent

within the companies listed on the NSE. These findings were in tandem with Aosa (2011) who established that Kenyan firms had indeed adopted strategy as a fundamental management tool. Presence of strategy in organizations has been postulated to have positive effect on performance on organizational performance.

The study findings were also in agreement with Arasa and K'Obonyo (2012) who established that strategy was positively related to performance. However, this study contradicted the findings of Machuki and K'Obonyo (2011) who investigated the same context as this study. In their study, they established that corporate strategy influence on firm performance was not statistically significant. Furthermore, their study established that strategic alliance had a negative influence on organizational performance. On the contrary the current study found that strategy had a statistically significant influence on firm performance. The study also found out that strategic alliance had positive impact on firm performance.

Awino (2011) established that 34.4 per cent variation in corporate performance is explained by strategy. This study explained that 94.2 per cent influence organizational performance. Good corporate strategy was found to have a positive relationship and impact on firm performance. These results concurred with those of Wallin and Lindastad (1998) who established the same in Norwegian companies. They established that a good strategy that has customer in mind directly leads to greater customer loyalty.

Additionally the study was in tandem with propositions of Payne and Frow (2005) which state that for exceptional customer value as well as shareholder value, corporate strategy is important. The study further supported the propositions of Kaplan and Norton (1992) that customer value proposition should be the basis of corporate strategy

CONCLUSION

It was established that the influence of corporate strategy on firm performance was statistically significant. The study also reported statistically significant independent effects of the four corporate strategy dimensions:

Porter's (1980) generic strategies namely cost leadership, differentiation and focus together with strategic alliances on some indicators of performance. It can thus be concluded that corporate strategy has an influence on organizational performance. The results support the dynamic capabilities theory, resource based view and industrial organization (IO) economics theory (Bain, 1956, Mason 1939), the S-C-P paradigm, game theory, contingency theory and stakeholder theory (Morton & Hu, 2008. The study further noted some key relationships and variations between the publicly quoted companies' performance and corporate strategy.

IMPLICATION OF THE STUDY

Corporate strategy was the independent and firm performance was the dependent variable. The findings of the study have multifaceted implications to various stakeholders. The outcomes provide rich implications to scholars, practitioners and policy makers.

This study has advanced frontiers of knowledge from the study findings. It lends support for the relationship between corporate strategy and organizational performance (Porter, 1996; Barney 1997; Owino, 2014). The result contributes to the strengthening of the literature by confirming the postulations of stake holders theory and theory of congruence (Upadhayay et al, 2013).

The results of the study show that corporate strategy has a strong positive influence on organizational performance. Policy can be developed to encourage measurement and reporting of performance along the indicators of the SBSC as used in this study (Kaplan & Norton, 1992; Elkington, 1997).

The results from this study provide several implications on methodology. Validity and reliability tests were carried out on the data collection instrument and it was found that the instrument was sufficient to collect data from the respondents. Given that the tests were positive, it is an indication that the data collected was reliable and future research may consider using the same methods for data collection. A drop and pick method was used to get the questionnaire to the respondents and getting them back. The sampling method used in the study was also important. The use of regression made it very easy to test the hypotheses that were developed to achieve the research objectives.

Managerial Implication

The study has immense implication on managerial practice particularly with respect to strategic decision making and scope of operation. First, it has implication in terms of cost management, product quality and development, internal processes, employee and customer satisfaction. The managerial practices of most companies reveal that generic strategies are applied on customer satisfaction mostly by companies whose strategic stances are prospectors and reactors and adopted the strategies of market penetration, diversification and differentiation as modes of strategic alliance (Ogendo, 2014). Moreover, internalization is applied on internal business process on licensing strategies. The study found out that corporate strategy had significant effect on all nonfinancial performance indicators, but had no statistically significant effect on financial indicator, EPS. It is therefore poised to help organizations top management teams make strategic decision on matters pertaining to choice of the right technology, innovation, recruitment of employee and skills development.

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International Experience Of Ranking Of Georgian Business Environment And Its Impact On Economic Activity

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ABSTRACT

The process of radical economic and political transformations in modern Georgia, establishment of a new economic system and assurance of its effectiveness demands maintenance of macroeconomic ratios, improvement of business environment and supporting of economic activity in general. Many factors impact the activity of business subjects and their successful business environment. Such factors are incomes of entities, strong business competitions, production and realization of specific goods, production specifics of the spheres, social and political situation of the given country, as well as the incomes of the different social strata and their economic situation. The present article is focused on adequacy of evaluation of business climate and the directions of its perfection, having the vital importance for increasing of business activity.

Keywords: business environment, economic activity, business subjects

INTRODUCTION

Active business entities and successful business climate are regarded as the most important and integral part of economic strength and stability of the country. Therefore proper operation of different mechanisms which facilitate and support the process of doing business, have essential and prior importance for the given country.

In general the business entities and the results of their business activity form the part of economy, at the same time they play an important role in the process of formation of the budget - the main financial document since the budgetary tax return is mainly depended on the results of company activity and vice-versa.

Therefore it is important the fiscal policy to stimulate economic activity and increase the production through increase of budgetary income and vice-versa, the development of economic activity and increase of production volume to ensure the increase of budgetary income (Abuselidze, 2012)

Activity of business entity depends on variety of factors, the most important among them is favorable economic environment which includes positive image of the country on international level, stable political situation, conducive regulatory environment, state programs oriented on business development and proper work of state institutions.

Company's success is directly connected to its adaptation to the existing business climate. Since it is dynamic under the influence of different factors the company's - its management's

main aim is to focus on ongoing processes in the country and adequate reflection/adaptation of any changes in the company activity.

The business environment is created independently from the business entities. A standing-alone company cannot affect or change it. Thus the business climate directly impacts the companies' activity. The business climate should be focused on business subjects, and the business subjects should be focused on customers.

It should be noted that business environment includes cooperation of customers and state institutions, representing the key issue to the successful business activity. Companies' activity can be influenced by the customers and government, therefore the companies should meet the existing requirements and demands in order to get income, pay taxes, salaries, provide favorable working environment and keep up with the ongoing processes.

The article aims to analyze:

- the current ranking of Georgia according to the researches carried out by the international organizations;
- the criteria of evaluation;
- business activity of the business subject registered in Georgia and define the current business trends.

Research methods. Several methods – as quantitative as qualitative, have been combined in the process of preparation of the present article.

LITERATURE REVIEW

The present article is based on the official data of Ministry of economy and sustainable development of Georgia, Ministry of finance of Georgia, National statistics office of Georgia, National agency of public registry of Georgia, The World Bank and etc.

In the process of writing of the article we have absorbed the scholarly articles by A. Smith, B. Milner, W. Fogel, Douglass C. North and other authors regarding business environment and general business processes, economic situation, the working strategies of the entities and etc.

RESEARCH

In line with the different criteria of the international evaluation index, many research methods makes it possible to gather comprehensive data on those countries with positive business climate, and to identify the existing business and economic problems and obstacles.

The World Bank Group project *The Doing Business* launched in 2002 annually provides economic and business analysis in 189 countries, preparing the report on ease of doing business ranking; according to the report Georgia holds 24th position among the countries for 2016.[1] [11]

- In particular: the 6th position according to the starting a business, according to dealing with construction permits -11th position, getting electricity – 62th position, registering property – 3th position, getting credit – 7th position, protecting minority investors – 20th position, paying taxes – 40th position, trading across borders – 78th position, enforcing contracts – 13th position and resolving insolvency – 101th position.

The Doing Business evaluation criteria are:

1) Starting a business[2] [12]- includes analysis of all procedures and regulatory base required for a business to be started. If there is more than one type of limited liability Company in the economy, the limited liability form most common among domestic firms is chosen. In the process of registration only those stages are considered that are common and required for all business subjects.
2) Dealing with construction permits –includes the analysis of all procedures required for a company in the construction industry to build a building along with the time and cost. In addition, it includes the building quality control index - the quality control and safety mechanisms, liability and insurance regimes, and professional certification requirements.
3) Getting electricity - records all procedures required for a business to obtain a permanent electricity connection and supply. These procedures include applications and contracts with electricity utilities, all necessary inspections and clearances from the distribution utility and other agencies, and the external and final connection works. This criteria includes three aspects: electricity supply, transparency of tariffs, simplicity of electricity supply and its reliability.
4) Registering property includes the full sequence of procedures necessary for a business (the buyer) to purchase a property from another business (the seller), as well as all the transactions connected to any operations carried out in towards the property.
5) Getting credit – includes measuring of the legal rights of borrowers and lenders, credit terms and credit accessibility, exchange of credit information in credit database and its accessibility.
6) Protecting minority investors measures the protection of minority investors from conflicts, legal standards of rights and interest protection on the county and etc.
7) Paying taxes records the taxes and mandatory contributions that a medium-size company must pay in a given year as well as the administrative burden of paying taxes and contributions. It separately measures the profit tax, dividend tax, property taxes, income taxes and other taxes.
8) Trading across borders records the time and cost associated with the logistical process of exporting and importing goods.
9) Enforcing contracts measures the time and cost for resolving a commercial dispute through a local first-instance court. As well as the quality of judicial processes index.
10) Resolving insolvency analysis the time, cost and outcome of insolvency proceedings, as well as the strength of the legal framework applicable to liquidation and reorganization proceedings.

According to the abovementioned criteria, Georgia holds its leading positions[3] [13]among such countries as Poland, Switzerland, France, Holland, Slovakia, Slovenia, United Arab Emirates and others.

In order to depict the whole picture of each problem, the research process shall be based on the real, practical examples and experiences. Such problems may vary in the companies.

The international evaluation is of a great importance for the economic situation of the country, since it is an initial data on economic environment and it is accessible. This record probably serve as an indicator for an investor before investing into a country.

It is also very interesting and important to evaluate the corruption perception index in the process of economic environment analysis.

Corruption perceptions index includes the total volume of international corruption (frequency and/or volume of corruptive transactions) as in political, as in social sectors and makes ranking of the countries according to the corruption perception. In this category, Georgia holds its 48th position[4] [14]and has 52 points. It is notable that in this ranking the countries like Italy, Hungary, Croatia, Romania, Bulgaria, Turkey, Brazil, China and others follow Georgia.

According to the political and industrial evaluations Georgia maintains its stable positions and meets the following requirements of the international financial institutions[5][14] (WB, ADB, ETC)

- Standard & Poor's: **BB- Stable**
- Moody's: **Ba3 Stable**
- Fitch Ranking: **BB- Stable**

Effective communication between the business and government (a governmental structure) is one of the most important conditions for prosperous business. Since the process of business registration and management is facilitated and free of bureaucratic mechanisms it seems that business activity should be versatile, successful, and profitable and the business entities should be active.

The official data of the National agency of public registry[6] [10] on registration of business entities for the recent years are as follows:

Table N1[7] [10]

Year	Registered business entity	LTD	Ind. entrepreneur
2010	47.014	11.213	34.789
2011	54.081	14.011	38.632
2012	43.934	14.943	27.624
2013	47.792	17.701	28.157
2014	47.600	17.553	27.778
2015	45.800	18.416	24.808
2016/03	11.952	5.151	5.979

2011 is the most active year with 54,081 registered companies. It should be noted that political processes also impacts the business activity, in particular a new economic policy, investors' cautious attitude towards the new political atmosphere and other. This fact has reflected in

Georgian reality and the number of registered businesses considerably decreased in comparison to the number of registrations for 2011 year.

Thus, it should be mentioned that no changes have been occurred in Georgia reflected in the international evaluation rankings. [8] [11]

Business activity data for the first quarter of 2016 is as follows: [9] [9]

Table N2[10]

Type of business activity	Number of entities	Active	%
Total	626029	130465	100
Agriculture, hunting and forestry	5453	1171	0.9
Fishing	365	118	0.1
Mining industry	1281	550	0.2
Processing industry	28639	9882	4.6
Electricity, gas and water output and supply	492	151	0.1
Construction	14771	5772	2.4
Trade, cars, housewares and private consumption items repair	126286	55579	20.2
Hotels and Restaurants	11209	4766	1.8
Transportation and communication	17148	6512	2.7
Financial activity	3370	1691	0.5
Real estate transactions, lease and customer service	24134	11145	3.9
State entities	1800	405	0.3
Education	6436	3975	1.0
Healthcare and social services	5347	2840	0.9
Public service, social and personal services	18887	3728	3.0
Non-identified activity	360411	22180	57.0

Total number of registered entities is 626029 and 412680 entities (65.9% of the total number) among them have the status of individual entrepreneur and 6228 are the entities of public law (1%).
Conspicuous is the fact that only 130465 entities out of 626029 registered entities is active for the given moment that makes 20,8% of all registered companies. It is also considerable that 360411 business entities carry out non-identified business activity, that is 57,5% of the total number of entities and only 22180 entity or 6.15% is active.

It's the fact that development of any country depends on some aspects and the economic situation is the most important among them; business entities – being the institutional elements of business activity, make the basis of strong economic situation.

The economic activity has a direct effect on business activity; high business activity impacts employment level; employed population improves the social background of the country, infrastructure and all these support a stable development of the country. Development of business and its protection in critical situations, proper, continuous and protected activity becomes more and more important for entrepreneurs and the state. European countries pay special attention to development of business sphere and the country development strategy mostly depends on business strengthening in recent years. The successful business provides strengthening and economic stability of the population and is the main basis of developed country.

In fact, most part of the registered companies terminate or suspend their activities soon after their registration. In many cases the company suspends its activity or is liquidated under the management decision (there are many reasons for doing so – alteration of business sphere, turnover differentiation, business separation and etc.) but in general the main reason of doing so is that companies are unable to overcome the problems and control the existing crisis.

In critical situations the prompt reaction is the key issue. The crisis isn't always followed by dissolution of the company, in some cases the insolvent company can be merged or rebranded into other company. Some researchers (Greiner 1972:56-80, Dr. Ichak Adizes 2004 and others) distinguish variety of reasons causing the crisis, but it should be noted that most of them can be divided into two groups: exogenous and internal factors.

The exogenous factors are independent one, which cannot be controlled by the company, for example the political-economic situation in the country, force majeure, business competition, functional depreciation of goods and services and others.

While the internal factors are: management problem, employees' low level of competence, poor quality of goods-services rendered and others. Generally, the exogenous and internal factors are interrelated, since the one of them can affect another one and vice-versa.

According to Adam Smith[11] [7] besides the natural and affected factors, there are one more factor – the government, which also can affect business activity by interference into the business process by prices adjustment. Adam Smith distinguishes the role of government to be a separate mechanism out of the group of state regulations or politics.

According to Robert W. Fogel, Douglass C. North [12] [6]: ''Efficient markets are created in the real world when competition is strong enough via arbitrage and efficient information feedback to approximate the Coase zero transaction cost conditions and the parties can realize the gains from trade inherent in the neo-classical argument….. Competition also plays a critical role in reducing enforcement costs. The judicial system provides coercive enforcement. Still, economic markets in the past and present are typically imperfect and beset by high transaction costs." (North, Fogel 1993:5).„

Some authors such a David W. Conklin [13] [4] "Economic forces differ among nations and continually change over time. Analyses of their likely impacts and the creation of appropriate economic strategies can be the central determinant of a firm's success. The attractiveness of a particular market depends on its industry structure, including the competitiveness of existing firms, the threat of substitutes and new entrants, and the bargaining power of suppliers and customers. New communication technologies have facilitated international outsourcing, enabling each firm to locate each activity in whatever country offers the optimal combination of cost, quality, and other attributes. New organizational structures may be required to coordinate international networks and to stimulate international innovation."

CONCLUSIONS

As we see from the international rankings evaluations of Georgia in *Doing Business* category is very positive. It should be noted that the corruption index is also very positive. All these causes the following questions:

- If the business environment is conducive and positive, why is the most part of registered companies passive?
- What is the main reason of company stagnation?

Basing on the abovementioned, there might be several reasons for the companies to be passive, among them:

- The registration process is too easy and it is possible to register a business even on a one-off basis;
- Non-resident companies take part in state tenders/programs which mostly carry out one-off operations;
- Company cancellation and liquidation process is too long;
- In case of termination of its activity the companies may have the status "activity suspended" and it doesn't mean cancellation or termination of registration;
- Registered companies doesn't have the obligation of having a year turnover.

According to our survey conducted among some companies, there are some reasons causing the trouble to the active companies, among them: changeable exchange rates, high interes rates on credits, unequal business competition, informal institutions, unstable political orientation and others.

Taking into consideration the abovementioned reasons, we think in order to analyze this sphere it is necessary to study the following issues: the economic policy focused on business support, legal and institutional changes, governmental decision aiming business support.

Thus, in order the business environment evaluation in Georgia to be adequate and perfect, it is necessary to study not only the stages of business registration and cancellation (so called start and liquidation processes) but also the existing problems in the process of business activity, which detains the company and leads to critical situations and finally to the liquidation/reorganization. We think it would be the very analysis, serving as the basis for evaluation of business activity.

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Flypaper Effect of General Allocation Fund (DAU) And Human Development Index (IPM) (A Case Study In Regencies and Municipality In Bali)

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ABSTRACT

The main objective of this research is to show the relationship between General Allocation Fund (DAU), Own-Source Revenue (PAD), Capital Expenditure, Economic Growth, Human Development Index (IPM), and Income per Capita of regencies/municipality in Bali. The other objective is to provide empirical evidence on the occurrence of flypaper effect in DAU and PAD on Capital Expenditure. Data is taken from audited local budget and revenue report and from Bureau of Statistic (*Badan Pusat Statistik*-BPS) Bali Province. Result of analysis indicates that the variable of DAU and PAD is positively related to Capital Expenditure, Capital Expenditure is positively related to Economic Growth, Capital Expenditure is negatively related to Income Per Capita, and Capital Expenditure is positively related to Human Development Index. DAU and PAD are separately influenced Capital Expenditure, but the coefficient of PAD is greater than DAU. It indicates that there is no flypaper effects occurred on Capital Expenditure. Flypaper effect is defined as local response (expenditure) that is greater than transfer. The results still require confirmation through future researches.

Keywords: Capital Expenditure, Economic Growth, Flypaper Effect, General Allocation Fund (DAU), Human Development Index (IPM), Income per Capita, Own-source Revenues (PAD).

INTRODUCTION

The implementation of regional autonomy in Indonesia since 2004 is a reformation in the relationship between central government and local government in order to decrease dependency of local to central. Through regional autonomy, regions are not only implementing the instructions given by central government but also demanded to develop creativity and innovation of regional potential that less optimized before the implementation of autonomy [12,18]. In addition, the autonomy has required local government to be more independent. One of indications for the independence is the increase in the contribution of own-source revenue (*Pendapatan Asli Daerah*-PAD) in regional funding [8,3].

One of obstacles faced in the implementation of regional autonomy is fiscal gap among regions [17]. Result of research by Adi and Laras & Adi [3, 27] shows differences in the readiness of regions in entering regional autonomy era. To overcome the obstacle, central government gives assistance (transfer) to local government in form of, for example, general allocation fund (*Dana Alokasi Umum*-DAU) and specific allocation fund (*Dana Alokasi Khusus*-DAK). Baskaran [6] and Gan [16] concluded that DAU is an important source of income for local government since it can be distributed to overcome horizontal and vertical gap in income among regions. Bird & Smart [9] in their research concluded that in general, the role of DAU and DAK is similar to grant. Based on both giver and receiver's viewpoint all resources distributed in DAU will be

set in a stable but flexible way, which is a percentage of central tax adjustable for every few years.

Lewis [29] concluded that local government has the authority to set regional regulation on local tax and levies. The strategic role of local tax and levies has given significant contribution to source of revenue of PAD [4]. This role, however, is not strong enough in supporting overall regional budget (*Anggaran Pendapatan dan Belanja Daerah*-APBD). The demand for changing in expenditure structure is getting stronger, especially in regions with low fiscal capacity [22,19]. In order to increase regional independency local government is required to optimize their own revenue potential and one of way in doing it is by giving bigger proportion of capital expenditure for development in productive sectors in the regions. Conducted a research on the impact of fiscal decentralization on economic growth and income inequality among regions in Indonesia and found that the impact could either be positive or negative [43].

The industrial infrastructure development affect the increase in own-source revenue (local tax) [44]. Higher capital investment level is expected to be able to increase the quality of public services and in turn, it able to increase public participation level in development that reflected in the increase in PAD [33]. Economic growth is often measured by gross domestic product (GDP). Another measurement, however, that can be used to measure economic growth is income per capita [25]. Bali Province is one of 34 provinces in Indonesia and it consists of 8 regencies and 1 municipality. The expenditure of the regions has increased every year since 2010 to 2014. The increase, however, is not in line with the increase in own-source revenue (PAD).

The aim of the research was to find out and analyze flypaper effect of general allocation fund (DAU) and own-source revenue (PAD) on capital expenditure (BM) and on regional economic growth (PED), income per capita (PPK) and human development index (IM) of regencies and municipality in Bali.

LITERATURES REVIEW AND HYPOTHESES DEVELOPMENT

The Influence of General Allocation Fund (DAU) on Capital Expenditure (BM)

In some regions, the role of DAU is significant since regional expenditure policy is dominated by the number of DAU than PAD [37]. With DAU aiming for regional expenditure funding, which is unable to be funded through own-source revenue, regions try to create expenditure planning that tends to be optimistic in hoping to gain higher DAU. A study [28] found empirical evidence that in long term, transfer influences capital expenditure and the decrease in the number of transfer will cause decrease in capital expenditure.

Prakoso [35] found the same empirical finding indicating that the number of capital expenditure is influenced by DAU received from central government. Research result of Adi & Harianto [2] confirmed the tendency. They found that regional independency is not getting better; on the contrary, the dependency of local government on central government's DAU transfer is higher. Studies by Maimunah [32] in Sumatera Island using sample of 95 regencies/municipalities in 2004, Darwanto & Yustikasari [11] in regencies/municipalities in Aceh, and Christy & Adi (2008) and Andirfa (2008) in regencies/municipalities in Aceh concluded that DAU had positive influence on regional capital expenditure. A research [45], however, found different empirical evidence that DAU transfer by central government had no significant influence on regional capital expenditure.

The above various researches give strong indication that regional expenditure behavior, especially capital expenditure, will be strongly influenced by central government transfer (DAU). Based on the description, following research hypothesis is developed:

Hypothesis 1 (H1): The higher the general allocation fund (DAU), the higher the capital expenditure (BM)

The Influence of Own-source Revenue (PAD) on Capital Expenditure (BM)

The ability of regions to provide funding from their own region will depend on the ability to realize the economic potential into forms of economic activity that able to create revolving fund for regional sustainable development. Central government expects local government to optimize their potential to reduce fiscal gap [38].

Some studies found empirical evidence on the linkages between own-source revenue (PAD) and regional capital expenditure. Studies by Maimunah [32] in Sumatera Island with sample of 95 regencies/municipalities in 2004, Darwanto & Yustikasari [11] in regencies/municipalities in Aceh, Andirfa (2009) in regencies/municipalitis in Aceh, and Yudani [45] in Bali Province found empirical evidence that PAD has significant influence on regional capital expenditure.

Based on the above studies, a research hypothesis can be developed as follow:
Hypothesis 2 (H2): The higher the own-source revenue (PAD), the higher the capital expenditure (BM)

The Influence of Capital Expenditure (BM) on Regional Economic Growth (PED)

A research [23] gave empirical evidence that capital expenditure has positive influence on regional economic growth (PED). The fundamental requirement for economic development is level of development capital procurement that equal to population growth. The capital formation should be broadly defined to cover all expenditures that are increasing productivity [21]. Based on PP (government regulation) No. 71, 2010 on Governmental Accounting Standard (*Standar Akuntansi Pemerintah-SAP*) and a research on the influence of capital expenditure (BM) on regional economic growth (PED), a research hypothesis can be developed as follow:

Hypothesis 3 (H3): The higher the capital expenditure (BM), the higher the regional economic growth (PED)

The Influence of Capital Expenditure (BM) on Income per Capita (PPK)

According to Kuncoro [23], the development of facilities and infrastructures by local government has positive impacts on economic growth. Sustainable increase in public sector services will increase public facilities and infrastructure, government investment as well as improvement in education, health, and other supporting facilities. Ismerdekaningsih & Rahayu [21] stated that government spending in form of infrastructures expenditure should always be adjusted to population growth so that it gives increase in the productivity of society. With the increase in infrastructure and infrastructure improvement by central government, it is hoped that it encourages economic growth in the area. Regional economic growth will stimulate increase in people's income in the related area and along with it income per capita will also increase [30].

A research [20] gave different result where allocation of capital expenditure of local government has significant negative influence on income per capita. Based on the research on the influence of capital expenditure (BM) on income per capita (PPK), following research hypothesis is developed:

Hypothesis 4 (H4): The higher the capital expenditure (BM), the higher the income per capita (PPK)

The Influence of Capital Expenditure (BM) on Human Development Index (IPM)

Capital expenditure (BM) consisting of capital expenditure of land, equipment & machineries, buildings & constructions, roads, irrigation & network, and other physical capital expenditures is used to increase human development index (IPM) of the local society. IPM is measured by: 1) length of life, 2) level of knowledge, and 3) decent living standard. Capital expenditure is expected to increase IPM through improvement in various above indicators.

The influence of capital expenditure (BM) on human development index (IPM) and concluded that the amount of capital expenditure (BM) allocation has positive influence on human development index (IPM) [10,31]. However, gave different result where capital expenditure has no significant influence on IPM [40]. Based on the research on the influence of capital expenditure (BM) on human development index (IPM), a research hypothesis can be developed as follow:

Hypothesis 5 (H5): The higher the capital expenditure (BM), the higher the human development index (IPM)

Flypaper Effect in the influence of DAU and PAD on Capital Expenditure (BM)

The amount of general allocation fund (DAU) and own-source revenue (PAD) has significant positive influence on regional expenditure [32]. In the research, flypaper effect was found that influence the prediction of regional expenditure in the future period. Another finding is there was no flypaper effect on regional expenditure of education sector; on the contrary, flypaper effect occurred in regional expenditure for health and public works sectors.

A research [28] gave empirical evidence on the existence of flypaper effect in long term for sample of municipalities in Italy. They stated that local governments consistently increase their expenditure more with respect to increase in State transfer rather than increase in own revenues. Another study that supports the presence of flypaper effect in responding DAU on regional expenditure is a research [1] where flypaper effect occurred in responding DAU on regional expenditure in the island of Java and Bali.

Another research conducted by Kusumadewi & Rahman [26] using sample data of 270 regencies/municipalities in Indonesia in the period of 2001 to 2004 found empirical evidence that flypaper effect was occurred in responding DAU and PAD on regional expenditure of regencies/municipalities in Indonesia for the period. A research [36] using data of regencies and municipalities in Indonesia in the period of 2006-2008 found different result that flypaper effect occurred in municipalities/regencies in Java but not for municipalities/regencies outside the Java Island due to the differences in income potential between Java and outside Java.

Based on those researches, a research hypothesis can be developed as follow:
Hypothesis 6 (H6): *Flypaper effect* is occurred in the influence of general allocation fund (DAU) and own-source revenue (PAD) on capital expenditure (BM)

RESEARCH METHOD

Framework in the research was conducted through processing of data on DAU, PAD, regional capital expenditure, regional economic growth, regional income per capita, and IPM of regencies and municipality in Bali Province in 2010 to 2014. All data was secondary data and processed with AMOS (Path Analysis) Version 20 program. Data used in the research was population data, which were all regencies/municipality in Bali Province. The regencies consisted of: Badung, Gianyar, Buleleng, Jembrana, Klungkung, Tabanan, Bangli and Karangasem; whereas the city is Denpasar.

Identification of Variables

Exogenous Variable: DAU (X_1) and PAD (X_2) from 2010 to 2014 of regencies/municipality in Bali Province contained in the Report of Regional Budget (APBD) Realization audited by the Audit Board of the Republic of Indonesia (BPK-RI).*Moderating Variable*: Capital expenditure (Y_1) from 2010 to 2014 of regencies/municipality in Bali Province contained in the Report of APBD Realization audited by BPK-RI. *Endogenous Variable*: regional economic growth (Y_2), income per capita (Y_3), and IPM (Y_4) of regencies/municipality in Bali Province from 2010 to 2014 contained in Bureau of Statistic (BPS) Report of Bali Province [7].

Operational Definition

DAU (X_1) is the transfer of central government to local government determined by the regions' fiscal needs and fiscal capacity. Own-source revenue (PAD) (X_2) is the realization of local tax income, levies income, local wealth management result and other legitimate PAD.

Capital expenditure (Y_1) is the realization of expenditure for land, equipment and machineries, buildings and constructions, roads, irrigation and network, other fixed assets and other assets. Regional economic growth (Y_2) is the level or rate of economic growth of each regencies/municipality calculated based on gross national product (GNP) in form of gross domestic product (PDRB). Income per capita (Y_3) is gross domestic product (PDRB) of each regions divided by the number of population of each regencies/municipality in Bali Province. Human development index (Y_4) is the simple average of the three components:

$$IPM = 1/3\ (\text{Index } X_1 + \text{Index } X_2 + \text{Index } X_3)$$

X_1 = length of life, X_2 = level of education, and X_3 = level of decent life

DATA ANALYSIS TECHNIQUE

The analysis technique used in the research was qualitative technique with path analysis to find out about the relationship between variables [39]. The analysis was conducted using Software AMOS version 20. Path analysis of variables of the influence of DAU, PAD, and capital expenditure (BM) on economic growth (PED), income per capita (PPK), and IPM into a structural equation in direct effect are as follow:

$$\begin{aligned}
\text{DAU} &\rightarrow \text{BM} &&= \gamma_1 X_1 + \xi_1 \\
\text{PAD} &\rightarrow \text{BM} &&= \gamma_1 X_2 + \xi_1 \\
\text{BM} &\rightarrow \text{PED} &&= \gamma_2 Y_1 + \xi_2 \\
\text{BM} &\rightarrow \text{PPK} &&= \gamma_3 Y_1 + \xi_3 \\
\text{BM} &\rightarrow \text{IPM} &&= \gamma_4 Y_1 + \xi_4
\end{aligned}$$

Hypothesis one to five (based on the above variable relationship) would be tested with AMOS (path analysis). The flypaper effect test (hypothesis six) was conducted by comparing the effect of DAU on BM to the effect of PAD on BM. Flypaper effect will occur with the following conditions: (1) if the effect (coefficient value) of DAU on BM is higher than the effect of PAD on BM and both are significant, or (2) PAD is not significant [32].

RESEARCH RESULT AND ANALYSIS

Refer to hypothesis one to six, data on DAU, PAD, BM, PED, PPK and IPM would be processed with path analysis. The result of the development of path diagram built based on theoretical study that explains causal relationship between variables in the research is described in Appendix 1. Result of model testing that was conducted using regression coefficient is described in Appendix 2. Based on the criteria of chi square test, relative chi square, RMSEA, GFI, CFI, and goodness of fit value of the result of data processing using AMOS version 20.0, model feasibility test is described in Appendix 3.

The Influence of DAU on Capital Expenditure (BM)

Result of data processing shows the value of standardized regression weight of 0.16 and significance of less than 0.05. It means that DAU had significant positive influence on capital expenditure of regencies/municipality in Bali Province. An increase in DAU of 1 unit is only able to increase capital expenditure (BM) of 0.16 unit [42.43]

The result supports the research [28,35,32,20, 11, 10, 5] that stated that DAU had significant positive influence on capital expenditure (BM). The result, however, is in conflict with the result of Yudani's (2008) research that found that central government transfer (DAU) had no significant influence on regional capital expenditure. The amount of DAU given by central government to regencies/municipality in Bali for 2010 to 2014 influenced the capital expenditure of the regencies/municipality. The contribution of DAU allocation on BM was only 0.16.

Hypothesis 1 (H_1) stated that the higher the DAU, the higher the BM. The result of path analysis shows coefficient value of 0.16. It indicates that DAU had significant positive influence on BM. The result accepts the first hypothesis.

The Influence of PAD on Capital Expenditure (BM)

Result of data processing shows the value of standardized regression weight of 0.79 and significance of less than 0.05. It means that PAD had significant positive influence on capital expenditure (BM) of regencies/municipality in Bali Province. An increase in PAD of 1 unit will be able to increase capital expenditure (BM) of 0.79 unit.

The result supports the research [45,32,11,5] that stated that PAD has significant positive influence on capital expenditure (BM). The amount of PAD obtained by regencies/municipality in Bali Province during 2010-2014 had great influence on the amount of capital expenditure of regencies/municipality in Bali Province.

Hypothesis 2 (H_2) stated that the higher the PAD, the higher the BM. Result of path analysis shows coefficient value of 0.79. It indicates that PAD had significant positive influence on BM. The result accepts the second hypothesis.

The Influence of Capital Expenditure (BM) on Regional Economic Growth (PED)

Result of data processing shows the value of standardized regression weight of 0.87 and significance of less than 0.05. It means that BM had significant positive influence on PED of

regencies/municipality in Bali Province. An increase in BM of 1 unit will be able to increase 0.87 unit of regional economic growth (PED). The result supports the research [23,21 that stated that capital expenditure (BM) had significant positive influence on regional economic growth (PED). The amount of BM of regencies/municipality in Bali Province during 2010-2014 had great influence on the amount of regional economic growth (PED) of regencies/municipality in Bali Province.

Hypothesis 3 (H_3) stated that the higher the BM, the higher the PED. Result of path analysis shows coefficient value of 0.87. It indicates that BM had significant positive influence on PED. The result accepts the third hypothesis.

The Influence of Capital Expenditure (BM) on Income per Capita (PPK)

Result of data processing shows the value of standardized regression weight value -0.06 and significance of less than 0.05. It means that capital expenditure (BM) had insignificant negative influence on PPK of regencies/municipality in Bali Province. Every increase in BM of 1 unit will decrease 0.87 unit of PPK.

The result supports the research [20] that the allocation of capital expenditure of local government had insignificant negative influence on income per capita. It is, however, in conflict with the research [23, 21] that stated that capital expenditure (BM) had significant positive influence on income per capita (PPK). The amount of BM of regencies/municipality in Bali Province during 2010-2014 had no influence on the amount of income per capita (PPK) of regencies/municipality in Bali Province.

Hypothesis 4 (H_4) stated that the higher the BM, the higher the PPK. Result of path analysis shows coefficient value of -0.06. It indicates that BM had insignificant negative influence on PPK. The result rejects the fourth hypothesis.

The Influence of Capital Expenditure (BM) on Human Development Index (IPM)

Result of data processing shows the value of standardized regression weight of 0.64 and significance of less than 0.05. It means that capital expenditure (BM) had significant positive influence on IPM of regencies/municipality in Bali Province. An increase in BM of 1 unit will cause the increase of 0.64 unit in IPM. The result supports the research [10,31] that stated that the allocation of capital expenditure had significant influence on IPM. It is, however, in conflict with [40] research. The amount of BM of regencies/municipality in Bali Province during 2010-2014 had great influence on the amount of human development index (IPM) of regencies/municipality in Bali Province.

Hypothesis 5 (H_5) stated that the higher the BM, the higher the IPM. Result of path analysis shows coefficient value of 0.64. It indicates that BM had significant positive influence on IPM. The result accepts the fifth hypothesis.

Flypaper Effect in the influence of DAU and PAD on Capital Expenditure (BM)

Result of data processing shows the value of standardized regression weight of DAU of 0.16 and significance of less than 0.05. PAD, on the other hand, had value of 0.79 and significance of less than 0.05. It means that DAU and PAD were equally significant on BM. However, the value of standardized regression weight of PAD (0.79) was higher than those of DAU (0.16). Based on the criteria of the occurrence of flypaper effect, which are (1) the effect (coefficient value) of DAU on BM is bigger than the effect of PAD and both are significant or (2) PAD is not significant

(Maimunah, 2008), it can be concluded that there was no flypaper effect of DAU on BM of regencies/municipality in Bali Province.

The result supports the research [36], where there was no flypaper effect in outside Java regions (difference in regions potential). No occurrence of flypaper effect is due to the average of PAD of regencies/municipality in Bali Province was categorized as high category PAD [23,24,25]. 37 observation data were categorized as high PAD where the level of fiscal autonomy (DOF) is higher than 5%, whereas only 8 observations with PAD in low category.
The result is in conflict with the research [28,1,26,32] that stated that flypaper effect was occurred in responding DAU and PAD on regional capital expenditure.

Hypothesis 6 (H_6) stated that flypaper effect is occurred in the influence of general allocation fund (DAU) and own-source revenue (PAD) on capital expenditure (BM) of regencies/municipality in Bali Province in 2010 to 2014 is rejected based on the research result.

CONCLUSION

First, based on hypothesis test, first hypothesis was accepted where the amount of DAU had significant positive influence on capital expenditure. Second, based on hypothesis test, second hypothesis was accepted where the amount of PAD had significant positive influence on capital expenditure. Third, based on hypothesis test, third hypothesis was accepted where the amount of capital expenditure had significant positive influence on regional economic growth (PED). Fourth, based on hypothesis test, first hypothesis was rejected where the amount of DAU had insignificant negative influence on income per capita (PPK). Fifth, based on hypothesis test, fifth hypothesis was accepted where the amount of capital expenditure (BM) had significant positive influence on human development index (IPM). The sixth research purpose was to find out the occurrence of flypaper effect in general allocation fund (DAU) and own-source revenue (PAD) on capital expenditure (BM). The test result was rejecting the sixth hypothesis since flypaper effect did not occur in general allocation fund (DAU) and own-source revenue (PAD) on capital expenditure (BM).

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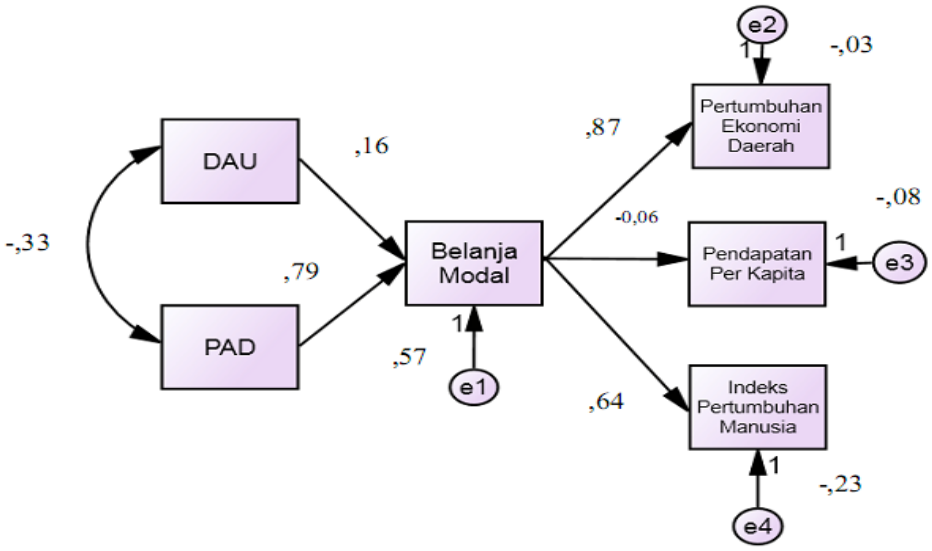
APPENDIX 1.

Causality Relationship Between Variables
DAU, PAD, BM, Local Economic Growth, Income Per Capita, and IPM
Standardized estimates



CMIN=0,42
DF=1
PROBABILITY=0,52
CMIN/DF=0,42
GFI=1,00
AGFI=,98
TLI=1,00
CFI=1,00
RMSEA=,00

Source: Amos Statistical Data Processing Program For Windows Version 20.0

APPENDIX 2.

Model Measurement Structure *Unstandardized* and Standardized Regression Weight

			Unstandardized Estimate	*Standardized Estimate*	S.E.	C.R.	P	Explaination
BM	<---	DAU	,13	,16	,04	3,63	***	Sig
BM	<---	PAD	**,25**	,79	,02	13,16	***	Sig
PED	<---	BM	,00	,87	,00	6,92	***	Sig
PPK	<---	BM	,00	-,06	,00	-1,06	,29	**non Sig.**
IPM	<---	BM	,00	,64	,00	4,99	***	Sig

Source: AMOS statistical data processing program for Windows version 20.0

APPENDIX 3.

Tabel Goodness of Fit

Goodness of Fit index	*Cut of Value*	Hasil Model	Keterangan
Chi Square	Diharapkan kecil	0,42	good
Relative Chi Square	≤ 3,00	0,42	good
Probability	> 0,05	0,52	good
RMSEA	≤ 0,08	0,00	good
GFI	≥ 0,90	1,00	good
AGFI	≥ 0,90	0,98	good
CFI	≥ 0,95	1,00	good
TLI	≥ 0,95	1,00	good

Source: AMOS statistical data processing program for Windows version 20.0

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Value, Growth and Divergence of Opinion in Emerging Markets: Chinese Evidence

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ABSTRACT

The issue of whether value stocks outperform growth stocks as predicted by the Fama and French three-factor model is of continuing interest and debate. In this paper, we examine (a) whether value stocks outperform growth stocks in a developing market (the Shanghai and Shenzhen stock exchanges in their formative years) and (b) whether such outperformance can be attributed to a risk factor as captured by analysts' divergence of opinion. We establish two major findings. First, we show that book-to-market, sales-to-price, earnings-to-price, and cash-flow-to-price are significant in explaining expected returns for Chinese equities, and thus conclude that value stocks generate returns superior to growth stocks. Our second major finding is that the superior performance of value stocks is related positively to investor uncertainty as proxied by their divergence of opinion

JEL Classification: G10, G15, G20
Key words: Chinese stock market; Value stocks; Growth stocks; Divergence of opinion.

INTRODUCTION

The Fama and French three-factor model (1996, 1997) proposes that value stocks outperform growth stocks for equities in US markets. The model has subsequently been substantiated in alternative markets, such as Chan et al. (1991) in Japan, and Gharghori et al. (2012) in Australia. An interesting question that remains is whether or not a similar effect might be observed in developing markets. To address this question, we focus on the performances of the Shanghai and Shenzhen stock exchanges in their formative years. An additional question in relation to the Fama and French three-factor model is whether the outperformance of value stocks over growth stocks might be related to risk exposure. In response, we also investigate whether superior performance is related to investors' divergence of opinion. That is, we test whether the superior return of value stocks is a reward for greater uncertainty about future growth in earnings.

Motivations for this study stem from the fact that empirical research on the value-growth effect has been focused on developed markets (Lakonishok, Shleifer and Vishny (hereafter LSV) 1994 in U.S; Chan et al., 1991 in Japan; and Gharghori et al., 2012 in Australia). In a seminal paper, Fama and French (hereafter FF) (1992) document that B/M is strongly positively related to stock returns in the US. Similarly, LSV (1994) find that value strategies—that is, investing in firms that have high B/M, E/P or C/P values—have historically generated higher returns in the United States. Kwag and Lee (2006) also state that value stocks consistently outperform

growth stocks through the business cycle. Bhandari (1988) finds that returns are positively related to the ratio of debt-to-equity (D/E) when controlling for beta and firm size (both including and excluding January). For Japanese stocks, Chan et al. (1991) examine the cross-sectional relationship between average returns and fundamental variables, including firm size, book-to-market equity (B/M), earnings-to-price (E/P) and cash-flow-to-price (C/P). They show that stocks with higher ratios generate higher returns than stocks with lower ratios. Leledakis and Davidson (2001) show that sales-to-price (S/P) is highly significant in explaining the cross-sectional variation in equity returns in the UK.

Although there is consensus on the existence of superior returns for value stocks in developed markets, the explanation for these superior returns remains an open question. For instance, FF (1993, 1996) argue that higher returns are compensation for holding higher fundamental risk, in line with the intertemporal capital asset pricing model (ICAPM)[1] of Merton (1973) or the arbitrage pricing theory (APT)[2] of Ross (1976). They show that value stocks (high B/M, E/P and C/P) tend to have persistently low earnings, and that growth stocks (low B/M, E/P and C/P) tend to have persistently high earnings. FF (1998) find that value stocks also have higher returns than growth stocks in global markets.

In contrast, LSV (1994) suggest that investors appear to consistently underestimate future growth rates of value stocks, and therefore underprice them. The outcome is that value stocks outperform growth stocks. Using survey data on forecasts by stock market analysts, La Porta (1996) finds that value stocks earn high returns due to the fact that the market is excessively pessimistic about the earnings of value stocks and excessively optimistic about the earnings of growth stocks. La Porta, Lakonishok, Shleifer and Vishny (1997) examine the market's reaction to earnings announcements and show that there are significant differences in earnings announcement returns between value stocks and growth stocks due to earnings surprises.

In an important paper, Doukas, Kim and Pantzalis (2004) document that divergence of opinion may also play an important part in explaining the superior returns of value stocks. Specifically, they document that value stocks are exposed to greater investor disagreement than growth stocks. Their findings imply that the return advantage of value strategies is a reward for the greater disagreement about their future growth in earnings. Although both theoretical and empirical research has investigated whether divergence of opinion plays a significant role in explaining stock returns, the evidence on this relationship remains mixed and inconclusive.

In a landmark paper, Miller (1977) hypothesizes that stock prices are biased to the valuations of optimists rather than pessimists as pessimistic investors do not participate in the market due to short-sales constraints. By documenting that high earnings forecast dispersion is associated with low stock returns, Ackert and Athanasakkos (1997), Dische (2002) and Diether et al. (2002) provide evidence in support of Miller's conjecture; while Hintikka (2008) and Leippold and Lohre (2008) find that high dispersion stocks also underperform in many European markets. Chang, Cheng and Yu (2007) test Miller's (1977) hypothesis for equities listed in Hong Kong and also support Miller's conjecture. However, Diamond and Verrecchia (1987) challenge Miller (1977) and argue that if traders have rational expectations, short-sale constraints do not lead to biased prices. Berkman, et al. (2009) state that Miller's (1977)

The ICAPM presents expected returns as the sum of a market risk premium and a package of risk premiums multiplied by the beta of the security or portfolio with respect to the particular factor premium.

The arbitrage pricing model (APT) proposed by Ross (1976) predicts that the return on a security is proportional to several factors, in addition to market risk.

hypothesis cannot persist indefinitely as periodic announcements reduce the differences of opinion among investors and thus stock prices move closer to their fundamental values.

Contradicting Miller (1977) but consistent with both Williams (1977) and Varian (1985) who argue that divergence of opinion proxies for risk, Doukas et al. (2006a) find a positive and significant relationship between divergence of opinion and future stock returns. Doukas et al. (2002) document that value stocks display higher forecast errors and larger downward forecast revisions. Douks, Kim and Pantzalis (2004)link the divergence of opinion among investors and the performance of value stocks and find that divergence can explain the return differences between value and growth stocks for U.S. equities. Doukas et al. (2006b) show that overvaluation occurs when divergence is low and analysts' predictions are optimistic.

It is important to note that little, if any, has been published on whether value strategies outperform growth strategies outside developed markets. In this regard, we provide much needed out-of-sample evidence and in doing so we respond to the data-snooping hypothesis of Black (1993) and Mackinlay (1995) and the survivorship bias hypothesis of Kothari et al. (1995). As far as the relationship between divergence of opinion and the performance of value stocks is concerned, we are aware of only one published paper by Doukas et al. (2004) that addresses this issue. Our study is thereby motivated to shed new light on the role of divergence of opinion in explaining the superior performance of value stocks. Specifically, we investigate whether value stocks outperform growth stocks for equities listed in the Shanghai and Shenzhen stock exchanges and whether superior performance is related to investors' divergence of opinion. This begs the question – Why China? We study the Chinese market for the following reasons.

Previous research into the Chinese stock market has focused mainly on the effect of privatization, the underpricing of Chinese IPOs and the price differentials among different classes of shares (Sun and Tong 2003; Ma and Faff 2006). Only recently has the behavior of stock returns relative to fundamental variables received attention. Drew et al. (2003) argue that the market beta and firm size effect are priced, but B/M appears to be negatively related to stock returns. Eun and Huang (2007) find that although market risk is not priced, firm size and B/M are systematically related to stock returns; and there is no January effect,[3] but August sees the highest average return of the year. Notwithstanding market imperfections, they conclude that Chinese stocks are actually priced rather rationally. Although they evaluate the abilities of firm specific variables to explain stock returns, they do not directly address the value/growth effect in China. The mixed results of prior research motivate this study to further investigate whether firm size and B/M are pervasive risk factors in the Chinese market; and whether other variables have significant power in explaining returns in China.

The Chinese stock market has grown rapidly since its inception in the early 1990s and is now among the most important emerging markets.[4] This rapid growth has been largely due to the

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The January effect (that stock returns are significantly higher in January than in the rest of the year) is perhaps the best-known seasonal effect in developed markets.

At the end of 2007, the SHSE was ranked the sixth largest market in the world in terms of market capitalization; the SZSE was ranked the twentieth largest; while China's total market capitalization (both SHSE and SZSE) was around 32 trillion RMB, the second largest market only behind the U.S. To complement the two main exchanges, the Small and Medium (SME) Board was opened in June 2004 in SZSE where small and medium enterprises have lower entry barriers to be listed, especially for new high-tech firms. Similarly, the Special Treatment (ST) Board was established in 2001 for the delisted firms on both SHSE and SZSE (http://www.world-exchanges.org; http://www.szse.cn; http://www.sse.com.cn).

steady flow of new listed firms and the vast reduction of state-owned shares. Almost all publicly listed firms in China were formerly strong large and medium state owned enterprises (SOEs). An initial purpose of opening the Shanghai and Shenzhen stock exchanges was to raise funds for SOEs. The ownership structure of former SOEs has thus resulted in a mixed structure ownership of listed firms, which is a distinct characteristic of the Chinese market (Sun and Tong, 2003). The outcome is that there are several types of shares in the Chinese stock market: state shares and legal person shares, which cannot be traded and owned by the central government, local governments, or government-owned enterprises; A shares, traded by domestic investors, the Qualified Foreign Institutional Investors (QFII); and B shares issued to foreign investors.[5] The non-tradable share-holders are entitled to the same voting and cash flow rights as the holders of tradable shares but they cannot trade their shares publicly even if the company is listed (Poon et al. 1998). There were about two thirds non-tradable shares in China's market before the non-tradable share reform in 2005 (Beltratti and Bortolotti, 2006).[6] Most listed firms are former SOEs, giving rise to severe agency problems. For example, managers have little incentive to enhance the quality of listed firms; and as the primary regulator of the Chinese equity market, the China Securities Regulatory Commission (CSRC) is reluctant to supervise listed firms, although it is concerned with market manipulations and speculations.[7] Furthermore, the Chinese investor's trading experience and the level of their sophistication is likely to have been less than that of investors in developed markets, and most individual investors in China have short-term investment objectives, in contrast to the long-term focus of foreign investors (Kang et al., 2002; Ng and Wu, 2006 and 2007). These features of Chinese stock markets allows for the poor efficiency of Chinese markets, such as extreme volatility, increased speculation and higher turnover. Therefore, the Chinese stock market provides an interesting setting for asset pricing studies. In such a unique setting, we investigate whether there is a value/growth effect, and whether the superior return of value stocks is a reward for greater investor disagreement about future growth in earnings.

Our study is related to that of Lakonishok, Shleifer and Vishny (1994), who find that value stocks outperform growth stocks in the U.S. setting. They examine the returns on sets of deciles formed from sorts on B/M, E/P, C/P, and five-year sales rank. LSV find strong positive relationship between average returns and B/M, E/P, or C/P, and a negative relationship between average returns and past sales growth. Our study therefore provides out of sample evidence in the Chinese context on the performances of value stocks and growth stocks. Our study is related to Chan et al. (1991) who consider stocks with negative earnings and negative cash flows. Their study also relates cross-sectional differences in returns on Japanese stocks to four fundamental variables, B/M, E/P, C/P and size. Our study is related to Barbee et al. (1996) and Leledakis and Davidson (2001), who document that sales to price is an important indicator of a firm's relative market valuation and is highly significant in explaining cross-sectional stock returns in the US and UK markets. Regarding the relationship between the divergence of opinion and performance of value stocks, our study is related to Doukas et al. (2004) who find

Chinese firms are also allowed to issue shares in overseas stock markets, such as H shares listed in the Hong Kong Stock Exchange and N shares listed in the New York Stock Exchange (Poon et al. 1998; Sun and Chong, 2007).

To deal with the problems of non-tradable shares, Chinese authorities made several attempts to release these shares to the public. The first two attempts in 1999 and 2001 failed badly. On 29 April 2005, the Chinese authorities launched a new structural reform program to encourage all A-share listed firms to gradually transform non-tradable shares into tradable shares (Beltratti and Bortolotti, 2006).

Because most controlling shareholders of SOEs are the State-owned Assets Supervision and Administration Commission (SASAC) and the Ministry of Finance (MOF), which are also ministry-level agencies of State Council. To be responsible to the State Council, it is hard for CSRC to enforce independent regulations over listed firms (Li, 2008).

that value stocks are subject to greater investor disagreement than growth stocks and thus earn higher returns. Our study is the first to provide much needed out of sample evidence on whether the superior performance of value stocks is associated with the divergence of opinion among investors.

With regards to the cross-sectional behavior of stock returns to fundamental variables in the Chinese market, our study is related to that of Eun and Huang (2007), who find size and book to market ratio are related to stock returns whereas market risk is not priced; and investors are willing to pay a liquidity premium and value A-shares more if there are offshore counterparts. Our study differs from Eun and Huang (2007) in relating the cross-sectional behavior of stock returns to the range of variables: book-to-market, sales-to-price, earnings-to-price, cash-flow-to-price, leverage and size, and accounting for the explanatory power of investor uncertainty as proxied by their divergence of opinion. The selection of these variables is motivated by many studies in developed markets. We do not, however, consider market risk as an explanatory variable, because prior studies reveal that market beta lacks explanatory power in cross-sectional regressions, even when beta is the only explanatory variable (FF 1992; Wang and Iorio 2007; Eun and Huang 2007).

Our study makes four contributions to the asset pricing literature. First, conducting studies outside of the U.S. contributes to adding out-of-sample evidence by providing a direct test against the data-snooping explanation of Black (1993) and Mackinlay (1995) and the survivorship bias hypothesis of Kothari et al. (1995). Our second contribution is to address that value stocks generate superior returns relative to growth stocks in the Chinese stock market. Our third contribution is that our sample includes stocks with negative earnings and negative cash flows, and our study is the first to evaluate the explanatory power of the sales to price for such stocks. Our fourth contribution is that we investigate how value stocks outperform growth stocks by establishing the link between divergence of opinion and superior performance of value stocks in the Chinese market.

Our findings are as follows. Using data for equities listed in the Shanghai and Shenzhen stock exchanges we find that (1) with the exception of the debt to equity variable, five of the six variables, namely book-to-market, sales-to-price, earnings-to-price, cash-flow-to-price and size, do a good job in simple one-variable classifications of value and growth stocks and show that value stocks outperform growth stocks; (2) we find that that although book to market, sales to price, earnings to price, and cash flow to price are significant in explaining expected returns in the Chinese market, the ratio of cash flow to price has the most significant positive impact on expected returns; however, both size and leverage appear to have insignificant power in explaining returns in the Chinese market; (3) divergence of opinion plays an important role in explaining the superior return of value stocks.

The remainder of the paper is arranged as follows. In the following section, we present the data and methodology employed in the paper. Section 3 presents the findings and Section 4 concludes the paper.

DATA AND METHODOLOGY

Data and Variable Description

We obtain monthly stock returns, market capitalization, number of listed shares, the risk-free rate and monthly market returns from the China Stock Market and Accounting Research Database (CSMAR), designed and developed by GTA Information Technology. The risk-free rate is proxied by the monthly return on the one-year fixed deposit and the market return is

proxied by the monthly value-weighted aggregated market return constructed using A-share stocks listed on the Shanghai and Shenzhen stock exchanges in the CSMAR databases.

We restrict ourselves to investigating the A-share market since the number of B-share listed firms is much less, the B-share market capitalization is much smaller, and the liquidity is much lower than in the A-share market. At the end of 2011, the market capitalization of the A-share stock market was around 20.53 trillion RMB and the total number of A-share stocks was 1988; while the market capitalization of the B-share market was about 0.15 billion RMB, with only 108 listed B-share stocks (CSMAR 2012). Table 1 presents the total number of listed stocks and the market capitalization for the A-share market, annually from January 1995 to December 2011. Accounting data for total shareholders' equity, total liabilities, operating revenue, net profit and net cash flows have also been obtained from the CSMAR Database. Standard deviation in monthly analyst forecasts, the mean of monthly analyst forecasts and the number of analyst forecasts are taken from the Institutional Brokers Estimate System (I/B/E/S).

Table 1
Descriptive statistics of Chinese A-share market for the sample period 1995 to 2011 (Million: Chinese Yuan)

	Shanghai A-share market			Shenzhen A-share market			Combined A-share market		
Year	MV of Tradable shares	Total MV	Number of listed stocks	MV of Tradable shares	Total MV	Number of listed stocks	MV of Tradable shares	Total MV	Number of listed stocks
1995	49.82	244.64	169	29.86	89.14	118	79.68	333.78	287
1996	125.36	534.12	184	126.84	418.75	127	252.20	952.87	311
1997	235.21	912.45	287	252.97	819.21	227	488.18	1,731.66	514
1998	287.27	1060.21	372	267.51	873.93	347	554.78	1,934.15	719
1999	412.4	1448.99	425	385.34	1181.53	400	797.74	2,630.52	825
2000	819.47	2674.72	471	735.59	2105.29	452	1,555.06	4,780.02	923
2001	771.92	2710.87	559	560.89	1543.79	501	1,332.81	4,254.66	1060
2002	704.57	2497.78	635	472.48	1270.68	500	1,177.06	3,768.46	1135
2003	783.93	2947.91	704	452.43	1220.31	494	1,236.36	4,168.22	1198
2004	707.14	2577.18	770	399.5	1076.84	492	1,106.64	3,654.02	1262
2005	652.39	2287.70	826	350.89	896.97	524	1,003.28	3,184.68	1350
2006	1592.72	7135.89	822	791.95	1755.68	530	2,384.67	8,891.57	1352
2007	6343.81	26931.56	827	2738.02	5624.68	563	9,081.83	32,556.24	1390
2008	3122.98	9565.38	844	1233.99	2349.69	715	4,458.56	14,824.85	1559
2009	11381.78	18393.19	850	3519.65	5692.27	776	14901.43	21912.84	1626
2010	14104.05	17862.18	866	4709.93	7709.87	971	18813.98	22572.11	1837
2011	12171.06	14784.89	904	3816.65	5746.71	1084	15987.71	18601.54	1988

This table reports the development of the Chinese A-share markets. Market value of tradable shares, total market value, and the number of listed stocks are obtained from the China Stock Market and Accounting Research (CSMAR) Database

The test period is 1995 to 2011. There are two main reasons for commencing the sample in January 1995. First, the number of listed stocks is quite small prior to 1995. Second, the Company Law that became effective in 1994 standardized the information disclosure of listed companies, so that accounting statements of listed companies are more structured and comparable from 1995.[8]

On November 30, 1992, with the approval of the State Council, the Minister of Finance signed and issued the first set of a`1`11`121`1ccounting standards for China – "Accounting Standard for Business Enterprises". All business enterprises were required to comply with the standards beginning July 1, 1993. In an attempt to standardize the format of statements, the CRSC released "Regulation Number Two on Information Disclosure by Listed Companies

Following, Eun and Huang (2007), we define book equity as the total shareholders' equity, debt as total liabilities, sales as operating revenue, earnings as net profit and cash flow as net cash flow from operating activities. For calculating accounting ratios, size is defined as the market value of total outstanding shares (tradable and non-tradable shares), and for the portfolio and regression analyses, is defined as the market value of tradable shares. In contrast with Eun and Huang (2007) and FF (1992), who measure the fundamental variables on an annual basis, we follow Chan et al. (1991) in the regressions and measure fundamental variables on a monthly basis in relation to moving stock prices. Following both Eun and Huang (2007) and Wang and Di Iorio (2007) who find that beta lacks explanatory power in cross-sectional regressions for China stocks, we do not consider beta as a proxy for market risk in our analysis.

To be consistent with prior studies, several data filters are applied. First, the accounting data are matched with the corresponding trading data. To this end, we restrict our sample to those firms that have a valid monthly return and market capitalization, as well as accounting data on total shareholders' equity, total liabilities, earnings, cash flows and operating revenues at the end of the previous year. This filter eliminates approximately 5.77% of the initial observations. Second, firms that have negative book value of equity are excluded from the final sample (around 1.51% of the sample). However, stocks with negative earnings or negative cash flows are retained in our sample.[9] Together, our filters eliminate 17,409 observations, so that our final sample comprises 2,392 stocks producing 221,443 monthly observations.

In order to test whether the performance of value stocks is related to investor uncertainty about a stock's future prospects, dispersion in analyst forecasts is employed as a proxy for investors' divergence of opinion. We follow Diether et al. (2002) and define dispersion as the ratio of the standard deviation of analysts' current-fiscal-year annual earnings per share forecasts to the absolute value of the mean forecast, as reported in the I/B/E/S Summary History File. Following, prior research (Diether et al. 2002; Doukas et al. 2004), we require that a stock must have a minimum of two analyst forecasts in a month to be included in the sample.[10] We use analysts' forecasts issued in June, as well as analysts' forecasts issued in April or May as confirmed in June. Since many firms listed on CSMAR are not covered by I/B/E/S, the useable sample declines appreciably. The sample at this stage comprises 1,224 stocks with 33,635 observations.

METHODOLOGY

Listed firms in China have a fiscal year-end on 31 December, and generally release their financial statements within 120 days of the year end. To avoid any concerns of a look-ahead bias, we ensure that the accounting information is feasibly available to all investors on a year-by-year basis. The analysis of the performances of value and growth stocks is conducted at the portfolio level. At the end of each month from January 1995 to December 2011, stocks with positive values of B/M, S/P, D/E, E(+)/P, and C(+)/P are allocated into five quintiles, and the remaining stocks with negative E/P (E/P DUMMY) and negative C/P(C/P DUMMY) are also placed into five quintiles. Quintile 1 ('growth' portfolio) contains stocks with the lowest values

in 1994 – The Contents and Formats of Annual Reports" (Draft), which stipulated the contents, format and timing of declaration of annual reports.

Approximately, 11% (23%) of the monthly observations involve negative earnings (negative cash flows).

[10] From the I/B/E/S Summery File, the number of firms listed in Chinese A-share market that have analyst forecasts is 1655; the number of firms which have only one analyst forecast is 431; and the number of firms which have at least two analyst forecasts is 1,224.

of the chosen variable (B/M, S/P, D/E, E(+)/P, or C(+)/P), while Quintile 5 ('value' portfolio) contains stocks with the highest values of each, respectively. Similarly, the most negative E/P (C/P) firms are placed in Qunitile 1 and the least negative E/P (C/P) firms are placed in Quintile 5. The equal-weighted monthly average returns and the average values of the remaining characteristic variables of each portfolio are then calculated.

Our motivation for including stocks that have either negative earnings or negative cash flows stems from FF (1992) who document that average returns for negative earnings firms are actually quite high, being similar to the average returns of high earnings-to-price (E/P) firms. In a similar vein, Chan et al. (1991) find that stocks with negative fundamental values are likely to earn relatively high returns.

Similar to Chan et al. (1991) and FF (1992), we perform both univariate and multivariate regressions at the individual stock level. We use subsequent monthly returns as a proxy for expected returns. Thus, at the end of each month *t*, individual stock returns in month *t+1* are regressed on the fundamental variables, B/M, S/P, D/E, E/P, C/P and size, as measured in month *t.* Our cross-sectional model is as follows:

$$R_i = \beta_0 + \beta_1 \ln(B/M) + \beta_2 \ln(S/P) + \beta_3 \ln(D/E) + \beta_4 \ln E(+)/P + DNE * \beta_5 \ln E(-)/P + \beta_6 \ln C(+)/P + DNC * \beta_7 \ln C(-)/P + \beta_8 \ln(ME) + \varepsilon_i \quad (1)$$

where if earnings are positive, E(+)/P is the ratio of total earnings to total market value of outstanding shares and the dummy variable DNE is zero; if earnings are negative, E(+)/P is zero and the dummy variable DNE is one. If cash flows are positive, the dummy variable DNC is zero; if cash flows are negative, C(+)/P is zero and the dummy variable DNC is one.

At the end of June of each year *t* (1995-2011), all stocks that have at least two analyst forecasts are sorted into three equal groups based on the market value of their tradable shares. Stocks are also independently allocated to three equal groups based on book-to-market ratio. The nine size-B/M portfolios are the intersections of the three size and the three B/M groups. The time-series mean and median values of dispersion for the portfolios are calculated from July of year *t* to June of year *t+1*.

To examine the robustness of the relationship between the divergence of opinion and average stock returns, we construct an asset-pricing model for portfolios based on Carhart's (1997) four-factor model with a disagreement risk factor (DRF). We follow FF (1993) and Carhart (1997) in constructing the zero-cost portfolios: We define SMB as the difference in average returns between small-stock portfolios (S/L, S/M and S/H) and big-stock portfolios (B/L, B/M and B/H); HML is the difference in average returns between high B/M portfolios (S/H, B/H) and low B/M portfolios (S/L, B/L); MOM is the difference in average returns between the 30 percent of firms with the highest eleven-month returns lagged one month, and the 30 percent of firms with the lowest eleven-month returns lagged one month; and DRF is the difference in average returns between the 30 percent of firms with the highest divergence of opinion and the 30 percent of firms with the lowest divergence of opinion. Our five-factor model can be shown as follows.

$$R_{pt} - R_{ft} = a_{pt} + b_p(R_{Mt} - R_{ft}) + s_p SMB_t + h_p HML_t + m_p MOM_t + d_p DRF_t + \varepsilon_{pt} \quad (2)$$

where ($R_{pt} - R_{ft}$) is the excess monthly return of the test portfolio, ($R_{Mt} - R_{ft}$) is the excess monthly return of the market portfolio, SMB_t, HML_t, MOM_t, and DRF_t are the monthly returns on the zero-cost portfolio based on size, book-to-market, prior one year momentum, and divergence of opinion, respectively. In addition, we follow MacKinlay and Richardson (1991),

Faff (2001), Gharghori et al (2011) and employ the Generalized Method of Moments (GMM) approach in a system-based application to perform the asset pricing tests.

There are two principal reasons for employing the system-based regression analysis (general method of moments, GMM). First, as Gharghori et al. (2011) point, this approach allows us to concurrently estimate the factor premiums of each explanatory variable. That is, we can test for significance of the premia for the specified factors: H_0: $\lambda_m = 0$; H_0: $\lambda_{SMB} = 0$; H_0: $\lambda_{HML} = 0$; H_0: $\lambda_{MOM} = 0$; and H_0: $\lambda_{DRF} = 0$. Recall that Doukas et al. (2004) document that the factor premium of DRF is positive and significant, whereas Diether et al. (2002) document that the factor premium of DRF is negative and significant. The main advantage of the GMM approach is that it permits us to directly test which of the conflicting findings of Doukas et al. (2004) and Diether et al. (2002) is supported. The second advantage of this approach is that it allows us to perform regressions for all portfolios simultaneously (Gharghori et al 2011). The divergence of opinion enhanced Carhart (1997) model can be shown as:

$$E(R_p) - R_f = b_p[E(R_m) - R_f] + s_p E(SMB) + h_p E(HML) + m_p E(MOM) + d_p E(DRF) \quad (3)$$

We can augment the system to allow a direct estimation of the premia for the five risk factors:

$$r_{pt} = b_p r_{mt} + s_p SMB_t + h_p HML_t + m_p MOM_t + d_p DRF_t + \varepsilon_{pt} \quad (4)$$

$$r_{mt} = \lambda_{mt} + \xi_{bt} \quad (5)$$

$$SMB_t = \lambda_{SMB} + \xi_{st} \quad (6)$$

$$HML_t = \lambda_{HML} + \xi_{ht} \quad (7)$$

$$MOM_t = \lambda_{MOM} + \xi_{mt} \quad (8)$$

$$DRF_t = \lambda_{DRF} + \xi_{dt} \quad (9)$$

The role of the divergence of opinion augmented Carhart model is tested based on the above system. Equations (5), (6), (7), (8) and (9) effectively impose a mean adjusted transformation to the independent variables of equation (4). Here, the null hypothesis is a test of whether the intercept term (a) is equal to a non-zero restriction.

$$H_0: \quad a = b_p \lambda_m + s_p \lambda_{SMB} + h_p \lambda_{HML} + m_p \lambda_{MOM} + d_p \lambda_{DRF}$$

We follow Connor and Korajczyk (1988) and Faff (1992) and employ the Modified Likelihood Ratio Test (MLRT) to determine whether DRF is useful in our asset-pricing tests. That is, we test whether the coefficients on DRF are jointly equal to zero. If the null is not rejected, DRF has no ability to price the test portfolios; otherwise, DRF is useful in pricing the test portfolios.

EMPIRICAL RESULTS

Preliminary Results

In Table 2, we present average monthly returns and characteristics for the period January 1995 to December 2011 on portfolios sorted on each of the firm characteristics (B/M, S/P, D/E, E/P, C/P and size). In each panel, stocks are assigned to portfolios as described in the prior section.

Table 2
Returns and firm characteristics for portfolios sorted by each of the variables

Panel A: B/M					
	Q_1	Q_2	Q_3	Q_4	Q_5
Return	0.0110	0.0147	0.0171	0.0207	0.0223
B/M	0.0976	0.2471	0.3333	0.4361	0.6739
S/P	0.2492	0.3439	0.4417	0.5513	0.8096
D/E	0.3241	0.3176	0.3622	0.4611	0.8846
Size	2.25E+09	2.05E+09	1.91E+09	2.14E+09	4.18E+09
E/P	-0.0192	0.0166	0.0219	0.0263	0.0338
C/P	0.0144	0.0249	0.0284	0.0382	0.0692

Panel B: S/P					
	Q_1	Q_2	Q_3	Q_4	Q_5
Return	0.0131	0.0158	0.0165	0.0187	0.0217
B/M	0.2231	0.2964	0.3581	0.4082	0.5040
S/P	0.0818	0.1903	0.3166	0.5221	1.2860
D/E	0.2568	0.3181	0.3837	0.4910	0.8995
Size	2.35E+09	2.14E+09	2.63E+09	2.35E+09	3.07E+09
E/P	-0.0001	0.0153	0.0196	0.0192	0.0266
C/P	0.0124	0.0220	0.0308	0.0409	0.0692

Panel C: D/E					
	Q_1	Q_2	Q_3	Q_4	Q_5
Return	0.0133	0.0155	0.0174	0.0190	0.0206
B/M	0.2618	0.3081	0.3483	0.4020	0.4678
S/P	0.1814	0.3043	0.4066	0.5629	0.9411
D/E	0.0740	0.1758	0.2967	0.4846	1.3187
Size	1.93E+09	1.83E+09	2E+09	2.33E+09	4.44E+09
E/P	0.0226	0.0240	0.0224	0.0195	-0.0084
C/P	0.0212	0.0257	0.0315	0.0369	0.0598

Panel D: Size					
	Q_1	Q_2	Q_3	Q_4	Q_5
Return	0.0225	0.0192	0.0160	0.0145	0.0131
B/M	0.2814	0.3576	0.3833	0.3833	0.3788
S/P	0.3994	0.4578	0.5012	0.5118	0.5179
D/E	0.4254	0.4051	0.4173	0.4148	0.6723
Size	3.92E+08	6.98E+08	1.06E+09	1.75E+09	8.3E+09
E/P	-0.0189	0.0100	0.0195	0.0277	0.0406
C/P	0.0119	0.0256	0.0340	0.0399	0.0622

Table 2 –continued

Panel F: C/P										
C/P DUMMY	Q_1	Q_2	Q_3	Q_4	Q_5					
C/P+						Q_1	Q_2	Q_3	Q_4	Q_5
Return	0.0249	0.0213	0.0198	0.0158	0.0146	0.0139	0.0133	0.0173	0.0185	0.0229
B/M	0.1037	0.3234	0.2921	0.3083	0.3037	0.3168	0.3122	0.3329	0.3840	0.5014
S/P	0.6282	0.4062	0.3664	0.3110	0.3200	0.3510	0.3762	0.4130	0.5197	0.7777
D/E	1.2657	0.7085	0.5538	0.4400	0.3835	0.3641	0.3374	0.3368	0.4284	0.7682
Size	1.06E+09	1.02E+09	1.12E+09	9.4E+08	1.25E+09	1.37E+09	1.66E+09	1.88E+09	2.49E+09	5.94E+09
E/P	-0.3690	-0.1091	-0.0609	-0.0305	-0.0093	0.0073	0.0181	0.0271	0.0380	0.0695
C/P	-0.0235	0.0011	0.0030	0.0103	0.0063	0.0206	0.0244	0.0297	0.0406	0.0849

Panel F: C/P										
C/P DUMMY	Q_1	Q_2	Q_3	Q_4	Q_5					
C/P+						Q_1	Q_2	Q_3	Q_4	Q_5
Return	0.0147	0.0135	0.0143	0.0112	0.0115	0.0110	0.0135	0.0146	0.0161	0.0190
B/M	0.3888	0.3617	0.3222	0.2793	0.2081	0.2630	0.3048	0.3418	0.3937	0.5143
S/P	0.7492	0.5082	0.4679	0.3609	0.2993	0.3199	0.3519	0.4304	0.5695	0.9008
D/E	0.9727	0.5393	0.4547	0.3771	0.3603	0.2823	0.2967	0.3384	0.4592	1.0965
Size	4.09E+09	2.01E+09	1.82E+09	1.63E+09	1.61E+09	1.99E+09	2.24E+09	2.48E+09	2.82E+09	7.46E+09
E/P	-0.0466	-0.0197	-0.0156	-0.0168	-0.0205	0.0048	0.0129	0.0171	0.0227	0.0382
C/P	-0.1635	-0.0544	-0.0274	-0.0130	-0.0038	0.0077	0.0227	0.0400	0.0661	0.1634

This table presents the average monthly returns and firm characteristics for portfolios sorted by B/M, S/P, D/E, size, E/P, and C/P for both Shanghai and Shenzhen A-share stocks from April 1995 to December 2011. At the end of each month, five portfolios of equal number of stocks are formed on positive values of the variables with five special quintiles formed for stocks with negative earnings or negative cash flows. B/M is the ratio of book value of equity to market value of equity; S/P is the ratio of operating revenues to market value of equity; D/E is leverage—debt to equity ratio; size refers to market value of tradable A shares (millions of yuan); E/P is the ratio of earnings to market value of equity; and C/P is the ratio of cash flow to market value of equity. The market equity used to measure these accounting ratios is the market value of total outstanding shares at the end of each month in year *t*.

Panels A, B, C and D report the monthly returns and explanatory variables on quintile portfolios sorted on B/M, S/P, D/E and Size, respectively. Panels E and F report the monthly returns on quintile portfolios based on E(+)/P and C(+)/P and on E/P DUMMY and C/P DUMMY. For E(+)/P and C(+)/P, Q_1 contain stocks with the lowest positive values (B/M, S/P, D/E, size, E/P, and C/P); Q_5 contain stocks with the highest positive values (B/M, S/P, D/E, size, E/P, and C/P); and stocks with negative earnings or negative cash flow are also placed in five groups. Q_1 consists of most negative E/P or C/P stocks, while Q_5 consists of least negative E/P or C/P stocks.

Panel A of Table 2 presents the monthly returns and characteristics for portfolios formed on B/M. Panel A reveals a positive B/M effect: on average, the lowest B/M quintile (Q_1) has a return of 1.10% per month, while the highest B/M quintile (Q_5) has a return of 2.23% per month, a difference of 1.13% (Q_5-Q_1) per month. This is consistent with the findings for developed markets (Japan: Chan et al., 1991; US: FF, 1992, 1998; LSV, 1994; Australia: Chan and Faff, 2003) and prior findings for China (Eun and Huang, 2007). Interestingly, we also observe a monotonic increase in the average S/P, E/P and C/P values across the B/M portfolios.

In Panel B of Table 2, we present the results for sorting on the ratio of S/P. The table shows a positive and monotonic relationship between S/P and average returns: the lowest quintile (Q_1) generates a return of 1.31%, whereas the highest quintile (Q_5) has a return of 2.17%, a difference of 0.86% per month. This result is consistent with findings reported by Barbee, Mukherji and Raines (1996) and Leledakis and Davidson (2001). The average B/M, E/P and C/P values increase monotonically across S/P portfolios.

Panel C of Table 2 presents the results for the debt-to-equity ratio. The returns range from 1.33% per month for the lowest D/E portfolio (Q1) to 2.06% per month for the highest D/E portfolio (Q5), a difference of 0.73% per month. The spread in returns is similar compared with either B/M or S/P. In addition, the panel reveals a monotonic increase for S/P E/P and C/P across the quintile portfolios.

Panel D of Table 2 reveals a strong negative relationship between average returns and size: the portfolio of smallest firms (Q_1) earns an average return of 2.25% per month and the portfolio of largest firms (Q_5) earns an average return of 1.31% per month, a difference of 0.94% per month. This negative relationship between average returns and firm size is consistent with many studies including Banz (1981), Fama and French (1992, 1993), Chan and Faff (2003) and Eun and Huang (2007). There is also a positive monotonic increase in E/P and C/P across the Size portfolios.

Panel E of Table 2 presents the average returns for portfolios formed on both positive (E(+)/P) and negative (E/P DUMMY) earnings-per-share. Consistent with LSV (1994), we find a positive relationship between average returns and E(+)/P with average returns increasing from 1.39% per month for the lowest quintile of positive E/P stocks (Q_1) to 2.29% per month for the highest quintile (Q_5), a difference of 0.90% per month. For the stocks with negative earnings (E/P DUMMY), the relatively high return of 2.49% is generated by most negative E/P stocks(Q_1), while stocks with the least E/P have average return of 1.46%(Q_5), a difference of 1.03%. It is worth noting that on average E/P DUMMY stocks relatively outperform E/P(+) stocks, consistent with Chan et al. (1991).

Panel F of Table 2 presents the results for portfolios formed on both positive (C(+)/P) and negative (C/P DUMMY) cash-flow-to price. We observe a positive relationship between average returns and C(+)/P. The lowest quintile of positive C/P stocks has an average monthly return of 1.10%, and the highest quintile an average monthly return of 1.90%, a difference of 0.80% per month. We note here that low C/P DUMMY stocks have superior returns relative to high C/P DUMMY stocks with a difference of 0.32%(Q_1-Q_5), which is smaller than the spread in portfolio returns based on E/P DUMMY. Overall, our findings indicate that value stocks have outperformed growth stocks in China.

Cross-Sectional Regression Results

Univariate Fama-MacBeth Regressions

Based on the definitions of value stocks and growth stocks, we conduct Fama-MacBeth (FM) regression analysis to investigate the relationship between fundamental variables and stock returns. Table 3 shows time-series averages of the slopes from the month-by-month Fama-MacBeth (FM) regressions of the cross-section of stock returns on B/M, S/P, leverage, size, E(+)/P, E/P DUMMY, C(+)/P and C/P DUMMY. The average slopes and *t*-statistics test the independent ability of each of the fundamental variables to explain stock returns during the period 1995-2011.

Table 3
Univariate Fama-MacBeth regressions of returns on each of the six variables over the period 1995-2011

	Const	Variable	E(+)/P	E/P DUMMY	C(+)/P	C/P DUMMY
B/M	0.0094	0.0054				
	(1.66)	(3.46)				
S/P	0.0098	0.0045				
	(1.30)	(4.49)				
D/E	0.0091	0.0033				
	(1.24)	(2.39)				
Size	0.0070	-0.0062				
	(2.67)	(-2.55)				
E/P	0.0047		0.0030	0.0022		
	(1.59)		(2.81)	(1.72)		
C/P	0.0063				0.0036	0.0038
	(1.33)				(3.20)	(3.01)

This table reports the average slopes from month-by-month cross-sectional regressions by using individual stock data. The sample period is from January 1995 to December 2011. The corresponding *t*-statistics are reported in parentheses. In the OLS regressions, the monthly excess returns of individual stocks in the subsequent month are regressed on each of the explanatory variables. All explanatory variables are log-transformed variables. Thus, B/M is the natural logarithm of the book to market ratio; D/E is the natural logarithm of the debt to equity ratio; S/P is the natural logarithm of the sales to price ratio; size is the natural logarithm of the market value of tradable shares; E(+)/P is the natural logarithm of positive earnings-to-price ratios; E/P DUMMY is the natural logarithm of the absolute value of negative earnings to price ratios; C(+)/P is the natural logarithm of positive cash flow to price ratio; and C/P DUMMY is the natural logarithm of the absolute value of negative cash flow to price ratio, The average slope is the time-series average of the monthly regression slopes for January 1995 to December 2011, and the *t*-statistic is the average slope divided by its time-series standard error.

Consistent with Table 2, the regressions in Table 3 suggest that B/M and S/P individually contributes to the explanation of average stock returns (*t*-statistics 3.46 and 4.49, respectively); and show that D/E also has significant explanatory power in explaining stock returns in the Chinese market (average slope 0.0033, with a *t*-statistic of 2.39). For the regression of returns on the size variable, the average slope is -0.0062 with a *t*-statistic of -2.55.

Consistent with the findings of Eun and Huang (2007), we uncover a positive and significant relationship between average returns and positive earnings-to-price (E(+)/P) (average slope 0.0030, with *t*-statistic 2.81), as well as an insignificant coefficient on negative earnings-to-price (E/P DUMMY) (*t*-statistic 1.72). To further investigate the explanatory power of E/P, we run univariate regressions of returns separately on E(+)/P and E/P DUMMY. In unreported results, we find that E(+)/P is again significant (*t*-statistic 2.95), and E/P DUMMY again insignificant (*t*-statistic 1,98). We run regressions similarly for C/P. The results in Table 3 show that the coefficients are positive and significant for both C(+)/P (slope 0.0036, with *t*-statistic 3.20) and C/P DUMMY (slope 0.0038, with *t*-statistic 3.01). Overall, it appears that

B/M, S/P, D/E, E(+)/P and C/P have a reliably positive influence on subsequent realized returns, with size showing negatively significance.

Multivariate Fama-MacBeth Regressions

We run multivariate Fama-MacBeth (FM) regressions to further identify the variables that most fundamentally determine average stock returns for Chinese equities. Table 4 presents average slopes and *t*-statistics from a wide range of FM regressions of returns on the group of variables specified.

Table 4
Multivariate Fama-MacBeth regressions of returns on the group of variables specified over the period 1995-2011

		Cons	B/M	Size	D/E	S/P	E(+)/P	E/P DUMMY	C(+)/P	C/P DUMMY
(A)	B/M, Size	0.0075	0.0053	-0.0063						
		(2.97)	(3.58)	(-2.72)						
(B)	B/M, D/E	0.0098	0.0044		0.0013					
		(1.74)	(3.40)		(1.24)					
(C)	S/P, Size	0.0075		-0.0065		0.0046				
		(2.92)		(-2.71)		(4.98)				
(D)	S/P, D/E	0.0099			0.0011	0.0033				
		(1.40)			(0.76)	(3.36)				
(E)	B/M,S/P	0.0098	0.0036			0.0023				
		(1.75)	(2.68)			(3.76)				
(F)	Size, D/E	0.0072		-0.0062	0.0033					
		(2.79)		(-2.62)	(2.56)					
(G)	E/P, C/P	0.0061					0.0022	0.0015	0.0029	0.0032
		(1.84)					(2.00)	(1.17)	(3.04)	(3.25)
(H)	B/M, Size, D/E	0.0076	0.0042	-0.0063	0.0015					
		(3.02)	(3.40)	(-2.75)	(1.53)					
(I)	S/P, Size, D/E	0.0075		-0.0064	0.0010	0.0034				
		(2.95)		(-2.74)	(0.78)	(3.74)				
(J)	Size, B/M, S/P	0.0076	0.0035	-0.0064		0.0024				
		(3.02)	(2.68)	(-2.75)		(3.97)				
(K)	Size, B/M, E/P	0.0081	0.0043	-0.0067			0.0033	0.0028		
		(3.50)	(3.00)	(-3.05)			(3.70)	(2.74)		
(L)	Size, B/M, C/P	0.0086	0.0042	-0.0072					0.0028	0.0033
		(2.88)	(2.73)	(-2.58)					(4.16)	(5.01)
(M)	Size, D/E, E/P	0.0081		-0.0068	0.0024		0.0035	0.0033		
		(3.42)		(-3.03)	(1.99)		(3.68)	(3.14)		
(N)	Size, D/E, C/P	0.0085		-0.0072	0.0022				0.0033	0.0041
		(2.82)		(-2.55)	(1.54)				(4.57)	(4.77)
(O)	B/M, Size, S/P, D/E	0.0076	0.0033	-0.0063	0.0004	0.0019				
		(3.02)	(2.75)	(-2.76)	(0.39)	(2.49)				
(P)	Size, D/E, E/P, C/P	0.0089		-0.0075	0.0017		0.0028	0.0029	0.0027	0.0034
		(3.14)		(-2.76)	(1.25)		(2.68)	(2.53)	(4.37)	(4.72)
(Q)	B/M, S/P, E/P, C/P	0.0060	0.0029			0.0021	0.0013	0.0006	0.0012	0.0016
		(1.88)	(2.04)			(2.82)	(1.21)	(0.40)	(1.67)	(2.02)
(R)	ALL	0.0087	0.0026	-0.0073	0.0000	0.0016	0.0027	0.0022	0.0018	0.0023
		(3.19)	(2.03)	(-2.78)	(0.01)	(1.94)	(2.78)	(2.05)	(3.34)	(3.92)

Table 4-continued

This table reports the coefficients from multivariate Fama-MacBeth regressions over the period January 1995 to December 2011. The coefficients are average time-series OLS estimates

and the corresponding *t*-values are in parentheses. Monthly excess returns of individual stocks are regressed on various subsets of explanatory variables at the end of each month. B/M is the natural logarithm of the book to market ratio; D/E is the natural logarithm of the debt to equity ratio; S/P is the natural logarithm of the sales to price ratio; size is the natural logarithm of the market value of tradable shares; E(+)/P is the natural logarithm of positive earnings-to-price ratio; E/P DUMMY is the natural logarithm of the absolute value of negative earnings to price ratio; C(+)/P is the natural logarithm of positive cash flow to price ratio; and C/P DUMMY is the natural logarithm of the absolute value of negative cash flow to price ratio. Results for various subsets of independent variables are presented.

In the regression of returns on B/M and size, the coefficient on B/M is positive and significant (average slope 0.0053, with *t*-statistic 3.58) (Model A of Table 4). In the combined regression on B/M and D/E, a significant positive coefficient is again observed for B/M (slope 0.0044, with *t*-statistic 3.40, Model B). Controlling for size and D/E, we find that B/M remains significant (*t*-statistic 3.40, Model H). When we replace B/M in Models A and B with S/P, S/P displays a high level of significance (*t*-statistics of 4.98 and 3.36, respectively, models C and D). Regressions on S/P controlling for size and leverage reveal that the coefficient on S/P is positive and significant (*t*-statistic 3.74, Model I).

When returns are regressed simultaneously on B/M and S/P, both B/M and S/P are positive and significant (*t*-statistics of 2.68, and 3.76, respectively, Model E). When size is added as a third independent variable, *t*-statistics for both B/M and S/P remain positively significant and size has negative significance (*t*-statistic -2.75, Model J). Augmenting Model J with leverage suppresses the explanatory power of S/P (the average slope on S/P has decreased from 0.0024 to 0.0019 and the *t*-statistic declines from 3.97 to 2.49, Model O).

Consistent with the findings of Table 3, we find negatively significant coefficient on size even when other explanatory variables are incorporated in the model (models A, C, F, H to P and R). Leverage also remains insignificant across all regressions (models B, D, H, I, N to P and R). In other words, leverage has little explanatory power in explaining stock returns in the Chinese market. Model G of Table 4 presents the regression of returns on E(+)/P and E/P DUMMY and C(+)/P and C/P DUMMY. Combining C/P and E/P has not greatly affected their predictive power compared to the univariate regressions (Table 3) (with the one exception that the significance of E(+)/P is somewhat reduced). Thus, E(+)/P retains a positive and significant coefficient (at the 5% level); E/P DUMMY remains insignificant; and both C(+)/P and C/P DUMMY are significant (at the 1% level). In Models K and L, controlling for B/M and size, E(+)/P, E/P DUMMY, C(+)/P and C/P DUMMY retain significant power in explaining stock returns. Notably, it appears that the explanatory power of book-to-market is not being subsumed by the influence of the E/P (E(+)/P and E/P DUMMY) and C/P (C(+)/P and C/P DUMMY).

Models M and N in Table 4 allow for regressions on E/P and C/P, controlling for leverage and size. Results of these two regressions show strong relationship between stock returns and E/P (E(+)/P and E/P DUMMY) and C/P (C(+)/P and C/P DUMMY). Model P provides a comparison of the regressions on C/P and E/P separately (Models M and N) with C/P and E/P jointly (after controlling for both D/E and size). As in models M and N, significant positive coefficients on E(+)/P, E/P DUMMY, C(+)/P and C/P DUMMY are observed, although their *t*-statistics have slightly decreased. In these regressions size remains negatively significant, while leverage is significant in Model M and then changes to insignificant in Models N and P.

Model Q in Table 4 determines which variables best capture the value effect. In this model we include all proxies while omitting leverage and size. S/P has the highest level of significance (*t*-statistic 2.82) of the variables (B/M, S/P, E/P and C/P). Both B/M and C/P DUMMY remain significant (*t*-statistics of 2.04 and 2.02, respectively). Thus, the power of the S/P and B/M ratio dominates that of the E/P and C/P variables. This multivariate regression finding confirms that value stocks have higher fundamentally risk than growth stocks. In the full model (Model R), only the coefficient on D/E is insignificant (*t*-statistic 0.01). In all regressions incorporating the C/P variable (G, L, N, P, Q and R), C/P DUMMY is significant and C(+)/P is significant in Models G, L, N, P and R. Size is negatively significant across all regressions; leverage, however, are insignificant across most of regressions. [11]

Divergence of Opinion and Stock Returns

To investigate why value stocks have superior returns relative to growth stocks, we follow Doukas et al. (2004) and link the divergence of opinion with value stock performances. Specifically, Table 5 shows the mean and median values of the divergence of opinion variable for portfolios formed after sorting stocks into 9 portfolios on the intersection of the size and B/M tritiles. The mean value of forecast dispersion is 0.2408 for the smallest size/highest B/M portfolio and 0.1211 for the biggest size/lowest B/M portfolio. We also show that small stocks have higher disagreement than big stocks ($Q_3 - Q_1$ for all companies is -0.0061), and value stocks have higher investor disagreement than growth stocks ($Q_3 - Q_1$ for all companies is 0.0537). These findings are consistent with Doukas et al. (2004) who show that small-cap and high-B/M stocks are subject to more heterogeneous beliefs among investors than large-cap and low-B/M stocks in the U.S. market.

Table 5
Dispersion of analyst forecasts for portfolios formed independently on size and B/M from 1995 to 2011

	Size Tritile				
B/M Tritile	Q_1(small)	Q_2	Q_3(big)	All companies	Q_3-Q_1
Q_1(low)	0.1464	0.1214	0.1211	0.1358	-0.0061
	[0.1469]	[0.1230]	[0.1213]	[0.1365]	[-0.0051]
Q_2	0.1847	0.1359	0.1289	0.1535	-0.0937
	[0.1846]	[0.1365]	[0.1300]	[0.1539]	[-0.3834]
Q_3(high)	0.2408	0.1999	0.1776	0.2034	-0.0452
	[0.2437]	[0.2027]	[0.1719]	[0.2026]	[-0.0406]
All companies	0.1956	0.1556	0.1446	0.1638	-0.0425
	[0.1973]	[0.1573]	[0.1430]	[0.1640]	[-0.0566]
Q_3-Q_1	0.0937	0.0606	0.0308	0.0537	

[11] We test the turn-of-the-year effect in the Chinese market, by replicating the original portfolio and regression analyses on (a) all months excluding January and February, and (b) just the months of January and February. Our results for the turn of the year effect are identical to the full-sample results and thus we advance that our findings are not driven by seasonal influences.

[0.0949]	[0.0542]	[0.0311]	[0.0513]

This table reports mean and [median] values of dispersion for portfolio formed on size and B/M. At the end of June of each year *t*, stocks are sorted in three groups based on market value of tradable shares, and stocks are allocated in an independent sort to three groups based on B/M. Nine size-B/M portfolios are the intersections of the three market value and the three B/M groups. Dispersion is defined as the ratio of the standard deviation of annual earnings per share forecasts to the absolute value of the mean forecast, as reported in the I/B/E/S Summary History File

To ensure that these results are not the outcome merely of analyst coverage, we sort stocks into 27 groups based on size, B/M and the number of analyst forecasts (NAF). Table 6 presents the mean and median values of DISP for each of the 27 portfolios. Controlling for size and analyst coverage, we establish that higher B/M portfolios retain a higher level of dispersion of analyst forecasts than lower B/M portfolios. In other words, the value-minus-growth portfolios tend to retain positive values of forecast dispersion. For example, in the case of small firms with a low level of analyst following, value (growth) portfolios have a mean dispersion measure of 0.2465 (0.1500) producing a High-Low difference of 0.0965. This evidence further supports our findings from Table 5 that regardless of the analyst coverage, the small-cap and high-B/M firms appear to have higher investor disagreement than large and low-B/M firms.

Table 6
Dispersion of analyst forecasts for portfolios of stocks sorted independently on size, B/M and the number of analysts from 1995 to 2011

	Size								
B/M	Small			Medium			Big		
	Low NAF	Medium NAF	High NAF	Low NAF	Medium NAF	High NAF	Low NAF	Medium NAF	High NAF
Low	0.1500	0.1120	0.1044	0.1383	0.1001	0.0960	0.1254	0.1180	0.0930
	[0.1510]	[0.1127]	[0.1048]	[0.1392]	[0.1016]	[0.0974]	[0.1273]	[0.1192]	[0.0932]
Medium	0.2006	0.1333	0.1140	0.1732	0.1195	0.1161	0.1526	0.1244	0.0964
	[0.1983]	[0.1339]	[0.1166]	[0.1767]	[0.1207]	[0.1157]	[0.1524]	[0.1255]	[0.0969]
High	0.2465	0.2412	0.1519	0.2152	0.1703	0.1387	0.2048	0.1648	0.1210
	[0.2475]	[0.2413]	[0.1524]	[0.2143]	[0.1629]	[0.1388]	[0.2051]	[0.1752]	[0.1214]
All	0.2124	0.1825	0.1316	0.1977	0.1367	0.1151	0.1698	0.1255	0.1183
	[0.2123]	[0.1883]	[0.1317]	[0.1968]	[0.1353]	[0.1154]	[0.1699]	[0.1291]	[0.1192]
High-Low	0.0864	0.1154	0.0424	0.0801	0.0508	0.0432	0.0787	0.0554	0.0271
	[0.0854]	[0.1175]	[0.0437]	[0.0800]	[0.0434]	[0.0417]	[0.0765]	[0.0551]	[0.0245]

This table reports the mean and [median] values of dispersion for 27 portfolios formed on size, B/M and number of analysts from 1995 to 2011. At the end of June of each year t, stocks are

equally sorted into three groups based on market value, and stocks are allocated in an independent sort to three groups based on B/M. Nine size-B/M portfolios are the intersections of the three market value and the three B/M groups. Each size and B/M group is further sorted into three dispersion groups. Dispersion is defined as the ratio of the standard deviation of annual earnings per share forecasts to the absolute value of the mean forecast, as reported in the I/B/E/S Summary History File.

To further test our predictions, we run the Carhart four-factor model with and without the disagreement risk factor (DRF). Table 7 reports the results for regressions in which the test portfolio is high B/M, low B/M, small size, and big size, as well as regressions for the value-minus-growth and small-minus-big portfolios. Panels A and B in Table 7 show that the coefficient on DRF is positive and significant (0.1174, *t*-statistic 4.48) for the portfolio of value stocks (high B/M), but is negative and significant (-0.2124, *t*-statistic -4.17) for growth stocks (low B/M). When we incorporate the DRF variable, the R square increases for value portfolios (from 0.82 to 0.89) and growth portfolios (from 0.90 to 0.92).

In Panel E we show that the coefficient on DRF is positive and significant. It is worth noting that in the five-factor model, the coefficient for the DRF is the largest and has the highest significance and the R square improves from 0.88 to 0.93. This indicates that the divergence of opinion plays a central role in explaining the superior returns of value stocks. This evidence is also strongly consistent with Doukas et al. (2004) who document thaf the disagreement risk factor is positively associated with value stock returns, but negatively related with the returns for growth stocks. The results in Panels C and D show a positive and significant relationship between average returns and the dispersion factor for the smallest stocks (average slope 0.2933, with a *t*-statistic of 5.08), and a negative and significant relationship for the largest stocks(average slope -0.0919, with a *t*-statistic of -3.91).

Panel F presents the regressions of returns for the small-minus-big portfolio. Here, we observe that returns are positively and insignificantly related to dispersion in analysts' forecasts (*t*-statistic 3.67). The coefficients and their significance on DRF for small, big, and small-minus-big portfolios are much lower than those for high, low, and high-minus-low portfolios; similarly, the spreads in the improvement of R square for portfolios based on size are smaller than those based on B/M.

Table 7
Time-Series tests of three- and four-factor models for high-B/M, low-B/M, small, and big portfolios from 1995 to 2011

Subsample	*a*	*b*RMF	*s*SMB	*h*HML	*m*MOM	*d*DRF	Adjusted R^2
A. High B/M							
	-0.0012	0.9878	0.0622	0.5213	0.0844		0.8206
	(-1.67)	(42.50)	(3.82)	(28.15)	(4.43)		
	-0.0012	0.9820	0.0812	0.5972	0.0645	0.1174	0.8929
	(-1.42)	(36.32)	(4.16)	(19.75)	(3.24)	(4.48)	
B. Low B/M							
	0.0002	1.0095	0.0143	-0.5275	-0.0094		0.9012
	(0.25)	(40.65)	(1.72)	(-23.28	(-0.60)		
	0.0014	1.0221	0.0399	-0.7235	0.0172	-0.2124	0.9209
	(1.44)	(35.66)	(1.92)	(-22.41)	(0.92)	(-4.17)	
C. Small							
	0.0016	1.0174	0.9880	-0.0404	0.0317		0.8904
	(2.20)	(50.17)	(26.14)	(-2.02)	(2.88)		
	0.0017	1.0151	1.0513	-0.1047	0.0288	0.2933	0.9143
	(1.90)	(38.50)	(23.22)	(-3.42)	(2.53)	(5.08)	
D. Big							
	0.0004	1.0114	-0.2686	-0.0080	0.0182		0.8668
	(0.93)	(60.91)	(-24.45)	(-2.64)	(1.73)		
	0.0005	0.9946	-0.2029	0.0351	0.0150	-0.0919	0.8729
	(1.45)	(63.30)	(-25.44)	(2.84)	(1.96)	(-3.91)	
E. High B/M-Low B/M							
	-0.0039	-0.0223	0.0482	1.0431	0.0990		0.8757
	(-3.37)	(-1.79)	(1.77)	(33.70)	(3.80)		
	-0.0048	-0.0385	0.0403	1.3177	0.0467	0.4488	0.9252
	(-4.01)	(-3.08)	(1.52)	(32.16)	(1.85)	(6.35)	
F. Small-Big							
	-0.0013	0.0054	1.2569	-0.0381	0.0083		0.8285
	(-1.87)	(0.71)	(75.64)	(-2.01)	(0.52)		
	-0.0010	0.0221	1.2532	-0.1428	0.0145	0.0178	0.8776
	(-1.06)	(2.23)	(59.91)	(-4.40)	(0.73)	(3.67)	

The table reports estimates of the Carhart four-factor model, and a five-factor model $R_{pt} - R_{ft} = a_{pt} + b_p(R_{Mt} - R_{ft}) + s_p SMB_t + h_p HML_t + m_p MOM_t + d_p DRF_t + \varepsilon_{pt}$ for monthly excess returns on high B/M, low B/M, small and big portfolios, as well as two zero-cost portfolios based on B/M and size (High-Low and Small-Big). The sample period is July 1995 to December 2011 and *t*-statistics are in parentheses. Adjust R square value for each model is also reported. Stocks are allocated into 3 equal sized groups based on B/M at the end of June of each year *t* to form high B/M, low B/M and high-low B/M portfolios. Similarly, stocks are also sorted into 3 equal sized groups on market value of tradable shares at the end of June of each year *t* to form small, big and small-big porfolios. The variables R_m-R_f, SMB and HML are calculated using the same methodology as Fama and French (1996). The momentum factor (MOM) is the return on the mimicking portfolio for the momentum factor as Carhart (1997) proposed. The dispersion premium (DRF) is the difference between the return on a portfolio comprised of stocks with high dispersion and the return on a portfolio comprised of stocks with low dispersion. Dispersion is defined as in Tables 5 and 6.

Table 8
System Tests of Asset Pricing Models

	GMM	λ_m	λ_{SMB}	λ_{HML}	λ_{MOM}	λ_{DOF}	MLRT, H_0: $d_p = 0$
Carhart	24.62	0.0152	0.0168	0.0285	0.0009		
	(0.9990)	(2.36)	(5.09)	(7.17)	(0.48)		
Carhart DRF	22.93	0.0160	0.0186	0.0304	0.0015	0.0221	3.87
	(0.9995)	(2.11)	(4.35)	(5.84)	(0.63)	(2.79)	(0.0073)

The test of the divergence of opinion augmented Carhart model is based on the following systems:

$$r_{pt} = b_p r_{mt} + s_p SMB_t + h_p HML_t + m_p MOM_t + d_p DRF_t + \varepsilon_{pt} \quad [p = 1, 2, ..., N] \quad (4)$$

$$r_{mt} = \lambda_{mt} + \xi_{bt} \quad (5)$$

$$SMB_t = \lambda_{SMB} + \xi_{st} \quad (6)$$

$$HML_t = \lambda_{HML} + \xi_{ht} \quad (7)$$

$$MOM_t = \lambda_{MOM} + \xi_{mt} \quad (8)$$

$$DRF_t = \lambda_{DRF} + \xi_{dt} \quad (9)$$

This table reports the GMM test statistic, the estimates of each factor premium and the MLRT statistic. The associated *t*-statistics are reported in parentheses below GMM, each coefficient estimate and MRLT statistic. The sample period is from 1995 to 2011

Table 8 presents the results of GMM system regressions by testing the Carhart and divergence of opinion augmented Carhart (Carhart DRF) models. We report the results of the system regression for the Carhart model in Table 8. We find the factor premiums for the market, size and book-to-market factors are positive and significant at the 5 percent and 1 percent levels respectively. We also find that the premium for the momentum factor is positive, but insignificant (*t*-statistic of 0.48). Table 8 also presents the results of system regression for the augmented Carhart DRF model. Our results for the Carhart model and the augmented Carhart model are similar in that the premiums for the market factor (λ_m), size (λ_{SMB}) and book-to-market (λ_{HML}) are positive and significant (*t*-statistic of 2.11, 4.35, and 5.84, respectively), and the premium for the momentum factor (λ_{MOM}) is positive but insignificant (*t*-statistic of 0.63). We also report that the factor premium for DRF (λ_{DRF}) is positive and significant (*t*-statistic of 2.79). In the last column we report the Modified Likelihood Ratio Test (MLRT) statistic which rejects the hypothesis that all parameters are equal to zero. This clearly indicates that DRF is useful in pricing assets and is a proxy for risk.

Overall, we find that value stocks generate significant superior returns relative to growth stocks and the divergence of opinion is related to such superior returns.

CONCLUSIONS

Prior studies on the performances of value stocks and growth stocks has been conducted mostly in developed markets (U.S., Japan, UK and Australia). Our study provides much needed out of sample evidence on whether value stocks outperform growth stocks. Our findings reveal that value stocks outperform growth stocks when portfolios are formed on book-to-market, sales-to-price, earnings-to-price, and cash-flow-to-price (with only a weak relationship between leverage and average stock returns). Our regression analyses confirm that these variables have individual significant power in explaining stock returns.

As well as concluding that value stocks generate superior returns to growth stocks in China, we present new evidence that such outperformance of value stocks is related positively to investor uncertainty. This evidence is confirmed by our asset-pricing analysis where we show that divergence of investor opinion shows significant explanatory power. The insights revealed by our findings indicate the need for further research into the dynamics of share price formation in emerging markets and their degree of conformity with more developed markets.

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Identification Of Core Indicators Of The Dynamic Efficiency Evaluation Method Of Design Solutions

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ABSTRACT

Optimization methods in mining industry, taking into account the time factor develop abroad from the end of 19 century. However, in the context of policy centrally planned economy development of dynamic methods substantially restrained. In the last decade have developed research in the field of dynamic methods for solving design problems of the domestic mining industry, including a number of official recommendations [1, 2]. However, the formation of a national market economy, especially the contemporary stage of the open mining (particularly complex), the development of mineral resources markets require constant adjustment and improvement of dynamic design techniques of quarries. In the mining industry specific investments, establishing the capital investment is several times bigger than the in manufacturing industries. Dynamic evaluation methods taking into account the time factor can help you determine the value of the investment in time unlike the way economic evaluation methods. Mineral markets there is a tendency for problems with the deterioration of the of economic indicators of development. This is due to the oxygen dissipated rich deposits, increasing depth development, involvement in the development of minerals with lower quality involved and content of useful components, to be found in the more difficult geological and location conditions. Investment opportunities of the development mineral-raw materials base have significant limitations, the result of which is a disproportion between the mining, metallurgical or processing capacity.

Keywords: Risk, management, design, solution, quarry, decision-making project, risk analysis, dynamic evaluation methods, economic indicators

INTRODUCTION

More comprehensive development and utilization of mineral resources located in the sphere of influence of planned and produced by mining, is achieved with a comprehensive design and development of complex fields [5, 6]. To expand the area of deposits, which are economically feasible, open cast mine, you must shoot seek to increase the proportion of the total mineral rock quarries; inclusion of new sources of mineral resources, such as off-balance sheet reserves, overburden-passing fossil, mineral processing waste; not previously retrieved accompanying climbed components.

The more extracted from ores by-product of useful components, the lower boundary becomes the content of the main useful components, along with the rise in deposits of minerals, a possible career in the exponential performance of the final product and economic efficiency of the development processing.

With the continued performance career on minerals appears to reduce the sinking rate, increase exploitation term deposits if necessary and reduce the operational stripping ratio.

Involvement in the development of associated minerals, with unchanged performance career on a mountain mass, lets you increase the performance of the quarry for commodity products and mineral resources, increase the possible depth career, mineral reserves.

The basis of the dynamic method is to identify the following key indicators [2, 9, 10]:

1. Net present value (NPV), sold at the market of mineral raw materials for the whole period of refining the extracted minerals deposits or learned useful components;
2. Rate of return or internal rate of return (IRR) for the implementation of the project of open-cast.
3. The payback period of investment (PBP).

METHODOLOGY

Accounting for changes in the value of investments in time sponsored by using the discounting factor serving to bring economic indicators, dating to the same time

$$q^{-n} = (1+i)^{-n} \quad , \qquad (1)$$

q^{-n} - discounting factor (discount);
i - interest rate (interest);
n - sequence number of the year evaluation.
To determine the net present value (NPV), realizing the mineral market, for the entire period of refining and of extracted minerals or minerals extracted, net current profit-net cash flow(NC - net cash flow) to discount taking into account that the interest rates (interest rate (i)), and the total investment (I) shall be deducted from the amount of discounted net current profit.

Thus, in a general form for career where one kind of mineral is extracted (uniform deposit)

$$NPV_c = \sum_{j=1}^{N} (NC_j \cdot q_j^{-n}) - \sum_{\omega=1}^{N_C} (I_\omega \cdot q_\omega^{-n}), \qquad (2)$$

$j \in k_1$, $\omega \in k_2$,
$k_1 = \{1,2,3,..., N\}$ - the duration of the practicing quarry, years;
$k_2 = \{1,2,3,..., N_c\}$ - investment duration, years;
q_j^{-n} - discounting factor of net current profit in j-th year;
q^{-n_ω} - discounting factor of investment in ω-th year;
NC_j - net current profit from development of career in the j-th year, after accounting for interest rate payments and taxes;
I_ω - the value of investments in ω-th year.

Investment can take place prior to the commencement of the maintenance period and in this case equation (2) will take the following form

$$NPV' = \sum_{j=1}^{N} \left(NC_j \cdot q_j^{-n}\right) - \sum_{j'=0}^{t} I_{j'} \cdot q_{j'}^{-n'} , \qquad (3)$$

j/ = (1,2,...,n/) - sequence number year of investing before the start of the maintenance period in his career;
t - investment duration, years.

When developing complex deposits net present value of the project realization career

$$NPV_c = \sum_{f=1}^{r}\sum_{z=1}^{d}\sum_{j=1}^{N}(NC_{jzf}\cdot q_{jzf}^{-n}) - \sum_{f=1}^{r}\sum_{z=1}^{d}\sum_{\omega=1}^{N_C}(I_{\omega zf}\cdot q_{\omega zf}^{-n}) \quad (4)$$

$f \in k_1$, $z \in k_2$, $j \in k_3$, $\omega \in k_4$
$k_1 = \{1,2,3,...,r\}$, $k_2 = \{1,2,3,...,d\}$,
$k_3 = \{1,2,3,...,N\}$, $k_4 = \{1,2,3,...,N_c\}$,
$k_1 = \{1,2,3,...,r\}$ - the number of minerals mined in the quarry;
$k_2 = \{1,2,3,...,d\}$ - number of useful components, derived from one type of mineral being mined in the quarry;
$k_3 = \{1,2,3,...,N\}$ - the duration of the career, years;
$k_4 = \{1,2,3,..., N_c\}$ - duration of investment, years;
NC_{jzf} - net current profit from realization of z-th useful component extracted from f-th kinds of ore extracted in a career in the j-th period;
$q^{-n}_{jzf} = (1+i)^{-n}$ - discounting factor of net current profit z-th useful component extracted from f-th kinds of ore extracted in career in the j-th period;
$q^{-n}_{\omega zf} = (1+i)^{-n}$ - discounting factor in investment ω-th year in obtaining z-th useful component extracted from f-th kinds of ore extracted in the quarry;
i - interest rate (interest);
$I_{\omega zf}$ - the value of investment in design, construction and operation of a career in the ω-th year to obtain z-th useful component extracted from f- th kind of ore.

Net present value (NPV) shows potential investors the value of investments in the development of the field, to which have not yet been developed, taking into account the following factors:

- the amount of total investment in design, construction and operation quarry, developing the deposit;
- individual annual net current profit, defined as channeled by current profit after taxes and a possible discount rate (interest rate);
- year (n_j) determine the present net current profit;
- the risk inherent in choosing investment interest rate (interest rate).

In table 1 and figure 1 is an example of the calculation of the net present value for the project, with the largest one-time career summary of investments in mining, held immediately before the commencement of construction career I_c = 430 million rubles and equal values of annual net current profit.

Under the net present value career development project refers to the economic cost of the project, calculated by summing the costs and revenues that its implementation would bring during the time of its functioning, and subtracting that amount from the last first.

If the net present value calculations prove positive, the project wives be profitable. In doing so, future costs and revenues should be on the appropriate discount rate. It is also advisable to

take into account simultaneously the internal rates of return of the project. For the considered example the net present value of project

$$NPV = \sum_{j=1}^{10} \left(NC_j \cdot q_j^{-n} \right) - I_c = (503 - 430)106 = 73 \text{ million rubles}$$

Therefore, if the investor expects to make money on interest rate 15% of your capital, it should evaluate the project in 73 million. rub. before you make an investment. The net present value of the implementation of the project depends mainly on the size of the interest rate which developed mining countries usually does not exceed 15% for open mining.

Table 1. Annual present net profit

Year	1	2	3	4	5	6	7	8	9	10
Net current (NCj) Profit, million rubles	100	100	100	100	100	100	100	100	100	100
Discounting (q_j^{-n}) factor (i = 0,15)	0,87	0,76	0,66	0,57	0,5	0,43	0,38	0,33	0,28	0,25
Net current ($NC_j q_j^{-n}$) discounted profit, million rubles	87	76	66	57	50	43	38	33	28	25

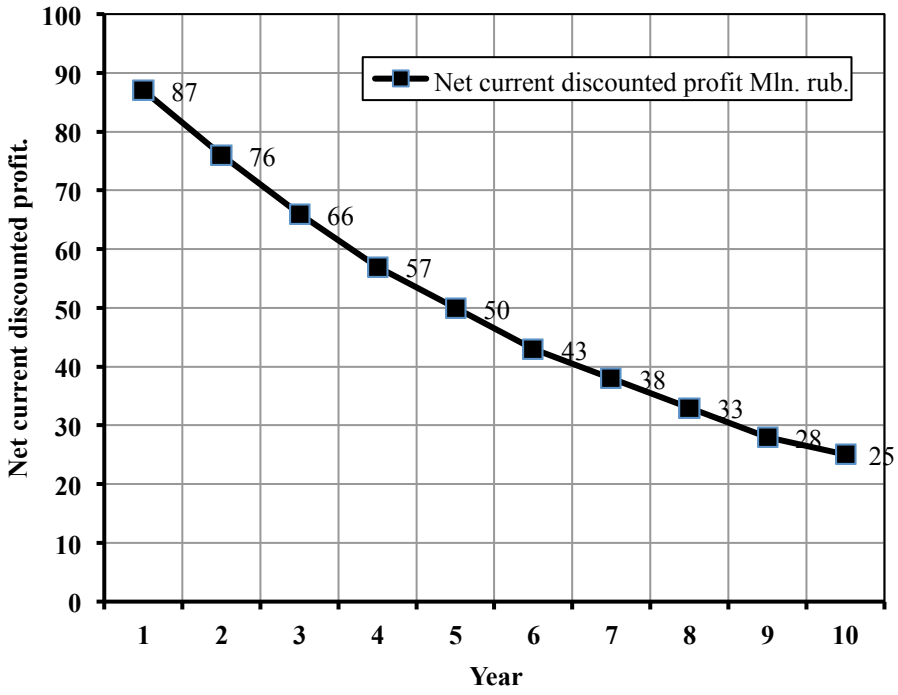

Figure 1. Change in the time schedule of net current profit

As a rule, the Government's level of commitment is chosen as a long-term investment with minimal risk. If the obligations represented 10% interest rate, the discount factor for this project must be at least 15% to compensate for the risk of involving career in operation [5].

Results you are presented in the table 1, show that the discounted net current profit through the 10 years will be evaluated only in 29% of the first year. While developing a career in 25 years, with a fixed interest rate of 15%, the last 5 years (20% of the total duration of the construction) will make up only 3% of the total net current profit.

For mining projects in our country, in the case of foreign financing, interest rates can exceed 30%. Norm for discounting and interest rate on investments do not always coincide. In the midst of the crisis phenomena in the economy and high inflation in determining the discount rules, you can navigate to the deposit rate in the most stable foreign currency (Euro or United States dollar).

Receipt of annual current profit equal during the assessment allows simplify calculations using annual factor present value - annuity factor (b_n) [6, 7, 8]

$$b_n = \frac{q^n - 1}{q^n(q-1)} \qquad (5)$$

q = 1 + i .

Thus, the formula 2 can be represented

$$NPV=CF \cdot bn - I \ , \qquad (6)$$

CF - annual current profit (cash flow) from deposit, rubles

Consider the method for determining the rate of return of the project careers in justifying investments in building career. Let's say, for open-cast mining of ore deposits needed to attract investments in the amount of I = 500 million rub. Deposits of ore reserves and demand on the market for this type of mineral raw material allows to estimate the time in 12 years. Define the net present value of the project realization with knowledge of exclusions career interest rate 10%, 20%, 30% and the net current profit per annum equal NC = 120 million rub. Investments are held just before the start of lump sum construction career.

1. Determine the amount of the annuity factor, when n = 12 years, according to the formula 6

   for i = 0,1 $\quad b_{n1} = \frac{1{,}1^{12} - 1}{1{,}1^{12}(1{,}1-1)} = 6{,}81$;

   for i = 0,2 $\quad b_{n2} = 4{,}44$;
   for i = 0,3 $\quad b_{n3} = 3{,}19$.

2. Determine the value of the net present value of the project realization careers for different values of the interest rate

   for i = 0,1 $\quad NPV_1 = 120 \cdot 6{,}81 - 500 = 317{,}2$ million rubles
   for i = 0,2 $\quad NPV_2 = 120 \cdot 4{,}44 - 500 = 28$ million rubles
   for i = 0,3 $\quad NPV_3 = 120 \cdot 3{,}19 - 500 = -117{,}2$ million rubles .

3. Building plot of the net present value of the project realization of career interest rates figure 2.

Curve NPV = f (i) crosses the x-axis at the point corresponding to the value of i = 21.7% where NPV = 0. This conforms to the profitability of the project.

The magnitude of the project rate of return is determined by the total equity net present current profit (in some cases present gross current profit) largest summary of investment:
(at unequal annual CF)

$$\sum_{j=1}^{N}\left(NC_j \cdot q_j^{-n}\right) = \sum_{\omega=1}^{N_C} I_\omega \cdot q_\omega^{-n} \qquad (7)$$

(at equal annual CF)

$$CF \cdot bn = I \quad , \qquad (8)$$

b_n - annuity factor.

When the project has uneven annual current profit value, rate of return cannot be calculated directly, but must be determined through an iterative process.

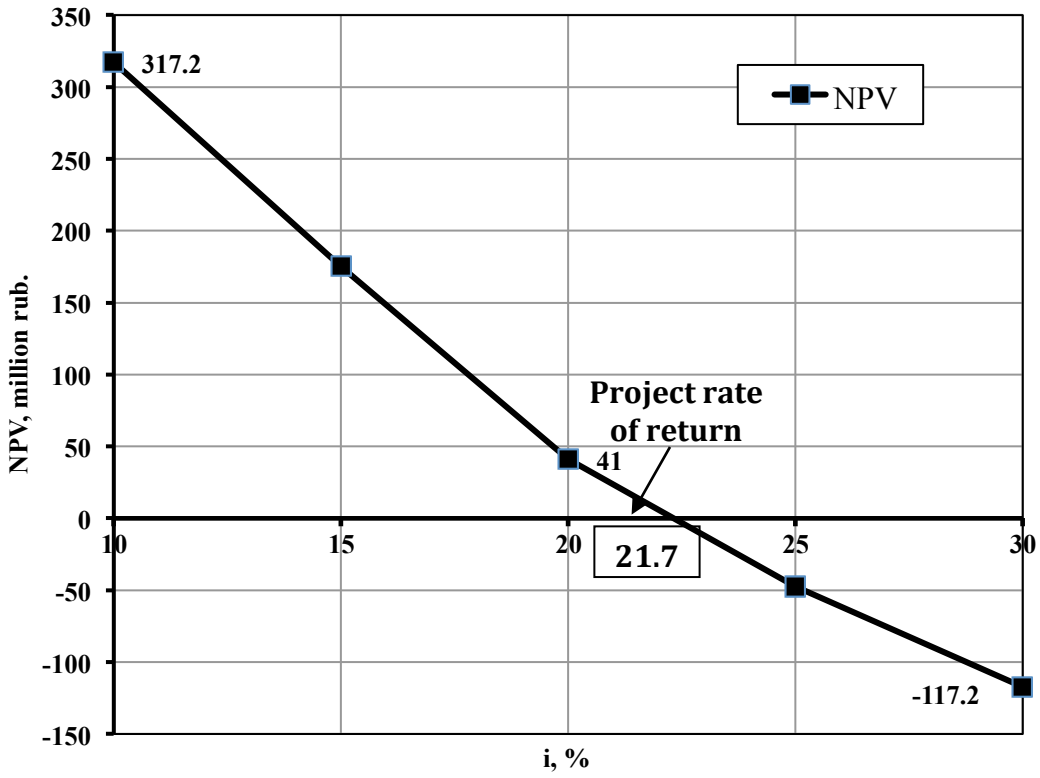

Figure 2. Diagram of dependence of net present value of the project realization of career interest rate

In the table 2 provides an example of the calculation of discounted net current profit for the project career, for i = 0.2. Investments in the amount of I = 280 million rub. held just before the start of lump sum construction career.

The data presented in table 2 permit to determine the rate of return of the project career

$$\sum_{j=1}^{8}\left(NC_j \cdot q_j^{-n}\right) = 305{,}0 \text{ million rubles}$$

$$I - \sum_{j=1}^{8}\left(NC_j \cdot q_j^{-n}\right) = 280 - 305 = -25 \text{ million rubles}$$

Table 2.Annual net profit project present career when i = 0.2.

Year	0	1	2	3	4	5	6	7	8
Investment (I), million rubles	280								
Net current (NC_j) profit, million rubles		65	95	90	85	80	75	70	65
Discounting (q_j^{-n}) factor (i = 0.2)		0,83	0,69	0,58	0,48	0,4	0,34	0,28	0,23
Net current ($NC_j\ q_j^{-n}$) discounted profit, million rubles		53,9	65,6	52,2	40,8	32	25,5	19,6	15,3

Thus obtained a negative result and net current profit may not be discount further, therefore, as a next step, take a larger interest rate, i = 0.25. In the table 3 presents the results of a calculation of discounted net current profit at i = 0.25.

Based on the results of the calculations presented in the table 3 determine the rate of return of the project career when i = 0.25.

$$\sum_{j=1}^{8}\left(NC_j \cdot q_j^{-n}\right) = 265{,}3 \text{ million rubles}$$

Therefore, $I - \sum_{j=1}^{8}\left(NC_j \cdot q_j^{-n}\right) = 280 - 265{,}3 = +14{,}7$ million rubles , equality has a positive.

In this case the net present profit to discount too much.

Table 3. Annual net profit project present career when i = 0.25.

Year	1	2	3	4	5	6	7	8
Net current (NC_j) profit, million rubles	65	95	90	85	80	75	70	65
Discounting (q_j^{-n}) factor (i = 0.2)	0,8	0,64	0,51	0,41	0,33	0,26	0,21	0,17
Net current ($NC_j\ q_j^{-n}$) discounted profit, million rubles	52	60,8	45,9	34,9	26,4	19,5	14,7	11,1

Project rate of return is determined when performing equality

$$I - \sum_{j=1}^{N}\left(NC_j \cdot q_j^{-n}\right) = 0$$

For the project rate of return of the project lies between 20 and 25%. A solution might be found simple interpolation both graphically and analytically.

Rate of return for the project, the open development of the field is determined by the sum of the discounted net current profit, equal to the largest investment in the project.

When carrying out the justification of investments into construction careers the source data are limited and the stochastic nature. For example, at this stage, the design can be taken the average mineral content during the whole period of refining field. For values of investment and

operating costs and communication costs pits perhaps the assumption of their permanence in time of construction career, until the project discontinued productivity.

The interest rate, and as a result taxes always are unevenly distributed by operating time career, so inevitably the assessment project career involved uneven annual current profit. However, if we assume the magnitude of annual profit from the production activities of fourteen permanent, the rate of return can be determined from the expression

$$b_n = \frac{I}{OP_c} \quad , \qquad (9)$$

OP_C - profit from production activities (conditionally net profit);
b_n - annual present value factor-factor rents.

Consider the methods of determining the lowest possible (edge) medium mineral constituents in the ore, providing necessary under the terms of the mineral market rate of return of the project. Consideration of this technique feasible to assess the real example of ore deposit.

Evaluation procedure methodically following may be adopted:
1. Defines the possible annual performance according to the ore-career (A_P)

$$A_p = \frac{G_p \cdot p'}{T_o} \quad , \qquad (10)$$

2. Annual present value factor (for i = 0.24) is determined by the formula (5)
3. Annual profit from production activities (formula (9)).
4. Specific annual profit

$$P_o = \frac{\text{мт}_{\text{"}}}{A_m}, \text{ rubles per ton} \qquad (11)$$

5. The smallest possible share of income, taking into account the boundary of operating costs covering operating costs and provides the necessary profit

$$\text{Rev}_{\min} = P_0 + 3_i, \text{ rubles per ton} \qquad (12)$$

6. The content of mineral components in ore that corresponds to the minimum possible income from the development deposit,

$$\alpha_{\min} = \frac{\text{Re}v_{\min}}{Ц} \quad , \qquad (13)$$

7. When retrieving the enrichment process ε ,ore at the site of occurrence should have the minimum possible content ($\alpha'_{\min}$), providing a minimal profit and economic feasibility of open cast

$$\alpha'_{\min} = \frac{\alpha_{\min}}{\varepsilon}$$

Input data and calculation results are presented in table 4.

Table 4. Baseline data and results indicators to determine the lowest possible average mineral constituents in the ore.

№	Indicators	The unit of measurement	Value indicator
1	Performance of the quarry (A_P)	thousand tons	8500
2	Ore reserves (G_P)	million tons of ore	250
3	Component losses during extraction (p)	%	15
4	The failover duration deposits (T_0)	Years	25
5	Extract at enrichment (ε)	%	80
6	Investment of rata (I)	million rubles	120
7	Unit operating costs (according to the deposits-analogues) ($З_i$)	rubles per ton	50
8	The price of concentrate (Ц)	rubles per ton	150
9	Annuity factor (b_n) при i = 0,24		3,78
10	Annual profit (OP_C)	million rubles	31,7
11	Specific annual profit (P_O)	rubles per ton	3,73
12	The smallest possible share of income (Rev_{min})	rubles per ton	53,7
13	The content of mineral components in ore that corresponds to the minimum possible income from the development field (α_{min})	%	44,7 (35,8)

RESULT

Described method allows fast enough to take the following decisions:

- on the feasibility of developing an deposit in this average content of useful components in ore;
- about the size of the possible changes in productivity and boundaries to ensure profitability quarries design with low content of useful components.

By analogy to the technique, maybe the definition of the minimum possible, economically expedient performance career for fixed content of minerals in the ore deposits under development.

Among professionals in the mining industry, designers extended fairly dismissive attitude to mining taxes. However, in the context of a market economy, taxes are a heavy burden in expensive parts of the mines affecting the results justify the investment in construction careers.

High taxes on mineral content in extracted ore must be greater than low taxes or lack thereof. Often the subsoil rents payable regardless of profits, is a significant cost element largest career, this applies particularly to energy (e.g., coal).

The tax system of the Russian Federation is in the process of change and reorganization. For certain taxes paid by mining companies to the Federal and local budget, changes the stakes, others are introducing new taxes. The main taxes are value-added tax (VAT), income tax, land tax. In addition, mining companies have been forced to implement current payments and lump-

sum payments for the right production, for environmental pollution, for reproduction of mineral-raw-material base.

To encourage investments in new mines should impose taxes, which encourages investment, increase or accelerate the rate of depreciation. All major mining countries carried out deductions for exhaustible minerals. The amount of rent for the bowels should be determined by the national mining law. To predict the level of taxes on enterprises and deposits-equivalents should access national mountain legislation that provided the consulates and embassies of foreign countries.

THE DISCUSSION OF THE RESULTS

When designing career, most of the original data is stochastic in nature, including rules and tax payments. If the project starts to be interesting only because there are tax concessions or loopholes in the tax laws, sharply increases the risk of financial and economic decisions on the likelihood of profit from the development.

May reduce tax expenditures deductibility of certain parts of the capital investment of the basic tax rules, i.e. depreciation. Depreciation rates are developed mining countries part of tax legislation, as a rule, these data in detail can be obtained from the above-mentioned sources and publications.

There are two main method of determining depreciation-calculation of linear and non-linear depreciation:

a) If you define straight-line depreciation total investment in mining should be divided by the number of years in the period of depreciation. The result is the annual depreciation rate.
b) when calculating the nonlinear depreciation (depreciation with reduced balance sheet) the depreciation rate is decreasing from year to year, table 5.

For example, consider the total investment in mining in the amount I = 1200 million rubles. Depreciation rate D = 20%, with the declining balance. Annual depreciation values develop along progressive depression, table 5.

If straight-line depreciation and the same source data (for n = 15 years practicing career) depreciation rate

$$D_L = \frac{I}{n} \quad , \qquad (14)$$

$$D_L = \frac{1200 \cdot 10^6}{15} = 80 \cdot 10^6 \text{ rubles per year}$$

Table 5. Non-linear depreciation over time practicing career.

Years	The basis for calculating depreciation, million rubles	Non-linear depreciation, million rubles
1	1200	240 (20 %)
2	1200 - 240 = 960	192
3	960 - 192 = 768	153,6
4	768 - 153,6 = 614,4	122,9
5	614,4 - 122,9 = 491,5	98,3
6	491,5 - 98,3 = 393,2	78,6
7	393,2 - 78,6 = 314,6	62,9

The data presented in the table. 5 show that nonlinear depreciation the first five years the amount of depreciation more than linear. As noted above, current profit in the first years of operation of the quarry is especially powerful effect across the economy project. Higher depreciation reduces the costs of depreciation and thus increase the net current profit (NC) improves the economic performance of the project. Because nonlinear depreciation never reaches 100%, then the residue depreciation was postponed to the last year of the operation of the quarry.

Another important aspect of holding investments in building career justification is a form of financing design, construction and development of career. Equity ratio (equity) to borrowed funds is the utilization of the funds borrowed [10, 11]. To analyze the impact of funding modalities to assess the feasibility of developing the following example we use the: Project open pit mining has a rate of return IRR = 15% for the whole period of refining offshore. The ratio of its own (equity) capital to borrowed funds taken as (1/3) k (2/3) and interest payments only 10%. The difference between 15% interest (interest rate) and 10% perspiration spent to service loan funds earned in this case is added to the equity. Thus have increased the triumphs of rate of return (IRR) approximately (2 (5%) = 10% to 25%. Leverage ratio may also have the effect of reserve. If the project has a low rate of return, such as 6%, with 2/3 leveraged funding and 10% interest, the interest must be paid, despite this low level. The difference (I-IRR) = 10-6 = 4% should be deducted from equity (1/3 of the total capital). Therefore, the rate of return of the native (equity) capital approximately can be defined as 6-(2 (4) =-2%, i.e. project can be estimated as the loss in data conditions in different contexts.

CONCLUSION

The following example shows that the variation coefficient of leverage can significantly improve the economic performance of their own (equity) funds. In special cases (when the proportion of equity approaching zero) it is possible to achieve infinitely large values for the coefficient of use of borrowed funds, provided that the project rate of return (IRR) is greater than the cost of borrowed funds. It is therefore advisable to calculate the original rate of return (IRR) without IP coefficient of use of borrowed funds. If the implementation of a mining project on a 100% funded by equity, the computation of the rate of return on equity is not necessary.

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ABSTRACT

This research work investigates the relationship between inflation, unemployment and economic growth in Nigeria (1980-2014). The objectives of the study is to examine the short run and the long run relationship between inflation, unemployment and economic growth in Nigeria. It begins with the application of Augmented Dickey-Fuller techniques to examine the unit root property of the time series data after which Autoregressive Distributive Lag Model (ARDL) was used to determine the cointegration or long-run relationship. Lastly, Vector Autoregressive (VAR) model test was conducted to investigate the causal relationship between the variables studied. Empirical findings from ARDL model shows that there is no short and the long run relationship between unemployment rate, inflation rate and real GDP growth rate in Nigeria. The results of VAR model do not indicate robust evidence and do not confirm an inverse linkage between unemployment rate and economic growth. In view of the foregoing, the study therefore recommends the adoption of fiscal measures that enhance economic growth and private sector activities, hence promoting economic growth and employment generation. In addition, key economic incentives are needed towards attracting foreign direct investment (FDI) in productive sectors of the national economy and expanding resource utilization base.

Keywords: Unemployment, Inflation, Economic growth and Okun's Law

INTRODCTION

Inflation and unemployment remain serious issues in any economy. It is part of the overall macroeconomic policy objectives that an economy maintain low rates of inflation and unemployment. Unarguably, parts of the macroeconomic goals which the government strives to achieve are the maintenance of stable domestic price level, stable economic growth and full-employment. Macroeconomic performance is judged by three broad measures- unemployment rate, inflation rate, and the growth rate of output (Ugwuanyi, 2004).

Unemployed is a person who did absolutely nothing at all or did something but not for up to 20 hours in a week. Underemployment however occurs if a person work less than full time which is 40 hours but work at least 20 hours on average a week or a person that work full time but is engaged in an activity that underutilizes his/her skills, time, educational qualification and wages. (National Bureau Statistics, 2015). Inflation on the other hand, connotes the general increase in the price level and is broadly an average measure because at any point in time, prices may be increasing, decreasing or constant; a persistent increase in prices hurts the economy, particularly the poor who have little or no savings to cushion rising prices. It is even worse when uncertainty follows price increases (Nwaobi, 2009).

Looking at the Nigerian data, the inflationary trend shows that it has been non-linear overtime. Inflation rate in Nigeria average 12.15 percent from 1996 until 2015, reaching an all-time high of 47.56 percent in January of 1996 and a record low of -2.49 percent in January of 2000. Unemployment rate in Nigeria averaged 11.45 percent from 2006 until 2015, reaching an all-time high of 23.90 percent in the fourth quarter of 2011 and a record low of 5.30 percent in the fourth quarter of 2006. While the GDP Annual Growth Rate in Nigeria averaged 4.03 percent from 1982 until 2016, reaching an all-time high of 19.17 percent in the fourth quarter of 2004 and a record low of -7.81 percent in the fourth quarter of 1983. (National Bureau of Statistics, Nigeria, 2015).

Statement of the Research Problems

The Nigerian economy has remained largely underdeveloped despite its possession of vast human and natural resources. The per capita income is low, unemployment and inflation rates are high. The economic crisis ravaging the Nigerian economy lately has taken a new dimension. That is, the inability of some states government to pay salaries of workers which later resulted to bail-out by the Federal Government, and the decline of crude oil price in the international market which has contracted our foreign exchange earnings and creation of jobs for the teaming youth that are willing and able to work.

The situation in Nigeria is disturbing as various macroeconomic policies by government have been unable to results in sustained price stability, reduction in unemployment and economic growth. The economy has continued to witness recession since the emergence of Buhari-led administration. Hence, the fluctuations in the economy have confirmed the need for proactive strategies adoption towards economic management as a way of fast-tracking employment generating growth and development.

Objectives of the Study

The broad objective of this study is to empirically investigate the relationship between inflation, unemployment and economic growth in Nigeria. Other objectives of the study are:

1) To examine the short run causal relationship between inflation, unemployment and economic growth in Nigeria.
2) To examine whether there is long run relationship between inflation, unemployment and economic growth in Nigeria.
3) To examine whether economic growth has impact on unemployment in Nigeria.

LITERATURE REVIEW

Sa'idu B, et al. (2015) examines how unemployment and inflation substantially affect economic growth. The result of causality test suggests that unemployment does not granger causes economic growth and inflation, but economic growth and inflation Granger cause unemployment, also there exist Granger causality between economic growth and inflation. Therefore, the result suggests a one-way causation flowing from inflation to GDP.

Keshmeer M, et al. (2015) investigates whether long run association among growth and unemployment is relevant for Fiji for the period 1982-2012. Johansen Cointegration test procedure was applied to ascertain the association among growth, investment and unemployment. Result confirmed the evidence of long-run association among unemployment and growth, with cointegration running from investment and unemployment to increase in economic output.

Fouzeia M, et al. (2015) investigates the relationship between growth and unemployment in Egypt. The results indicated there were no cointegration relationship between the variables of unemployment and GDP specifically implying there is no long-term relationship

Hussein Ali Al-Zeaud (2014) investigates the existence of trade-off relationship between unemployment and inflation in the Jordanian economy between 1984 and 2011. The results shown no causal relationship between unemployment and inflation in Jordan during the study period which means there is no trade-off relationship between the two variables.

Thayaparan A. (2014) examine the impact of inflation and economic growth on unemployment in Sri Lanka (1990-2012). The study discovered that unemployment granger caused by inflation. While, GDP does not granger cause unemployment. Unemployment and inflation both does not granger causes GDP growth rate, but unemployment and GDP growth rate both causes inflation.

Muhammad Aamir Khan (2013), investigates the link between the real GDP growth and unemployment, as described by Okun's law. The empirical analysis shows that a rise of one percentage point of unemployment is associated with a decline of 0.36 percentage point of real GDP growth.

Murat S, et al. (2014), estimate empirically the relationship between economic growth and unemployment rate in FYR of Macedonia applying the Okun's Law. Based on the VAR methodology and Engel-Granger cointegration test, she found no causal relationship between these two variables and a change in the growth rate of real GDP doesn't causes a change in the rate of unemployment and vice-versa.

METHODOLOGY

Sources of Data

The study used a sufficient length of secondary data ranging from 1980-2014 (34 years). The data were collected from different sources. Real GDP growth rate was sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin from 1980-2015, while unemployment rate and inflation rate were collected from the National Bureau of Statistics (NBS), 1980-2015.

Testing for the Order of Integration

The Augmented Dickey-Fuller (ADF) test, (Dickey-Fuller 1986, 1981, 1979) is based on the stationary study of variable series on the following model (Pinn et al (2011):

$$\Delta Y_t=\beta_0 + \beta_1 Y_{t-1} + \alpha_i \sum \Delta Y_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where: t is the linear trend, ΔY_t = Differenced value of a given time series variable, β_0 = Constant parameter, β_1 = Coefficient of the first lag value of the series variable, Y_{t-1}= First lag value of a series variable, α_i= Coefficient of the lag values of the differenced time series, ΔY_{t-i}= Lag values of the differenced series variable, μ_t= Error term. If the calculated ADF test statistics is less than the critical value, the null hypotheses (H_0) of a unit root cannot be rejected and the series is said to be non-stationary. The order of integration of Y is determined by conducting the ADF test on its first difference. The series will be integrated of order 1 if its first difference does not possess a unit root.

Autoregressive Distributive Lag (ARDL) Model

The Autoregressive Distributive Lag model (ARDL) is as follows:

$\Delta UNEM_t=\lambda_0+\sum_{i=1}^{n} \lambda_{1i}\Delta UNEM_{t-i}+\sum_{i=1}^{n} \lambda_{2i}\Delta RGDP_{t-i}+\sum_{i=1}^{n} \lambda_{3i}\Delta INFL_{t-i}+\lambda_4 RGDP_{t-1}+\lambda_5 UNEM_{t-1}+\lambda_6 INFL_{t-1}+\phi ECM_{t-1}+\varepsilon_t$..... (2)

In the above model, Δ is the first-difference operator, and λs' indicate long run coefficients and short run coefficients as represented, ϕ is the coefficient of Error Correction Mechanism (ECM), ε_t is the error/residual (white noise).

Decision Rules

The test of bound test is based on the F-test or Wald-test. F-test is to test the two following hypotheses as bellow:

H_0: $\lambda_4 = \lambda_5 = \lambda_6 = 0$, no cointegration or long run relationship between the variables
H_1: $\lambda_4 \neq \lambda_5 \neq \lambda_6 \neq 0$ there is cointegration between the variables.

Since F-test does not have a standard distribution (non-standard distribution), the two critical values are given for the Upper Critical Bound (UCB) and Lower Critical Bound (LCB) (Pesaran et al, 2001). LCB value assumes all variables are I(0), meaning there is no cointegration between variables, while the UCB assumes all variables are I(1) which means that there is cointegration between variables. If the calculated F value is greater than UCB, hypotheses H_0 is rejected. Therefore, there is cointegration between the variables. The opposite is true if the calculated F value is smaller than the LCB, this means that hypotheses H_0 should be accepted. If the F calculated is between the LCB and UCB, this indicates that the result could not be ascertained.

Short-Run Causality

The short-run causality is thus determined from the ARDL model above (Eq-2);

$\Delta UNEM_t=\phi_0+\sum_{i=1}^{n} \phi_1\Delta UNEM_{t-i}+\sum_{i=1}^{n} \phi_2\Delta RGDP_{t-i}+\sum_{i=1}^{n} \phi_{3i}\Delta INFL_{t-i}+\lambda_2 ECM_{t-1}+\varepsilon_{t1}$..... (3)

$\Delta RGDP_t=\psi_0+\sum_{i=1}^{n} \psi_{1i}\Delta UNEM_{t-i}+\sum_{i=1}^{n} \psi_{2i}\Delta RGDP_{t-i}+\sum_{i=1}^{n} \psi_{3i}\Delta INFL_{t-i}+\lambda_1 ECM_{t-1}+\varepsilon_{t2}$ ... (4)

$\Delta INFL_t=\delta_0+\sum_{i=1}^{n} \delta_1\Delta UNEM_{t-i}+\sum_{i=1}^{n} \delta_2\Delta RGDP_{t-i}+\sum_{i=1}^{n} \delta_3\Delta INFL_{t-i}+\lambda_3 ECM_{t-1}+\varepsilon_{t3}$..... (5)

Δ is the difference operator, ECM representing the error - correction term derived from the long-run cointegrated relation from the above specified ARDL models. In equation 3, 4 and 5, λ_s' should exhibit a negative and significant sign for causality to exist in the long run.

Granger Causality relationship to test whether:

- Unemployment (UNEM) is the determinant to real GDP growth rate (UNEM- led RGDP) or otherwise, real GDP growth rate as the cause to unemployment (RGDP- led UNEM).
- Unemployment (UNEM) is the determinant to inflation rate (UNEM- led INFL) or vice versa, as INFL is the determinant to unemployment (INFL- led UNEM)
- Inflation (INFL) is the determinant to real GDP growth rate (INFL- led RGDP) or otherwise, as RGDP is the determinant to inflation (RGDP- led INFL).

Vector Autoregressive (VAR) Model

VAR models generalize the univariate autoregressive model by allowing for more than one evolving variable. All variables in a VAR enter the model in the same way each variable has an equation explaining its evolution based on its own lags and the lags of the other model variable. Therefore, the VAR framework for this study is as follows:

$UNEM_t=\beta_0+\sum_{i=1}^{n}\beta_1 UNEM_{t-i}+\sum_{i=1}^{n}\beta_2 RGDP_{t-i}+\sum_{i=1}^{n}\beta_3 INFL_{t-i}+U_{t1}$..... (6)

$RGDP_t=\beta_0+\sum_{i=1}^{n}\beta_1 UNEM_{t-i}+\sum_{i=1}^{n}\beta_2 RGDP_{t-i}+\sum_{i=1}^{n}\beta_3 INFL_{t-i}+U_{t2}$..... (7)

$INFL_t=\beta_0+\sum_{i=1}^{n}\beta_1 UNEM_{t-i}+\sum_{i=1}^{n}\beta_2 RGDP_{t-i}+\sum_{i=1}^{n}\beta_3 INFL_{t-i}+U_{t3}$..... (8)

Where $UNEM_t$ is the unemployment rate, $RGDP_t$ is real GDP growth rate and $INFL_t$ represent inflation rate, all at current period. While $UNEM_{t-1}$ $RGDP_{t-1}$, $INFL_{t-i}$ represents nth lag period of unemployment rate, real GDP growth rate and inflation rate respectively.

β_0 = Intercept of the VAR model
β_1 β_2 and β_3 = coefficients
U_t = error terms

Decision Rules

The VAR model is based on t-statistics and F- statistics. At 5 percent significance level, if the probability value of a particular explanatory variable is less than 5 percent, it means that the explanatory variable has significance impact on the dependent variable for the t-statistics. In the case of F-statistics, the wald-test is used to test the joint significance of the explanatory variables on the dependent variable.

DISCUSSION OF FINDINGS

The Augmented Dickey-Fuller (ADF) test revealed that real GDP growth rate is stationary at level {I(0)}, while unemployment rate and inflation rate are both stationary after first difference {I(1)}.

The optimal lag of one was selected as indicated by lag length selection criterion (Schwarz information criterion, Final prediction error and Hannan-Quinn information criterion). The result of bound test for cointegration in table 1, indicates that null hypotheses cannot be rejected because the F- statistics(0.655646) is less than upper bound value (4.85) at 5 percent critical value for case III (Unrestricted intercept and no trend) as it is found in M. H. Pesaran, Y. Shin and R.J Smith critical table. Therefore, there is no long run relationship between inflation, unemployment and real GDP growth rate in Nigeria. Similar study conducted by Fouzeia, et al. (2015) observed that there is no long run relationship between unemployment and Gross Domestic Product (GDP) in Egypt.

Table-2 the VAR estimates indicate that real GDP growth rate in the previous year does not have significant relationship with current rate of unemployment, likewise inflation and unemployment. While, last year unemployment rate has significant impact of 99.20 percent on the current rate of unemployment.

CONCLUSION AND RECOMMENDATIONS

This study examines the relationship between inflation, unemployment and economic growth in Nigeria, 1980-2014. The ARDL bound test estimates of this study revealed that there is no long run relationship between the variables studied. Likewise, VAR estimates which indicates a non-significant relationship between economic growth and unemployment. In view of the foregoing results, new fiscal measures and strategies are needed to create massive employment and income. It is ideal that government at all levels should recognize the activities of rural farmers and motivate them towards diversification in order to reduce unemployment and raise output. Agricultural loans and other farm inputs such as fertilizer should be released

on time and be made accessible to the rural farmers during farming season. To curb unemployment problems in Nigeria, access to power (electricity) through private provision and enhanced security are needed to spur domestic and foreign investment in the economy. Creation of a special bail-out fund for both private and public companies and industries that their collapse or closure have rendered their workforce jobless as a means of job creation and output expansion. Additional fiscal initiatives are needed to consolidate on the existing gains of the social intervention programme towards spurring private sector led production due its employment generation and positive externalities effect on the national economy.

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APPENDIX

Table 1: ARDL Bound Test Result

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	0.655646	(3, 26)	0.5867
Chi-square	1.966938	3	0.5793

Null Hypothesis: C(5)= C(6)= C(7)= 0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(5)	-0.029606	0.066660
C(6)	-0.028062	0.104469
C(7)	-0.039774	0.028623

Restrictions are linear in coefficients.

Table 2: Vector Autoregressive (VAR) Result.

System: UNTITLED
Estimation Method: Least Squares
Date: 07/26/16 Time: 06:38
Sample: 1981 2014
Included observations: 34
Total system (balanced) observations 102

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.992020	0.054956	18.05104	0.0000
C(2)	-0.049630	0.053900	-0.920779	0.3596
C(3)	-0.028941	0.022832	-1.267583	0.2082
C(4)	1.541895	0.895246	1.722315	0.0884
C(5)	0.233354	0.170918	1.365300	0.1756
C(6)	-0.295362	0.167632	-1.761969	0.0815
C(7)	-0.047107	0.071009	-0.663396	0.5088
C(8)	4.455495	2.784268	1.600239	0.1131
C(9)	-0.611123	0.366383	-1.667991	0.0988
C(10)	0.483713	0.359339	1.346121	0.1816
C(11)	0.509344	0.152216	3.346192	0.0012
C(12)	13.49351	5.968414	2.260821	0.0262
Determinant residual covariance		21648.16		

Equation: UNEM = C(1)*UNEM(-1) + C(2)*RGDP(-1) + C(3)*INFL(-1) + C(4)
Observations: 34

R-squared	0.933649	Mean dependent var	10.12353
Adjusted R-squared	0.927013	S.D. dependent var	7.656055
S.E. of regression	2.068361	Sum squared resid	128.3436
Durbin-Watson stat	1.842202		

Equation: RGDP = C(5)*UNEM(-1) + C(6)*RGDP(-1) + C(7)*INFL(-1) + C(8)
Observations: 34

R-squared	0.154576	Mean dependent var	4.489118
Adjusted R-squared	0.070033	S.D. dependent var	6.670547
S.E. of regression	6.432728	Sum squared resid	1241.400
Durbin-Watson stat	1.983028		

Equation: INFL = C(9)*UNEM(-1) + C(10)*RGDP(-1) + C(11)*INFL(-1) + C(12)
Observations: 34

R-squared	0.423242	Mean dependent var	19.90294
Adjusted R-squared	0.365567	S.D. dependent var	17.31212
S.E. of regression	13.78933	Sum squared resid	5704.368
Durbin-Watson stat	1.626036		

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The Effect of Individual Characteristics, Competence and Quality of Work Life On Work Motivation, Intention to Leave and Employee Performance Outsoursing Manufacturing Company in East Java Province

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ABSTRACT

The existing regulations are not yet adequate to regulate the outsourcing that has been running in the middle of economic life. This condition affects workers labor/looked at as an object that can be exploited. Outsourcing problems in Indonesia is getting worse along with the practice of outsourcing has been legalised by the Government with the Act No. 13 of 2003 On Labor that much controversy it. This research aims to demonstrate and analyze the influence of individual characteristics, competence, quality of work life against motivation, intention to leave and employee performance employee outsoursing outsourcing manufacturing company in East Java province. The population in the research this is the employee outsourcing manufacturing company in East Java province totaled 774 people and the sample numbered 264 people. Method of data processing is using SEM (Equational Structure Modeling) with AMOS version 18. The result of discussions can be concluded that 1) Characteristics of the individual significant effect on work motivation, 2) Characteristics of the individual significant effect on competency, 3) Characteristics of the individual significant effect on intention to leave, 4) Characteristics of the individual no significant effect on the employee performance, 5) Competence significant effect on work motivation, 6) Competence significant effect on intention to leave, 7) Competence significant effect on to the employee performance, 8) Quality of work life significant effect on work motivation, 9) Quality of work life significant effect on intention to leave, 10) Quality of work life significant effect on the employee performance, 11) Work motivation significant effect on intention to leave, 12) Work Motivation significant effect on the employee performance and 13) Intention to leave no significant effect on the employee performance.

Keywords: individual characteristics, competence, quality of work life, work motivation, intention to leave and employee performance

INTRODUCTION

A proliferation of outsourcing companies as service providers on one side has been menumbuh developed the corporate world as well as increasing government revenue from corporate tax side as well as create jobs to minimize the number of pengganguran. But on the other hand the presence of decreased levels of kesejahtraan employees of the company where employees work in manufacturing industries with a presence over the status to employees of the temporary and outsourced work based on PKWT.

One of the efforts made by the company by applying a system of outsourcing is to enhance the effectiveness and efficiency of planning in human resources management, such as recruitment, training programs, administration personnel, retirement or succession program (Karthikeyan et al., 2011), and traditionally, the most important purpose of the system of outsourcing is increasing the cost-efficiency of effort (Holcomb and Hitt, 2007; Sutedi, 2009), and by using a system of outsourcing companies may be trying to save expenditure to finance the development of human resources (HR) company (Sutedi, 2009).

The current Government has set up a formal legally that the existence of the company-a provider of labor, especially the manufacturing industry who submit partial execution of the work to other companies through the provision of work or chartering agreement workers/labourers are made in writing in accordance with the provisions of article 64 of law No. 13/2003. The implementation of such understanding is called outsourcing in accordance with the ruling of the Constitutional Court No. 27/PUU-IX/2011.

Manufacturing companies to facilitate the supervision of the use of outsourcing employees. Outsourced employees into a performance measure when the production output has been determined by the company. With regard to the performance of employees, there are several factors that affects the performance of the employee. Individual characteristics, competence and quality of work life presents to affect the performance of the employees. Some research results have confirmed that the third non variable effect on the performance of employees like Jakfar (2014) and Pujiwati and Susanty (2015). Other factors that also affect the performance of the employee was the motivation and intention to leave. Some research results have been justifying the second variable hardness, affect the performance of the employee such as Arifin (2015). Based on the above description, then the researcher is interested in researching with the title "the influence of Individual Characteristics, competence and quality of work life against Motivation, intention to leave and Employee Performance Outsoursing manufacturing company in East Java province.

LITERATURE REVIEW AND HYPOTHESIS

Individual characteristics

Stoner (1989:431) individual characteristics i.e., interests, attitudes and needs of someone who was brought into the work situation. Mathis and Jackson (2006:35) are four individual characteristics that affect how people can be accomplished include interest, identity, personality and social background. Robbins (2008:171) individual characteristics is the attitude indicator is the evaluative statements either desired or undesired objects, people or events. Personality is a set of characters that underlie behavior patterns are relatively stable in responding to an idea, object, or a person in their environment.

Competence

Spencer and Spencer (1993:9) Competence is an ability to perform or do a job or task that is based upon skills and knowledge as well as supported by the attitude of work required by the job. Gordon (1996) some aspects contained in the concept of competency as follows: i.e. *knowledge*, *understanding*, *skill*, *value*, *attitude* and *interest.*

The quality of working life

Wayne (2003), that managers provide opportunities for workers to design their work about what is needed in making a product or service so that they can work effectively. Walton (1974) to measure the quality of working life: a fair and adequate compensation, a safe and healthy

environment, growth and security, the development of capabilities, total living space, constitutionalism, social integration, and social relevance.

Work Motivation

Robbins (2008) motivation of working is beyond uproses that generates an intensity, direction and individual perseverance in trying to achieve a goal. Herzberg (1966) motif is the motivation of working encourages employees to do the work of appropriate basic tasks and functions of the Office are assessed or measured on the basis of the dimensions of the motivators and hygiene factors. In the absence of motivation of employees to cooperate for the benefit of the company, then the intended purpose will not be achieved. According to the theory of motivation theory McClelland as expressed by Robbin (2011:207) then work motivation indicator consists of several aspects needs i.e. the need for achievement, the need for affiliation, and the need for power.

Intention to leave

Intent to leave is of interest to resign voluntarily or otherwise permanently from an organization (Robbins, 2007:38). Intent to leave a person's subjective possibility is to display an act of Fisbein and Ajzen (1975:301). The level of intent to leave the high can lead to increased costs recruitmen, selection, and training. Ableson (2013) interpret the intent to leave as the desire for someone to move and look for an alternative place of work to another. Intention to leave is measured using indicators (Mor Barak, Nissli, and Levin: 2001) include: demographic, organizational commitment and satisfaction and fairness in providing compensation and organizational culture.

Employee Performance

Gibson (2004) employee performance is the result of a person's behavior or group associated with the way it works. States that the performance is basically what is done or not done employees. Operationally performance is measured using indicators (Anoraga (2005:178-179) that motivation, education, discipline, skill, attitude to work ethic, nutrition and health, level of earnings, work environment, physical noin technology, means of production, the necessary means of production factors, social security, management and opportunity achievers

ANALYSIS MODEL

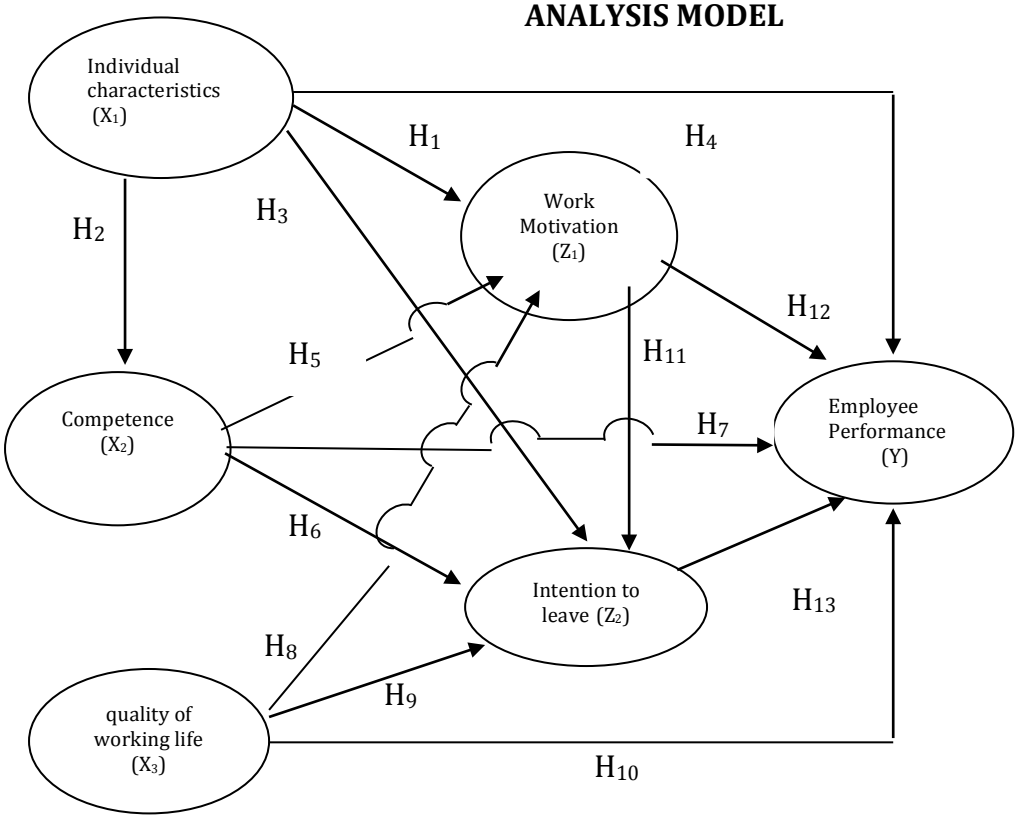

Figure 1. Analysis Model

RESEARCH METHODS

The population in this research is outsourced employees totalling 774 people are scattered in 5 (five) manufacturing company in East Java province. The number of samples obtained on the basis of 264 reference formula Yamane (Narimawati and Munandar, 2008). Measurement techniques questionnaire using likert scale. This research uses of data analysis in SEM (Equational Structure Modeling) using the AMOS version 18 (Ferdinand, 2000:6).

ANALYSIS AND DISCUSSION

Results analysis using SEM research model shown in Figure 1. A model is said to be good in the development of the conceptual and theoretical hypothesis supported by empirical data, structural equation model test results are shown on the following picture:

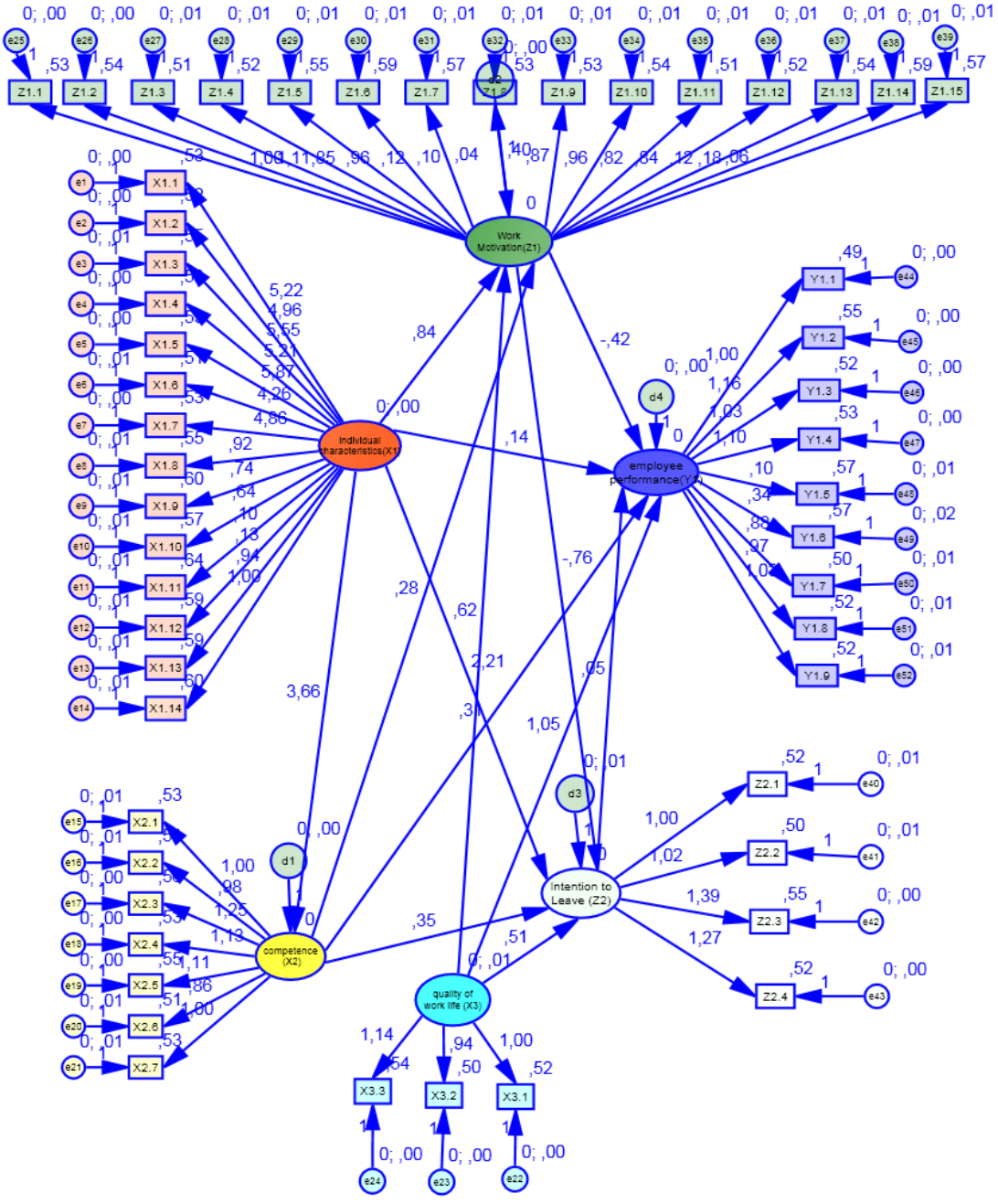

Figure 2. Structural Equation model

The table below is a table of the results of tests of Goodness of Fit of the model taken from the last modified or the results of the development model of the best mods. The results of calculation of index of conformity (goodness of fit index) show that of the eight criteria are evaluated it turns out only two criteria that already meet (fit) i.e. the Goodness of Index (GFI) and RMR.

Tabel 1. Indeks Kesesuaian Model Pada *Structural Model*

Goodness of Fit Measure	**Indeks**	***Cut off***	**Keterangan**
Chi-square of estimate model	89,055		
Probability Level	0,000	> 0,05	Tidak Fit model
Goodness of Index (GFI)	0,929	≥ 0,9	Fit model
Adjusted Goodness of Index (AGFI)	0,725	≥ 0,9	Tidak Fit model
RMSEA	0,110	≤ 0,08	Tidak Fit model
RMR	0,041	≤ 0,05	Fit model
Tucker-Lewis Index (TLI)	0,670	≥ 0,9	Tidak Fit model
Comparative Fit Index (CFI)	0,686	≥ 0,9	Tidak Fit model

Testing the hypothesis presented in this study was done based on the value of the Critical ratio of CR from a relationship of causality. The results of the analysis of the relationship of causality between the variables research using program AMOS version 6 can be seen in table 2.

Keywords: individual characteristics, competence, quality of work life, work motivation, intention to leave and employee performance

Tabel 2.Uji Kausalitas Regression Weight

Hubungan Kausalitas			**Std. Est.**	**SE**	**CR**	**Significant**
individual characteristics	➔	work motivation	,807	,338	2,391	,017
individual characteristics	➔	competence	3,663	1,205	3,039	,002
individual characteristics	➔	*Intention to_Leave*	,276	,047	2,614	,009
individual characteristics	➔	employee performance	,662	,041	1,792	,073
competence	➔	work motivation	2,491	,953	5,856	***
competence	➔	*Intention to_Leave*	,450	,133	3,386	***
competence	➔	employee performance	,803	,242	5,436	***
quality of work life	➔	work motivation	-1,139	,348	16,151	***
quality of work life	➔	*Intention to_Leave*	,904	,504	3,314	***
quality of work life	➔	employee performance	,536	,099	9,881	***
work motivation	➔	*Intention to_Leave*	1,638	,166	-3,273	,001
work motivation	➔	employee performance	-,052	,062	-5,351	***
Intention to Leave	➔	employee performance	-1,215	,227	-,837	,403

The characteristics of individual significant effect on work motivation

The results of the variable parameter estimation characteristics of individuals towards work motivation based on indicators-charge indicators will show significant results with a value of

CR 2.391 (< 1.96) and extent of 0.017 significance (p 0.05 <) shows that the characteristics of the individual effect significantly to the motivation of working proved his righteousness. Results of the research it supports research conducted by Jakfar (2006) concludes that the characteristics of the individual effect significantly to the motivation of work. this research results prove that the theory of Stoner (1989) is an interest, attitudes and needs of someone who was brought into the work motivation it is very important to increase the outsourced employee motivation in the company

The characteristics of Individual significant effect on Competency

Results variable parameter estimation of characteristics of the individual against the competencies based on indicators-charge indicators will show significant results with a value of CR 3.039 (< 1.96) and 0.002 significance level (p 0.05 <) shows that the characteristics of the individual effect significantly to proven competencies. Results of the research it supports research conducted by Sarwoko, Surachman, Armanu, and Hadiwidjojo (2013) which concluded that individual characteristics influence on competence.

The characteristics of Individual significant effect on Intention to leave

Results variable parameter estimation Results characteristics of the individual against the intention to leave based on indicators-charge indicators will show significant results with a value of CR 2.614 (< 1.96) significance level 0.009 (p 0.05 <) shows that the characteristics of the individual effect is significant against the intention to leave proved his righteousness. Results of the research it supports research conducted by Tominaga (2013) which concluded that the characteristics of the individual effect is significant the intention to leave the research supporting the theory.

The characteristics of Individual significant effect on the employee performance

Results variable parameter estimation Results of individual characteristics on performance of employees based on indicators-charge indicators will show results that are not significant to the value of CR 1.792 (> 1.96) significance level 0.073 (p 0.05 >) shows that the characteristics of the individual effect significantly to the performance of the employee was denied the truth. The results of this study contradicts research conducted by Ul-haq and Rehman (2015) which concludes that the characteristics of the individual effect significantly to the employee performance.

Competence significant effect on work motivation

Results variable parameter estimation competence Results against the indicators based on the motivation of working-charge indicators will show significant results with a value of CR (5.856 1.96) with adequate < significance 0000 (p 0.05 <) shows that the characteristics of the individual effect significantly to performance proven truth. Results of the research it supports research conducted by Murgianto, Sulasmi and Suhermin (2016), which concluded that the competence of influential significantly to work motivation.

Competence significant effect on intention to leave

the variable parameter estimation Results of competence against the intention to leave based on indicators-charge indicators will show significant results with a value of CR 3.386. (< 1.96) and extent of significance 0.000 (p 0.05 <) shows that significant influential competency against the intention to leave proved his righteousness. Results of the research it supports research conducted Yousaf, Sanders and Yustantio (2016), which concluded that the competence of significant effect the intention to leave the research support.

Competence significant effect on the employee performance

Results variable parameter estimation competence Results against performance indicators based on employee-charge indicators will show significant results with a value of CR 5.436 (< 1.96) and extent of significance 0.000 (p 0.05 <) shows that a significant effect on performance competence employees proven true. The Results of this study support the research conducted Syahrum, Brahmasari and Nugroho (2016) that concluded that the significant effect on performance competence employees.

Quality of work life significant effect on work motivation

the results of parameter estimation of the variable quality of work life indicators based on work motivation against-charge indicators will show significant results with a value of CR 16.151 (< 1.96) and extent of significance 0.000 (p 0.05 <) shows that the quality of work life effect significantly to the motivation of working proved his righteousness. Results of the research it supports research conducted and Brahmasari Kurniawan, Ratih (2016) that concluded that the significant effect on the employees performance.

Quality of work life significant effect on Intension to leave

Result parameter estimation of variable quality of working lives on intension to leave based on indicators-charge indicators will show significant results with a value of CR 3.314 (< 1.96) and extent of significance 0.000 (p 0.05 <) shows that the quality of work life effect significantly to the intension to leave rejected truth. Results of the research it supports research conducted Aketch, Odera, Chepkuto and Okaka (2012) concluded that the quality of work life effect significantly to job motivation.

Quality of work life significant effect on the employee performance

Result parameter estimation of variable quality of work life employees based on performance indicators-charge indicators will show significant results with a value of CR (9.881 1.96) with adequate < significance 0.000 (p 0.05 <) shows that the quality of work life effect significantly to performance proven truth. Results of the research it supports research conducted, Hamid, Moselem Ghanbar, Alireza, Hossein and Alireza (2012) which concluded that the quality of work life of significant effect on intention to leave the research supporting the theory.

The motivation of working significant effect on Intention to leave

The motivation of working against the Intention to leave based on indicators-charge indicators will show significant results with a value of CR-3.273 (< 1.96) and degrees of significance of 0.001 (p 0.05 <) shows that significant influential work motivation against the Intention to leave proven truth. These results support research Qureshi (2013), which concluded that significant influential work motivation on performance of employees.

The motivation of working significant effect on the employee performance

the results of parameter estimation variables work motivation on performance indicators based on karyawam-charge indicators will show significant results with a value of CR-5.351 (< 1.96) and extent of significance 0.000 (p 0.05 <) suggests that the motivation of working effect significantly to performance proven employees. Results of the research it supports research conducted by Arifin (2015) which concluded that motivation effect siginfikan on performance of employees. As such, owned a high motivation of employees in work will generate a high outsourcing employee performance also

Intention to leave significant effect on the employee performance

variable parameter estimation results of the intention to leave on performance indicators based on karyawam-charge indicators will show results that are not significant to the value of CR-0.837 (< 1.96) and 0.403 significance level (p 0.05 >) indicates that intention to leave a significant effect on performance karyawam denied the truth. The results of this penelitin contrary to the research conducted by Rasool, Arzu, Hasan, Rafi, and Kashif (2013) are summed up the intention to leave no significant effect on employees performance.

SUMMARY

1. Characteristics of the individual significant effect on work motivation.
2. Characteristics of the individual significant effect on competency.
3. Characteristics of the individual significant effect on intention to leave.
4. Characteristics of the individual no significant effect on the employee performance.
5. Competence significant effect on work motivation.
6. Competence significant effect on intention to leave
7. Competence significant effect on to the employee performance
8. Quality of work life significant effect on work motivation.
9. Quality of work life significant effect on intention to leave
10. Quality of work life significant effect on the employee performance.
11. Work motivation significant effect on intention to leave
12. Work Motivation significant effect on the employee performance.
13. Intention to leave no significant effect on the employee performance.

LIMITATIONS

1. The time available for researchers to carry out research by spreading the now questionnaire to respondents for an employee on a business day, it is really time to collide with researchers because researchers carrying out lectures while working, making it difficult for researchers to meet employees faced with time limitations.
2. The employee's Understanding of outsourcing personnel management model still less so troublesome to fill in questionnaire research correctly and on time
3. Not all locations of companies use outsourcing employees is acceptable and allows researchers to undertake research, since the issue of outsourcing is still a problem that is very sensitive to developments in the business world and the competition of labor outsourcing service providers
4. Not all outsourced employees who work in manufacturing companies in East Java province obtain adequate welfare of its members. Then it is very possible the difference manufacturing company in East Java province each area in East Java will give different results, so that the results of this research can not completely generalizable

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The Effect of Balanced Scorecard on the Private College Performance (Case Study at the University of WR Supratman Surabaya)

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ABSTRACT

One important factor that is used to assess the success of private college is performance. Private colleges continue their efforts to prepare and fine-tune their business strategies in order to survive in the world of education and even become a winner in the competition. Measurement of performance becomes a very important thing. Balanced Scorecard has goal and measurement that is not only a combination of financial and non-financial measurement, but is the result of a top-down process based on the mission and strategy of a private college. The purpose of this study is to determine the effect of Balanced Scorecard model toward performance of future private colleges. The independent variable in this study is the Balanced Scorecard that consists of customer perspective, financial perspective, internal business process perspective and the perspective of process of growth and learning, while the dependent variable is the performance of the private college (Y). The sample in this study is 100 people covering over half of the students (IV and above) who are active students at the University of WR Supratman Surabaya. Method of data processing is using multiple linear regression with SPSS. The result of Discussion can be concluded that (1) Balanced scorecard model simultaneously effects on the performance of future private colleges significantly, which is characterized by the significant value of F arithmetic amounted to 0.000 (0.000 <0.05), and (2) Balanced scorecard model partially influences to the performance of the future private colleges significantly, which is marked with significant value of t calculate of customer perspective amounted 0.014 (0.014 <0.05), the customer's financial perspective for 0.035 (0.035 <0.05), internal business process perspective of 0.002 (0.002 < 0.05) and the perspective of growth and learning process of 0.000 (0.000 <0.05)

Keyword: Balanced Scorecard, and private college performance

INTRODUCTION

Draft of Law on Education Legal Entity (BHP), which mandates that management education is essentially non-profit, however management is done in corporative way like a business entity. Educational institutions are required to run a transparent management as a form of accountability to education stakeholders. Therefore the institutions become an organization associated with the various interests of educational users. Consequently, educational institutions must be independent and able to take advantage of educational resources effectively. The utilization of these resources needs to be continuously evaluated and there should be an assessment of the outcomes of education as a form of accountability.

Balance scorecard as a management system has a strategic relationship with the financial and non-financial instruments in four keys of an organization, and it is becoming a really good mean. Thus the measurement of private colleges' performance is not only focused on one

perspective only, but also on other perspectives that support the growth of private colleges. Private colleges are not likely to survive in the long term. Therefore private colleges can implement the measurement of performance with Balanced Scorecard. The performance of private colleges as a form of management responsibility can be measured by using balanced scorecard perspectives that include the customer perspective, then the financial perspective, internal process perspective and learning and growth perspective.

Based on the above background, the problem in this research is "How the balanced scorecard model can be used as a performance measurement of future private colleges ". The hypothesis in this study is (1) a balanced scorecard model simultaneously and partially effect on the performance of the future private colleges significantly ". The purpose of this study is to determine and discuss how the balanced scorecard model can be used as a performance measurement model of future private colleges. These results are published as a national journal or teaching materials in the field of management particularly.

The results of the study can be used as material which provides a reference for private colleges in assessing their performance, so as to measure the ability in accounting its management.

LITERATURE REVIEW

Balanced Scorecard

The Balanced Scorecard rapidly developed in recognition of its potential and emerged as a new strategic management system (Butler et al, 1997 in Abdalkrim, 2014). Binden, Mziu, and Suhaimi (2014) The Balanced Scorecard is used as a measurement tool in order to measure an organization's performance in both public and private sectors to achieve the key business strategies and objectives. Lin, Yu, and Zhang (2014) in Shukria and Ramlia (2015) The Balanced Scorecard is formally defined as a multidimensional approach to measure the management performance through examining relationship between the organizational strategies and operational performances. Customer is to emphasize and take advantage of market segmentation or intrinsic sources to distinguish the difference between competitors (Wu, Lin et al. 2011 in Ahmad and Soon, 2015). The scorecard can help to focus this strategic vision so managers to select a limited number of critical indicators within each of the four perspectives (Ali, 2007; Kaplan and Norton, 1993 in Al-Hosaini and Sofian; 2015). Rigby (2011) in Elola, Tejedor, Pastor Tejedor (2016) The balanced Scorecard is an advanced model of strategic orientation of organizations and it is also use 54 per cent of the 1,230 global firms.

One of the main goals of balanced scorecard is to create a participation and communication of the vision and strategic objectives of a company. If the concept is not applied as it should be, then the people in the organization will probably have a wrong perception that the balanced scorecard is a controller for themselves, not for company that is attempting to make progress to achieve the goals that have been set.

Many executives look balanced scorecard as an initiative to improve the performance measurement system not as something that is made to make fundamental changes in the way the company manages its business. So many managers are interested only in the conceptual appeal of the balanced scorecard, whereas conceptual appeal is not an enough reason to start this program. When construction is begun, every senior executive must identify and agree on the main objectives of the project implementation.

Performance of Private Colleges

Poureisa, Ahmadgourabi, and Efteghar (2013) in Al-Hayaly and Alnajjar (2016) Balanced performance card represents a system for measuring performance based on evaluating the

organization development and growth, and enhancing its abilities with the goal to improve the customers satisfaction and the organizational effectiveness and efficacy. Niven (2008) in Pietrzak, Paliszkiewicz and Klepacki (2015) Balanced Scorecard is used in government agencies, universities, and non-profit organizations. The company's performance is usually focused on the group task, rather than the group matter subject internally. It can be concluded that the college performance is the result achieved by college in a given period under review from the important perspectives which are financial, customer, internal business, learning and growth as a result of the implementation strategy of the college in order to realize its vision.

The company's performance is usually focused on the task group, rather than on group matter subject internally. Kaplan and Norton (2002) in Awadallah and Allam (2015) aspects that are measured in the balanced scorecard include:

1) Performance metrics– financial

Excellence in the financial sector is expected to guarantee the welfare of the university resources, the effectiveness of the use of funds and the continuity of the educational process. Through excellence in finance, a university can realize the other three perspectives: customer, internal processes, and learning and innovation.

2) Customer Perspective

Students as consumers, learners and as an investor for the future have a role to determine the sustainability of a lecture. As consumers, students are entitled for quality service and education. As investors, students are entitled for future benefits on teaching and education they got. The success to realize students' hope is an indicator of lecture success that is the existence of a system that works dynamically to produce graduates with effective placement, ensure the quality of instructional and academic activities support and establish good relations between the University and the student trustee.

3) The internal process perspective

Just as in business entity, universities also need to identify the most important process manifested in educational services appropriate to customer expectations. Central to the process is based on university efforts to provide assurance on the quality of Teaching and Learning and the quality of the supporting devices of Teaching and Learning. In the implementation, the service that has been designed is then conducted with effective cost.

4) Learning and Growth Perspective

To operate the internal processes in order to produce services that have value for students, the university requires productive and committed personnel. Productivity is determined by the competence of personnel and the availability of infrastructure required to run the internal processes. The commitment of personnel is determined by the quality of working environment built at the university. It is realized through communication, appreciation and support of the university for individuals of the highest positions up to the bottom.

RESEARCH METHODS

Research Stages

This study is begun by analyzing the perception of the management of lecture implementation performance at the University of WR Supratman that exists today. The analysis is conducted using the method of participant observation, questionnaires, and interviews and processed

with statistical program SPSS. The research location is at University of WR Supratman Surabaya which is located at Jalan Arief Rahman Hakim No. 14 Surabaya.

ANALYSIS MODEL

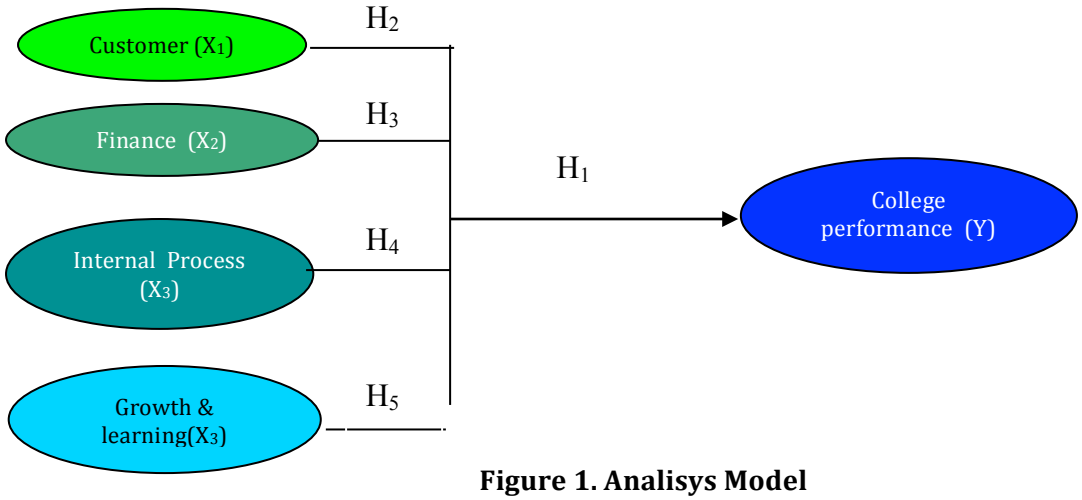

Figure 1. Analisys Model

Data Analysis Technique

The data were analyzed using multiple linear regression assisted by SPSS software version 23. The steps undertaken to analyze the research data are as follow:

1. Validity Test

According to Ghozali (2011: 52), the validity test is used to measure whether a questionnaire is legitimate or invalid. Validity test is done by calculating the level of significance of bivariate correlation of respective indicator scores with a construct total score. An question indicator is stated to be valid if the level of analysis of the correlation value is less than 5% (sig <0.05).

2. Reliability Test

According to Ghozali (2011: 53) reliability is a mean to measure a questionnaire which is an indicator of variables or constructs. SPSS provides the facility to measure the reliability of the Cronbach alpha statistical test. A construct or variable said to be reliable if the Cronbach alpha value is above 0.6.

3. Determine The Equation Model

According Sugiyono (2014: 191), multiple linear regression analysis aims to measure the influence of independent variables. Multiple linear regression is to show an independent relationship with two or more other independent variables.

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$

Information:

Y = college performance

β0 = constant

$\beta_{1,2,3,4}$ = constant of independent variable

X_1 = customer perspective

X_2 = financial Perspective

X_3 = internal process perspective

X_4 = learning and growth perspective

e = error term

4. Classical Assumption Test

Classic assumption test aims to determine whether the regression model shows a significant and representative association. The classical assumption used are (Ghozali, 2011: 105): Normality Test, Autocorrelation Test, Heterocedastity Test and Multicolinearity Test.

5. Hypothesis testing

is done by using multiple linear regression to test the effect of independent variables on the dependent variable using the T test and F test. T test is used to determine whether the independent variable partially has a significant influence on the dependent variable, while the F test is used to test whether an independent variable simultaneously effects significantly on the dependent variable (Sugiyono, 2014: 192).

RESULTS AND DISCUSSION

Research Result

Based on the results of questionnaires which were returned to the researchers counted 100 of 110 respondents (10 respondents did not return), then the stages of research as below are done. From the data, it is shown that the majority of respondents were female, ie 58.0% while men is amounted to 42.0%.

Validity Test

Validity test is conducted on 100 respondents selected. Validity Test uses SPSS 23 for Windows which is able to present the values of the data entered based on the results of the questionnaire answers. Validity value is obtained on the significant value that is when the significant value is less than 0.05 then it said to be valid, as shown in Table 2 below.

Table 1. Test Validity Results of Variable Instruments for Customer Perspective (X1), Financial Perspective (X2), Internal Process Perspective (X3), Growth and Learning Perspective (X4) and College Performance (Y_1)

Instrument	Pearson Correlation	Significant	Description
$X_{1.1}$	0,854	0,000	Valid
$X_{1.2}$	0,895	0,000	Valid
$X_{2.1}$	0,879	0,000	Valid
$X_{2.2}$	0,853	0,000	Valid
$X_{2.3}$	0,852	0,000	Valid
$X_{3.1}$	0,848	0,000	Valid
$X_{3.2}$	0,894	0,000	Valid
$X_{4.1}$	0,954	0,000	Valid
$X_{4.2}$	0,951	0,000	Valid
$Y_{1.1}$	0,954	0,000	Valid
$Y_{1.2}$	0,951	0,000	Valid

As shown in Table 1, two items that measure the customer perspective , three items that measure the financial perspectives, two items that measure the internal process perspective, two items that measure learning and growth perspective and two items that measure the performance of college have Pearson Correlation with the total scores where significant value are less than 0.05. Thus, it can be concluded that its are valid.

Reliability Test

Reliability level of an instrument can be seen in the value of Cronbach alpha. Instrument can be said to be reliable if it has a high Cronbach alpha value bigger than 0.6, which means reliable. In other words, an instrument can be said to be reliable if it has a high Cronbach alpha value greater than 0.6. Table 2 shows a summary of reliability testing of variables.

Table 2. Reliability Test Value of Variable Instruments for Customer Perspective (X1), Financial Perspective (X2), Internal Process Perspective (X3), Growth and Learning Perspective (X4) and College Performance (Y_1)

Variable	Coefficient of Alpha Variation	Alpha Cronbach	Description
X_1	0,689	0,600	Reliable
X_2	0,825	0,600	Reliable
X_3	0,678	0,600	Reliable
X_4	0,896	0,600	Reliable
Y_1	0,616	0,600	Reliable

Based on Table 2 above, it is shown that the Cronbach alpha is respectively 0.689; 0.825; 0.678; 0.896 and 0.616 which are positive and more than 0.6 which means that they meet the criteria to be considered reliable, because the data are said to be reliable if the alpha of the of reliability statistic results are greater than 0.6.

Results of Multiple Linear Regression Analysis

Based on calculations by the supporting tool SPSS version 23, the obtained results are shown below.

Table 3. Results of Multiple Linear Regression Analysis

Variable	Regression Coefficient	t count	Significant
Constant	0,031	0,090	0,928
Customer perspective (X_1)	0,210	2,500	0,014
Financial perspective (X_2)	0,114	2,141	0,035
Internal process perspective (X_3)	0,264	3,126	0,002
Learning and growth perspective (X_4),	0,432	5,282	0,000

According to Table 3, it is obtained that the multiple linear regression equation has a positive value of the correlation coefficient, so it can be interpreted that the relationship between independent variable and the dependent variable forms a positive linear line. This means that any increase in the independent variable will be followed by an increase in the dependent variable.

The Value of Determination Coefficient (R square)

Table 4. Correlation Coefficient and Multiple Determination

Model	R	R Square
1	0,822[a]	0,676

This coefficient analysis is used to measure the independent variables change contribution of customer perspective (X1), financial perspective (X2), internal process perspective (X3), learning and growth perspective (X4) and college performance (Y) amounted to 0.822 or 82.2

%. Therefore $0 \leq R \leq 1$, this indicates that the customer perspective (X1), the financial perspective (X2), internal process perspective (X3), learning and growth perspective (X4) have a very strong and positive relationship with the performance of members.

The coefficient of multiple determination (R square) shown in Table 5 for 0.676 or 67.6% shows that the variable changes contribution of the customer perspective (X1), the financial perspective (X2), internal process perspective (X3), learning and growth perspective (X4) simultaneously to college performance changes variable (Y) is 67,6% while the rest 32.4% are influenced by other factors outside the four independent variables were investigated by researchers.

Hypothesis Testing

1. Partial Hypothesis Testing (t test)

Then based on t count value results contained in Table 3, results of the hypothesis are obtained as follow:

a. The coefficient value of customer perspective (X1), obtained that significance value of t count is 0.014 so that the significant value of the t count variable of customer perspective (X1) is smaller than the value of alpha (0.014 <0.05). This shows that in partial the perspective of the customer (X1) affects significantly the performance of the college (Y1).
b. The coefficient value of the financial perspective (X2), obtained that significance value of t count is 0.035 so that the significant value of the t count variable of coaching motivation (X2) is smaller than the value of alpha (0.035 <0.05). This shows that in partial the financial perspective variable effects significantly on college performance (Y1).
c. The coefficient value of the internal process perspective (X3), obtained that significance value of t count is 0.002 so that significance value of t count of fostering variable for internal process perspective (X3) is smaller than the value of alpha (0.002 <0.05). This shows that in partial internal processes perspective has a significant effect on the performance of college (Y1).
d. The coefficient value of learning and growth perspective (X4), obtained that significance value of t count is 0.000 so that the significant value of t count of learning and growth perspective variable (X4) is smaller than the value of alpha (0.000 <0.05). This shows that in partial growth and learning perspective has a significant effect on the performance of college (Y1).

2. Simultaneously Hypothesis Testing (F Test)

F test is intended to prove the effect of variable of customer perspective (X1), financial perspective (X2), internal process perspective (X3), learning and growth perspective (X4), simultaneously on the performance of college (Y1).

From the calculation results, obtained significance value of F count is 0,000, which means that the value is smaller than α value of 0.05 (0.000 <0.05), based on the above test the hypothesis can be accepted. This means that a customer perspective (X1), financial perspective (X2), internal process perspective (X3), learning and growth perspective (X4), together (simultaneously) significantly affects the performance of the college (Y1).

DISCUSSION

Research discussion is based on the data results of analysis methods that have been used. Based on statistical tests on multiple linear regression equation, the first hypothesis "Customer perspective significantly effects on l the performance of college" is proven. This is due to the

significance of the customer perspective value of 0.014 less than 0.05. Additionally supported by the opinion of Yuwono et al., (2006: 31-43) that success to achieve students expectations, students investor are entitled for future benefits on teaching and education they got. The success to bring hope of college students come true is an indicator of study success, namely the existence of a system that works dynamically to produce graduates with effective placement, ensure the quality of instructional and support academic activities and establish good relations between the University and the student trustee.

Based on statistical tests on multiple linear regression equation, then the second hypothesis "Financial Perspective significantly effects on the performance of college" is proven. This is due to the significance of the customer perspective value of 0.035 less than 0.05. Additionally supported by the opinion from Kaplan and Norton (2002) in Awadallah and Allam (2015) that excellence in finance is expected to guarantee the welfare of the university resources, the effectiveness of the use of funds and the continuity of the educational process. Through excellence in finance, a university can realize the other three perspectives: customer, internal processes, and learning and innovation

Based on statistical tests on multiple linear regression equation, then the third hypothesis "internal process perspective significantly effects on the performance of college" is proven. This is due to the significant value of 0.002 internal process perspective is smaller than 0.05. Additionally supported by the opinion of Kaplan and Norton (2002) in Awadallah and Allam (2015) that the most important processes are based on the university to provide assurance on the quality of Teaching and Learning and the quality of the Teaching and Learning supporting devices. In the implementation, the service that has been designed is then conducted with effective cost.

Based on statistical tests on multiple linear regression equation, then the fourth hypothesis "learning and growth perspective significantly effects on the performance of college" is proven. This is due to the significance of the value of learning and growth perspective is 0,000 less than 0.05. Additionally supported by the opinion of Kaplan and Norton (2002) in Awadallah and Allam (2015) that productivity is determined by the competence of personnel and the availability of infrastructure required to run the internal processes. The commitment of personnel is determined by the quality of the working environment that was built at the university. It is realized through communication, appreciation and support of the university for individuals of the highest office until the bottom.

CONCLUSIONS AND SUGGESTION

Conclusion

Based on the analysis and discussion above, it can be concluded as follows:

1. The customer perspective (X1), financial perspective (X2), internal process perspective (X3), learning and growth perspective (X4), simultaneously effect significantly on the performance of college (Y1). This is due to the significant value of F count is 0,000, which means that the value is smaller than α value of 0.05 (0.000 <0.05).
2. The customer perspective significant effect on the college performance is proven. This is due to the significance of the customer perspective value of 0.014 less than 0.05.
3. Financial Perspective significant effect on the college performance "is proven. This is due to the significance of the customer perspective value of 0.035 less than 0.05.
4. The internal process perspective significantly effect on the college performance "is proven. This is due to the significant value of 0.002 internal process perspective is smaller than 0.05.

5. The learning and growth perspective significant effect on the performance of college "is proven. This is due to the significance of the value of learning and growth perspective is 0,000 less than 0.05.

Suggestion

Based on the conclusion, there are some suggestions as follows:

1. Number of research samples should be supplemented by involving all students both semesters T to the late semester.
2. Need for classification of each faculty so that it will obtain very specific results which one truly has a good performance among all faculty in the University of WR Supratman Surabaya.

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Mining "What they talk about" for a Private Healthcare Service Provider

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Abstract

In every industry, customer feedback contains opinions with different types of sentiment on services and products provided by companies that they purchased from. Feedback from customers help business operators to understand their customers better in order to improve different aspects of their products and services. This research studies healthcare service consumers' perception of a private hospital on the quality of food, waiting time, services and customer expenses. This research intends to explore a set of customer's feedbacks from year 2013 to 2016 to investigate potential new findings and to create new value added improvements to the current process. Text mining technique were used to extract and discover hidden knowledge from the unstructured feedbacks. The techniques are text parsing, filter, topic and cluster as for sentiment analysis, term frequency and weight is used in conjunction with corpus of files of text to investigate the emotional elements of the feedbacks that can be classified into either positive, neutral or negative. The outcomes of this study have highlighted several new findings and supported hypothesis of this research.

Keywords: Text mining, sentiment analysis, patient's feedback, services, customer expenses, quality of food, waiting time

INTRODUCTION

Customer feedback are vital for every business to continue improve their quality of service and products. Companies can leverage on these feedbacks to maintain their reputation in the industry. For instance, in trading, manufacturing and hospital sectors, product pricing is not the key factor that keeps customer satisfied; customer services are more important than price of products. Oja (2010) highlighted that customers feedback can help to improve services offer to customers. As healthcare business becomes more competitive, the growing desire of

consumers for better services has also grown rapidly. The desire for more effective organizational management has also become one of the key considerations of healthcare consumers as they choose which healthcare service provider to go to. With good customer services quality, people will be happy to continue to be patrons for the service provider. However, to be able to identify key opinions and sentiments of these customers who undertake their services is always a challenge. Hence, analysing these customers' feedback to identify the 'likes' and 'dislikes' experienced by these customers is a good practice for the management to understand their customers better.

For any operator in the healthcare industry, the management team can attempt to manually read and analyse all the feedbacks provided by the customers but it would be time-consuming and inconsistent due to the vast amount of unstructured text. In view of the tedious analysis, many management might choose to neglect these feedbacks that might be useful and constructive to the hospital operators. These healthcare service operators know that when their services are not good enough, their patients will have bad impression and they will share their bad experiences with others. This will cause revenue lost and reduce the number of healthcare customers that will visit them to take up their services due to the bad feedbacks on social media or business related sites (Barnard, 2002). In addition, healthcare customers will also express their opinions through surveys, forums, and feedback forms on their experiences on the hospital services. In many small and large hospitals, comments on the social media sites and surveys allow hospitals to effectively identify positive and constructive or negative feedbacks for the services betterment.

In this research, a private Malaysian healthcare service provider has chosen to participate in this research study. Three years of customer's feedback from this private healthcare service provided had been used to analyse using SAS Enterprise E-miner. The methodology of this research study will be discussed in further section.

Related Works

A statistic shows that there are approximately 85% of businesses are using various form of text to store data such as surveys (Hotho, et. al 2005). For any industries that have a huge amount of data, analytics tools can be used to draw out many findings within a short period of time on the data. Text mining is defined as a technique that able to automatically extract all information from various sources (Gupta & Lehal, 2009). In text mining, it involves information retrieval, clustering, text analysis and visualization. Text mining helps businesses to discover unknown knowledge and analyze data into new findings. Besides that, text mining can benefit business by saving time and resources, which will provide a fast, timely and accurate feedback for their clients.

According to Lay, Lee, & Ho (2005), text mining is vital and can be used also in hotel industries to develop different competitive strategic planning ahead. Text mining is used in their research to help extract information about other competitor fare for room price and facilities. Other than that, text mining also helps them to mine out things such as customer attitudes and demographics to understand customer's behavior patterns on staying with the hotel.

Although text mining applications are more popular in hospitality industry, text mining can also be applied in the banking and finance industry. Sources of textual data for banks comes from news, online articles, banking contracts, social media, financial reports etc. Even though the usage of text mining applications in the banking business is limited, the benefits of text

mining in helping the banks perform task more effectively can be seen (Bholat, et al., 2015). Other than that, Bank of Canada also utilize the benefits of text mining to extract significant information to determine the association of the information from Bank of Canada communications with interest rates and monetary policy. Additionally, text mining can also be set to extract information that are related with Fixed Announcement Dates(FADs) and Monetary Policy Reports to measures the movement of the market returns and instability. These methods are effective for banks to determine short-term rates therefore text mining tools is considered a valuable tool in the banking businesses (Hendry & Madely, 2010).

In today's real world, most of the organization and business would like to find out consumer opinions about certain products and services that provided by the industry. Not only business and organizations, individual customer also wish to know more about the opinion about the existing product from another regular user before buying it. Before the Web 2.0 is invented, individual need to ask opinions about the products through family and friends (Liu, 2012). Sentiment Analysis is defined as a type of information extraction and Natural Language Processing that will track the user's comment it is positive or negative feeling in the document text (Vinodhini & Chandrasekaran, 2012). Some methods such as opinion polls, social media platform and surveys are used to collect feedback on the business product and services. Later on, sentiment analysis is used to study the opinions and emotions that are expressed in the feedback from the respondents. Most of the businesses or domain in services, financial services, healthcare, product services, political and social events are using sentiment analysis applications. For instance, getting feedback from consumer or events can measure how success is the product, services or event is going on. Hence, business organization people can adjust and know how consumer feel about the particular product. Other than that, consumer opinions help business to increase business revenue and build a better product from the feedback given by consumer.

METHODOLOGY

This section explains the research methodology for this research study. First of all, the target population for this research are patients from one of the local private hospital service provider. SAS Enterprise Guide will be used to extract and transform the raw data collected which are in an unstructured format to a structured format. Text preparation will be done using SAS Enterprise Miner to ensure the quality and reliability of the text data for Text Mining Analysis. In this research, secondary resources will be used. Data has been collected from the department of customer service whereby patients from different departments has given feedback on the hospital. A preliminary investigation has been conducted to understand more in depth about the current situation in hospital. Next, data cleaning will be conducted to avoid missing values and duplicate data. Therefore, SAS Enterprise Guide will be used to export raw data sets and convert into SAS data set. SAS Enterprise Miner will then be used to carry out the text mining and sentiment analysis. Text preparation will be applied using the functions multi word term, stop words and start list. This process is used to prevent duplication and removed unnecessary terms. After the text preparation step, the data will be easier to analyze and categorized those data into positive feedbacks and negative feedbacks. SAS Enterprise Guide are used to import the excel file into it and change it into SAS data set. To analyze the data, SAS Enterprise Miner will be used to analyze all the data of patient's feedbacks. All the words that are related to positive and negative feedbacks will be extracted out using the text mining technique. The results will be written in a report to explain the important information that extracted out from all the data. SAS Enterprise Guide will be used to make graphs so that it will be easier to understand.

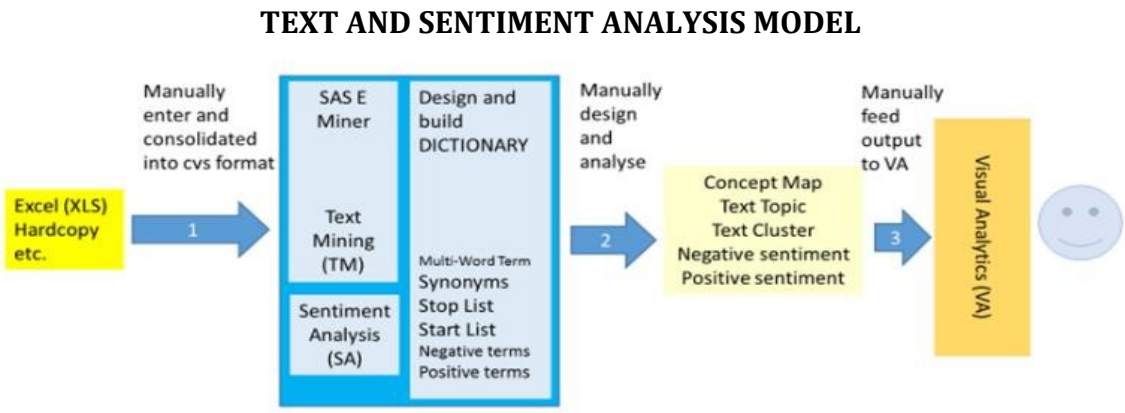

Figure 1: Text and Sentiment Analysis Model

Figure 1 shows the process flow of the different phases that were carried out in this research study. The Model starts from manually organizing the data given by the hospital. Data given will be in excel format which will be organize manually and consolidated into csv format before transferring the data into SAS Enterprise Guide. SAS Enterprise guide will be used to convert the text data into data sets before importing into SAS Enterprise Miner as a data source. SAS Enterprise Miner will be used to perform data preparation using multi-word term, stop list, start list and synonyms. Data preparation is essential to ensure the quality of the data and results. Once the data preparation is complete, text mining analysis will be conducted to generate the concept map, text topic and text cluster. Next, positive and negative terms will be manually identified and list down to carried out the sentiment analysis and the final results for the hospital will be visualize using SAS Visual Analytics.

Empirical Analysis

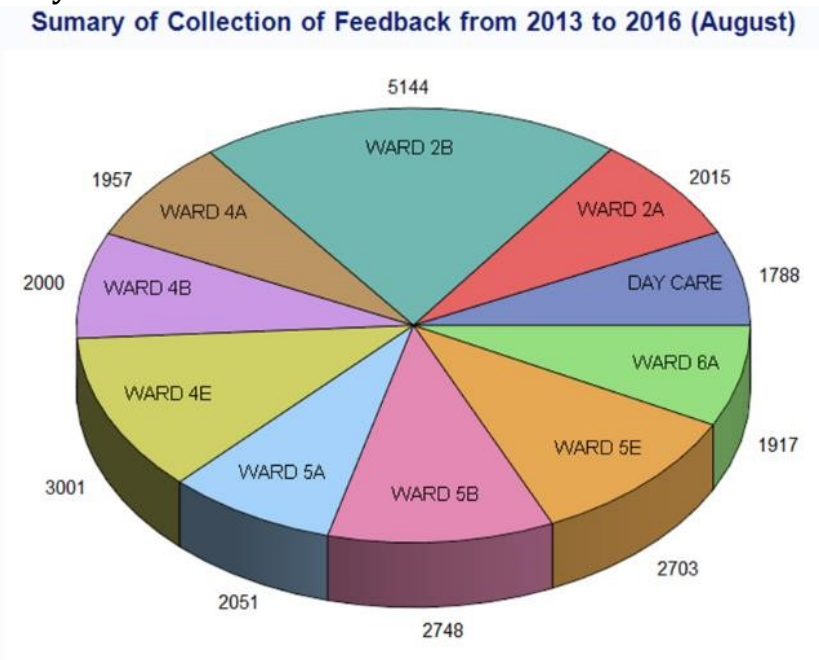

Figure 2: Top 10 Departments with highest number of feedback forms

Figure 2 is a pie chart that shows the top 10 departments that has the highest number of feedback forms collected from 2013 till 2016 August. From the results above, Ward 2B have

the highest amount of feedback forms collected with a total of 5144 feedback forms. The second department with the highest collection of feedback forms is Ward 4E with a total of 3001 of feedback forms collected followed by Ward 5B with a total of 2748 feedback forms collected. Therefore, the hospital should look into Ward 2B and Ward 4E due to the high number of feedbacks received from these departments.

FINDINGS AND RESULTS

Text Mining Analysis

Concept Link

Four key focus are discussed in this section on quality of food, waiting time, services and bill price. In each part of the discussion, the concept links visually shows factors that are linked and contributed to the explanation of what causes the key focus or concept to occur.

a. Quality of Food

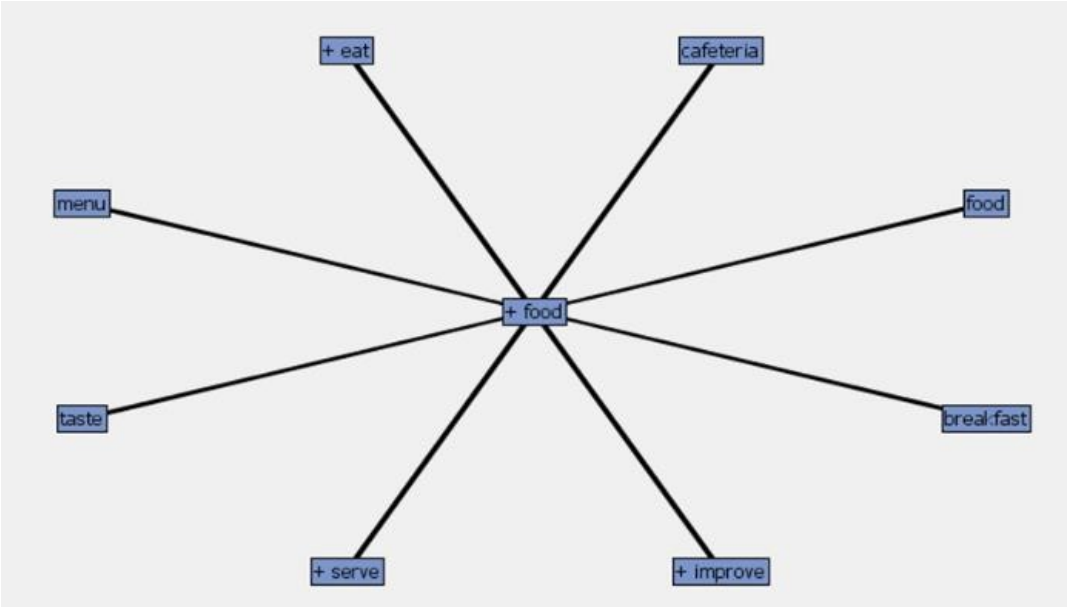

Figure 3: Concept Linking for "+food"

Figure 3 shows the concept linking for the term "+food" which occurred in 159 documents and the other terms that co-occur with the term "+food" consist of "+eat", "cafeteria", "food", "breakfast", "+improve", "+serve", "taste" and "menu". This indicates that whenever patient's talks about the hospital food they will relate with these terms. In addition, based on the concept map in Figure 3 it shows that the line thickness which connects the terms to "+food" have the same thickness and width which indicates the frequency of these terms to occur together with "+food" in the documents are almost the same.

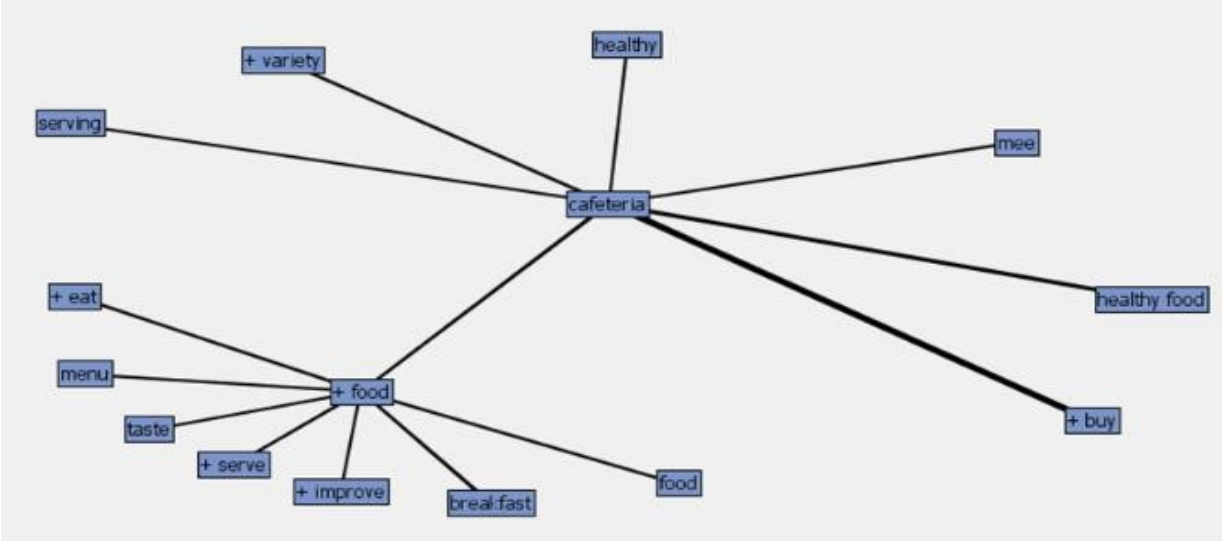

Figure 4: Concept Linking for "+food" expand to "cafeteria"

Figure 4 shows the concept linking for "+food" which was expanded to second level on the term "cafeteria". The term "cafeteria" appeared in 27 documents and 17 of the documents contains both the term "+food" and "cafeteria". The terms that are associated with the term "cafeteria" includes "serving" "+variety", "healthy", "mee", "healthy food" and "+buy". The term with the strongest association with the term "cafeteria" is "+buy" as the line connecting to it is the thickest compared to the other terms. The reason the term "buy" is strongly associate with the term "cafeteria" is because the hospital cafeteria is one of the frequent place patients or patient's friends and family members always go to buy food. Other than that, it seems that patients are requesting for healthier and variety of food in the cafeteria such as more choices for vegetarian food for those who are vegetarian.

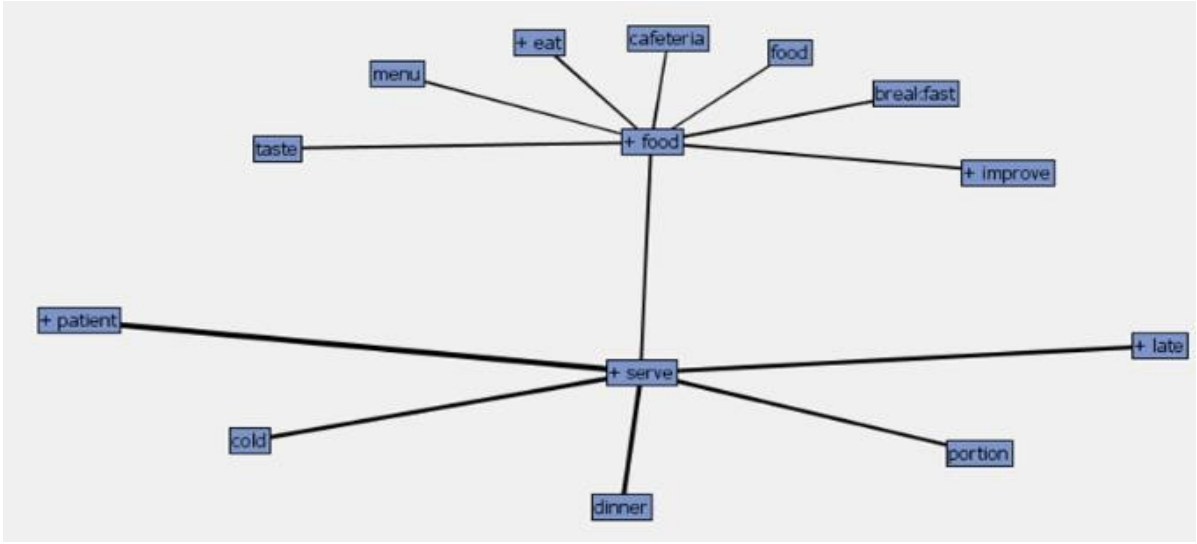

Figure 5: Concept Linking for "+food" expand to "serve"

Figure 5 shows the concept linking for "+food" which was expanded to the second level for the term "serve". The term "serve" appeared in 99 documents and which 40 out of the 99 documents contains both the term "+food" and "+serve". The terms that are associated with the term "+serve" includes

"+patient", "cold", "dinner", "portion" and "late". The term with the strongest association with the term "+serve" is the term "+patient" as the line connecting these two term is the thickest. This is because the food prepared are for hospital patients and their satisfaction on the quality of the food serve by the hospital is important. Besides that, patient's also give feedbacks that food is serve late and cold which are not to the patient's liking. In addition, the term "+serve" is also links with "portion" indicating the food portion size is small and insufficient for the patients.

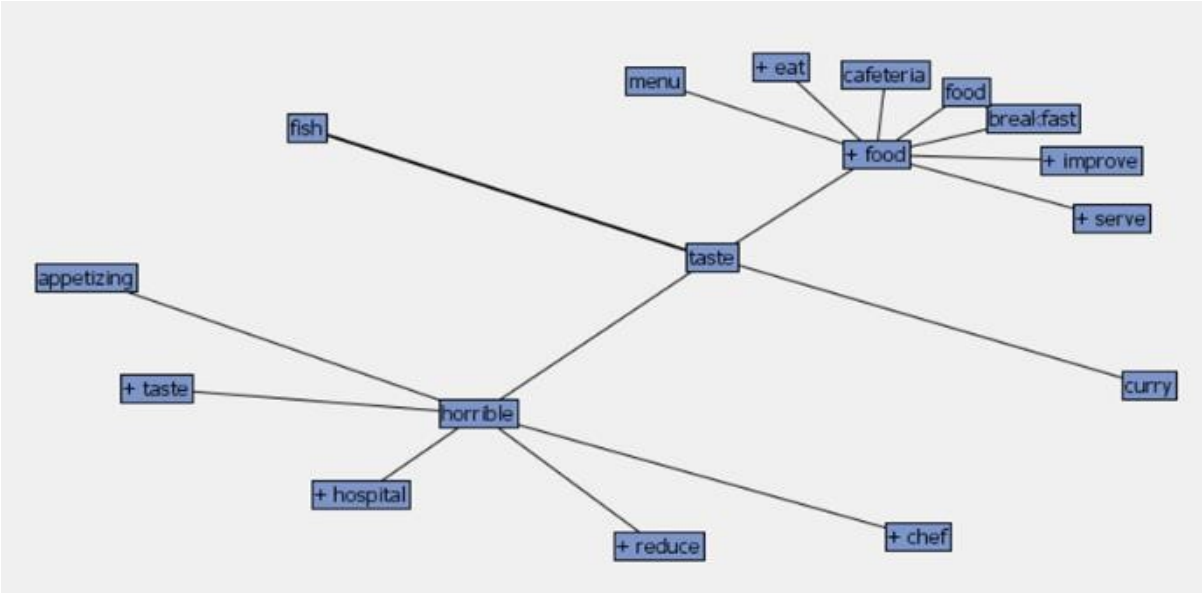

Figure 6: Concept Linking for "+food" expand to "taste"

Figure 6 shows the concept linking for "+food" which was expanded to the second level for the term "taste". The term "taste' are associated with the terms "fish", "curry" and "horrible". The term "horrible" was expanded to the third level to explore what are the terms that patients used when relating with the term "+food", "taste" and "horrible". By expanding the term "horrible" to the third level it relates terms such as "appetizing", "+taste", "+hospital", "+reduce" and "chef". This indicates that the hospital should prepare foods that are more appetizing and tasty to meet different patient's preference on the food taste.

b. Waiting Time

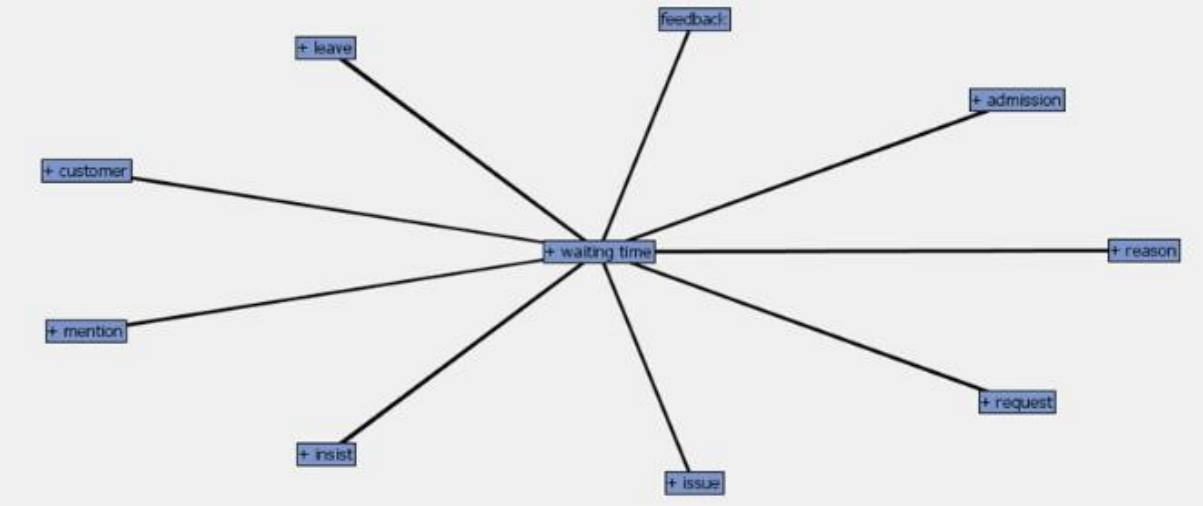

Figure 7: Concept Linking for "+waiting time"

Figure 7 shows the concept linking for the term "+waiting time" which occurred in 477 documents and the other terms that are associate with the term "+waiting time" consist of "feedback", "+admission", "+reason", "+request", "+issue", "+insist", "+mention", "+customer" and "+leave". This are the terms that are often related to each other whenever patients talk about waiting time in the feedback forms. By taking a closer look in it shows that the terms that are strongly associate with "+waiting time" includes "+customer", "+admission" "reason" and "+request". This is because these terms have thicker lines connecting to "+waiting time" compared to other terms which also indicates that these terms have higher frequency to occur together in the documents.

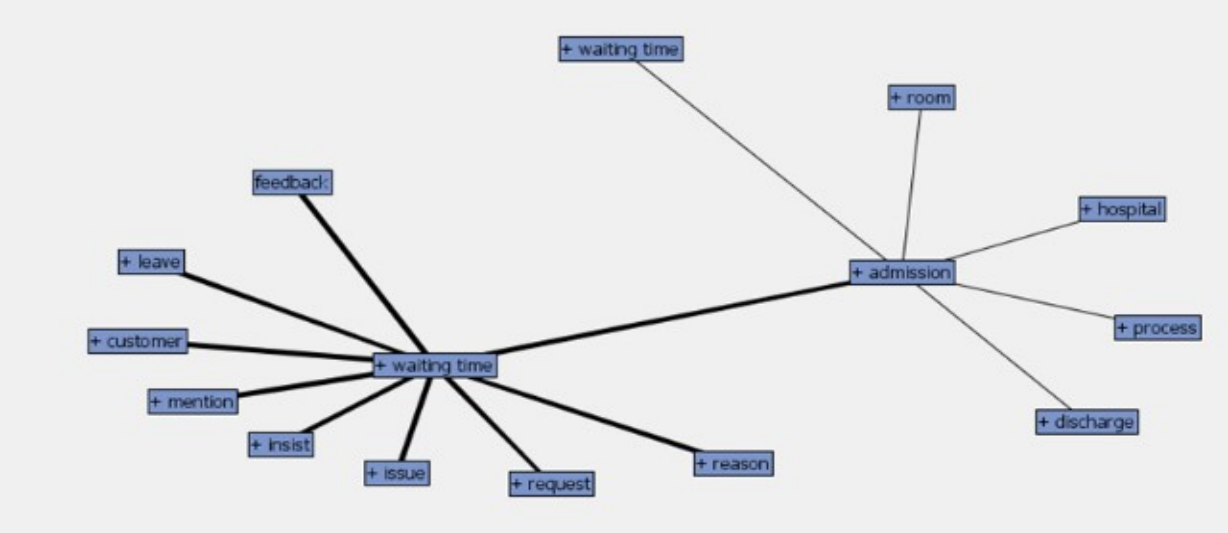

Figure 8: Concept Linking for "+waiting time" expand to "Admission"

Figure 8 shows the concept linking for "+waiting time" which was expanded to the second level for the term "+admission". The term "+admission" occurred in 269 documents and out of these documents, 79 of the documents contain both the term "+waiting time" and "+admission". The terms that are associated with the term "+admission" includes "+waiting time", "+room", "+hospital", "+process" and "+discharge". The term "+room" occurs in 316 documents and 44 of the documents contains the terms "waiting time" and "room". Besides that, the term "+discharge" occurs in 144 documents and 31 of the documents contains both the term "+waiting time" and "+discharge". These shows that waiting time often occurs during patient's admission stage which includes the process of waiting for a room or getting discharge.

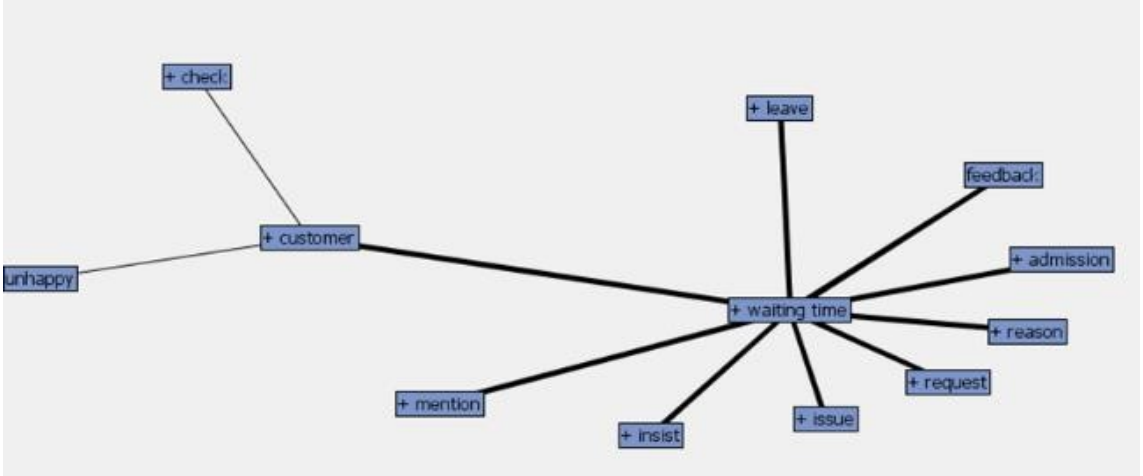

Figure 9: Concept Linking for "+waiting time" expand to "Customer"

Figure 9 shows the concept linking for "+waiting time" which was expanded to the second level for the term "+customer". The term "+customer" occurred in 244 documents and 38 of these documents contains both the term "+waiting time" and "+customer". The terms that are link with "+customer" are "+check" and "unhappy". The term "unhappy" occurs in 80 documents with 25 of these documents contains the terms "waiting time" and "unhappy". This indicates that customer are often unhappy if the waiting time at the hospital is long.

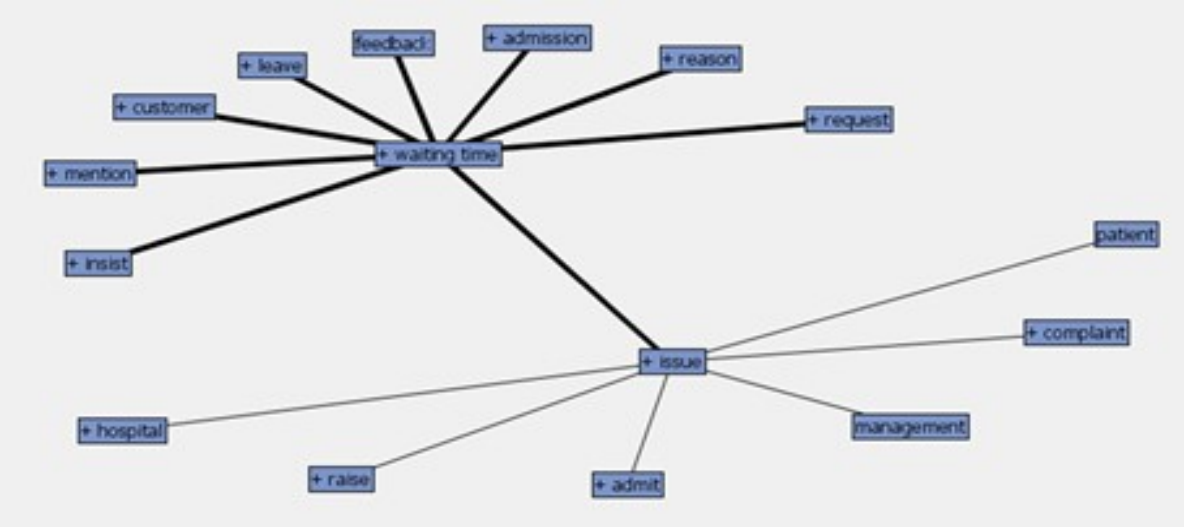

Figure 10: Concept Linking for "+waiting time" expand to "Issue"

Figure 10 shows the concept linking for "+waiting time" which was expanded to the second level for the term "+issue" to see what are the issues that relates with "+waiting time". The term "+issue" occurred in 108 documents and 35 of the documents contains the terms "+waiting time" and "+issue". The terms that are associated with the term "+issue" includes "+hospital", "+raise", "+admit", "management", "+complaint" and "patient". This shows that waiting time issues often links with admissions and hospital management. Therefore, patients often expressed their hope for management to resolve this issue.

c. Service

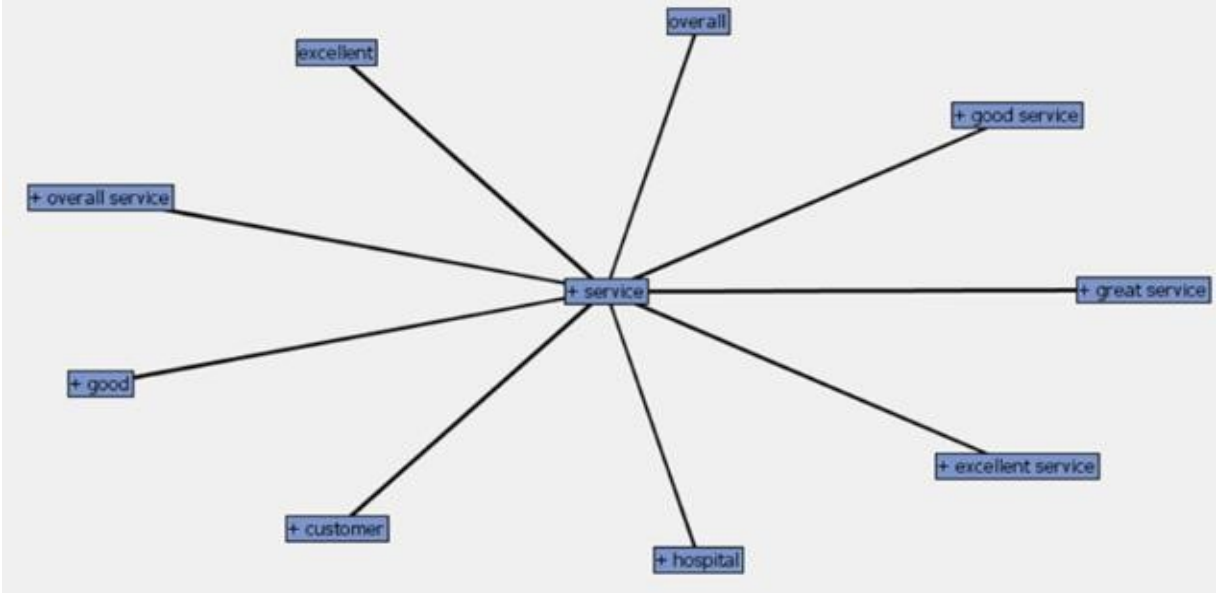

Figure 11: Concept Linking for term "+service"

Figure 11 shows a result of concept linking for term "+service" for the hospital. This concept linking reveals about the term "+service" is highly correlated with other terms such as "excellent", "+overall service", "+great service", "+excellent service" etc. This is because all the lines that link with the term "+service" have all the slightly same darkness and thickness of the line connecting with other terms. Through this concept linking, it is easier to identify what kind of terms which is link to the term "+service". For instance, this concept linking results shows a few of positive and good term for the hospital according to the hospital services towards the customers.

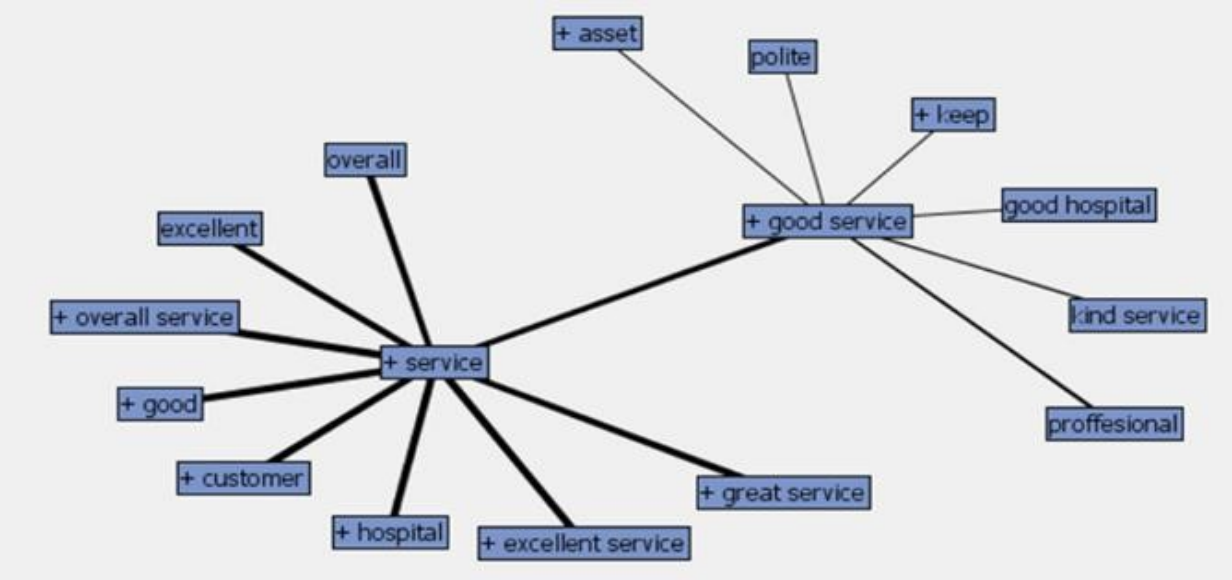

Figure 12: Concept linking for term "+Service" expand to "+good service"

For Figure 12, it shows a concept linking results for the term "+service" which is expanded to "+good service". When the term "+good service" is expanded, it shows another second level of which reveals the other terms which are related with "+good service". The results from this concept linking map shows there are some subjects which are related to each other. Some other terms were shown when the second level of "+good service" is expanded. Those terms include "polite", "good hospital", "kind service", "professional", etc. For instance, many of the hospital customers mention that the service is professional, have a kind and polite service. Hence, it leads a reputation that the hospital is a good hospital to other people.

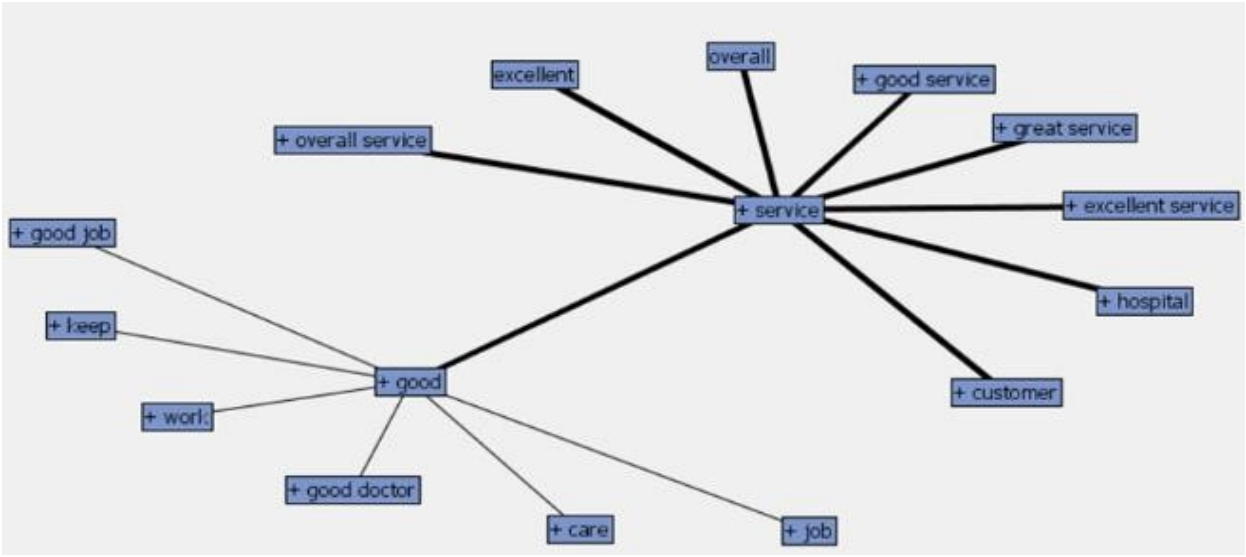

Figure 13: Concept linking for term "Service" expand to "+good"

An illustration of concept linking map for term "Service" which is expanded to the term "+good" is shown above in Figure 13. The term "+good" can be expanded into the second level which show more terms that are interrelated with one another. The term "+good" is associated with term "+good job", "+good doctor", "+care", and others as shown in Figure 13. This result prove that the hospital received a lot of feedback about having good doctor working in the hospital and constantly giving care to customers that need help. Nevertheless, the concept linking map also shows that all the doctors are doing good job in order to satisfy patient's need.

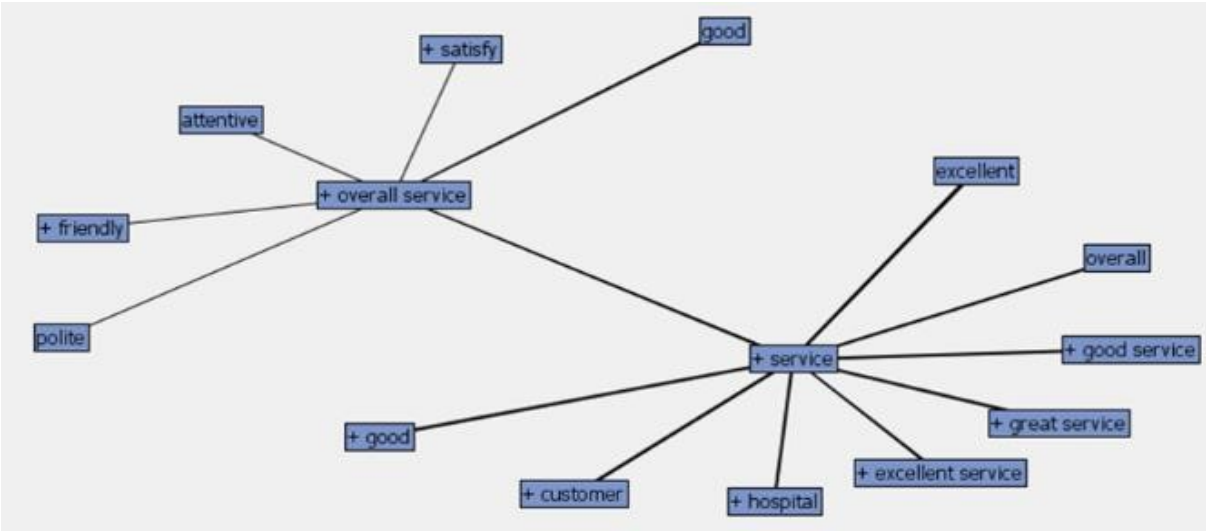

Figure 14: Concept linking for term "Service" expand to "+overall service"

Figure 14 shows a concept linking for term "Service" expand to "+overall service". When it is expanded to second level for the term "+overall service", some terms can be seen such as "good", "polite", "+friendly", "attentive" and "+satisfy". The most highly associated term with "+overall service" is term "good" because the line is thicker than the other terms. From this result, it is believed that The hospital overall service is good to the customers. Not only that, the staff that work in the hospital are polite, attentive and friendly which then satisfy the customers of the hospital.

d. Bill Price

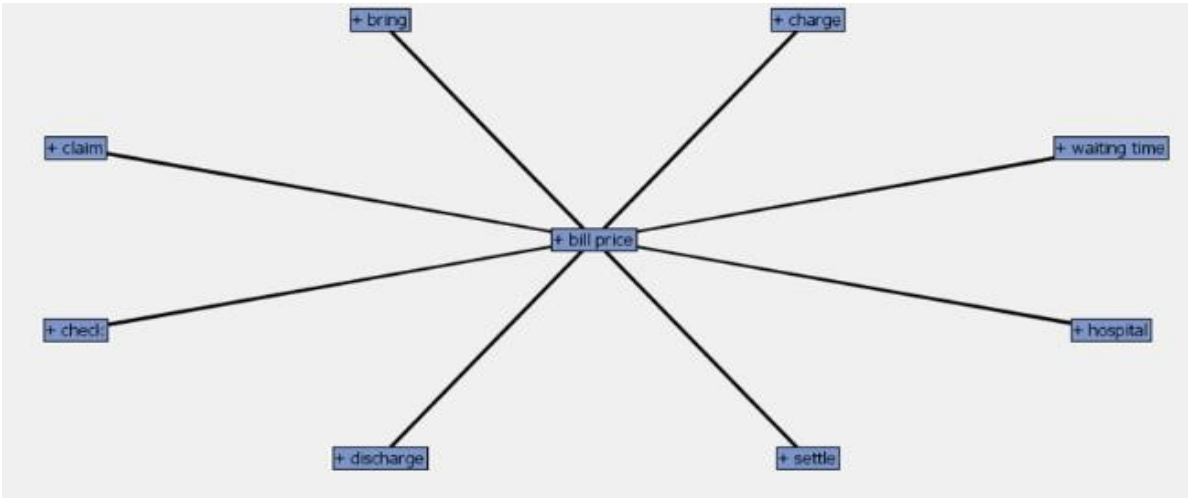

Figure 15: Concept Linking for term "+bill price"

Figure 15 shows a concept linking map for term "bill price". There are some terms which is believed to provide meaningful results as most of the terms have dark lines connecting to term "bill price". Term "bill price" have high association with the term "+settle", "+charge", "hospital" etc. as shown in Figure 15. From this concept linking map, it can identify what kind of feedback the hospital will receive from all the customers that have admitted and how their feedback link to medical fees that incur by the doctors.

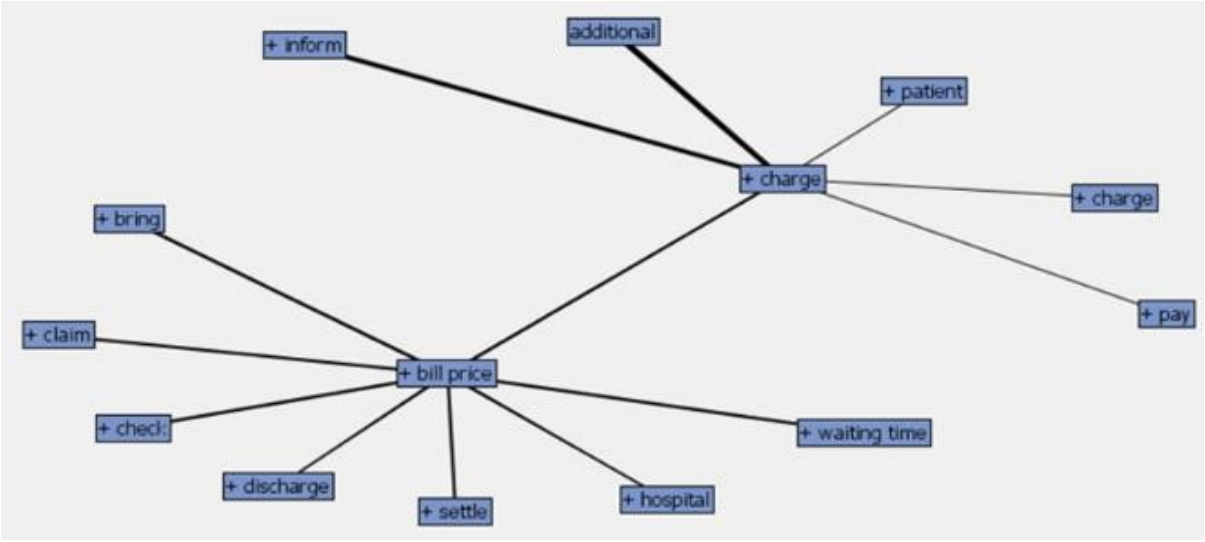

Figure 16: Concept linking for term "+bill price" expand to "+charge"

Figure 16 illustrate a concept link for term "+bill price" that expand to the term "+charge". After expanding it into the second level, terms such as "+inform", "additional", "+patient", "+charge", and "+pay" appeared in the concept link. There are 2 black lines in the concept linking map which are the term "+inform" and "additional" which lead to high association with the term "+bill price". This shows that hospital charge additional bill price to the customers that stayed in this hospital. Therefore, the customers of the hospital would like to inform the management that most of the customers have to pay additional charges that was shown in the results of concept linking map.

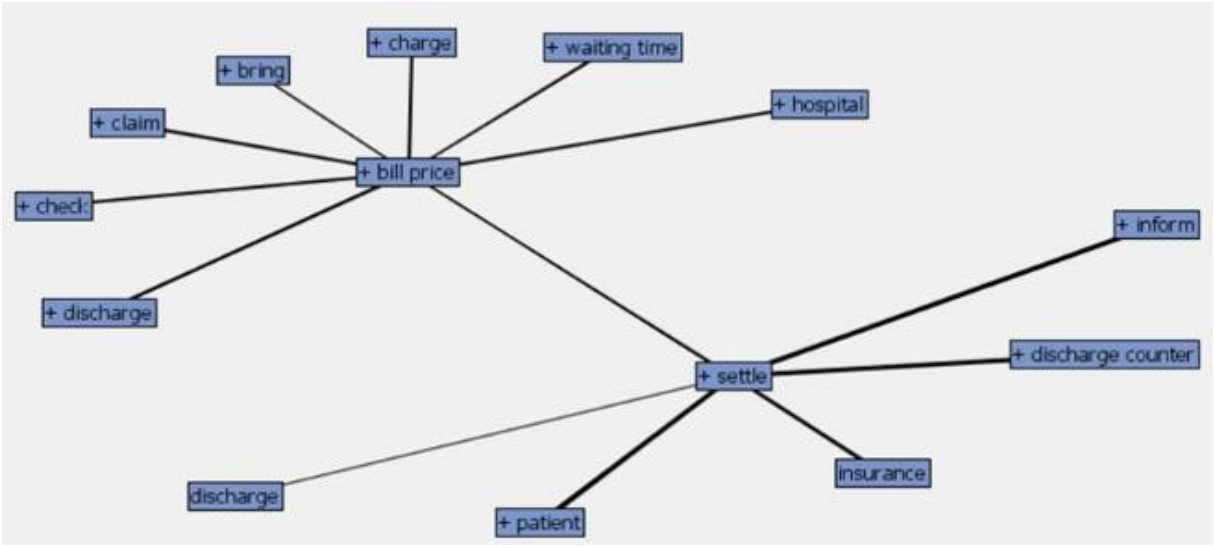

Figure 17: Concept linking for term "+bill price" expand to "+settle"

Figure 17 shows a concept linking for term "bill price" which is expanded to term "settle". Then, term "settle" is expanded into the second level which consists of some terms such as "discharge", "+patient", "insurance", "+discharge counter", and also "+inform". There is strong associated relationship with term "+patient", "insurance", "+discharge counter", and "+inform" because these lines that connect with "+settle" have thick black lines. This concept link map results indicates that customers from the hospital have to settle insurance matters in the discharge counter.

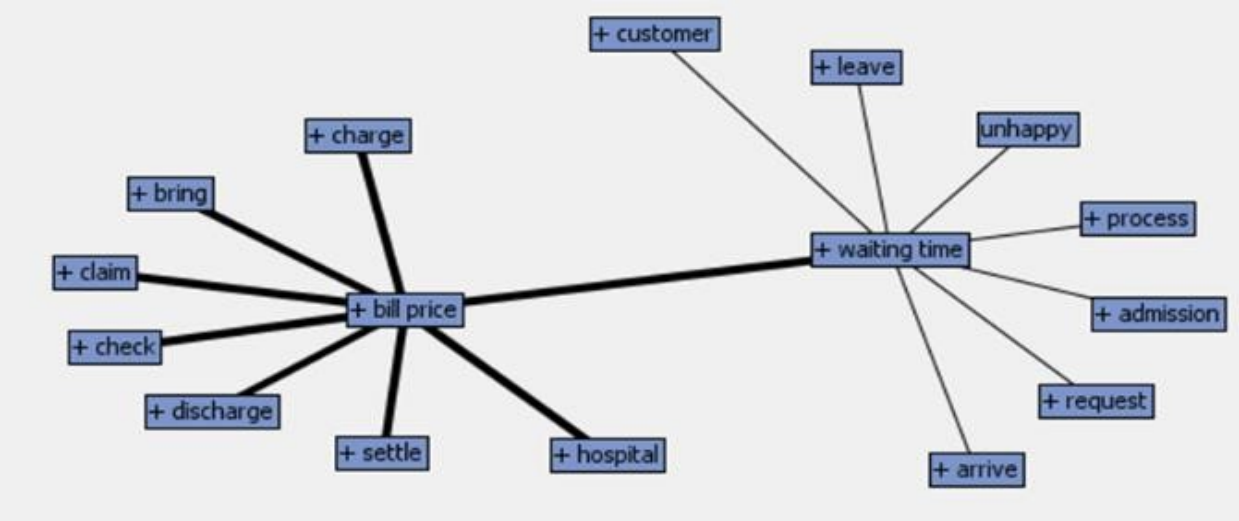

Figure 18: Concept linking for term "+bill price" expand to "+waiting time"

Above figure 18 illustrate a result of concept linking map for term "+bill price" that expand to term "waiting time". When this term "waiting time" is expanded into second level, some interrelated terms are connected with each other. For instance, terms like "+leave", "unhappy", "+admission", "+process" etc. This results indicate that most of the feedback terms mentioned that customers mostly need to wait for the process to pay the bill and takes a very long time. Hence, this lead to unhappy customers that always need to wait to process the medical bill.

Topic ID	Topic	Topic Group
1	+good service,+service,+good,+keep,+excellent service	Service
2	+compliment,+staff,+care,+staff,+nurse	Staff
3	+patient,+admission,+waiting time,+waiting time,+hospital	Waiting Time
4	polite,+care,+care,efficient,helpful	Customer Service
5	excellent,+excellent service,+service,excellent job,excellent care	Excellent
6	+friendly,+staff,+keep,comfortable,+friendly staff	Friendly
7	courteous,polite,attentive,efficient,+friendly	Attitude
8	+doctor,+good doctor,+excellent doctor,excellent,+hospital	Doctor

Table 1: Text Topic Results

Text topic discover different topic groups by assigning the terms in each document to its topic of interest. By grouping the terms into different group of topics, results on area of interest can be found from the text documents.

Topic ID 1 group terms that relates with the topic group "service". Terms that links with good service falls under this topic group. The topic included in this group includes "+good service", "+service", "+good", "+keep" and "+excellent service".

Topic ID 2 group terms that relates with the topic group "staff". Terms that links with hospital staff such as nurse falls under this topic group. The topic included in this group includes "+compliment", "+staff", "+care", and "+nurse".

Topic ID 3 group terms that relates with the topic group "waiting time". Terms that links with time and waiting time activities fall under this topic group. The topic included in this group includes "+patient", "+admission", "+waiting time" and "+hospital".

Topic ID 4 group terms that relates with the topic group "customer service". Terms that relates on how customers thinks about the service received by the hospital falls under this topic group. The topic included in this group includes "polite", "+care", "efficient" and "helpful".

Topic ID 5 group terms that relates with the topic group "Excellent". Terms that are links with excellent in terms of service or treatment falls under this topic group. The topic included in this group includes "excellent", "excellent service", "+service", "excellent job" and "excellent care".

Topic ID 6 group terms that relates with the topic group "Friendly". Terms that links with friendly attitude falls under this topic group. The topic included in this group includes "+friendly", "+staff", "+keep", "comfortable" and "friendly staff".

Topic ID 7 group terms that relates with the topic group "Attitude". Terms that links with hospital staff attitude falls under this topic group. The topic included in this group includes "courteous", "polite", "attentive", "efficient" and "+friendly".

Topic ID 8 group terms that relates with the topic group "Doctors". Terms that relates with patient's views on the hospital doctors fall under this topic group. The topic included in this group includes "+doctor", "good doctor", "+excellent doctor" "excellent" and "+hospital".

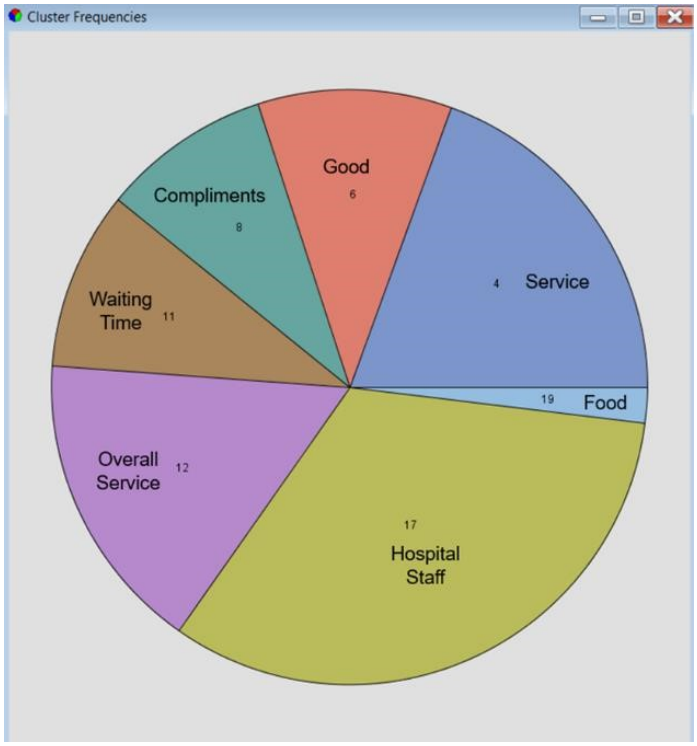

Figure 19: Text Cluster Pie Chart – Hierarchical

The result from the text cluster node using Hierarchical algorithm also shows that there are 7 different cluster group which is the same amount of cluster group using Expectation – maximization algorithm.

Cluster ID	Descriptive Terms	Cluster group	Percentage
4	+friendly helpful excellent polite +service +staff courteous professional caring +'excellent service' +doctor +nice efficient attentive cheerful	Service	19%
6	+care +'good care' +'good job' +stay +job well +great special +appreciate +baby kindness 'special thanks' +well +good excellent	Good	11%
8	compliments caring polite kind +patience +smile gentle always responsible +appreciate smiling helpful courteous +professional +help	Compliments	9%
11	+ward nurses +staff discharge admitted +stay +care helpful discharged bill +admission wait hours especially time	Waiting Time	10%
12	+good +service +staff overall +'good service' services +doctor satisfied good happy staffs 'good services' 'overall good' doctors +friendly	Overall Service	16%
17	+good nurses +work +'good work' +nurse +doctor +complaint 'keep up' +refer medical kindly informed claimed +admission +room	Hospital Staff	33%
19	+food served food breakfast meals cafeteria meal +serve menu chicken fish lunch rice improved +improve	Food	2%

Table 2: Text Cluster Results

Table 2 shows the 7-different cluster group using the Hierarchical algorithm for the clustering method. The cluster group consist of service, good, compliments, waiting time, overall service, hospital staff and food. These cluster group is similar using the Hierarchical -maximization clustering algorithm but differs in terms of the clusters percentage.

Cluster ID 4 represent the cluster group for "service". The terms that falls in this cluster includes "+friendly", "helpful", "excellent", "polite", "+service", "staff", "courteous", "professional" etc. These terms mostly describe the service received from the hospital such as nurses and doctors. This cluster group contributes 19% of the overall terms in the text documents.

Cluster ID 6 represent the cluster group for "good". The terms that falls in this cluster includes "care", "+good care", "+good job", "+stay", "job", "well", "excellent" etc. These terms are the words patients use when giving good feedback to the hospital. This cluster group contributes 11% if the overall terms in the text documents.

Cluster ID 8 represent the cluster group for "compliments". The terms that falls in this cluster includes "compliments", "caring", "polite", "kind", "+patience", "+smile" etc. These terms are words that patients use in the feedback to give compliments to the hospital staff. This cluster group contributes 9% of the overall terms in the text documents.

Cluster ID 11 represent the cluster group for "waiting time". The terms that fall in this cluster includes "+ward", "discharge", "admitted", "admission", "wait", "hours", "time" etc. These terms relate to the waiting time patients often faced by the hospital and activities that relates with waiting time such as discharge and admission process. This cluster group contributes 10% of the overall terms in the text documents.

Cluster ID 12 represent the cluster group for "overall service". The terms that fall in this cluster includes "good", "+service", "+staff", "overall", "+good service", "services", "overall good", "doctors" etc. These terms are related with the positive terms on overall service received from hospital staff. This cluster group contributes 16% of the overall terms in the text documents.

Cluster ID 17 represent the cluster group for "hospital staff". The terms that fall in this cluster includes "+good", "nurses", "+work", "+good work", "nurse", "doctor", "complaint" etc. These terms are categorise under the cluster group for hospital staff as the terms mostly relates with patient's feedback on the hospital staff in terms of compliments or complaints. This cluster group is the largest and contributes 33% of the overall terms in the text documents.

Cluster ID 19 represent the cluster group for "Food". The terms that falls in this cluster includes "+food" "served", "breakfast", "meals", "cafeteria", "menu", "chicken", "rice" etc. These terms are all relates with patient's views on the food serve in the hospital. This cluster group is the smallest and contributes only 2% of the overall terms in the text documents.

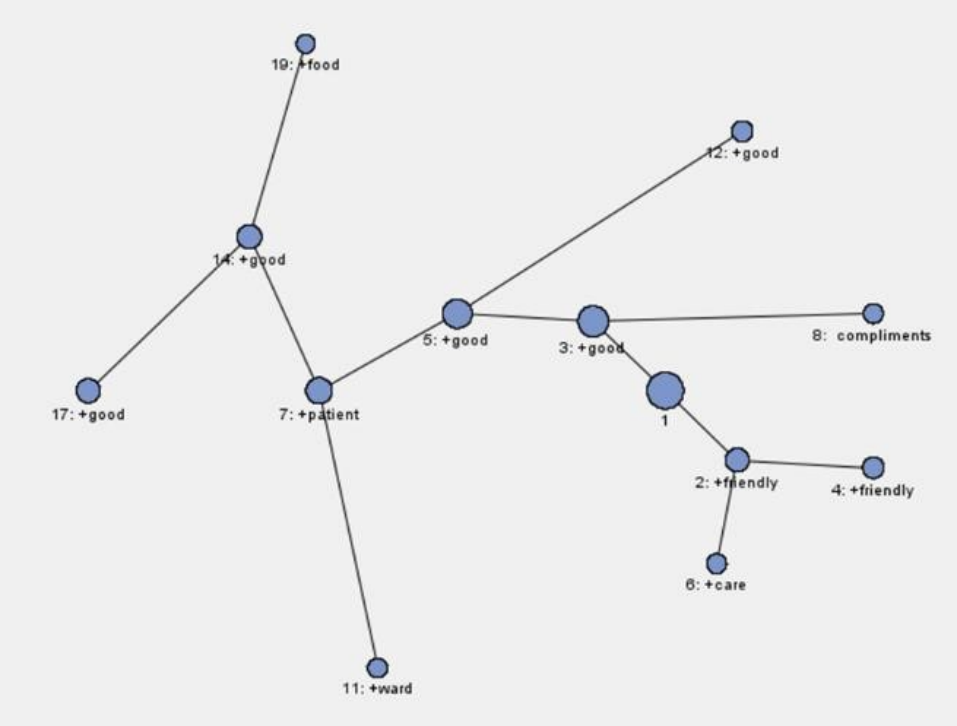

Figure 20: Cluster Hierarchy

Figure 20 shows a graphical representation for the Hierarchy Cluster. The size of the cluster is represented by the size of the circle. The clusters are link to each other to shows their association with another cluster group. Based on Figure 20, the cluster begins splitting from Cluster ID 1 therefore Cluster ID 1 is the parent cluster for Cluster ID 2 and Cluster ID 3. The cluster is then further split into smaller group of clusters and the size of the cluster gets smaller after each split. Therefore, figure 517 shows the links between the child cluster and parent cluster. For example, Cluster ID 14 is the parent cluster for Cluster ID 17 and Cluster ID 19 as these two cluster was split from Cluster ID 14 which splits topics on hospital staff good work and food.

Sentiment Analysis Results

Topic	Category	Term Cutoff	Document Cutoff	Number of Terms	# Docs
Negative Tone	User	**0.001**	**0.001**	355	1203
Positive Tone	User	**0.001**	**0.001**	355	7422

Figure 21: Number of Documents for Positive and Negative Tone

Figure 21 shows the term cut off, document cut off, number of terms and number of documents for negative tone and positive tone. The values for term cut off and document cut off is the same for both negative tone and positive tone topics. Term cut off is used to determine whether the term is eligible to fall under the topic group where else document cut off is used to determine whether the document is eligible to fall under the topic group. Topic weight greater than 0.001 indicates that terms and documents are eligible to fall under the topic for negative tone and positive tone.

Results shows that the number of terms for both positive tone and negative tone are the same amount which are 355 terms where else number of documents with positive tone is more compared to negative tone. The number of document for positive tone is 7422 where else the number of documents of negative tone is 1203. The number of documents with positive tone is

72% more than negative tone indicating that majority of the feedbacks received by this hospital are positive feedbacks.

DISCUSSION

The goal of this research study is to identify factors affecting patient's perception on the hospital quality of food, waiting time, services and bill price using Text mining and Sentiment analysis. Besides that, the results from Sentiment Analysis is discussed because feedbacks with positive tone are consider the areas of strength for the hospital where else negative tone feedbacks are the areas where improvement can be made.

Quality of Food

Hospital are often taking note on the quality of food serve to patients as the food serve affects patient's recovery and satisfaction. A research conducted by Dube, et al. in 1994, discovered that quality of food is the first determinant on patient's satisfaction during their stay in the hospital. The results on "Quality of Food" shows that there are many factors that links with this topic and many areas for improvement. Based on the concept linking results, there are a few factors that plays an important role on the quality of food serve. The factors that affects the hospital quality of food includes cafeteria, taste, food serving timeliness, food temperature, food variety and portion size. The results from the concept linking identified several issues on the quality of food that The hospital may take notice. The issues on Quality of Food identified are:

1. Food Serve is tasteless and not appetizing.
2. Not enough variety of food.
3. Unhealthy food serves in the Hospital cafeteria.
4. Food serve is late and cold.
5. Portion size of the food serve is small.

Recommendation to Solve the issues on Quality of Food

First of all, as patient's food should not include too much salt as they are bad for health, hospital chef can opt to using herbs to enhance the flavour of the food which also help to increase patient's appetite. Next, the issue on not enough variety of food can be solved by introducing new dishes into the menu. For issue on unhealthy food in the hospital cafeteria can be solved by determining what are the appropriate food to serve. Foods that are oily, salty and high in fat should not be sold in the cafeteria and also not serve to patient's. By providing healthy food options in the hospital cafeteria also allows hospital staffs and visitors to make healthier food options and maintain good health. Other than that, food serve late or cold is the responsibility of the kitchen staffs and serving staff. The kitchen staffs should always estimate sufficient time to prepare the meals and serving staff should serve the meals on-time. Lastly, different patients have different preference on the food portion size. Therefore, the hospital may solve this issue by giving patients the option to choose small or large food serving size. By doing so, the hospital can also avoid food wastage as some patients are small eater and prefer smaller serving size of food.

Although there are bad reviews on the quality of food, sentiment analysis result also shows that there are still some positive feedbacks on the quality of food by some patients. Based on the positive reviews on the quality of food, it shows that patients are satisfied with the quality of food whenever food is serve on time, tasty, healthy and good. These factors contribute to patient's treatment experience with the hospital. Therefore, the hospital should be consistent

on the quality of the hospital food and take into consideration of patient's reviews on the food quality.

Waiting Time

In a hospital, it is common to hear that patients have to wait for hours from registration up to discharge as there are many stages required to be complete. Patient's satisfaction towards the hospital drops as waiting time increases. In addition, hospitals are starting to measure patient's access to healthcare treatment based on waiting time statistic (Godden and Pollock, 2009). To provide a better care for patients, the hospital should understand to what extend is patient's satisfaction on the waiting time while receiving services and the factors influencing waiting time. The results on "Waiting Time" shows that there are many factors that links with waiting time and many areas for improvement. Based on the concept linking results, there are a few factors that affects patient's satisfaction that relates with waiting time. The factors that relates with patient's waiting time includes admission process, discharge counter, and payment. The results from the concept linking identified several issues on the long waiting time that The hospital may take notice. The issues on Long Waiting Time identified are:

1. Long waiting time for Admission Process.
2. Long waiting time for Discharge Process.
3. Long waiting time for payment and Insurance

Recommendation to solve the issues on Long Waiting Time

Some of the causes of long admission process is due to no empty room or beds which leads to long waiting time for patients. The hospital can allocate patient's that are very ill (example: dizzy, elderly etc.) to a temporary room to rest while waiting for the admission process. By doing so, the impact on patient dissatisfaction towards admission process can be lessen. Other than that, if the hospital is having shortage of staff at the admission counter, it is encourage to hire more staff members to help out with the admission process. Next, patients often complaints that admission process is long but discharge process is even longer. Discharge process are normally longer due to the long procedure that need to be taken before discharge. To prevent patient's from misunderstanding the hospital having bad management, the hospital should explain to the patients the process from admission to discharge so that the patients understand why discharge process are long. Besides explaining to patients on the process on discharge, hospital should also look at each discharge process to identify areas which can be accelerate to shorten the discharge waiting time. Lastly, long waiting time at the payment counter and insurance can be shorten by opening more payment counter and hiring more staff to help out.

Sentiment analysis results also shows that most of the feedbacks by patients on waiting time are negative reviews. However, there are only a few positive feedbacks on waiting time. This indicates that, waiting time is a current issue for hospital and an area that should be improve. Therefore, hospital should look into the issues on waiting time at admission process, discharge counter and payment counter by determining the cause of long waiting time at these processes in order to reduce patient's dissatisfaction on waiting time.

Services

For this current study, one of the major category about patient's perceptions towards this hospital is the services. Services is very important to maintain the reputation of the hospital. A study shows that patient's satisfaction can give potential to a business to increase customer base and also business reputation. To succeed patient's satisfaction is vital to identify and to fulfilled customer's needs and able to satisfy customer. Any industries that rapidly understand and satisfy customer's requirements will be able to make more profit than industries who have

fail to identify and satisfy customers (Dominici & Guzzo 2010). If most of the patients complain that the hospital provides a bad service, other people would not choose the hospital as a best choice to go when they need to seek for medication. The results on the concept linking shows mostly good perception that The hospital provide to all customers. The factors that affect patient's perception includes:

1. Attentiveness of Hospital Staff
2. Great manners from hospital staff and professional doctors in the hospital

Recommendations for better services

Although concept linking shows the positive term for services, but sentiment analysis can identify the negative tone that were given by hospital customers in the feedback. For instance, certain feedbacks from customers are about the attitude of hospital staff is bad and services given by the staff is bad. To improve this, hospital staff should be given more training and meeting about how to provide great service to customers before working and serving hospital customers. This can remind all the hospital staff that services are very important to keep up the good reputation of the hospital. Since most of the feedbacks about this hospital is good, but there will also need to retain its best services to its customers. Therefore, Management can outline responsibilities and role to all hospital staff. Hospital staff are required to understand all its roles and responsibilities in terms of what kind of proper services to provide for customers. Operational standards can be developed in order to achieve the goal and objective by giving excellent services to its customers. Therefore, Management of this hospital can start developing the SMART acronym which are the specific, measureable, attainable, realistic, and timely. SMART acronym enable hospital staff to have a clear specific goal and achieved the goal measuring progress towards the achievement. It is also important to have commitment to provide better services in hospital staff behaviour. By having commitment in self-behaviour, individual will feel more responsibilities when providing services to the hospital customers.

Bill Price

The part of pricing on customer satisfaction has been ignored by all industries when it comes to business. A study done by American Customer Satisfaction Index (ACI) had proved that customer satisfaction decreased dramatically as the room rates have increased extensively over the past few years (Mattila & Neill n.d.). Customer at every different business use price as a quality sign where the expectation will drive customer satisfaction. In other words, customer that pay above high price should expect the perceived of service quality is better than normal. With great performance and acceptable range from the industry, satisfaction from customer is developed. Also, the health care insurance has been increasing the cost and needs to be addressed. Many people are not having health care insurance due to the expensive cost and those who have insurance has claim that private hospital has increase in claim of cost in medical fees (McLouglin 2013.). Financial is the second major category that this hospital needs to be concerned about. In this study, financial will be defined as "Bill Price". When it comes to the bill price, customers will be aware because customers are paying for the services, medication and facilities in this hospital. From the concept linking results, there are a few perceptions that customer think about this hospital bill price. The results on the concept linking shows mostly bad perception on bill price which provide by this hospital. Sentiment analysis for "Bill Price" was studied to identify the positive and negative term in the comment. However, there were no positive term in the comment for "Bill Price". Therefore, it need to be addressed. The issues identified on Bill Price includes:

1. Waiting time for billing process
2. Settle Insurance Matter

3. Customers pay additional for extra charge

Recommendations to solve issues on "Bill Price"

From the text mining analysis results, this hospital management can see what type of feedback with regards to bill pricing. For instance, management would like to look up to the billing process because patient's complaint about the process being very slow. Therefore, the management should encourage more staff to help out on billing process to avoid patients waiting too long. As for small amount of payment, the hospital can create 'Self payment machine' to pay small amount of bill such as paying for medicine from the pharmacy. Also, hospital management must take note on the insurance process and explain it to the hospital staff that is handling the insurance process. All hospital staff have to make sure to inform the patients about the insurance policy before any misunderstanding happens and lead to unhappiness when proceeding the bill. By solving this issue, hospital Management can consider having a specific counter that only handle insurance matters. This help to reduce miscommunication and misunderstanding about information when all counters are separated into different categories such as payment counter, insurance counter, customer service counter etc. This hospital management have to manage the bill price matter in order to decrease the negative feedback received from customers.

CONCLUSION

Overall, Text Mining is a useful tool for understanding huge amount of text documents and discovering hidden knowledge. By using text mining and sentiment analysis to understand customer's perspective towards the services provided by the hospital, one can understand their customer better and make improvement based on the areas that makes customer unhappy. Other than that, the management can understand the huge amount of text data within a short time-frame and preventing from overlooking key issues compared to manual reading customer feedbacks.

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